



Project  
funded by the  
**EUROPEAN UNION**



# **MARE NOSTRUM PROJECT: Bridging the Legal- Institutional Gap in Mediterranean Coastline Management**

## **First Interim Report:**

# **Existing Knowledge on Legal-Institutional Frameworks for Coastline Management The International, EU and National Levels**

### **Editorial Team:**

Rachelle Alterman  
Rachel Adam  
Jesse Fox  
Cygal Pellach



## MARE Nostrum Project First Interim Report

# Existing Knowledge on the legal-Institutional Frameworks for Coastline Management

## The International, EU and National Levels

**Editorial Team:** Rachelle Alterman; Rachel Adam; Jesse Fox; Cygal Pellach

**Cover Design:** Michelle Oren

**Mare Nostrum Project** ENPI CBC MSB Grant Agreement I-A/1.3/093 MARE NOSTRUM

[marenostrumproject.eu](http://marenostrumproject.eu) [info@marenostrumproject.eu](mailto:info@marenostrumproject.eu) +972-48294018 +972-54-4563384

© 2013 by the Mare Nostrum Partnership

September 2013

*Statement about the Programme: The 2007-2013 ENPI CBC Mediterranean Sea Basin (MSB) Programme is a multilateral Cross-Border Cooperation initiative funded by the European Neighbourhood and Partnership Instrument (ENPI). The Programme objective is to promote the sustainable and harmonious cooperation process at the Mediterranean Basin level by dealing with the common challenges and enhancing its endogenous potential. It finances cooperation projects as a contribution to the economic, social, environmental and cultural development of the Mediterranean region. The following 14 countries participate in the Programme: Cyprus, Egypt, France, Greece, Israel, Italy, Jordan, Lebanon, Malta, Palestinian Authority, Portugal, Spain, Syria, Tunisia. The Joint Managing Authority (JMA) is the Autonomous Region of Sardinia (Italy). Official Programme languages are Arabic, English and French.*

*Disclaimer: This publication has been produced with the financial assistance of the European Union under the ENPI CBC Mediterranean Sea Basin Programme. The contents of this document are the sole responsibility of MARE NOSTRUM Partnership and can under no circumstances be regarded as reflecting the position of the European Union or of the Programme's management structures.*

*Financing: The MARE NOSTRUM project is implemented under the ENPI CBC Mediterranean Sea Basin Programme ([www.enpicbmed.eu](http://www.enpicbmed.eu)). Its total budget is €4.3M and it is financed for the amount of €3.9M by the European Union through the European Neighbourhood and Partnership Instrument. The ENPI CBC Med Programme aims at reinforcing cooperation between the European Union and partner countries regions placed along the shores of the Mediterranean Sea."*

*General statement on the European Union: The European Union is made up of 27 Member States who have decided to gradually link together their know-how, resources and destinies. Together, during a period of enlargement of 50 years, they have built a zone of stability, democracy and sustainable development whilst maintaining cultural diversity, tolerance and individual freedoms. The European Union is committed to sharing its achievements and its values with countries and peoples beyond its borders.*

---

## Contents

1. INTRODUCTION - <i>Rachelle Alterman &amp; Rachel Adam, Technion</i> .....	1
2. EXECUTIVE SUMMARY - <i>Rachel Adam, Technion</i> .....	3
<b>PART I INTERNATIONAL ICZM INSTRUMENTS AND INITIATIVES</b> .....	<b>7</b>
3. INTERNATIONAL AND REGIONAL ICZM INSTRUMENTS AND INITIATIVES - <i>Rachel Adam &amp; Jesse Fox, Technion</i> .....	8
<b>PART II NATIONAL REPORTS (PARTNER COUNTRIES &amp; ASSOCIATES)</b> .....	<b>26</b>
4. GREECE - <i>Konstantinos Lalenis &amp; Ioannis Papatheocharis, UTH</i> .....	27
5. ISRAEL - <i>Rachel Adam, Technion; Ruth Schwartz &amp; Inbal Koren, SPNI</i> .....	44
6. ITALY - <i>Francesco Lo Piccolo</i> .....	70
7. MALTA - <i>Anna Spiteri, Dirk De Ketelaere, Suzanne Maas, Mirjana Plantan, Lucia Garcia, Maurice Said, IRMCo</i> .....	73
8. SPAIN - <i>Pablo Gorostiza &amp; Sara Ibáñez, FEPORTS</i> .....	127
9. TURKEY - <i>Fatma Ünsal</i> .....	202
<b>PART III COASTAL MANAGEMENT PROGRAMS AND STATE OF THE ENVIRONMENT</b> .....	<b>218</b>
10. INVENTORY OF EU COASTAL MANAGEMENT ORGANIZATIONS, PROGRAMS AND PROJECTS - <i>Ronnie Ginat, Technion</i> .....	219
11. THE MEDITERRANEAN COASTAL ENVIRONMENT - <i>Georgios Sylaios, Georgios Gkikas, Vassilios Tsihrintzis, Paraschos Melidis, DUTH</i> .....	242
<b>Abbreviations and Acronyms</b> .....	<b>330</b>
<b>Bibliography</b> .....	<b>337</b>
<b>Appendices</b> .....	<b>366</b>

---

# 1. INTRODUCTION

---

This first report of the ENPI CBC MSB project “Mare Nostrum: Bridging the Implementation Gap in Mediterranean Coastline Management” surveys existing instruments for implementation of good coastal zone management. The report compiles a number of country-specific legal-institutional reports, from which the project will draw in determining criteria and indicators for evaluating ICZM instruments. The national reports will also serve as the knowledge base for future stages of the project.

This report also contains information on coastal management programs, international instruments and environmental issues affecting the Mediterranean. Recognizing the key role of international law in promoting ICZM, the report reviews key international ICZM instruments, particularly the Barcelona Convention’s 2008 ICZM Protocol for the Mediterranean. This provides a foundation for the next stage of the project, which will focus on identification of the key legal, institutional and administrative impediments to implementation of ICZM instruments at the local level.

The world’s coastlines are currently under enormous and unprecedented pressure from population growth and development. Historically, civilizations have tended to cluster around coastlines and in today’s increasingly urbanized world, coastal cities are focal points for innovation, development and economic growth. This makes them more vulnerable to the effects of global climate change, which are expected to impact hundreds of millions of people living in cities over the coming decades. Those effects were dramatically illustrated by recent extreme-weather events such as Hurricane Katrina in New Orleans and the Asian tsunami of 2004.

A variety of tools for planning, managing and governing coastal areas already exists, grouped together under the term “ICZM,” or integrated coastal zone management. Yet this is still an emerging field. In many coastal areas, governing powers are dispersed among local, regional and national actors, and coordination between them is often insufficient to take on the unique challenges facing planners in these areas.

In the Mediterranean region, a diversity of legal-institutional and political regimes, cultures and languages, and socio-economic conditions prevails. Country-specific management structures for coastal management are determined by a range of considerations, including the political, cultural, economic, environmental and geographical attributes of the specific case. Despite one of the most comprehensive supra-national regulatory frameworks in the world for ICZM, local realities remain characterized by large gaps between legal and regulatory frameworks and on-the-ground implementation. The primary aim of the Mare Nostrum project is to overcome the challenges facing coastal management at the local level by addressing this “implementation gap.”

Top-down implementation of regional and international laws and policies in the Mediterranean Basin remains difficult to achieve. Yet there is a growing consensus that comprehensive and integrative management, guided by the principle of sustainable development, is crucial for effective coastal zone governance. This project aims to create tailor-made tools to help overcome impediments to successful implementation of local coastal zone management, including disparities in implementation capacity and in degrees of compliance. In line with this approach, the project's strategy is bottom-up - "from implementation to improved policymaking." Thus, Mare Nostrum aims to achieve a gradual improvement in the effectiveness of instruments for coastline management – each partner relative to its own "baseline" and indicators for measuring progress.

The project's key output will be a toolkit of policy instruments designed to help confront and overcome local obstacles to effective ICZM. The tools will be site-specific, tested in pilot projects in two Greek municipalities – Kavala and Alexandroupolis. A further output of the project will be a Public Participatory GIS (PPGIS) platform empowering stakeholders to communicate and cooperate effectively to achieve transparent ICZM. The web-based PPGIS tool will build on a platform of environmental, socio-economic and institutional data for the project's five case study sites. By promoting public involvement in coastal management, it will raise awareness of coastal issues and tap into local knowledge and support for ICZM. A model observatory is also planned for the partner city of Kavala, in order to create a shared mode of data collection and monitoring, lasting beyond the project's three-year timeframe. Lastly, a Mediterranean ICZM Action Forum will be established to promote these policy instruments throughout the Mediterranean, networking with other forums to continue beyond the duration of the project.

A wide range of stakeholders will benefit from these outputs: 1) local municipalities on the front lines of intensifying coastal development and the impacts of climate change and natural hazards 2) national and regional government agencies charged with coastal management 3) civil society and NGOs 4) coastal stakeholders, including local residents already suffering the consequences of the "implementation gap." The project's outputs aim to provide these stakeholders with new tools and methods for better governance of Mediterranean coastlines.

Looking ahead, in addition to implementation of the ICZM Mediterranean Protocol, a new, binding EU directive has been proposed which would require all coastal member states to prepare ICZM plans and maritime spatial plans for their entire coastlines. If adopted, the new directive can be expected to stimulate a coordinated region-wide push for more effective coastal and marine management, including along Europe's Mediterranean coasts. Hence, the Mare Nostrum project has emerged at a uniquely auspicious point on the timeline of international policy for effective coastal management. Mare Nostrum must take a leading role as a creator of innovative local-level tools for implementing ICZM, potentially magnifying the impact of the project beyond the Mediterranean, to the rest of Europe and other coastal areas around the globe.

## 2. EXECUTIVE SUMMARY

---

The Mare Nostrum Project focuses on bridging the policy-implementation gap for ICZM along the Mediterranean coastline. Its strategy is bottom-up - "from implementation to improved policymaking" - identifying and evaluating relevant legal-institutional instruments amongst the project partners, as well as impediments to their successful implementation. Subsequent stages of the project will center on building legal-administrative instruments to overcome these impediments, in order to achieve successful implementation of ICZM within and across national borders.

This first report compiles the work carried out by the project's partners for the first stage of the project, comprising a platform of knowledge on which to base the rest of the project. It reviews cutting-edge issues confronting the Mediterranean coastline's environments, as relevant to the Mare Nostrum partner countries, as well as their legal-institutional structures for coastal management and cross-border coastal management programs in the Mediterranean.

The country-specific legal-institutional reviews contained in this report reveal a number of broad, baseline practices in coastal management which are common to all of the project's partner countries. All use *environmental* regulations to control pollution and degradation of the coastal environment, including freshwater and marine pollution, sewage treatment and waste disposal. *Nature conservation* is another key mechanism for protecting the coastal zone, including the well-documented practice of declaring ecologically sensitive segments of the coastline legally protected areas. The third and critical mechanism is *planning* – land-use regulation addressing the construction, demolition or alteration of buildings and other structures in the coastal zone.

Mediterranean countries share common environmental challenges. The coastal environments of the project's partners are marked by rising pollution levels, overexploitation of natural resources, and loss of biodiversity - all direct results of intensive urbanization and escalating tourism. Meanwhile, the loss of agricultural land has led to degradation of ecosystems, soil erosion and the loss of fertile soils and a mounting demand for water.

Regarding the tools to confront these problems, a preliminary review of the country reports shows that Mediterranean countries share many of the same impediments to successful implementation of coastal laws and policies, despite the variations in their laws, institutions, political regimes and cultures. The main factors impeding implementation of ICZM are complex institutional structures and fragmentation of authorities. Current governance structures lack mechanisms for coordination and cooperation among the multiple institutions that deal with coastal issues. While all the partner countries (except Malta) have "coastal laws" that specifically address their coastal areas, these laws are generally not comprehensive coastal-management frameworks.

Despite repeated attempts to rein in the phenomenon, illegal building continues to be the overwhelming obstacle to effective coastal management in Spain, Greece, Turkey, Malta and Sicily, comprising the key threat to these countries' coastal areas. In these countries, attempting to solve this problem through retroactive legalization has emerged as another shared baseline practice. While the terminology used often varies (in Greece the term is "regularization;" in Sicily, these laws have become known as "condoni"), the methods, as well as the unintended consequences, bear many similarities. Key threats for Israel comprise coastal construction plans approved prior to the country's 1983 national outline plan for the coastline, along with infrastructure plans that require a coastal location.

In all partner countries (except Israel, where over 90% of the land is publicly held, including most coastal areas and the entire maritime zone) lack of information on land ownership in coastal zones has hampered effective enforcement of illegal construction and efforts to ensure public access to the coast. Moreover, while the legal systems of all the partner countries recognize coastal zones as public property, together with the public right of access, these laws are often not enforced.

Despite the international and regional efforts over the past twenty years to contain it, unsustainable development is still the norm among the partner countries. Lack of clear definitions of spatial boundaries and time-frames in coastal-zone policies and weak enforcement due to lack of resources and political will have created a vacuum which has been filled by development pressures. In all partner countries, governments have or are pursuing "fast-track" planning procedures which are designed to streamline the planning process for developers, while often impairing transparency and the public's right to be aware of and participate in the planning process.

The following impediments to ICZM implementation at the national level emerge from the legal-institutional reviews:

- illegal building
- only Spain and Malta have ratified the ICZM Protocol
- unenforced right of public access to the coastline
- weak laws and enforcement
- lack of an integrated statutory institution with authorities for planning, land and water use
- lack of information on land ownership in the coastal zone
- absence of boundary delineations
- inability to enforce the law, because of a lack of resources and/or political will
- fragmentation of responsibilities for the coastal zone
- lack of 'good governance coordination' to overcome fragmentation
- highly centralized governance which does not allow for local management and public participation (Turkey)
- lack of information, scientific data, monitoring
- unsustainable tourism
- economic and social pressures, political upheaval and instability
- corruption in local politics
- a lack of secured funding for good coastal governance (Spain)



- the absence of a timeframe for bringing the entire coastline into public ownership (Malta, Greece)
- lack of clearly defined legitimate uses in coastal zones
- strong economic interests, special interests groups with strong political clout
- the perception, on the part of politicians and the public alike that coastal areas are better used as resources for boosting economic development than as a public good and a sensitive environmental resource
- lack of public awareness regarding the ecological importance of coasts
- vague laws with wide discretion
- lack of cross-sectional cooperation

At the same time, however, a number of coastal-management projects and initiatives have been established in the Mediterranean region in recent years. These organizations are dedicated to gathering knowledge, scientific data and information, as well as promoting ICZM. Their existence reflects a broad consensus on the need for cooperation in order to achieve more effective coastal and marine governance in the region. For Mare Nostrum, these organizations create a wealth of opportunities for networking, collaboration, consultation and experience-sharing.

A number of international instruments, some of them dating back to the 1970s and 1980s, contain the tools for better implementation of ICZM in the region. These include the 1995 MAP Phase II (which replaced the original 1975 Mediterranean Action Plan), the 2008 ICZM Protocol to the Barcelona Convention (which integrates socioeconomic and environmental concerns) and a forthcoming EU directive on marine spatial planning and ICZM. The latter represents the culmination of years of policy efforts by the EU to promote good marine and coastal planning and management, and will be binding on member states when it comes into force.

In later stages of the project, Mare Nostrum will put together a number of criteria for evaluating instruments and policies for the implementation of ICZM (these are effectively the opposite of the above-mentioned impediments to implementation). The country-specific analyses contained in the report hint at some initial criteria:

- legally recognized and enforced public right-of-access to the coastal area
- strong law-enforcement mechanisms
- mechanisms to prevent illegal construction
- ratification of international agreements
- transposition of international law/treaties into national law
- an integrated and centralized ICZM authority
- institutionalized coordination
- national ICZM strategy plans
- clearly defined and legally protected beach setbacks
- effective NGOs and civil groups
- effective public participation
- well-informed politicians
- an educated public
- full information
- a strong scientific basis for policy and decision-making
- right to legal recourse;



- good sewage treatment
- strong financial tools

Naturally, the multi-national information presented in this report calls for detailed comparative analysis. This executive summary represents the results of an initial analysis. A more detailed comparative analysis of the information collected in this report will be contained in Mare Nostrum's next report. That report, which will be issued at the conclusion of the next stage of the project, will also contain more detailed legal-institutional analysis of impediments to ICZM at the local level, along with case studies, interviews with local stakeholders and other findings that will serve as our initial benchmarks for evaluation of ICZM governance at the local level in later stages of the project.

# **PART I**

## **INTERNATIONAL ICZM INSTRUMENTS AND INITIATIVES**

### 3. INTERNATIONAL AND REGIONAL ICZM INSTRUMENTS AND INITIATIVES

---

This review comprises an inventory of the key international and regional instruments and initiatives concerning ICZM in the Mediterranean. It traces the path of the ICZM concept throughout the last four decades, to its current lead role on the international agenda and recent incorporation in binding international and regional legal instruments (the Barcelona Convention's ICZM Protocol and the EU Directive for spatial planning and integrated coastal management).

Seeking the origins of the ICZM concept it is appropriate to start with the 1972 **UN Conference on the Human Environment** (the UNCHE or, the Stockholm Conference), the first environmental mega-conference which launched the modern international environmental movement. Principle 7 to the Stockholm Conference's Declaration proclaims that:

*States shall take all possible steps to prevent pollution of the seas by substances that are liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea.*

Whereas Principle 13 declares that:

*In order to achieve a more rational management of resources and thus to improve the environment, States should adopt an integrated and coordinated approach to their development planning ... to protect and improve environment for the benefit of their population.*

Beyond these principles of the UNCHE Declaration, its Action Plan (Recommendation 86, paras (c) and (e)) recommended that "Governments...work towards the completion of....an over-all instrument for the control of ocean dumping" and:

*participate... in the 1973....Conference on Marine Pollution and the Conference on the Law of the Sea scheduled to begin in 1973....with a view to bringing all significant sources of pollution within the marine environment...under appropriate controls.*

But while the Stockholm Conference both addressed marine pollution and recognized that effective environmental protection requires an integrated approach, it remained silent on integrated coastal management. International concern over the marine environment during these years was spurred by disastrous oil spills harrowingly depicted by the *Torrey Canyon* incident off the coast of Cornwall in 1967 and the Santa Barbara oil spill in 1969, and the world was still pursuing a sectoral and narrow approach to protecting the coastal and marine environment. But several months following the Stockholm Conference the United States undertook a pioneering role in the development of coastal law by enacting the 1972 US Coastal Zone Management Act. This precedential law which established the Coastal

Management Programs, called on states together with the federal government to adopt an integrative approach in managing the country's coastal areas, balancing demands and resolving conflicts over use of the coastal areas.

Escalating concern over the destructive impact of population growth and intensive development on coastal areas, that had spurred the US into enacting the Coastal Zone Management Act, soon reached Europe as well. The **Council of Europe Resolution of 26 October 1973** on the protection of coastal areas defined the principles of coastal management and in particular beach setbacks and open public access to and along the beach. Addressing the critical conditions of Europe's coasts, the Resolution explained that:

*protection of the coast can only be effective if multiple interests and problems are taken simultaneously into account...the present dispersal of responsibilities in regard to coastal belts among numerous public authorities without any co-ordination between them... is...an obstacle to... action to protect the coasts;....*

In response to the "dispersal of responsibilities" the resolution recommended that governments adopt policies for coastal protection which should include

*development bans...along the seafront; - subjecting the granting of development permits to particularly stringent conditions; proclaim[ing] the principle of free public access to the coast and give effect to this principle...by establishing the necessary rights-of-way through private property situated on the seafront;- by purchasing, if need be, the land required to give free access to the beach;*

Relating to the period 1973-1991, Deboudt *et al* observe that in contrast to the US which by 1972 had already adopted a law for integrated coastal management, European countries remained entrenched in a sectoral approach to coastal management (Deboudt et al, 2007). Nevertheless and as demonstrated by the Resolution adopted by the Council of Europe, by the early 1970s the need for an integrated approach to managing coastlines was gaining ground, the underlying principles were already in place, and the fragmentation of legal authorities amongst a multiple number of institutions was recognized as a major obstacle in achieving successful coastal management.

A further milestone in the evolution of ICZM policy was the 1976 **Recommendation of the Organization for Economic Co-operation and Development (OECD) on Principles concerning Coastal Management**. The principles that the recommendation promoted included public access to the coasts and prevention of development likely to adversely impact the environment. The Recommendation further proposed that

*Coastal development projects should not jeopardise coastal ecosystems...."and "[e]fforts should be made to manage industrial and urban wastes by requiring pre-treatment and/or prohibiting and/or restricting discharges into the sea. Sewage treatment and disposal policies should be strengthened by various means such as recycling and making beneficial uses of effluent and sewage sludge."*

Deboudt *et al* note that following these two decisions the European Commission undertook to conduct an in-depth analysis of coastal management, resulting in the 1978 publication ***Integrated Littoral Development in the European Community*** which called for an integrated coastal zone plan. In 1982 the European Parliament approved the ***European Coastal Charter*** that incorporated principles of integrated coastal zone planning policy. But only in the 1990s did the European Union actually decide to implement these principles, publishing in 2000 a European ICZM Strategy (Deboudt et al, 2007).

### **3.1. The Mediterranean Action Plan and the Barcelona Convention for the Protection of the Mediterranean Sea against Pollution, 1975, 1976**

Parallel to these developments in the US and Europe during the early 1970s and along the background of mounting environmental awareness triggered by the Stockholm Conference, the international community was rapidly creating international institutions for marine and coastal management. The fledgling United Nations Environmental Programme (UNEP), established in 1973 by a decision of the 1972 UNCHE, launched as its first project the Regional Seas Programme. The Mediterranean Sea was targeted for the first regional seas organization and in 1975 the Mediterranean Action Plan (MAP) was launched.

To create an operative tool for implementing MAP, in 1976 the Mediterranean countries adopted the **Barcelona Convention for the Protection of the Mediterranean Sea Against Pollution (the 1976 Barcelona Convention)**. The convention committed its contracting parties to protecting the Mediterranean from a range of threats including pollution caused by dumping from ships and aircrafts (Art.5), oil spills and pollution from other harmful substances discharged from ships (art. 6), exploration and exploitation of the continental shelf and the seabed and its subsoil (Art. 7), and “pollution from land-based sources” referring to “discharges from rivers, coastal establishments or outfalls, or emanating from other land-based sources within their territories.” (Art.8). The Barcelona Convention was adopted together with the dumping protocol (from ships and aircraft) and the Prevention and Emergency Protocol (oil pollution from ships and emergency situations). The Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources, adopted in 1980, was an early step in interfacing between the coasts and the sea by means of a binding international instrument.

### **3.2. UN Conference on the Law of the Sea (UNCLOS), 1982**

The United Nations Convention on the Law of the Sea (UNCLOS) comprises a comprehensive international convention for the global marine environment. The convention defines the rights and duties of states in their use of the oceans, and regulates these uses inclusive of exploration and extraction of oceanic resources. In an early reference to an integrated approach to marine and coastal ecosystems, UNCLOS proclaims in its preamble that issues relating to the use of ocean space “are closely interrelated and need to be considered as a whole.” Pursuing this theme, the proposed 2013 EU Directive (discussed below) “establishing a framework for maritime spatial planning and integrated coastal management” notes in its preamble that “Planning of ocean space is the logical

advancement and structuring of the use of rights granted under UNCLOS and a practical tool in assisting Member States to comply with their obligations.”

UNCLOS addresses the entire oceanic resource and the activities threatening it, inclusive of land-based pollution. Art. 207 entitled “Pollution from land-based sources” (in Part XII, “Protection and Preservation of the Marine Environment”) requires countries to “adopt laws and regulations to prevent, reduce and control pollution of the marine environment from land-based sources.” The adoption of UNCLOS and the obligations it imposes on parties regarding land-based pollution, was a further step towards broad international consensus on the need to tackle coastal-based sources of pollution.

### 3.3. ICZM projects

Rochette and Bille note that the mid 1980s were marked by numerous ICZM projects operated by regional and international organizations. UNEP and the European Union took the lead, together with the World Bank (METAP) GEF, and bilateral development cooperation agencies in European countries (Rochette, Bille, 2012, at 978.). Prior to the ICZM Protocol and starting from 1990 in the Mediterranean, CAMPs - “coastal area management programmes” - were coordinated by UNEP MAP’s PAP/RAC in various locations throughout the Mediterranean. With the entry into force of the ICZM Protocol, CAMPs today are regarded as implementation tools for the Protocol at a local level (PAP/RAC, [http://www.pap-thecoastcentre.org/about.php?blob\\_id=2](http://www.pap-thecoastcentre.org/about.php?blob_id=2)). ICZM projects were also sponsored by the Euro-Mediterranean Partnership framework (short and medium-term Priority environmental action programme). These projects successfully promoted international integrated coastal management and prepared the ground for the early 1990s when ICZM would become a pertinent issue on the agenda of the approaching 1992 Rio Earth Summit.

### 3.4. The UN Conference on Environment and Development (UNCED), Rio Earth Summit, 1992

The event that directly launched ICZM onto the international agenda was the 1992 Rio Earth Summit. Its outstanding output was **Agenda 21**, a global action plan for implementing sustainable development. **Chapter 17** of Agenda 21 entitled “Protection of the Oceans, All kinds of Seas, Including Enclosed and Semi-enclosed Seas and Coastal Areas and the Protection, Rational Use and Development of their Living Resources”, introduced what it heralded as “new approaches to marine and coastal area management and development... that are integrated in content and are precautionary and anticipatory in ambit... .” Countries were called upon to “commit themselves to integrated management and sustainable development of coastal areas and the marine environment under their national jurisdiction.” Chapter 17 sets out in detail a global vision of integrated coastal management, articulating the objectives to be achieved, activities to undertake, the data and information required, and the need for international and regional cooperation.

### 3.5. UN Framework Convention on Climate Change, 1992

Adopted at the UNCED and displaying the critical role of ICZM as a tool for confronting the impact of climate change on coastal areas, the UN Framework Convention on Climate Change commits its parties to “cooperate in preparing for adaptation to the impacts of climate change” and “develop and elaborate appropriate and integrated plans for coastal zone management.”

### 3.6. Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA), 1995

The Rio Earth Summit brought in its wake a major ICZM initiative: the Global Programme for Action was launched in Washington, DC in 1995, at an intergovernmental conference at which countries committed to protecting the marine environment from the impacts of land-based activities. The GPA includes an action plan for pollution control as well as for habitat destruction and other land-based activities liable to harm coastal and marine ecosystems. While a non-binding instrument, it comprises a framework for addressing the causes and threats to marine ecosystems. UNEP acts as the GPA Secretariat and GPA is implemented through UNEP's Regional Seas programmes. The GPA continues to play an active role within the numerous regional seas programs, focusing on land-based activities in these regions.

### 3.7. The Nairobi Protocol

While the Mediterranean countries were already implementing their regional sea convention and protocols, the countries of the Western Indian Ocean were drafting and negotiating regional tools of their own. **The Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Western Indian Ocean** was signed in 1985 and came into force in 1996. As with all regional conventions, the convention is meant to provide a mechanism for regional cooperation and coordinated actions in addressing interlinked problems of the coastal and marine environment. The Contracting Parties to the Nairobi Convention are Comoros, France, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, Somalia, Tanzania and the Republic of South Africa.

Inspired by the Barcelona Convention's ICZM protocol, in 2010 a feasibility study for a ICZM protocol under the WIO Convention was prepared, drawing on lessons from the Mediterranean experience (Prem, 2010, 259). The initiative to draft the protocol emerged from the realization that achieving good coastal management of the region's coastlines requires tackling obstacles to successful implementation, a task facilitated by an international convention. It was presented to the 2010 Meeting of the Parties of the convention (MOP), which consequently adopted a decision to proceed with an ICZM protocol for the West Indian Ocean region.

Rochette and Bille point out that the WIO states agreed to promote an ICZM protocol to unify not only the national laws of the countries but their institutional structures as well. They observe that the countries of the region lack the political and institutional tools as well as a



strong organizational structure, basic requirements for effectively implementing ICZM. "The still limited use of environmental assessments; the lack [of]... land planning documents...insufficient regulation of coastal activities.... the weakness of institutional coordination mechanisms are serious obstacles to integrated coastal management in the region." Consensus held that a legally binding regional protocol would forge not only "national legal but also institutional systems." (Rochette, Bille, 2012, 979-980) Thus the Nairobi Protocol currently under preparation focuses on both political instruments – an ICZM strategy - as well as institutional instruments such as ICZM committees, public participation processes, and land planning, to overcome lack of capacity and flaws in national administration in the countries involved. Rochette and Bille emphasize the critical significance of an international convention for promoting ICZM at a national scale, "providing each country ...with an organisational base.. [for] implementation of ICZM..." while also focusing on "issues considered to be of particular importance for the region, first of which is adaptation to climate change." Such provisions are "considered by WIO States as the most appropriate to fill in the existing gaps in national legislations and strengthen legal and institutional frameworks." They also note the contribution of an international convention in attracting international donors, by focusing regional initiatives on a single institution thus preventing fragmentation of resources (Rochette, Bille, 2012, at 980). Together with Prem, they share a strong conviction as to the contribution of legally binding international agreements to integrated coastal management including: implementing good coastal governance at the national level; creating public awareness and concern; transposing ICZM principles and objectives into national legislation; mobilizing efforts for ICZM around a specific project and hence preventing fragmentation of resources.

Yet concerning the Mediterranean region, as of May 2013 only nine countries have ratified the Mediterranean ICZM Protocol, questioning their commitment to effective coastal management and casting doubts on the power of the Protocol to change the behavior of states.

### **3.8. MAP Phase II, 1995**

Reviewing the development of ICZM concept from a historical perspective, international concern over the global marine environment was triggered during the 1960s by oil spills and other incidents of marine pollution by harmful substances from ships and tankers. By the 1970s and 1980s it had expanded to marine pollution from land based substances as well as to marine and coastal biodiversity conservation and the establishment of protected areas (Rochette, Bille, 2012, 978). With the 1992 Rio Earth Summit and its promotion of sustainable development that added socio-economic elements to environmental concerns, this principle became the overriding theme in environmental policy. Providing another layer to expanding ICZM policy, chapter 17 to Agenda 21 recognized the interface between the marine environment and the coastal environment and called for an integrative approach for governing the coasts. Entrenching the policy further, in the trail of the epic Earth Summit and the official launch of sustainable development as the overriding environmental doctrine, in 1995 the Mediterranean states replaced the 1975 Mediterranean Action Plan with the **"Action Plan for the Protection of the Marine Environment and the Sustainable**

**Development of the Coastal Areas of the Mediterranean (MAP Phase II).**” (Decision IG 20/2, Adoption of the Action Plan for the implementation of the ICZM Protocol for the Mediterranean (2012-2019), at 11). Together with the updated Action Plan the contracting parties amended the Barcelona Convention and its protocols so as to incorporate principles of sustainable development. In its introduction, the Action Plan explains that

Although the initial focus of the MAP was on marine pollution control, experience soon confirmed that socio-economic trends... are the root of most environmental problems, and that meaningful and lasting environmental protection is inseparably linked to social and economic development. Therefore the focus of MAP gradually shifted from a sectoral approach to pollution control to integrated coastal zone planning and management as the key tool....”

Among other factors, the Action Plan associates the lack of protection “of the Mediterranean marine environment and its coastal region” with “the lack of adequate coastal zone planning and management”. Paragraph 1.4 refers to “integrated coastal area management” and sets out principles for its implementation and its objectives including “preservation of biological diversity of coastal ecosystems”, “coastal planning to resolve the competition between urbanization, industrialization, tourism, transport, agriculture and aquaculture, and the preservation of ecosystems for future generations”, and “control of human pressure and use of coastal resources.” The 2008 ICZM Protocol is a result of this evolution of the MAP institutional structures, from a sectoral approach to an approach embracing the cross-cutting principles of sustainable development and integrated coastal management (Rochette, Bille, 2012, 978).

This broad and diverse range of international and regional plans, programs, strategies and conventions discussed above constitute ‘soft law’ (Prem, 2009, 258), non-binding instruments that serve as policy papers and guidelines for best practice, rather than binding legal documents. Yet with the growing awareness of the obstacles to effective implementation, stakeholders were beginning to recognize the need for a binding instrument specifically for integrated coastal management (Prem, 2010, 257-258). The Mediterranean countries within the framework of MAP were the first to take up the challenge.

### **3.9. Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean, 1995**

To create an operating system for MAP II, the Contracting Parties adopted an **amended** version of the 1976 Barcelona Convention which they appropriately renamed the **Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean**. The updated convention that entered into force in 2004, determined that its geographical coverage “may be extended to coastal areas as defined by each Contracting Party within its own territory.” (Art.1). Under “General Obligations” in Art.3 (e), Contracting Parties are required “to promote the integrated management of the coastal zones...”. With the emphasis on sustainable development, in 1996 the Contracting Parties to the Barcelona Convention established the Mediterranean Commission on Sustainable Development (MCSD). By 1999 the MCSD had adopted a “Recommendation for ICZM in the

Mediterranean.” The Barcelona Convention already had six sectoral protocols that by imposing detailed legal obligations on countries, operate to implement the convention’s objectives and principles: the Dumping Protocol (from ships and aircraft), the Prevention and Emergency Protocol (pollution from ships and emergency situations), Land-based Sources and Activities Protocol, Specially Protected Areas and Biological Diversity Protocol, Offshore Protocol (pollution from exploration and exploitation), and the Hazardous Wastes Protocol. The convention’s seventh protocol would be the **Protocol on Integrated Coastal Zone Management (ICZM)**.

### 3.10. The ICZM Protocol, 2008

Since the amended 1995 Barcelona Convention specifically required countries to promote integrated coastal management, the next step was to draft a protocol to implement this general obligation by detailed provisions. The 12<sup>th</sup> Meeting of the Parties (MOP) held in Monaco in 2001 recommended “a feasibility study of a regional legal instrument on sustainable coastal area management”, the conclusions of which demonstrated a need for a binding legal instrument (Prem, 2010, 258). On the basis of this study the 2003 MOP in Catania called for the preparation of a draft protocol and charged PAP/RAC with the task. The first draft of the protocol was presented to the 14<sup>th</sup> MOP in 2005 in Portoroz, Slovenia, which decided to establish a working group of experts to further develop a draft text, launching a series of consultations and meetings. Five rounds of negotiations were held during 2006 and 2007 and the final text of the protocol was adopted in Madrid in 2008 (Prem, 2010, 258), (Rochette, Bille, 2012, 979).

*Expanding the traditional focus of coastal management beyond environmental concerns, the 2008 ICZM Protocol integrates socioeconomic considerations with environmental and ecological ones. Part I of the ICZM Protocol entitled “General Provisions”, declares that the parties to the Barcelona Convention shall establish “a common framework for the integrated management of the Mediterranean coastal zone” (Art. 1). “Integrated coastal zone management” is defined as “a dynamic process for the sustainable management and use of coastal zones, taking into account at the same time the fragility of coastal ecosystems and landscapes, the diversity of activities and uses, their interactions, the maritime orientation of certain activities and uses and their impact on both the marine and land parts.” (Art.2)*

Art. 5 to the Protocol lists six objectives of ICZM, both procedural and substantive: facilitate the sustainable development of coastal zones; preserve coastal zones; ensure the sustainable use of natural resources; ensure preservation of the integrity of coastal ecosystems; prevent or reduce the effects of natural hazards and climate change in particular; and, “achieve coherence between public and private initiatives and between all decisions by the public authorities...”.

Art. 6 elaborates on a list of ten principles of ICZM to guide countries in implementing the Protocol: the marine and coastal environments as one unit - the biodiversity and natural wealth of the intertidal area, the interdependent of the marine part and the land part, form a “single entity”; the concept of ‘carrying capacity’ – “...not to exceed the carrying capacity of

the coastal zone so as to prevent the negative effects of natural disasters and development; use of the ecosystems approach to coastal planning and management; “appropriate governance allowing ... a transparent decision-making process by local populations and stakeholders in civil society concerned with coastal zones...”; “Cross-sectorally organized institutional coordination...competent in coastal zones...”; “formulation of land use strategies, plans and programmes covering urban development and socio-economic activities” and “other relevant sectoral policies”; consideration of all activities taking place in coastal zones, prioritizing “public services and activities requiring.... the immediate proximity of the sea.”; balanced allocation of uses throughout the coastal zone, avoiding urban sprawl; risk assessments of activities and infrastructures to avoid their negative impact on coastal zones; preventing damage to the coastal environment, and where required, restoration of the damaged environment.

Art. 7 addresses “Coordination”. Parties are required to “ensure institutional coordination...to avoid sectoral approaches and facilitate comprehensive approaches”; coordinate between authorities responsible for both marine and coastal environments, as well as vertical coordination regarding “coastal strategies, plans and programmes” and regulation of activities “through joint consultative bodies or joint decision-making procedures.”

Part II to the Protocol is entitled “Elements of integrated coastal zone management.” Art.8.2 (a) requires the Parties to the Protocol to establish beach setbacks “from the highest winter waterline, a zone where construction is not allowed....this zone may not be less than 100 meters in width...” Yet the strict restriction can be relaxed “for projects of public interest” or “in areas having...constraints.... especially related to population density or social needs, where housing, urbanization or development are provided for by national legal instruments.” Art. 8.3. commits countries to include in their national legislation “criteria for sustainable use of the coastal zone” as follows: identifying open areas in which development is prohibited or restricted; “limiting the linear extension of urban development and .... new transport infrastructure along the coast;” incorporating environmental concerns “into the rules for the management and use of the public maritime domain; guarantee of “freedom of access by the public to the sea and along the shore”; prohibiting “land vehicles” or “marine vessels” on beaches and dunes. Prem notes that the requirement for a 100 m coastal setback zone in which no construction will be permitted was one of the most difficult provisions of the protocol to negotiate (Prem, 2010, at 62).

Article 9 refers to “Economic Activities”. Parties shall “accord specific attention to economic activities that require immediate proximity to the sea”; “ensure that ...economic activities minimize the use of natural resources”; require sustainable use of water resources; protect coastal zones from pollution, using indicators to ensure sustainable use of coastal zones and promoting “codes of good practice”. To protect ecosystems and prevent pollution, the Protocol calls for regulation of agriculture and industry, fishing, aquaculture, tourism, sporting and recreation activities, exploitation of natural resources including excavation and extraction of minerals and sand as well, “infrastructure, energy facilities , ports and maritime works and structures”, and, maritime activities.

Art. 10 requires the Parties to protect coastal ecosystems including wetlands and estuaries, marine habitats, coastal forests and woods, and dunes. Articles 11, 12 and 13 refer respectively to coastal landscapes, islands including small islands, and cultural heritage. Article 14, entitled “Participation” aims for “efficient governance throughout the process of the integrated management of coastal zones”, by ensuring the participation of stakeholders in drafting and implementing “coastal and marine strategies, plans and programmes or projects, as well as the issuing of the various authorizations...”

Part III of the Protocol refers to “Instruments for integrated coastal zone management”. Article 16 requires the parties to use “appropriate mechanism for monitoring and observation... prepare and regularly update national inventories of coastal zones...”. Parties are also required “to ensure public access to the information derived from monitoring and observation...” Art. 17 calls on the Parties to cooperate to promote sustainable development and integrated management of coastal zones “taking into account the Mediterranean Strategy for Sustainable Development”. Art. 18 obligates the Parties to prepare and implement national strategies for integrated coastal zone management, and Art. 19 requires that environmental impact assessments for coastal zone projects take into account “the inter-relationships between the marine and terrestrial parts of the coastal zone.” Art. 20 entitled “Land policy” calls on Parties to “adopt appropriate land policy instruments and measures, including the process of planning.” Recognizing that successful ICZM implementation requires significant financial resources, Art. 21 encourage the use of “economic, financial and fiscal instruments”.

Part IV of the Protocol addresses “Risks affecting the Coastal Zone”, calling on Parties to take measures to prevent and mitigate natural hazards and climate change in particular, as well as coastal erosion. Article 24, entitled “Response to natural disasters”, requires the Parties to promote international cooperation as a response to natural disasters and to coordinate amongst themselves “for detection, warning and communication... to ensure the transmission as rapidly as possible of urgent information concerning major natural disasters.”

### **3.11. Status of ratification of the ICZM Protocol**

The ICZM protocol came into force in 2012 but as of May 2013 only nine out of the 21 member states of the Barcelona Convention have ratified it. The fact that less than half has ratified signals gaps in implementation of integrated coastal management at all scales, pointing to the lack of political will required to commit internationally to implement the Protocol and to balance between demands for coastal land use. Ratification can also be constrained by heavy government bureaucracy and procedures required for joining international conventions. A major obstacle is the obligation of each country to adapt their national legislation to the Protocol’s provisions, to ensure its implementation and the cross-sectoral integration and coordination required for ICZM. Moreover, as pointed out by Prem, achieving Parliamentary approval for legislation incorporating the protocol’s provisions could be problematic:

*[u]nderstanding of some of the Protocol provisions in the parliaments where the... MPs will have to adopt the ratification laws could create discomfort ... such as the setback zone where no construction is permitted... Politically sensitive requirements from the Protocol, such as the need for some major changes in the governance... could cause additional postponement..." (Prem, 2010, 259-260).*

Prem also notes "jealously protected vested development interests" as a further obstacle to ratifying the Protocol. Furthermore, since coastal management requires significant financial resources, the Protocol mandates the use of economic mechanisms to create the necessary funding including taxes, and fees, another sticking point in promoting ratification.

In this context mention must be made of the Barcelona Convention's Compliance Committee, forged by the convention's MOP to address lack of implementation of the convention and its protocols by the contracting parties. While more a facilitative instrument than an enforcement tool, crafted to assist countries in fulfilling their obligations under the convention, governments tend to be wary of international bodies associated with compliance. Thus awareness that ratification of the ICZM Protocol theoretically exposes countries to the scrutiny of the convention's Compliance Committee might be a further constraint in its ratification.

Since it came into force only in 2011 and so far only nine countries have ratified it, assessing the Protocol's effectiveness is premature. Yet perhaps as with other protocols under the Barcelona Convention in relation to the specific area of each, its key contribution will be the promotion of national legislation for integrated coastal management. Rochette and Bille argue that regional ICZM conventions "fill the gaps in national legal frameworks" by unifying countries' coastal zone legislation. "The need to make up for legal shortcomings and gaps [in] sustainable management of coastal areas contributed.... toward .... a protocol [on] ICZM." Rochette and Bille further argue that "it is unquestionable that the Protocol now in force does provide for the strengthening of the national coastal legal systems." (Rochette and Bille, 2012, at 979); Thus

*[f]or filling in the gaps and strengthening existing frameworks, an ICZM Protocol can hence be a strategic lever to address coastal issues... A major added value of an ICZM Protocol is therefore to anchor ICZM principles and instruments into national legal frameworks.*

Rochette and Bille also point out that a legally binding ICZM instrument can comprise "a powerful advocacy tool" for "domestic stakeholders pushing for ICZM implementation".

Another benefit that can come from an ICZM Protocol is the boosting of the regional framework itself. Indeed, such Protocols are powerful methodological instruments which can drive regional initiatives, therefore avoiding dispersion of efforts.... In the Mediterranean for example, CAMPs are now fully oriented towards the implementation of the Protocol's provisions. In the same manner, coastal projects launched by the GEF Strategic Partnership for the Mediterranean Large Marine Ecosystem are grounded on this regional instrument. An ICZM Protocol can therefore orient coastal management initiatives and help rationalise the



way funding is channeled. That is one of the reasons why WIO States launched the process towards this instrument. They indeed expect a Protocol to motivate international donors to get more involved in ICZM issues, to avoid the dispersion of projects while mobilising resources for Protocol implementation.

From all the reasons listed above, ratifying the ICZM Protocol is of significant importance, and not only because of the need to cooperate with other countries for regional coastal management. The ICZM Protocol assumes vast importance as an implementation tool for each country on a national scale. Yet the slowness in each country's ratification comprises an impediment to implementation. Concerned over the slow pace of ratification, the 17<sup>th</sup> MOP of the Barcelona Convention adopted an "Action Plan for the Implementation of the ICZM Protocol for the Mediterranean 2012-2019." In its preamble the Action Plan notes "the importance of having the ICZM Protocol ratified by all Contracting Parties..." and "[u]rges all the Contracting Parties who have not yet done so, to ratify the ICZM Protocol as early as possible....." Section V to the Action Plan is entitled "Main Issues Related to the Implementation of the ICZM Protocol." While it is noted that "ICZM remains the key tool for delivering the wide range of sectoral and institutional policies in the coastal zone, and the ICZM Protocol for the Mediterranean represents a major achievement....", the Action Plan emphasizes the obstacles to the Protocol's implementation. Among the key issues constraining the full and effective implementation of the Protocol, the Action Plan singles out that "ICZM needs a strategic context to avoid piecemeal and potentially wasteful activity and to make a substantive impact"; "the practice of ICZM is still largely seen as an environmental activity, and is yet to fully engage those institutions and actors responsible for the social and economic pillars of sustainability"; "the planning and management of the marine and terrestrial areas of the coast remain rigidly divided between policies, administrations and institutions. More specifically, spatial planning for both the terrestrial and marine zones, a major tool for ICZM, needs strengthening and better implementation."; "future risks and uncertainties, notably climate change and natural disasters such as floods, earthquakes and tsunami, need to be fully integrated into the ICZM process."; and, "ICZM's role as the key tool for the implementation of the ecosystem approach in the coastal area is not yet recognised." (ICZM Protocol Action Plan, pp. 14-15).

### **3.12. Review of European Union ICZM instruments**

International ICZM initiatives and instruments pertaining to the Mediterranean region overlap with those of Europe. Europe has 70,000 km of coastline along two oceans and four seas, while maritime regions account for some 40% of EU's population and GDP. The EU estimates that over 200 million of some 500 million citizens live near coastlines, in areas where intensive land and sea uses such as housing, tourism, transport, shipping, industry, energy, fishing and aquaculture, makes planning a complex and difficult task. The task is made all the more challenging by the need to preserve coastal environments and ecosystems and plan for resilience in the face of climate change and extreme weather events. Thus, since the early 1970s, Europe has gradually shifted to long-term planning and management of its coasts, coordinating across regions and national borders, launched by



the 1973 Council of Europe resolution for the protection of coastal areas that emphasized the need for coordination.

A trail of key milestones marks the EU's path to ICZM, culminating in the March 2013 proposal for the framework directive for maritime spatial planning and integrated coastal management. Two Council Resolutions from 1992 and 1994 addressed ICZM policies and strategies: **“Council Resolutions of 25 February 1992 on the future Community policy concerning the European coastal zone, and, “Council Resolution of 6 May 1994 on a Community strategy for integrated coastal zone management.”** Consequent to these resolutions an ICZM strategy was drawn up in 2000 (Communication from the Commission to the Council and the European Parliament on Integrated Coastal Zone Management: A Strategy for Europe, Commission of the European Communities, Brussels, 27 October 2000). The landmark “ICZM recommendation” from 2002 (**Recommendation of the European Parliament and of the Council of 30 May 2002 concerning the implementation of Integrated Coastal Zone Management in Europe**), called on EU states to develop strategic plans for ICZM based on eight core principles: a comprehensive approach that integrates natural and human activities; a cross-generational perspective based on the precautionary principle; adaptive management based on scientific knowledge; respect for local diversity; respect for natural processes and carrying capacity of ecosystems; inclusion of diverse stakeholders; integration between national, regional and local administrative bodies; use of a combination of tools to facilitate coherence between objectives and planning and management.

The recommendation further called on Member states to conduct an “overall stocktaking to analyze which major actors, laws and institutions influence the management of their coastal zone,” including economic sectors, citizens, NGOs and civil society generally. Based on the results of the stocktaking, states were urged to formulate national ICZM strategies by 2006, and coordinate across borders “to facilitate progress toward a common approach to integrated coastal zone management.” The 2002 recommendation also urged states to report to the Commission on its implementation 45 months after its adoption. The report was to include the results of the stocktaking exercise, national strategies, summary of actions undertaken to implement the strategies, and evaluations of the expected impact of the strategies on the coastal zone. The European Commission was called upon to review the recommendation and present an evaluation report to the European Council and Parliament, which it did in June 2007.

Pursuing further action, in December 2007 the EC adopted an integrated marine policy, **“An Integrated Maritime Policy for the European Union, EU Communication, 2007”**. In this document, the European Commission proposed an integrated maritime policy to increase cooperation and more effective coordination of all marine-related policies at various decision-making levels. The document argued that Europe was at a “crossroads” in its relationship with the oceans, with increasing human maritime activities leading to increasing conflicts of use and deterioration of marine environment. To address this situation, the Commission proposed a policy which would de-compartmentalize decision-making to achieve greater cooperation, and to mitigate conflicts between users and identify potential synergies. It proposed a new integrated framework for policy-making on maritime transport,

research, spatial planning, carbon emissions and climate-change preparedness, fishing and other topics – and outlined measures to achieve this goal. The 2007 policy led to the 2008 **“Marine Strategy Framework Directive”** (Directive 2008/56/EC, the legally binding framework directive for Europe’s marine environment).

### 3.13. EU directive on marine spatial planning and ICZM (March 2013)

The most recent achievement along this timeline of ongoing activities is the EU directive on marine spatial planning and ICZM. In March 2013, the European Commission approved a draft proposal for a **“framework directive on marine spatial planning and integrated coastal zone management”**. The preamble to the directive points out that it is part of a broader effort by the EU to become a “smart, sustainable and inclusive economy by 2020” and part of an “ambition to develop Europe’s Blue Economy.” In an impact assessment accompanying the proposed directive,<sup>1</sup> the authors write that the legislation is part of a broader move away from a “sectoral approach” toward a more integrated and comprehensive decision-making process in governance of coasts, seas and oceans. The directive is framed in the context of Europe’s ongoing financial crisis, as an attempt to unlock potential economic growth by increasing resource efficiency and solving issues of competition for space and environmental threats through better coordination and more effective management of human activities in coastal zones and marine regions.

Six key problems were identified in this context, which the directive aims to solve: 1) Increased demand for limited space by various activities (shipping, tourism, wind energy, etc.), leading to increased conflict between sea uses; 2) Lack of cross-sector coordination in granting sea space to various uses has led to inefficient use of space, and thus higher costs; 3) The increasing footprint of built-up areas and human impacts on coastal areas, which gaps in EU legislation make difficult to manage sustainably; 4) uncertainty and unpredictability of use-planning processes has created a suboptimal climate for investors. 5) No coherent framework for integrating mitigation and adaptation to climate change into overall coastal planning currently exists, while most EU states do not have coastal climate change adaptation plans or strategies; 6) Increasing environmental degradation and resource depletion together with lack of coordination across sectors and borders, hampers implementation of existing legislation.

The directive proposes to address these problems using two distinct but related tools: *maritime spatial plans* and *integrated coastal management strategies* (referred to below as MSPs and ICZMs, respectively).

Maritime spatial planning is defined in the directive’s preamble as: “A public process for analyzing and planning the spatial and temporal distribution of human activities in sea areas to achieve economic, environmental and social objectives.”

---

<sup>1</sup> Executive summary of the Impact Assessment, Proposal for a Directive of the European Parliament and of the Council Establishing a Framework for Maritime Spatial Planning and Integrated Coastal Management, 12 March 2013, [http://ec.europa.eu/environment/iczm/pdf/ia\\_en.pdf](http://ec.europa.eu/environment/iczm/pdf/ia_en.pdf).

Integrated coastal management is defined as: “A tool for the integrated management of all policy processes affecting the coastal zone, addressing land-sea interactions of coastal activities in a coordinated way with a view to ensuring the sustainable development of coastal and marine areas.”

As both relate to land-sea interface planning and management, and both encourage an integrated approach, it was decided to combine them in a single legislative initiative, in the hope that they would complement one another and synergies would be created. The MSP/ICZM should “cover the full cycle of problem identification, information collection, planning, decision-making, implementation and monitor of implementation.” Measures should include steps such as prevention of erosion, adapting to climate change, combating litter, developing green infrastructure and helping prevent natural disasters.

While the directive is binding, each member state can determine the contents of its own MSP/ICZM, building on its existing national rules and mechanisms and based on the “best available scientific knowledge.” The MSP/ICZM should also apply the ecosystem-based approach referred to in the **Marine Strategy Framework Directive**, and ensure that pressure created by human activities does not overwhelm the carrying capacity of marine ecosystems or compromise their use by future generations.

The directive is geared to cross-border cooperation and coherence, avoiding divergent approaches and different levels of progress. It is predicted to have a series of positive economic, environmental and social impacts.

### **3.14. The text of the directive**

The proposed directive contains the following key elements: obligation to prepare maritime spatial plans and integrated coastal management strategies at national levels; objectives of MSPs and ICZMs; “common minimum requirements” and “specific minimum requirements” for these plans and strategies; public participation in their development; data collection and monitoring; environmental impact assessment; international cooperation “to ensure consistent implementation”; appointing “competent authorities” for implementing the directive; reporting on implementation; operational specifications and steps for implementation. The basic denominator for all MSPs/ICZMs is a framework “that consists at least in the establishment and implementation by Member States of maritime spatial plans and integrated coastal management strategies”.

Article 1 states the goal of the directive: requiring member states to create and implement a) maritime spatial plans and b) integrated coastal management strategies, in order to balance economic growth with sustainable use of resources. These instruments are complementary tools addressing marine waters and coastal areas, and the land-sea interface.

Article 2 states that the directive shall not apply to national security/defense activities, but calls on member states to “endeavor to ensure that such activities are conducted in a manner compatible with the objectives of this Directive.”

Article 3 defines a number of terms used in the directive. “The coastal zone” is defined as: “The geomorphologic area on both sides of the seashore area,” delineated on the sea side by the outer limit of a state’s territorial seas and on land as defined by the state in its integrated coastal management strategy. “Integrated maritime policy” refers to: EU policy that aims to “foster coordinated and coherent decision-making” that maximizes sustainable development, economic growth and social cohesion of member states, “in particular with regard to coastal, insular and outermost regions in the Union, as well as maritime sectors, through coherent maritime-related policies and relevant international cooperation.” “Maritime waters” is defined as including the waters, seabed and subsoil.

Article 4 obligates every member state to “establish and implement a maritime spatial plan or plans and an integrated coastal management strategy or strategies,” which take into account the particularities of the individual regions and sub-regions, sectors and marine waters and coastal zones concerned, as well as potential climate change impacts. These may include or build upon pre-existing mechanisms, as long as they meet the requirements of this directive.

Article 5 defines the objectives of these documents: prevent conflicts between competing activities in coastal zone; promote development of new and renewable energy sources, interconnection of energy networks and energy efficiency; promote development of maritime transport and efficient and cost-effective shipping routes; foster sustainable growth of fisheries and the aquaculture sector; protect the environment, encourage efficient resource use, protect biodiversity and ecosystem services and reduce marine pollution; ensure climate-resilient coastal and marine areas.

Article 6 lays out “common minimum requirements” for MSPs and ICZMs: they must establish operational steps to achieve the above objectives; if not integrated, they should be coordinated; ensure effective cross-border cooperation between national authorities and stakeholders in member states; identify cross-border effects on third countries within the same region and deal with them in cooperation with these countries’ authorities. MSPs and ICZMs must be reviewed at least every 6 years.

Article 7 sets out “specific minimum requirements” for MSPs: they must map all current and potential maritime activities and must take into consideration energy and renewable energy installations, oil and gas rigs, maritime transport routes, submarine cables and pipelines, fishing areas, aquaculture sites and nature conservation sites.

Article 8 sets out “specific minimum requirements” for ICZMs: they must contain, at the minimum, an inventory of current measures used in coastal management as well as an assessment of additional ones necessary (in order to achieve objectives listed in Article 5), provide for integrated, cross-sector policy implementation and consider interactions between land- and sea-based activities. They also must consider utilization of natural resource (including energy extraction and renewable energy production), infrastructure development (including energy, transport, ports, maritime works and green infrastructure), agriculture and industry, fishing and aquaculture, coastal ecosystems (conservation, restoration, management and services) and nature (including coastal landscapes and islands) and mitigation of and adaptation to climate change.

Article 9 obligates states to provide for “public participation of all interested parties at an early stage” in development of MSPs and ICZMs, while ensuring that “the relevant stakeholders and authorities and the public concerned are consulted on the draft plans and strategies and have access to the results once available,” in accordance with relevant EU legislation.<sup>2</sup>

Article 10 obligates states to collect the best available data and exchange information necessary for MSPs and ICZMs, including environmental, social and economic data as well as marine physical data and geomorphological data in coastal zones, while making use of instruments and tools developed under the Integrated Maritime Policy.

Article 11 requires that MSPs and ICZMs include environmental impact assessments, which are required as part of most significant plans and programs in EU states under Directive 2001/42/EC.

Article 12 obligates member states sharing coastal or maritime borders with other member states to cooperate to ensure that their MSPs and ICZMs are coordinated, especially on issues of a transnational nature, through regional institutions or “a dedicated network of Member States’ competent authorities covering the marine region and/or sub-region concerned.” Article 12.2. (a) refers to the ICZM Protocol: “regional institutional cooperation structures covering the coastal zone or the marine region or sub-region concerned,” as a structure through which to pursue cooperation with other member states.

Article 13 calls on member states to “make every effort” to coordinate their MSPs and ICZMs with bordering non-member states.

Article 14 requires that states provide the European Commission with a list of bodies (“competent authorities”) authorized to implement the directive, including cross-border cooperation, in every coastal zone and marine region/sub-region concerned, within 18 months of this directive coming into force (see Article 18), as well as a list of authorities “responsible for those international bodies in which they participate” which are relevant to the directive. States must report on any change to this status quo to the Commission within 6 months.

Article 15 requires states to submit reports to the European Commission on implementation of Articles 6-13. The Commission will in turn submit a report to the European Parliament and Council outlining progress made on this directive.

Article 16 authorizes the European Commission to adopt provisions with operational specifications for management and sharing of data, and for interfacing with existing data management and collection processes and for establishing and reporting on MSP and ICZM.

---

<sup>2</sup> The directive refers to article 2(2) of Directive 2003/35 for guidance on public consultation. That directive sketches out a model of public participation in which authorities inform the public at an early stages about emerging plans and programs, make information about them available, provide forums for public input, take that input into consideration during decision-making and inform the public about final decisions and the considerations upon which they are based.

Article 17 establishes a committee, composed of representatives of member states, for implementing the directive.

Article 18, 'Transposition', sets out a timeframe for bringing into force the legal and administrative instruments required to comply with the directive. Member states are required to make the necessary changes to their legal and administrative institutions as well as designate local bodies responsible for implementation within 18 months of the directive coming into force. States must adopt MSPs and ICMS within 36 months of the directive coming into force. Reports referred to in Article 15 must be submitted with 42 months of the directive coming into force, and every 6 years thereafter. Six months after that, the Commission will submit its report as referred to in Article 15(3), and every 6 years thereafter. The EU sees swift transposition as critical: "Timely transposition of the provisions of this Directive is essential since the EU has adopted a number of policy initiatives that are to be implemented by the year 2020 and which this Directive aims to support. The shortest possible deadline for the transposition of this Directive should therefore be adopted. (para 28,Preamble).

### **3.15. Analysis**

The proposed directive is the culmination of years of policy efforts by the EU to promote good marine and coastal planning and management. In contrast to previous initiatives, which took the form of non-binding recommendations and incentives, this directive will be binding once it comes into force. Even assuming gaps in implementation and compliance, the directive can be expected to stimulate a coordinated region-wide push for good marine and coastal management, including Europe's Mediterranean coasts.

Relevant to the Mare Nostrum project, within the next several years European coastal countries will be required by authority of a binding EU directive to prepare MSPs and ICZMs. This presents an enormous opportunity for Mare Nostrum, as these countries will seek existing precedents and best practices for ICZM, rather than reinvent the wheel. This could potentially magnify the impact of the project, if its outputs (specifically, the Toolkit) were to be used as the basis for ICZM planning across the region.

This suggests the need for an open-source, modular set of outputs, which local planners could easily access and adapt to their own particular circumstances following the end of the project.

## **PART II**

# **NATIONAL REPORTS (PARTNER COUNTRIES & ASSOCIATES)**



## 4. GREECE

---

### 4.1. Introduction

Greece has one of the highest percentages of coastal zones (of total land area) in Europe. As such, coastal areas and seashores are characterized as “public good” and protected by Article 24 of the Greek Constitution. This article defines them as elements of the natural environment which constitute a vulnerable ecosystem and which should be under special protection. Attention was also drawn in their development which should be “mild” and managed with caution (Council of State: 2993/1998).

Along 15,000 km of the Greek coastline, the population density is more than double than the national average; the local development is mainly based on activities related to the sea, and there is a constant increase in tourism, accommodated in construction which tends to be uncontrolled.

The controversy of coexistence of a need for high protection, together with potential of economic development along the Greek coast line, is reflected in the related legislation, the policies for implementing it, and the present reality. The existing web of legislative acts, produced by the central administration in the form of presidential decrees and ministerial decisions, is somewhat incongruous with the inherent public nature of coastal areas. An approach of “economic” priority often prevails, mostly under the pressure of political and financial actors seeking profit.

Before proceeding to the analysis of legislative frameworks, we define the two terms which are most prominent in legislating and policy-making for Greek coastal areas.

“**Seashore**” (or “shoreline”) is defined as the area of the coast which might be reached by waves in their maximum capacity (maximum referring to the “usually maximum winter waves” and of course not to exceptional cases, such as tsunamis etc.). Seashore is public, it cannot be included in urban or regional plans, and may not be developed with permanent structures or buildings. Alternatively, the seashore can be used for recreation, and light, non-permanent constructions are permitted for recreational purposes (kiosks, beach bars etc.).

“**Beach**” is defined as a zone adjacent to the seashore, and comprises public land. It is usually included in spatial plans of coastal settlements and rural areas, and it is used as free/open space (the definition includes roads, pedestrian routes, bicycle routes, green spaces etc.). Private land allotments begin where the beach ends.

Together, seashores and beaches constitute the coastal zones of Greece.

## 4.2. Evolution of legislative framework concerning seashores

### 4.2.1. Brief history of coastal zones until the implementation of L. 2344/1940

Coastal protection has been a well-known practice since the Roman era. Romans considered the seashore to be for public use (In Usu Publico) and defined it in Roman Legal Code as a zone which extended to the point reached by the winter waves. This definition was later adopted by the Byzantine Code of Law, while in the equivalent of the newly established Greek State<sup>3</sup> law. The above definition was retained in Law 21-6-1837, which was the first Greek law to contemplate the issue. In this law it was also determined that the seashore was public property.

The definition and objectives for the public use of seashores were specified later, in article 7 of Law 2344/1940, where it was stated that besides the goal of maintaining communication between sea and mainland, seashores could also be disposed of for purposes which could render benefit to the State.

Law 2344/1940 has been the main legal framework related to coastal protection and development for most of the contemporary history of Greece. The conditions which made the implementation of such a law necessary were described in a government report (Code of Law, 1940, 10/18 May 1940 A 154) and were the following: (A) There was a long history of construction on the seashore, some of which had to be demolished due to its negative effect on the quality of the surrounding environment; whilst some was considered beneficial to the public. A permanent procedure for the management of construction on the seashores was deemed necessary. (B) The seashore and its boundaries were defined through “ad hoc” court decisions. Thus the implementation of definite policies on a national or regional level was impossible and coastal protection was ineffective. (C) Up to that time, the legal provisions regarding the use and protection of seashores were very few and fragmentary, and as such, inadequate and “unscientific”. The new law was intended to introduce an integrated approach for all issues relating to seashores and coastal protection.

Law 2344/1940 was in effect for over 60 years. It defined seashores and beaches as “public goods”, the property of the public. Acceptable uses of seashores and beaches – transport, tourism and industry, and some private uses – were defined. The conditions for the provision of private leases within the seashore and beaches was that there would be economic benefits to both the State and private actors, and the duration of the lease could not exceed 25 years. Overall, the development of coastal zones and the accruing economic benefits for the Greek State were given higher priority than the citizens’ right to enjoy the coastal areas as a public good<sup>4</sup>. In assessing the effectiveness of L. 2344/1940 after more than 40 years of its implementation, it should be noted that there were no references to obligations of the

---

<sup>3</sup> The contemporary Greek State was established at 1829, after gaining independence from the Ottoman Empire.

<sup>4</sup> According to Article 20, L. 2344/1940, any construction on seashore carried out by Harbour Funds and belonging to the State, is used firstly for harbour purposes through its usage and exploitation and secondly for public purposes and public needs.

State to protect the coastal areas as parts of the natural environment and as vulnerable ecosystems. Moreover, there was no reference to limiting construction on coastlines, to land use controls, to protection from urban sprawl, or, in general, to planning regulations for these areas. Finally, the law failed to specify the procedures and the technical means to draw boundaries to the seashores and beaches with acceptable accuracy<sup>5</sup>. This provoked long delays in defining coastline zones (in a fifty years' period only in 1700 out of 15000 km of seashore, 11%, were the coastline boundaries set) (Ministry of Environment, Regional Development and Public Works, 1997; Geskou, 2002).

Tourism enterprises, which were given the right to use coastal areas, tended to overstep their legal rights, encouraged by the official policies which provided them with incentives and privileges.

Furthermore, it was recorded that in cases of compulsory expropriation of private properties which fell in the coastline boundaries, the procedure was usually not completed and the compensation was not paid to the owners due to lack of money from the State. This led in two possible outcomes: either expropriations were cancelled after eight years of not being completed, or the whole procedure of setting boundaries would be indefinitely postponed.

#### **4.2.2. Legislation complementary to L. 2344/1940**

Thirty years after the enactment of L. 2344/1940, development in coastal areas was greatly intensified. Over that period, existing coastal settlements were expanded, new ones were created, tourist zones were established and sporadic holiday houses, hotels, open bars, restaurants etc. pervaded many parts of the coastal zone. Illegal construction was flourishing, and the threat to the quality or the environment of the coasts became evident. As a response to this threat, complementary legislation to L. 2344/1940 was enacted which sought to regulate seashore uses, development and management.

Most attempts to regulate coastal development were concentrated on setting an appropriate distance from the seashore within which development for tourism purposes would be prohibited. Initially a distance of 70m was proposed, followed by 50m. Some initial proposals for even longer distances (100m) were rejected during the consultation process with central administrative units (Stamatiou, 2003: 517).

The primary pieces of legislation complimenting L. 2344/1940 were L.D. 439/1970, L.D. 393/1974, L. 360/1976 "Concerning Regional Planning and the Environment", L. 1337/1983 "Concerning Urban Planning", L. 1650/1986 "Concerning the Environment and its protection", L. 2508/1997, L. 2742/1999 "Spatial Planning and Sustainable Development", and L. 3199/2003 "Protection and Management of Water". The basis for each of these legislative provisions was:

---

<sup>5</sup> According to Article 2, L. 2344/1940 the setting of seashore boundaries was carried out through a topographic and hypsometric map, done by the technical services of the Ministry of Finance or other related departments of the public sector. This resulted to an ambiguous definition of seashore, since by using unverified data; there was a high possibility of inaccuracies. Quite often the boundaries were shown by the owners of neighbouring properties who often tended to enlarge their properties in the expense of the coastline.

- **L.D 439/1970:** Restricting construction beyond a 30 m distance from the seashore boundaries in coastal areas not designated as urban, and in settlements which had existed prior to 1923. Furthermore, it provided for compulsory expropriations for the construction of access roads to the shore, with minimum width of 10m.
- **L.D 393/1974:** Complimenting article 24 of L. 2344/1940, concerning illegal constructions on the seashore, and the legal procedures for their demolition.
- **L.360/1970:** Providing for special plans and programmes for the protection of the environment, including coastline zones. The coast was to be protected from exploitation, with development being in accordance with principles promoting the rational use of natural resources, and the interdependence of natural, economic, and cultural environment. This ambitious law soon became nugatory.
- **P.D 234/1984:** Setting restrictions in the erection of fences in areas within a zone of 500m from the seashore and prohibiting fences in a 50m zone from the seashore line.
- **L. 1650/1986:** Basic law on the environmental protection in Greece. On the topic of coastal zone management, it presents a general framework of regulations, setting as its main target “to protect the coasts, the sea, and the river and lake banks as elements of the ecosystem, recognizing their ecological and aesthetic values”.
- **L. 1337/1983:** The legal framework for Urban Planning in Greece. Includes land use and town-planning regulations relating to urban areas, as well as provisions for the designation of Development Control Zones (with land use restrictions) of two types: (a) around urban areas, intended to guarantee smooth future urban expansions, and (b) in areas intended to be protected (archaeological sites, highly productive agricultural land, forest areas, military installations, and areas of high environmental value). Coastal areas are included in areas of high environmental value. There are also special provisions concerning coasts:
  - The exclusion of fences in a 500-metre setback zone from the shoreline in rural areas, intended to ensure free access to the sea.
  - The creation (through the expropriation of privately-owned property) of public access routes to the sea and the shore.
  - Construction inside the coastal zone was to be demolished.

These provisions satisfied the ‘sense of public justice’, but, with very few exceptions, they have not been implemented; primarily due to clientelism and corruption in local politics. Furthermore, by 1999, only 20% of the seashore zone had been defined with officially approved boundaries; and these delays allowed for a rise in uncontrolled construction very close to the sea. Law 1337/83 was modified, completed, and integrated into Law 2508/1997. In the new law, provisions regarding coastal zones were retained without changes, and no new related provisions were introduced.

- **L. 2742/1999:** Legal framework concerning regional planning in Greece. According to the provisions, regional planning is implemented at three levels. At the national level, there is the General Framework for Spatial Planning and Sustainable Development (national territorial plan) and the Special Frameworks for Spatial Planning and Sustainable Development (sectoral territorial plans). Those plans which

have already been prepared and approved are the ones for Tourism, Industry, Renewable Energy Sources, and Aquaculture. The plan relating to Coastal Zone Management has to date not been prepared. At the regional level there are 12 Regional Frameworks for Spatial Planning and Sustainable Development (Regional Territorial Plans). References to coastal protection and management, besides the forthcoming Special Framework for Coastal Zone management, are made to the General Framework, to the Special Frameworks for Tourism and Aquaculture, and to 11 of the Regional Frameworks, since all but one of the Regions in Greece include coastal areas.

- **L. 3199/2003:** This law integrates the Greek environmental legislation with the Water Framework Directive (200/60). It defines ‘coastal waters’ as the surface waters within a distance of 1 nautical mile from the seashore. The General Secretariat for Water in the Ministry of Environment and the regional water authorities are responsible for designing and implementing the Regional Water Management Plans, which are integral parts of the National Water Management Plan. An intensive monitoring program of water quality and ecological status applies to all inland and marine ecosystems. The program follows the basic principles of the WFD. Mitigation measures should be taken to protect or upgrade the status of each aquatic system.

#### **4.2.3. Illegal building in Greece and the “regularization” procedures of L. 4014/2011**

Urban and rural areas throughout the country have been suffering by the old and widespread phenomenon of illegal construction. This has been the main and most visible factor of environmental degradation. Some 93,000 legal and 31,000 illegal houses and apartments were constructed each year in Greece between 1991 and 2001. Most of them were in Attica and along the coastline (Technical Chamber of Greece, 2004).

Law 4014/2011 is the latest in a succession of numerous pieces of legislation pertaining to illegal construction. It introduced a new term, “regularization”, which applies to a process whereby many categories of illegal development can be used as legal for 30 years, following the payment a fine. Illegal construction cannot be permanently legalized as the Constitution does not allow it. The objectives of this law – given the economic crisis in Greece – are grounded more in the idea of collecting fines and less in halting illegal construction.

According to the provisions of this law, illegal construction of the following types cannot be “regularized”:

- Buildings or structures built on public property
- Buildings that have been built on or too close to roads or streets and therefore pose a safety hazard to transport
- Buildings on forestry land, beaches, or too close to coastlines or riverbeds
- Buildings in other protected areas i.e. archaeological sites, historical sites, traditional UNESCO villages, NATURA areas, national parks etc

Recently (April 2013), the Council of the State ruled that Law 4014/2011 is unconstitutional. Consequently, the law will soon have to be abolished and replaced by another piece of legislation.

### **Some conclusions about the implementation of the above legislative framework**

The legislative framework for the protection of coastal areas in Greece – in effect, 61 years – undoubtedly failed to fulfill its objectives. For some critics (and in majority public opinion) the main inadequacies were to be found in the legislation itself. The fact that procedures and for defining coastline boundaries in L. 2344/1940 were not adequately detailed was regarded as one serious reason for the proliferation of uncontrolled development and the endangerment of the public character of the coast. The pieces of legislation which followed, aimed at complementing L. 2344/1940, were fragmentary, restrictive, and focused on the spatial and environmental planning of coastal areas. Some of them soon became nugatory, while others were gradually abolished. Consequently, many coastal areas were used beyond the limits of their capacity, and they suffered from environmental degradation.

Nevertheless, when we look at the issues in-depth, we find that inadequacies of legislation were only part of the problem. Besides sound legislation, the protection and management of coastal areas also needed pragmatic policies and greater effectiveness at the operational level. With some notable exceptions, policies for coastal areas were not formulated, positive actions were not encouraged, and the protection and management of Greek coastal areas was managed narrowly through legal restrictions and prohibitions. And even these were nullified at the operational level, when authorities were confronted with strong economic interests, political pressure and reactions of various interest groups. An additional negative effect of this system of legal prohibitions was that in general, politicians and the public perceived coastal areas as a commodity for boosting economic development, rather than as a public good, a natural and sensitive resource.

In the beginning of the 21<sup>st</sup> century it was identified that the need to protect, plan and manage the coastal areas of Greece was more urgent than ever. Consequently, a new attempt was made towards those goals by introducing a new law, L. 2971/2001, which is still in effect to this day.

#### **4.2.4. The legislative regime of L. 2971/2001 “Concerning seashore and beach”**

The new law abolished the previous one and it focused on the rational development of coastal areas. It was based on two directions: (a) the seashore should be protected as an environmental good and (b) it should also be protected as a financial good (reflecting the needs of the tourism industry). L. 2971/2001 was affected by European and international regulations and guidelines concerning coastal areas<sup>6</sup>.

The main targets of L. 2971/2001 were: (a) defining seashores and beaches, with priority to coastal areas with intense urban development, and to areas of high productivity where

---

<sup>6</sup>It concerns the proposal of the European Committee in October 2001 (Com/00/545 of 8 Sept. 2000), Rio Manifesto and Agenda 21 (article 17) concerning the management of coastal areas.



programs of economic and social development were to be carried out and (b) achieving effective protection and management of coastal areas. Nevertheless, these aims were diluted by special provisions of the same law, which listed a series of exceptions of the initial provisions.

### **Special provisions**

The definition of seashore can be found in Article 1, according to which “seashore” is defined as the “zone of land adjoining the sea as far as its tides can reach”. Beach is “a zone of land adjusted to the seashore, of 50 m width, used to connect land and sea”. Thus, coastal zone is defined as the zone separating the land from the sea, and its boundaries are marked by an imaginary line (Papapetropoulos, 2004: 179).

In Article 2, seashores and beaches are characterized as public goods, property of the State which protects and manages them. Moreover, it is clearly stated that according to the article 24 of the Greek Constitution, the protection of coastal ecosystems is a responsibility of the State. Access to these zones is unlimited and they are used to promote environmental and social goals, for public interest. All forms of construction within these zones are prohibited.

In Articles 3, 4, 5 and 6, L. 2971/2001 focuses on specifications and procedures for demarcation of seashore boundaries, using modern technologies, and in limited timeframes. Once defined, construction of any form within a seashore zone is prohibited; and any existing structures or buildings are compulsory expropriated and fully compensated.

Properties on seashores are also expropriated<sup>7</sup>, based on Article 7. In the same article, though, exceptions are made for settlements which existed prior to 1923, as the seashore cannot overstep the already existing construction zone (par. 5). Under this provision, there is no protection of the coastal zone in old settlements –and there are hundreds of them in Greece, particularly on the islands. In addition, constructions on properties which were out of the coastal area but due to natural erosion were gradually included were legalized and exempted from demolition.

Legalization of illegal construction is also provided by Article 27, which specifies that structures used for hotels, industries, and fish-farming purposes are permitted.

In addition, the leasing of seashores and beaches is permitted (Article 14) for works related to trade, industry, land and sea transportation, or “other purposes serving the public good”. This provision is vague, and it lies on the judgement of the administration to decide whether by leasing the coastal area for a specific purpose, the public interest is served, or whether it is the private actors who truly benefit. Seashores and beaches can also be leased for purposes of public security, national defence, protection of archaeological places, and protection of natural environments if – and only if – their character as public good and their

---

<sup>7</sup> In this case, the law concerning common expropriations with a completion period of 4 years is not applied. Instead, the law about expropriations due to urban planning is applied, with expropriation period often longer than 8 years. As a result, many expropriations are suspended due to lack of money by the Municipalities. Accordingly, no seashore boundaries are set and construction cannot be controlled.



natural morphology are not altered (Article 15). Any type of lease for any type of use might be recalled unilaterally by the administration.

From the above one could conclude that L. 2971/2001 was initially considered as an innovative and effective legislative tool for the protection of coastal areas. In its provisions, coastal areas were considered as vulnerable ecosystems and their identity as public goods was stressed. The measures for unlimited accessibility of the coastal areas were also praised, as well as the clarity of expression of the responsibility of the State to provide protection and conservation for this sensitive environment. This was also in accordance to the article 24 of the Greek Constitution and to European and international directives. Modernization of the used technology, shortening of the procedures, the compulsory studies of environmental impact of any intervention, and the new administrative body (part of the Ministry of Finance) which was established to manage the coastal areas, were considered as assets of the new legislative framework.

Besides the above, there are, though, reasons to be critical to L. 2971/2001. There is no attempt to coordinate its provisions to urban, regional, and environmental planning. The vagueness of provisions concerning use of the coastal zone for commercial etc. purposes endangers its nature as a public good and might alter its characteristics in an irreversible way. There are already samples of “privatization” of sea coasts by hotels, which impose charges to the citizens who use the particular coast without being clients of the hotels. Leasing of seashores and beaches by municipalities to enterprises which fill up the place with bars, restaurants, seats, umbrellas etc. are increasing in frequency. There is no provision for sufficient control mechanisms of coastal zones, and finally, illegal construction and uncontrolled development is even increasing.

Finally, in consecutive reports of Citizen’s Advocate from the year 2000 and on, it was stated that the implementation of the above law was problematic, mainly due to the inability (or unwillingness) of municipalities to secure it. The spearhead of the problems had always been the illegal construction in seashores, which was spreading over time. It was also noted that L. 2971/2001 had no provisions for architectural heritage, parts of which happened to be in seashore zones, either as individual buildings, or as parts of traditional settlements (Citizen’s Advocate Report, 2000).

### **Administrative Structure of Coastal Zones**

In the past, and especially in the 60s, the Greek Administration issued constituent acts and decrees for certain coastal areas, in order to intervene decisively in their management. They were defined as Touristic Public Land, their legal ownership belonged to the State, and they were managed by the Greek National Tourism Organization (EOT). EOT in turn, established an organization for the management of public immobile property (Public Properties Company S.A.), to which it transferred the rights of exclusive management of Touristic Public Land. The end of the line was that Public Properties Company was “leasing” these coastal areas to private entities, which were developing and managing them as profitable sources. Obviously, after all these arrangements, the constitutional character of coastal areas as “public good” was greatly distorted, and the legitimacy of issuing the relevant transactions was disputed as unconstitutional.

According to more recent legislation (Law 2971/2001), coastal zones are public property belonging to the State, which has the responsibilities for protecting and managing them. Management rights and responsibilities have been passed to local government and local organizations, such as the Municipalities, the Municipal Port Departments and the Port Organizations Ltd.

In order to be more specific, the Minister of Finance decides on granting the rights of use of parts of the seashore, the beach, contiguous or adjacent sea space, or/and the seabed for projects serving commercial, industrial, transport, or other purposes. These decisions have to be co-signed by other Ministries as well, these being:

- The Ministry of National Defence
- The Ministry of Environment, Energy and Climate Change
- The Ministry of Rural Development and Food
- The Ministry of Development, Competitiveness, Infrastructure, Transport and Networks
- The Ministry of Education and Religious Affairs, Culture and Sports
- The Ministry of Shipping and the Aegean

The Hellenic Public Corporation of Real Estate<sup>8</sup> is the organization with administrative control of the coastal zone, in charge of management of seashores, and with responsibilities for providing relevant information to other authorities.

After the recent reorganization of local government (Law 3852/2010, “New Architecture of Local Government and Decentralized Administration – Kallikratis Programme”, each Region has in its jurisdiction the control and supervision of protective works and infill in coastal zones. Expropriations of private properties in coastal zones are compulsory and provided by the legislation, and responsibilities for expropriation procedures lie with the Departments of Urban Planning of the Municipalities. Also, all Legal Entities of Public Law grant their ownership rights on coastal land to the State, without any exchange. In areas covered by urban plan, the beach boundaries and the official boundaries of building squares cannot overlap. Traditional and historic buildings are excluded from demolition of constructions in the beach zone.

Organizations responsible for managing ports, harbors, refuges for fishing boats, tourist marinas etc. are the Port Departments and Port Organizations. Port Organizations Ltd. manage the ten most important ports in Greece. They prepare the Master Plan for the port area (coastal zone of a harbor) which is approved by a special committee with representatives of the municipality, and related ministries and organizations. For implementing the Master Plan, Port Organizations can sign contracts with other public bodies (local authorities, ministries, chambers, cooperatives etc.) as well as with private bodies in Public – Private Partnerships. Master Plans for Port Organizations are prepared

---

<sup>8</sup> The Hellenic Public Real Estate Corporation (HPREC) was founded in 1979 as a private corporation based on L.973/79. It has one share that is owned by the Greek State. It is supervised by the Ministry of Economy and Finance, and operates within the framework of the Greek Founding Legislation and specifically Law 3429/2005.

independently from General Development Plans of the Municipalities and/or the related City Plans. This has frequently been a serious impediment to implementation of spatial planning to the specific areas, since in cases of no cooperation between local authorities and Port Organizations, things are usually led to chaotic situations.

In 2009, Port Organizations of Piraeus have sold management and exploitation rights of port sectors of specific uses to a Chinese company (COSCO). Despite the initial reactions of some political parties, social groups and organizations, assessment of the three years of its function showed a considerable increase in economic activities of these sectors. Currently, there are announcements of plans for modifications in the current system of administration of ports (unification of organizations, joint management of several ports etc.), and prospective sales of ports to more foreign companies.

#### **4.2.5. Draft of a new law concerning seashores and beaches**

New efforts for improved protection and management of the coastal areas in Greece were concentrated in producing new related legislation. The draft of a new law has been prepared and it is currently in the process of consultation (participation of the Technical Chamber of Greece, the Barrister's Association of Athens, NGOs like WWF, GREENPEACE etc.). According to the committee which undertook the task of preparing it, the protection of coastal areas by the Law 2971/2001 was insufficient, and there were two alternatives for improvements: either to improve the already existent legislation with presidential decrees and ministerial decisions -as was the case for L. 2344/1940 and the accompanying decrees- or to prepare a new law. The second choice was made.

The main criticism which was expressed for the prepared draft was related to its very nature, being more entrepreneurial and profit oriented, instead of focusing on social issues, the public good and the environment. Points which were stressed in particular are:

The existence of beach zones as the continuation of seashore zones is not necessary any more. The committee in charge of defining the boundaries of seashores can judge and decide whether the existence of beaches is needed for areas under consideration. This, according to critics, is in contrast to the directive of the European Council (2002/341 Implementation of Integrated Coastal Zone Management in Europe) which considers the coastal zone as an integrated geographic entity, and suggests the management of it as an undivided whole.

The new way of handling beaches will surely increase pressures for exploitation for profit of these areas, and will encourage illegal development, since the existence of houses (legal or illegal) in a beach, can be used as a reason for excluding this area from beach demarcation, due to several reasons (political pressure, obligations for increased compensation etc.).

The 50 m width which was compulsory for the demarcation of a beach, is abolished. It was claimed that the reason for this was because the specification of width in 50 m would block the possibility to create wider beaches. The past experience though, and the knowledge of the Greek reality makes the above claim hard to believe. The abolishment of the compulsory

50 m width will probably lead to a minimization of the area of the beaches. And according to Beriatos (2007:1) there can't be seashore without a beach which is the necessary public space for "enjoying" the environmental and social goods of the seashore.

Exceptions are introduced from the conditions under which, leasing of the coastal zone was permitted. The procedures for leasing in these exceptions are simplified and shortened. According to criticism, these simplifications have also loosened the terms and controls for the protection of the environment under the lease.

There is also abolishment of the restrictions to the area of seashore and beach in which shops, hotels etc. are allowed to put tables, chairs and other equipment. The lifting of these restrictions can lead some municipalities to give unlimited coastal areas for lease to private agencies, with predominant objective the maximization of profit. (Karageorgiou, V., Pexlivanoglou, K., 2007: 203).

Leasing of seashores is also permitted for industrial and commercial activities, without any consideration for the existing regulations for land uses in the surrounding area, and in general, for the spatial planning of the wider surrounding area. This gives a green light to the establishment of small industrial units anywhere in coastal zones, with no control or restrictions.

Negative criticism also stems from the lack of provisions for cross-sectional cooperation for managing coastal zones. It is stressed that such initiatives should not be only a matter for the Ministry of Finance, but also for the Ministry of Environment and Climate Change, and organizations such as the Technical Chamber of Greece, NGOs etc.

It is also suggested that the principles of sustainability should be embodied in the new legislation, as well as the principles and directives of the European Union<sup>9</sup> for the management of coastal zones in Europe. Provisions for cooperation on coastal management with other E.U. member – states should also be made.

Finally, it is suggested that the imposition of fines –although particularly high- as the only means of deterring activities which degrade the quality of coastal zones is not adequate, since it cannot restore the possible damages to the sensitive ecosystems of Greek coasts, and usually are lower than the expected gain accruing from illegal activities.

#### **4.2.6. Public and stakeholders' negotiations on the new draft**

The new bill was put to public consultation and negotiation. This consultation involved scientific bodies, environmental organizations, and NGOs, considered to possess scientific knowledge and "public weight" significant for the improvement of the new institutional framework and the approval of it. Participants included the Technical Chamber of Greece, Athens Bar Association, Greek Association of Urban & Regional Planners and environmental

---

<sup>9</sup> Recommendation of the European Parliament and Council of 30 May 2002 concerning the Implementation of Integrated Coastal Zone Management in Europe (2002/341).

organizations. The proposed legislation was encountered by serious reactions concerning many of the new arrangements.

The reactions mainly focused on the following points:

Definition and determination of the shore: the demarcation of a beach is made by photo interpretation, using color digital photomaps. An electronic geographical database is foreseen as well as the registration of legal acts. The use of modern technology will lead to faster inventory and demarcation of coastline but on the other hand, sources for financing all the above were not provided and funding was not secured. The demarcation of a beach is assigned to Legal Entities governed by Public Law or organizations that are supposed to operate in favor of public interest and are supervised by public sectors. There are no clear guidelines, though, that the primary objective of the above organizations should be to protect and preserve the coastal areas, while profiting from the development of the coastline and the beach should be secondary. Finally, there are no clear safeguards in the draft about the protection of public interest by the organizations mentioned above.

Demarcation of Beaches: the most serious objections of almost all participants focused on the complete disconnection of the processes of defining the seashore and the beach. The demarcation of the beach has to be made after the demarcation of the seashore in order for the process of defining the legal characteristics of the coastal area to be complete. According to the proposed legislation, demarcation of the beach is made by a commission after on site inspection, and there is no time limit or other connection to the equivalent –and prior to it- demarcation of the seashore. The disconnection of the two processes and the probable delays in demarcation of beaches is likely to loosen measures for the protection of beaches from uncontrolled development and encourage those holding land property rights in the beach zone, to develop their properties before the demarcation of the beach, and thus to avoid or delay expropriation.

Provision for the mandatory demarcation of the seashore while omitting the equivalent demarcation of the beach: this is related to the one mentioned above. During the consultation process, it was stressed that both the demarcations of seashore and beach should be mandatory and simultaneous, in order to clarify legal status of zones and thus facilitate urban planning, and construction of ports, tourist installations and industrial areas.

Zones in ports: there is no obligation of works and projects inside the port area to be in accordance to the General Development Plan of the equivalent municipality and the related town plan.

Moreover, there was strong criticism against the adoption of a proposal from the legal department of the Ministry of Environment and Climate Change, which, in September 2008 decided in favour of the increase of the building ratio in the coastal zone for major hotels and tourist installations. This legal opinion concerned a major hotel in Lagonissi, Attica, for which the land was leased to Public Properties Company. According to the legal department, the building ratio should be calculated on the total coastal surface area, including the seashore –

which, though, is public land where no constructions are allowed. This practically meant that the construction could be double the size which was allowed up to then.

### **4.3. The Special Framework for Spatial Planning of Tourism**

The Special Framework for Tourism, which is a sectoral plan at the national level, has been discussed in the National Parliament, and was finally approved after two major revisions. It is very much related to coastal management, since tourism in Greece is mostly concentrated in coastal areas. According to it, the national area is distinguished in 10 categories according to the tourist activity which they accommodate, their geomorphology, and the vulnerability of the natural resources of each area. It increases the current minimum distance between the zone of constructions and the seashore from 50m to 100 m., and it sets limits to the uncontrolled development of the islands. Building regulations become tougher, and in every plan for tourist development, 30% of building stock has to be for holiday houses.

On the 5<sup>th</sup> of February 2009, the consultation on the Special Framework for Spatial Planning of Tourism was completed. Criticism was focused in the lack of integrated planning for tourism, and the excessive provision for holiday houses, while the sustainability principles were too weak. From a total of 19 participants, 9 voted against the draft of the Special Framework (including the Technical Chamber of Greece, the Greek Association of Urban & Regional Planners, the Greek Association of Architects, the Chamber of Tourism and the ecological NGO ARKTOYROS), and 4 requested a postponement of the consultation in order for the draft to be improved. Great opposition was expressed against articles 9 and 10, concerning financial incentives for the construction of tourist residences in rural and coastal areas, something which would overload coastal areas with constructions beyond any means of maximum capacity.

### **4.4. Judicial Remedies -The Decisions of the Council of the State**

In the existing jurisprudence in Greece, the sea and the coastal areas are dealt as a unified area of protection. They are characterized as a fragile ecosystem, the protection of which is provided by Article 24 of the Greek Constitution.

As legal circles claim, the Council of the State, through its decisions, is correcting, complementing, revising, harmonizing with E.U. directives, or nullifying pieces of legislation produced by government units and characterized by weaknesses, gaps, and fragmentation. This has also been the case about coastal protection and management.

From the enactment of L. 2344/1940 until now, the jurisprudence of the Council of State has been differentiated. In its first stage the general jurisprudence connected the residential development with the coastal area, since the then legislation didn't include provisions about environmental protection. Its decisions mainly dealt with the article 24, of L. 2344/1940 and later on, it dealt with the provisions of L. 1337/1983.

As indicative examples are mentioned the decisions of the Council of State concerning the distance between the buildings and the seashore line, the access roads to the coasts and



the prohibition of fencing of coastal properties and building plots which are out of planned areas and settlement zones in a distance of 500 m from the coast.

In all these cases, the Council of the State set the distances of constructions from the seashore line in higher values than the ones provided by the legislation. It also passed a judgment about demolition of illegal constructions since they hindered the unimpeded access to the coast.

In 1975, the article 24 of the Greek Constitution was put into force, according to which seashores and beaches were subjects of special protection. The Council of the State accepted that the coasts constitute a vulnerable ecosystem and any construction on them deteriorated the natural environment. (Council of State: 3146/1998, 327/1999). Afterwards, the Court accepted that citizens should be given a free access to them and that whatever disturbs their natural destination is against the constitutional orders of article 24 (Council of State: 1585/1990).

As it regards the seashores, the jurisprudence accepted that it is a “public good” and it facilitates the human contact with the sea and the enjoyment of all other sea uses. (Council of State: 1585/1990, 3094/1989, 115/1987).

Moreover, the 2993/1998 decision accepted that *“the construction of a platform on the coast to be used by power boats is illegal, since its exploitation is part of a business activity and this activity is in contrast to the public good, and the enjoyment of the sea by the public without noise obstructions.”*

Also, the Council of the State prohibited urban planning by the private sector in the islands, and the transformation of a public space to private property<sup>10</sup>.

This short report to the rich jurisprudence leads to the conclusion that the Council of the State supports full protection of the coastal areas. Seashores and beaches constitute public goods of high environmental value and any hindrance to their usage is unconstitutional.

#### **4.5. Policies and programs concerning the management of coastal zone**

Greece has ratified most of International and European Conventions for the protection of the environment and coastal zones, but was not successful in implementing an effective strategy for their sustainable management. It is indicative that in the implementation of programmes of urban regeneration, environmental protection etc., (i.e. URBAN, INTERREG, TERRA) no national directions for the protection of coastal areas were issued. Moreover, the European directive about the integrated protection of coastal zones in Europe (30.5.2002) was

---

<sup>10</sup> Council of State, 253/1996: It nullified the Presidential Decree of the Ministry of the Environment, Urban and Regional Planning and Public Works on the grounds of illegally transforming public space to private property at S. Marina in Vouliagmeni, since it is against the article 24 of the Constitution, the Declaration of Stockholm, Rio and Agenda 21.



embodied in Greek legislation after a grave delay<sup>11</sup>. As has been stated by the European Commission, the European Organization for the Environment, the United Nations' programme for the Environment and the Mediterranean Action Plan (UNEP) the coastal and marine natural resources are continuously downgraded due to non-sustainable models of development which are adopted in most countries. In Greece, 30% of the coastal areas have been eroded to a great extent.

Finally, the financial development, the intensive construction, and the political conflicts about the coastal areas, restrict the possibility for applying principles and policies aiming at an effective and integrated management of the coastal areas.

### **ICZM-related projects<sup>12</sup>**

Concerted Actions for the Management of the Strymonikos Coastal Zone:

TERRA<sup>13</sup>, 1997 – 2000

- Programme for Integrated Coastal Zone Management. The case of Cyclades-Archipelago

LIFE<sup>14</sup>, 1997 – 2000

- Territorial Co-ordination Scheme for the Harbour System and Coast of Athens – “Posidonia Network”

TERRA, 1997 – 2000

- Information, Concertation, Requirements for the Sustainable Development of Magnesia's Coastal Zone

LIFE, 1997 – 2000

- Integrated Management of the Coast of Epiros

TERRA, 1997 – 2001

- Integrated Coastal Zone Management for the Kavala Prefecture

---

<sup>11</sup> Grapsas, K., (2007): the process of the review in our country has been delayed considerably in contrast to other members of the European Union (United Kingdom, Spain) where the review was already in its final stages in 2004.

<sup>12</sup> Source: Policy Research Corporation based on PAP/RAC, the Mediterranean ICAM Clearing House, [www.pap-medclearinghouse.org/eng/about\\_ch.asp](http://www.pap-medclearinghouse.org/eng/about_ch.asp)

<sup>13</sup> TERRA was launched in 1997 in the context of the innovative actions financed by the Art. 10 of the ERDF regulation; TERRA was conceived as a laboratory for testing new approaches to and methodologies for spatial planning.

<sup>14</sup> LIFE is the EU's financial instrument supporting environmental and nature conservation projects throughout the EU, as well as in some candidate, acceding and neighbouring countries.

TERRA, 1998 – 2001

- Strategies for Management and Co-operation in the Metropolitan and Peri-urban Coastal Zones of the Saronic Gulf – Athens

TERRA

#### EU-funded projects

- The **BEACHMED-E** project (France, Greece, Italy, Morocco, Spain and Tunisia)
- The **CADSEALAND** project (Greece, Italy)
- The **COASTANCE** project (Croatia, Cyprus, France, Italy, Greece and Spain)
- The **ECASA** project (Croatia, France, Germany, Greece, Italy, Norway, Portugal, Slovenia, Spain, Sweden and the United Kingdom)
- The **ECOSUMMER** project (Greece, Spain and the United Kingdom)
- The **ENCORA** project (Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Monaco, the Netherlands, Poland, Portugal, Russia, Spain, Sweden, the United Kingdom and Ukraine)
- The **HERMES** project (Belgium, France, Germany, Greece, Ireland, Italy, Kenya, Monaco, the Netherlands, Norway, Portugal, Romania, Russia, Spain, Sweden, Turkey, the United Kingdom and Ukraine)
- The **MedPAN** project (Algeria, Croatia, France, Greece, Italy, Morocco, Malta, Slovenia, Spain, Tunisia and Turkey)
- The **PEGASO** project (Algeria, Belgium, Egypt, France, Greece, Croatia, Italy, Lebanon, Morocco, Romania, Spain, Switzerland, Tunisia, Turkey, the United Kingdom and Ukraine)
- The **OURCOAST** project (all coastal EU countries)
- The European Islands project

## 4.6. Conclusions

The evolution of legislation concerning the seashores and beaches, and the protection of the coastal areas, certainly constitutes a spatial, urban and environmental planning issue. In all the Introductory Statements accompanying pieces of legislation since L. 2344/1940, the significance of an effective and accurate definition of boundaries of seashores and beaches, and the protection of them as public goods of great environmental and social value is underlined. However, the fragmentation of legislation, the absence of rational policies, and the ineffectiveness in the operational level, fail to restrict illegal construction and inexorable financial exploitation, by putting, thus, at risk the protection of these vulnerable ecosystems.

According to the proposals made by scientists and scientific organizations, an integrated and sustainable management of the coastal area should include the following: a) securing unimpeded access to the coasts, and the viable management of the public resources, b) rational organization of human activities on coastal and sea areas through planning, c) sustainable management of coastal natural resources and protection of ecosystems, d)

coordination of private and public sector for the management of coastal areas, e) participation of the interested parties in common actions related to the management of the coastal areas, in the context of a democratic planning and f) the active involvement of the public about the ecological, social, financial and cultural value of the coastal areas.

Finally, there should be a cross-sectional cooperation among all the involved organizations which exert policies on the coastal areas. There should be a framework concerning the basic keynotes<sup>15</sup> which will allow the interpretation of laws by the administration in the frame of practicing its discretion.

---

<sup>15</sup> According to the relative recommendations of the Mediterranean Programme of Action of the United Nations, the keynotes are as following: a) viability principle, b) protection principle, c) principle concerning the cross-sectional approach and the provision for the enactment of managerial layouts and d) the principle concerning the ensuring of the publicity and the public access for decision making which have to do with the management of the coastal area.

## 5. ISRAEL

---

### 5.1. Introduction

Israel's 197 km Mediterranean coastline contains a wealth of natural, cultural and archeological diversity. Beyond its immense economic significance, the country's coastline functions as the key recreational resource for the Israeli public, with 70% of the population living within 15 km of the coast (CAMP, 1999). Similar to other Mediterranean countries, however, Israel's Mediterranean coastline is under severe threat as a consequence of intensive development and a burgeoning population. Israel's densely populated coastal plain is threatened by environmental pollution, extensive housing and industrial development, defense and infrastructure facilities, offshore structures and erosion of coastal cliffs, threatening its recreational function as well as its ecological one (CAMP, 1999, SPNI, 2006). To tackle these threats, Israel has developed a widely diverse toolbox for protecting its coasts, comprised of plans, strategies, policies, government decisions and binding laws and regulations. Historically, planning and environmental laws have taken a central role in coastal protection. This survey will review Israel's planning laws and policies, environmental legislation and governing institutions, as they relate to the issue of coastal protection and ICZM, followed by an analysis of the role of Israel's influential non-government organizations in this area and a brief look at some of the conflicts related to development of Israel's coastline.

### 5.2. Planning laws and significant policy documents regulating coastal land use

#### 5.2.1. Planning and Building Law, 1965

Planning laws have largely preceded environmental laws in managing Israel's coasts through regulation of coastal land use. Israel's Planning and Building Law constitutes a comprehensive legal framework for regulating land use in Israel, employing planning mechanisms operating at the national, district and local levels. The law regulates urban development and other land-use activities in Israel, whether publicly held land (approximately 90%) or privately held, including in coastal areas.

Concerning use of the marine environment, the law originally established the Territorial Waters Committee, with a mandate to regulate all offshore structures. As discussed below, the Committee for the Protection of the Coastal Environment (CPCE) was later created to serve as the top planning committee for coastal development; it was incorporated into the law as an amendment by the 2004 Protection of the Coastal Environment Law (PCEL). Yet decades before the 2004 law, the Planning and Building Law through its hierarchically structured institutions and the policy documents that they generated, was charged with protecting Israel's coasts as a vital public resource, with varying levels of success and efficacy. Israel's Lands Law of 1969, which replaced a number of land laws dating back to the Ottoman era, further strengthened these protections by defining the seashore as "public land designated for public use."

### 5.2.2. National Outline Plan for the Mediterranean Coast (NOP 13), 1983

Through authority granted to it by the Planning and Building Law, Israel's National Planning and Building Council<sup>16</sup> (NPBC) undertook to craft a management scheme for Israel's coastline through a national outline plan. National outline plans determine national land-use policy on key issues (such as nature preserves, infrastructure, transportation networks and so on), and are intended to set out binding rules and guidelines for plans and planning committees that fall lower in the hierarchy (i.e. local and district plans and committees). Faced with a wide range of conflicts over land use in the coastal environment and growing demands for coastal development, Israel's planning authority prepared National Outline Plan 13 for the Mediterranean Coast, which was approved by the government in 1983. Its declared purpose is to designate land along Israel's coastline for managing natural resources as well as their conservation and development, for recreation, tourism, preservation of antiquities, nature reserves, parks, and other coastal and marine protected areas, and ports and other infrastructures requiring proximity to the coast, while rejecting plans that do not require such proximity. Thus NOP 13 aims to resolve conflicts between coastal uses, differentiating between those uses that require proximity to the coast and those that do not. It established the concept of "coastal reserves" in which all development was prohibited except if connected to a beach, nature reserve, national park or open public space (para 15, NOP 13). Three coastal reserves have since been established: Rosh HaNikra, Hof Nitzanim and Shikmona (SPNI report on the state of the coasts, 2006).

NOP 13's key contribution to the management of Israel's coasts was to prohibit development within a 100-meter setback from the coastline. This was not an absolute prohibition, however, and could be approved under certain conditions by the NPBC for tourism and recreation. Moreover, the ambiguous definition of the setback zone was exploited by developers intent on building lucrative residential real estate projects as close as possible to the coastline.

One component of NOP 13 is NOP 13B, which addresses the development of Israel's ports and recreational marinas. Another is NOP 13C for Resource Management of the Mediterranean Coastline for Tourism and Recreation, which integrates sustainability and coastal ecological sensitivities into development policies for tourism and recreation. While this plan has not yet been approved, it is still taken into account in the planning process.

In response to widespread public criticism of NOP 13 and its abject failure to protect Israel's coasts from the construction of high-priced development projects, planning committees began rethinking existing coastal management policy. As pointed out by Israel's State Comptroller in his recent report (Comptroller's Report, 2013), during the last decade of the 20<sup>th</sup> century planning policy for the coastal environment underwent fundamental changes, characterized by the objective of protecting the remaining coasts and maintaining them sustainably for the general public. The Comptroller recommended that the Planning Administration consider an overall amendment to NOP 13 adopting the more recent

---

<sup>16</sup> Israel's highest statutory planning body, which oversees the work of local and district-level planning bodies under the Israeli system and holds broad powers.

approach to coastal planning exemplified by NOP 35 (see below), and particularly in light of its role in approving future tourist and recreation facilities on Israel's coasts. Displaying the conflict between NOP 13's goal to promote tourism and recreation and the need to consider the environmental status of the coast, NOP 13 has designated Israel's Carmel Coast for water sports, while the area's high ecological sensitivity requires protecting it in its natural state (Comptroller's Report, 2013). Yet despite the Comptroller's criticism of NOP 13, it does prohibit construction within the 100 meter beach setback, a provision lacking in the 2004 Protection of the Coastal Environment Law. Thus NOP 13 still has an important role to play in protecting the coastal environment.

### **5.2.3. National ICZM strategy: The Coastal Waters Policy Paper, 1999**

Seeking a more effective tool, the Coastal Waters Commission, the forerunner of the Coastal Environment Protection Committee (see below), prepared the Coastal Waters Policy Paper. Adopted by the National Planning and Building Council in 1999, it served as the key policy document for ICZM until the adoption of the Protection of the Coastal Environment Law in 2004. Reflecting the swiftly spreading adoption of ICZM launched by the 1992 Rio Summit and Agenda 21, the Coastal Waters Policy Paper called for integrated management of Israel's coastline, setting out an action plan for achieving it which established as guiding principles: public access to and along Israel's beaches, preservation of biodiversity and landscapes as well as the archeological and culture heritage, and sustainable use of the coastline for all sectors including recreation, tourism, fishing, marine agriculture, mining, energy and infrastructures.

### **5.2.4. National Integrated Outline Plan for Construction, Development and Conservation (NOP 35), 2005**

In 2005, the Israeli government approved the National Integrated Outline Plan for Construction, Development and Conservation (NOP 35), which reflected a rethinking of land-use norms in the coastal environment and increasing awareness of the need to protect it. This outline plan formulated a new government policy for development and construction in the country, while emphasizing protection of Israel's open areas. NOP 35 defines five categories of "expanses," a new concept meant to address Israel's development needs while emphasizing the principle of the connectivity of open areas, including buffer zones along streams, and protection of biodiversity, agriculture, landscapes and heritage. A major innovation that it introduced was the concept of a "beach expanse" (*merkam hofi*) designed for the preservation of beaches. Permitted uses in this area require a functional connection to the sea. Beach expanses must remain unobstructed to ensure public access along them (Portman 2009). NOP 35 defines coastal areas as a "coastal environment" meant to remain undeveloped in order to ensure public access to the coast as well as along it. Any development must be linked to the landscape and to the coastal environment and require proximity to the coast.

### **5.2.5. National Outline Plan for Nature Reserves and National Parks, and Landscape Reserves (NOP 8), 1981**

NOP 8 designates areas as nature reserves and national parks, for protection of biodiversity, nature conservation, and public recreation in areas of natural or high scenic value. Currently there are two marine protected areas within the Haifa Metropolitan region. The first at Hof HaCarmel was designated by NOP 13; the other by NOP 35. There also two in the Tel Aviv metropolitan region at the Poleg river mouth and at Mikmoret, both designated by NOP 35. There are four declared marine reserves: Dor HaBonim, Yam-Avtach, Gadur and Shikma. A plan for the Shikmona Marine Reserve in Haifa has been deposited (SPNI report on the state of the coasts, 2006 at 7.2)

In addition, Israel's Nature and Parks Authority drafted a plan for marine nature reserves to comply with Israel's obligations under the Specially Protected Areas and Biodiversity Protocol of the Barcelona Convention for the Protection of the Mediterranean. With the purpose of protecting biodiversity and representative ecosystems that have remained unprotected, the plan proposes to declare 20% of Israel's territorial waters as marine nature reserves (N.Agrant, R. Yahel, Nature Preservation in the Mediterranean, 2012).

### **5.2.6. National Outline Plan for Forests and Afforestation (NOP 22), 1996**

NOP 22 for Forests and Afforestation, approved by the Israeli government in 1996, grants legal status to forestland through eight categories of forests including "coastal forestland." In creating coastal forestlands, NOP 22's planners saw the coastlands as a national recreational resource for the entire country: "The shoreline warrants a broad, cooperative planning perspective by local authorities – and by tourism, landscape and nature authorities. Because of the shore's size and importance, it cannot be isolated from overall planning on a national scale.... spacious coastal forest parks would serve as a hinterland of recreation and tourism for the large population centers nearby and ... for the country's population as a whole." (Kaplan, National Outline Plan for Forests and Afforestation, NOP 22, Policy Document, 2011, at 97).

### **5.2.7. National Outline Plan 12/1 for Hotels-Tourism**

NOP 12/1, approved in 2010,<sup>17</sup> adopted an innovative planning policy for tourism. It draws on NOP 35, which defines Israel's coasts as areas of highly sensitive landscape and ecological significance, and designates them for recreation and use by the general public, as well as on the 1999 Coastal Waters Policy Paper. NOP 12 differentiates between the country's center and its periphery, prioritizing plans for hotels and resorts in the coastal environment within urban areas. Its objective is to ensure the protection of the coastal environment by integrating open areas in the creation of landscape infrastructure for tourism, promoting coastal vacations emphasizing the country's history, heritage, holy places and unique Israeli culture. Its links to NOP 35 ensure its relevancy as a cutting-edge policy paper, overlapping between permissible development for tourism and the planning approach

<sup>17</sup> ילקוט פרסומים, התשע"א, עמ' 154



of NOP 35. This integration of development with protection of open areas that comprise an important element in the tourism sector as well, prevent the rezoning of areas designated for tourism to other uses. NOP 12 takes into account lessons learned from the controversies surrounding vacation apartments, emphasizing the significance of the coastal area for the public use. It obligates the approval of the Committee for the Protection of the Coastal Environment, requiring that it be persuaded that the construction is essential. NOP12 also requires that a hotel plan in the coastal environment be deposited only after the planning committee is persuaded that the development will not harm the coastal environment, its nature, landscape, or heritage, or the connectivity of the open spaces and public access.<sup>18</sup>

#### **5.2.8. EIA Regulations, Planning and Building Regulations (Environmental Impact Statements), 2003**

Significant regulations within Israel's legislative planning structure are its environmental impact assessment regulations. While the original regulations date from 1982, in 2003 they were replaced by an updated version. The EIA Regulations, Planning and Building Regulations (Environmental Impact Statements), 2003, require environmental impact statements for plans for ports and marinas and land reclamation. Moreover, a plan that in the planning agency's opinion will significantly impact "an area with high environmental sensitivity because of natural and landscape resources, including a shore [or] sea..." also requires an EIA. However, in light of the ecological integrity of Israel's entire coastal region, individual environmental impact statements for each individual plan cannot provide a comprehensive perspective, hence the need for statements that would address all the development plans in the area and consider their cumulative impact on the coastal strip.

#### **5.2.9. The Coastal Environment Protection Law, 2004**

By the 1990s the inadequacies of NOP 13 as a management tool for Israel's coasts were becoming apparent. During this period Israel was experiencing massive waves of immigration from Russia and Ethiopia with the accompanying demands for housing and jobs. Moreover, integrated coastal zone management together with sustainable development had become key issues on the international environmental agenda spearheaded by the 1992 Rio Summit. By 1998 the Ministry of the Environment had already prepared a draft of a "Coastal Conservation Law" which was "aimed at preserving and restoring the coastal environment and its fragile ecosystems, reducing and preventing coastal damages and establishing principles for the management and sustainable development of the coastline" (Israel, CAMP 1999).

After many years of drafting, negotiations, consultations and Knesset (Israel's parliament) hearings, the Protection of the Coastal Environment Law was finally adopted in 2004. It was designed as a management tool for Israel's coastline in response to the intensive coastal development of the 1990s. The law sets out three objectives: "To protect the coastal environment, its natural and heritage assets... and to prevent and reduce as far as possible any damage to them; To preserve the coastal environment and coastal sand for the public's

<sup>18</sup> Explanation to NOP 12/1, Thelma Duchan, December 2007, משרד הפנים, שנתון תכנון 2011, בעמ' 29

benefit and enjoyment and for future generations; To establish principles and limitations for the sustainable management, development and use of the coastal environment” (Section 1). The law’s overall objective is to “reduce damage to the coastal environment” (Section 3). Hence it calls on “any authority authorized to grant a license, permit... for any activity within the seacoast... [to] do so, as far as possible, in a way that is designed to reduce damage to the coastal environment” (Section 3).

The law has opened the way to a new approach to managing Israel’s coasts. Prior to the new law, an artificial divide existed in the planning hierarchy between the sea and the coast. Plans along the coast were reviewed by the local, district, and national planning committees, while plans addressing the marine environment were reviewed by the Coastal Waters Committee, the authority of which was limited to construction on the area of the coast bordering the water. This situation prevented a holistic consideration of plans with both marine and coastal implications. In addition, the PCEL introduced several innovative concepts. The law defines the coastal environment both horizontally and vertically, as “an area extending 300 meters inland, measured from the Mediterranean coastline...as well as the area measured from the Mediterranean coastline... seaward to the limit of the territorial waters and including, on land – surface and subsurface, and in the sea – the seabed and sub-bottom, as well as natural and landscape resources, natural and heritage assets, and antiquities.....” One of the main innovations of that definition is that it included both land and sea components, whereas up till then, the only legally binding definition of the coastal environment, (as was in the National Outline Plan 13) applied on the land part of the coast alone. As explained in the law’s explanatory notes, the definition was expanded to include both land and sea components because of the ecological interaction between these parts.

Key contributions of the law are the creation of the crime of “causing harm to the coastal environment,” a public right-of-way along the coastline, and the creation of a further crime of “erecting an obstacle, fence or other obstruction blocking the open right of way along the coastline.” The law has also established the Committee for the Protection of the Coastal Environment, stipulating that any plan in the coastal environment must be approved by this committee prior to deposit.

Yet the law suffers from significant weaknesses and flaws. The principles of protection of the coast as a public resource, protecting sea views and airflows, and a public right of passage along the entire length of the coast, were excluded from the final version of the law (Brechaya, MoE, *Present and Future Issues in managing Israel’s coasts*). Despite the intent of its creators to craft a legal tool that would give priority to the protection of Israel’s coasts over interests of other sectors of the economy, the prohibitions and restrictions that the law imposes have been weakened and subjugated to conflicting interests. While Section 4(a) ostensibly restricts the performance of any act that is liable to constitute damage to the coastal environment, 4(b) adds the caveat: unless the act was performed in accordance with a “legally granted ...license or permit”, or with the relevant plan. And similar to the proposed EU Directive (12.3.2013) on MSP and ICZM (Art.2.2.), the law does not apply to defense installations.

Revealing further flaws in the law, it refrains from prohibiting outright development within the 100 meter setback zone designated in the law as the “seacoast zone”, nor does it prohibit construction blocking the view of the sea. Other constraints upon the PCEL are depicted in Section 5 that calls for an open public right of way along “the entire length of the seacoast” yet “does not prevent the erection of an...obstacle, fence or other obstruction ...if it is carried out in accordance with a plan or permit.” Furthermore, the right of way does not apply within a long list of areas including: defense areas shut off to the public, port areas, nature reserves or national parks, freshwater related facilities, infrastructures including power stations, fuel storage facilities, desalination plants, legally declared beaches that charge entrance fees, and “lands that prior to entry into force of the law were not Israel lands within their meaning in the Basic Law: Israel Lands ... so long as the State, the Development Authority or the Jewish National Fund do not have rights to the lands.” Hence while the CEPL attempted to overcome conflicts between the various institutions empowered to operate or to authorize land use along the coast, the Interior and Defense Ministries as well as the Nature and Parks Authority, local authorities and other entities successfully held out against the law’s intent to create a public right of way along the entire coast.

#### **5.2.10. The Committee for the Protection of the Coastal Environment**

By means of an amendment to the Planning and Building Law, the PCEL established a Committee for the Protection of the Coastal Environment, which is technically a sub-committee of the National Planning and Building Council. The Committee comprises seventeen members: a representative of the Minister of the Interior, who serves as chairperson; two representatives of the Minister of the Environment; a representative from each of the following ministries and agencies: Ministries of Transport, Defense, Tourism, Energy and Water Resources, Construction and Housing, Agriculture and Rural Development, the Nature and Parks Authority, and two representatives of local authorities.

Non-governmental representatives are also members of the Committee: an architect registered in the Engineers and Architects Registry; a representative of an environmental public organization, as specified in the Representation of Public Environmental Organizations Law (Legislative Amendments), 2002; two experts in the field of protection of the coastal environment; an expert in maritime transport. The quantity and diversity of the membership of the committee reflect the diversity of interests and conflicts in managing Israel’s coasts. Also, it is noted that amongst the 17 members, 6 of them represent environmental interests.

Through an amendment to the Planning and Building Law, the PCEL established that a planning agency shall not grant a permit for construction or other act in the coastal environment area that requires a permit under the Planning and Building Law, unless it is in accordance with a plan or permit that has been approved by the Committee, or a plan that had been approved prior to the new law. Moreover, no plan applying to the coastal environment area shall be deposited or approved without the Committee’s consent, unless it is a detailed plan complying with all the provisions of a local outline plan that has already been approved by the Committee. The law stipulates that permits for nonconforming uses in the coastal environment area and easements within the beach setback, are subject to the

committee's approval, nor shall any deviation be given on building heights in the coastal environment that is not part of the beach setback, in a plan that was approved after entry into force of the law, unless with the Committee's approval. To make the committee's work more efficient, a sub-committee comprising five members reviews plans submitted by planning agencies and must decide within 30 days whether the plan requires the Committee's approval.

Emphasizing that its key objective is to protect the coastal environment, the law requires the Committee to "exercise its authority with consideration" of this objective, both for the benefit of the public, and to protect the coastal environment's natural and cultural heritage. Thus the **Committee is compelled to prioritize the public interest in access and use of the coastal zone, as well as the environmental and ecological integrity of the coastal zone, over other interests.** Specifically, the Committee for the Protection of the Coastal Environment cannot approve a plan or permit within the beach setback without weighing the justification for its approval against the value of protecting and reducing damage to the coastal environment and the public right of way along the beach setback. The committee is also required to determine the measures needed to reduce damage to the coastal environment and to restore the coastal environment if such damage is caused. Moreover, in reaching its decisions, the Committee must differentiate between built-up areas and open space, emphasizing the protection of open space in the coastal environment.

#### 5.2.11. Enforcing the PCEL

The PCEL provides a comprehensive compliance and enforcement program. Similar to other Israeli environmental laws, the PCEL authorizes the Minister of the Environment to issue administrative orders to prevent or remove environmental damage in those incidents in which an indictment has not yet been brought against the perpetrator. The minister is authorized to order the person who caused the damage, or is about to cause damage, to refrain from the act and to take the necessary steps to restore the coastal environment, to the extent possible, to its former state. Beyond the minister's administrative authorities, in those cases in which an indictment has been brought for a violation under the PCEL, "the court may issue a mandatory injunction, a restraining order or any other remedy as it shall deem fit according to the circumstances, including implementation of an order under section 9, all in order to prevent, stop or reduce damage to the coastal environment", According to data of the ministry's division for the marine and coastal environment, during 2011 the division handled 49 incidents of violations of the law, opened seven investigations of which four lead to indictments and convictions, and twelve administrative orders were issued (MoE, 2011).

In keeping with its emphasis on compliance and enforcement, the law also provides for inspectors with broad authorities to investigate violations of the law. The PCEL carries a six months imprisonment or a fine up to NIS 452,000. Moreover, "If a person committed an offense... under aggravating circumstances, he shall be liable to three years imprisonment or double the fine which is determined for the offense; in this section, "aggravating circumstances" – an act that caused damage or substantive harm to the environment."; And incorporating the recent economic approach of Israeli environmental legislation to

environmental crimes (the Environmental Protection Law (Polluter Pays) (Legislative Amendments, 2008)), to dissuade corporations from committing environmental crimes in order to save money, Israel's courts are authorized to impose an additional fine reflecting the corporation's profit: "For an offense committed by a person... in consequence of which he obtained a benefit or profit, for himself or for another, then, the court may impose on him a fine in the amount of the benefit or profit that he obtained as aforesaid, in addition to any other penalty."

### **5.3. Environmental regulatory laws**

#### **5.3.1. Prevention of Sea Water Pollution by Petroleum Ordinance [New Version], 1980**

Beyond the Coastal Environment Protection Law designed specifically for management of Israel's coasts, environmental regulatory laws also serve as effective tools for coastal zone protection. International law has comprised the major incentive for Israel's coastal and marine legislation. Israel's earliest legislation for petroleum spills was drawn from the International Convention for the Prevention of Pollution from Ships and its 1978 Protocol, which were adopted into Israeli legislation through the 1980 Prevention of Sea Water Pollution from Petroleum Ordinance (New Version) (Talitman et al., 2003; Weinthal and Parag, 2003).

#### **5.3.2. Prevention of Sea Pollution from Land-Based Sources Law, 1988**

A key legal tool for protecting Israel's coastlines from pollution is the Prevention of Sea Pollution from Land-Based Sources Law from 1988. Legislated to allow Israel's ratification of the Barcelona Convention's Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources and Activities (the LBS Protocol), the law has been widely used to protect Israel's coasts as well as its territorial waters. The law prohibits the discharge of waste including wastewater, into the marine environment without a permit, granted only when there are no alternatives for land treatment or disposal of the waste or wastewater. The LBS law operates through an inter-ministerial committee chaired by the representative of the Ministry of the Environment. The committee's membership reflects the conflicts between the various institutions and the use of their powers, and the impact of these conflicts on coastal conservation. Similar to the range of ministries and agencies represented in the Committee for the Protection of the Coastal Environment, the LBS committee has representatives from the Ministries of Defense, Health, Industry and Trade, Agriculture, Tourism and Transportation. A representative of an environmental NGO also sits on the committee.

The LBS law authorizes the Minister of the Environment to impose a fee on permit holders, and in 2011 the minister promulgated the Prevention of Sea Pollution from Land-Based Sources Regulations (Prevention of Sea Pollution Levy), 2011. Rather than an income for the Treasury, the permit fees are earmarked for the Marine Pollution Prevention Fund, established to strengthen implementation and enforcement of the law. Fee rates are based on the severity of the impact of the discharged pollutants on the marine environment

together with the quantities discharged, and are intended to reflect the environmental damage consequent to the discharge. The fee is also based on the location of the discharge site along the coastline.

Characterizing Israel's environmental laws generally, the LBS law emphasizes the importance of compliance and enforcement by providing for both administrative and court authorities, administrative fines, inspectors and more. It authorizes the Minister of the Environment to order offenders – or would-be offenders - to prevent, minimize or stop the act of pollution, and clean up and restore the area that was polluted. It further authorizes the court, in cases where indictments were already served, to issue injunctions to end marine pollution, and to undertake clean ups and restoration actions. The fine for discharging waste and wastewater into the marine environment starts at NIS 606,000; double this amount (NIS 1,212,000) if the offense was committed by a corporation. Furthermore, if a corporation contravenes the law in a manner which caused or was liable to cause severe damage to the marine environment, the maximum fine goes up to NIS 1,818,000.

### **5.3.3. Prevention of Sea Pollution (Dumping of Waste) Law, 1984**

Similar in origins and structure to the LBS law is the 1984 Prevention of Sea Pollution (Dumping of Waste) Law. Based on the original Dumping Protocol under the Barcelona Convention, dumping at sea is subject to permits issued by an inter-ministerial committee. While the law and regulations have not been formally amended in line with the Barcelona Convention's updated Dumping Protocol from 1995, Israel's policy for dumping is in line with the updated protocol, which prohibits the dumping of *anything* into the sea, except for what the law specifically permits. By the end of 1998, in line with changes to the Dumping Protocol of the Barcelona Convention, sea dumping was stopped in Israel with the exception of dredged material (sand) from maintenance dredging in Haifa and Ashdod ports and in the cooling ponds of Israel's coastal power plants, brines (following pretreatment) from food plants, and vessels to serve as artificial reefs and diving sites. (Israel, CAMP, 1999, at 16).

### **5.3.4. Environmental Protection Law (Polluter Pays) (Legislative Amendments)**

A law that has significantly expanded the Environment Ministry's enforcement powers is the Environmental Protection Law (Polluter Pays) (Legislative Amendments), crafted to "negate the economic benefit in causing damage to the environment, *inter alia*, by means of penalties that take account of the value of the damage caused, the benefit derived or the profits reaped from committing offenses dealing with the aforesaid damage." Amending many of Israel's environmental laws, the law authorizes the courts to impose on the offender, in addition to punitive fines, a further fine reflecting the benefit or profit which accrued to the polluter from non-compliance with the provisions of the law, and specifically in the case of the LBS law, from discharging waste into the sea rather than treating it and disposing it in an environmentally sound manner. The law also drastically increased the amounts of administrative fines regarding the LBS and Dumping laws, for an individual, to NIS 300,000, and "for a corporation with a sales volume not exceeding NIS 250 million – NIS 600,000... for a corporation with an annual sales volume exceeding NIS 250 million but not exceeding NIS 500 million – NIS 1.2 million; (4) For a corporation with an annual sales volume exceeding



NIS 500 million – NIS 2.4 million.” Regarding punitive fines, Israel’s environmental laws impose daily fines for ongoing violations.

### **5.3.5. The National Parks, Nature Reserves, National Sites and Memorial Sites Law, 1998**

The National Parks, Nature Reserves, National Sites and Memorial Sites Law, 1998 provides the legal structure for the protection of natural habitats, natural assets, and wildlife, and for the establishment of protected areas. As such, the law comprises a key tool for protecting coastal biodiversity and managing coastal reserves and other protected coastal areas. The law established a Nature and National Parks Authority and provides it with a wide range of administrative and enforcement powers which include: declaration, establishment and maintenance of nature reserves and national parks, declaration of fauna and flora outside the confines of nature reserves as "protected natural assets," appointment of inspectors, and administrative powers to prevent harm to and to protect natural assets. A National Parks and Nature Reserves Council, composed of all relevant stakeholders and appointed by the Minister of Environmental Protection, advises the Authority and the relevant ministers on matters related to implementation of the law. In 2007 the Committee for the Protection of the Coastal Environment approved plans for the Galim Coastal and Marine Nature Reserve north of Atlit, the Sharon Coast National Park and the Jasar Al Zarka National Park. All three plans ensure public access for pedestrians despite their status as reserves and parks.

### **5.3.6. The Bathing Places Law, 1964**

This law empowers the Minister of the Interior, in consultation with the Minister of Health, to close bathing beaches for health and safety reasons, and to issue orders regarding “declared bathing beaches”. It also authorizes local authorities to promulgate bylaws for maintaining beaches. The law prohibits imposing entrance fees to beaches, except if a reasonable part of the beach remains accessible without payment of fees.

### **5.3.7. Prohibition of Driving on the Coast Law, 1997**

Focusing specifically on the coasts, the Prohibition of Driving on the Coast Law, enacted in 1997, prohibits the use of a vehicle on beaches, defined as a 100 meter strip or any declared beach in accordance with law even if it extends beyond the 100 meter setback.

### **5.3.8. The Fishing Ordinance, 1937**

The Minister of Agriculture is responsible for the Fishing Ordinance, implemented by the Fishing Council. The Ordinance requires that all fishing must be under license except for coastal fishing with a line. The Council is authorized to set conditions on a wide variety of issues including the prohibition to fish with explosives or poisons or by other harmful methods, catch and size limits, closed seasons, and net requirements. Regulations prohibit the catching of sea turtles and limit catches of sponges.



### 5.3.9. The Petroleum Law, 1952

The Petroleum Law was enacted in 1952 to address the rights and obligations of corporations seeking and producing petroleum, natural gas and other fuels. Over the last decade significant gas reserves have been discovered in Israel's Exclusive Economic Zone and hence the Petroleum Law has become extremely relevant. The key institution within this law is the Administrator for Petroleum under the Ministry for Energy and Water, together with the Petroleum Council which serves as an advisory body. The law was enacted when environmental considerations were virtually non-existent, while the decision making process is barely transparent to the public (but environmental concerns and conditions are stipulated in licenses issued by the law's regulatory structure.). Despite the responsibilities of the Ministry of the Environment for preventing and eliminating pollution, it is almost not involved in the regulation under the Petroleum Law. Currently the Energy and Water Resources Ministry is working on environmental guidelines that will rectify this situation, by involving the Ministry of the Environment in the decision-making process, allowing transparency and public criticism; reviewing environmental implications of production, i.e. an environmental impact statement, and promoting a National Preparedness Plan in case of disaster. Following Amendment no.47 to the Planning and Building Law, a request for gas or petroleum exploration within Israel's territorial waters requires a plan approved by the district planning commission, together with an environmental review. Gas exploration within Israel's EEZ remains exclusively under the authority of the Petroleum Administrator and the environmental review becomes conditions to the exploration license.

## 5.4. Compliance and enforcement of environmental laws

The Environment Ministry has historically stressed the critical role of enforcement. Israel's environmental laws are criminal and ministry enforcement of the CEPL focuses on illegal structures within the 100 meter setback. In *Criminal Appeal 7373/12, Malka Yithak versus the Ministry of the Environment*, the Minister of the Environment ordered the demolition of a restaurant constructed 50 meters from the waterline on Olga Beach near Netanya. Dismissing the appeal and allowing the demolition to move ahead, the court stressed the importance of protecting the coasts: "... the issue of coastal preservation and coastal access is of the utmost priority, in light of the need to preserve the little that remains of our country's coasts, which have become a rare resource extensively exploited and not always for the good of the general public." Beyond enforcing the CEPL which is a relatively new law, the Ministry of the Environment has initiated hundreds of lawsuits against violators of the LBS law, the Petroleum Spill Prevention law, and the Dumping Law. A special squad of marine inspectors is charged with enforcing these laws, and is authorized to carry out criminal investigations.

### 5.4.1. Institutional review

The plethora of laws employed to regulate a diversity of uses of Israel's coastal zone comprise a comprehensive structure for ICZM. But as with all laws, their effectiveness depends on their implementation, which in turn depends on the institutions that are

responsible for their implementation, the conflicts between them, and the mechanisms in place to resolve these conflicts.

In absence of one focal point for ICZM, a multiple number of institutions are involved in various aspects of running Israel's coastline. The Interior Ministry and the Environment Ministry are the lead institutions for implementing ICZM in Israel; the former in terms of the planning laws, and the latter in respect of environmental laws. The Protection of the Coastal Environment Law is administered by the Environment Ministry, but the Commission for the Protection of the Coastal Environment was created under the Building and Planning Law and is chaired by an Interior Ministry official.

Beyond land use and environmental management, the two traditional strongholds of coastal management, numerous other institutions have a wide range of interests in Israel's coasts and powers and authorities to promote these interests. The Transportation Ministry is a major player in ICZM because of its responsibilities for Israel's ports and in light of the Ports Ordinance which it implements, as is the Health Ministry because of the need to supervise the quality of bathing water and beach conditions. The Ministry of Energy and Water Resources is involved because of petroleum and gas exploration and extraction. The Foreign Ministry becomes concerned when the issue is international ICZM instruments, as will happen upon Israel's ratification of the ICZM Protocol. And because the military has enclosed large expanses of Israel's coast for military use exclusively, the Defense Ministry has vested interests in coastal management as does the Agriculture Ministry because of the aquaculture industry and fisheries. The use of the coastal environment by the defense, transportation, agriculture and energy ministries and their interests in the closure of large expanses of the sea and coast, clash with the Environment Ministry's mandate to ensure public use of the coast for recreation.

Others conflicts emerge from interests to develop and use the coastline for tourism and recreation, versus interests in strictly regulating or even prohibiting any use because of ecological fragility, or because of historic and archaeological values. Hence the Nature and Parks Authority's interest in regulating entrance to coastal reserves and parks conflict with the public interest in unrestricted open access along the entire coast. This agency and other nature conservation organizations opposed the construction of marinas because of the interference with sediment transport and coastal and cliff erosion. And industrial and municipal interests in use of the marine and coastal environment to dispose of industrial and municipal waste, was until recently sanctioned by government authorities as a means of disposal, and historically has clashed with the public's interest in recreational use of the Mediterranean free of pollution.

To resolve the sectoral conflicts amongst this wide range of ministries, each pulling in its own direction, Israel's marine and coastal laws have established inter-governmental committees, for granting discharge or dumping permits, and reviewing plans for the coastal areas. These institutions are intended to allow for the consideration of interests other than environmental ones through inter-governmental decision-making for the coastal and marine environment. This inter-disciplinary approach replaces the historical sectoral mode of governance, with each ministry acting to promote its own interests, with a comprehensive,

integrated approach based on sustainable development. The question, of course, is how effective it is and whether it affords a balanced decision-making process for all stakeholders. Conflicts that ministries cannot resolve go to the government for a final decision.

Beyond government ministries, a wide range of agencies have a stake in the management of Israel's coasts. Those sections of the coast declared reserves or parks are administered by the Nature and Parks Authority, which is generally responsible for the ecological integrity of the coastline including coastal and marine biodiversity. The Israel Land Administration (ILA) is responsible for managing Israel's public lands, comprising over (92%) of the country's area. Recently the ILA has been criticized by Israel's Comptroller for failing to protect coastal areas from development. According to the Comptroller's report, local governments and planning authorities have continued to promote old and outdated plans for construction along the coast, despite the fact that Israel's coastal planning policy was updated in recent years to reflect a greater emphasis on environmental conservation. The ILA has failed to review these plans and has been charged with favoring economic development of state-owned land (usually by private developers) over conservation and public uses (more on this below).

#### **5.4.2. Stream Authorities**

Israel has two coastal stream authorities (the Kishon and the Yarkon). The jurisdiction of each includes the interface between the mouth of the stream and the Mediterranean, together with authorities and powers to act within these areas to protect the stream. Their mandate is to protect and restore the streams. Within the context of Israel's coastal streams, drainage authorities are other relevant players, most of which today have also received authorities over the environmental and ecological integrity of the streams under their responsibility, such as the Kishon Drainage and Stream Authority established under the Streams and Springs Authorities Order (imposing stream authorities' functions on drainage authorities), 2003. It is responsible for the upper Kishon Stream up to the jurisdiction of the Kishon Stream Authority.

### **5.5. Local-scale institutions**

#### **5.5.1. Local planning committees**

According to paragraph 18 of the Planning and Building Law, in a planning area comprised of a single local authority, the council of the local authority also serves as the local planning committee, a source of power and authority for coastal municipalities and other local authorities over the coastal environment. Hence they are **the key players in coastal management, each within the section of the coast under its own jurisdiction.**

#### **5.5.2. Local Authorities Law (Environmental Enforcement - Authorities of Inspectors), 2008**

The purpose of this law is to increase the enforcement powers of inspectors of municipalities and other local authorities in apprehending violators of environmental laws. The law grants

them police powers for inspections and investigations that until this law was enacted, only national government inspectors were authorized to use. The fines collected from successful enforcement are earmarked for the local authorities, as an economic incentive for independent and effective enforcement of environmental crimes in their areas. The law serves to strengthen Israel's local authorities in confronting pollution and other environmental and ecological harm.

### **5.5.3. The Haifa Bay Municipal Association for Environmental Protection**

Established in by the Municipal Associations Law, this institution is comprised of representatives of Haifa and surrounding municipalities and local councils, authorized with a wide range of authorities in environmental issues. The Haifa Bay area serves as the location for a significant number of chemical and petro-chemical industries and the Association is authorized to deal with industrial business licensing and building permits. It is also authorized to promulgate bylaws which it has done for fees and levies for industries.

Another key player in the management of Israel's coasts is the Israel Electric Company, a government corporation that amongst other locations operates power plants located on the coasts of the municipalities of Tel Aviv, Hadera and Ashkelon.

### **5.5.4. The role of NGOs in implementation of coastal management law and policy**

Beyond the Environment Ministry's criminal enforcement against violators of the CEPL and the marine environment laws, and emphasizing the importance of public participation in the planning and legal process, key actors in implementing the laws for protection of the coastal environment are Israel's environmental NGOs. Israel's courts have traditionally given a wide interpretation of standing, allowing these NGOs to act in the name of the public in protecting the country's coasts and beaches. NGOs have successfully brought before the courts broader policy issues, submitting administrative petitions before Israel's High Court of Justice and district administrative courts.

### **5.5.5. Freedom of Information Law, 1998**

The success of Israel's environmental NGOs generally stems from laws that help them operate as representatives of the public. Israel's Freedom of Information act ensures the public access to information, held by government and public institutions. The law specifically addresses environmental information and is used regularly by Israel's environmental NGOs for gaining the information they require in their work. Refusal or delay by government bodies to supply the information is a cause for a petition against the government in administrative courts. Public Access to Environmental Information, Regulations, 2009, requires government bodies to publish on their websites environmental information as detailed in the regulations, rather than the public having to go through the procedure of requesting it.

### **5.5.6. Representation of Environmental Public Bodies Law (Legislative Amendments), 2002**

The influential and key role that Israel's environmental NGOs play in determining the country's policy for its coastline begins with their participation in planning committees and the Committee for the Protection of the Coastal Environment under the Planning and Building Law, and environmental regulatory committees under the LBS and dumping laws. Their right to participate in these statutory bodies is mandated by the *Representation of Environmental Public Bodies Law* (Legislative Amendments), 2002. The purpose of this law is "to add representatives of public bodies concerned with environmental protection to committees established by law for the purpose of emphasizing environmental considerations in these committees in order to protect and preserve the environment and to prevent damage to the environment." The law consists of a series of amendments to environmental laws, mandating representatives of environmental NGOs as members on the committees established by environmental laws.

### **5.5.7. Abatement of Environmental Nuisances (Civil Action) Law, 1992**

This law empowers citizens as well as organizations to file environmental lawsuits in cases of environmental pollution or nuisances, including "causing harm to the coastal environment." Prior notice of sixty days of intent to file a complaint must be submitted to the Minister of the Environment and to the offender. If no action to eliminate the nuisance is taken during this period, the complaint may be filed. The law places three types of legal remedies at the disposal of the citizen: restraining orders, prevention of recurrence orders and corrective orders. In addition, the law provides standing for environmental groups.

### **5.5.8. NGOs as an institution for coastal conservation**

Israel's non-governmental organizations, especially the Society for the Protection of Nature in Israel (SPNI) and the Israel Union for Environmental Defense (IUED), have taken a lead role in increasing public awareness of coastal conservation issues and bringing change to Israel's coastal policy. They have used the planning process and the courts in achieving outstanding successes in protecting Israel's coasts from development. An extremely significant campaign tackled the immense challenge of so-called vacation apartments, which while presented as a branch of the tourism sector in actual fact comprise residential apartments. These NGOs employ a diverse array of tools to stop rampant development along the coast. They organize public campaigns, encouraging public participation, and use the court system against the government, the planning committees and the contractors. They have won precedential court rulings that unequivocally confirm public access to the coast as well as decisions that the construction of residential apartment, under the guise of vacation apartments, violates the provisions of NOP 13.

## **5.6. Conflicts and threats along Israel's Mediterranean coastline**

In the early years of the state, coastal and riverfront areas were neglected, often serving, as they did in many other countries, as dumping sites for sewage, effluents, solid waste and

other forms of pollution. This changed in the 1990s, when the real estate market rediscovered the Mediterranean coastline and a number of plans were drawn up for residential and tourism-related development along Israel's coast. Many of these plans – including the Carmel Beach Towers in Haifa, Kfar Hayam in Hadera, the Sea & Sun Towers in Tel Aviv and the marinas in Herzliya, Ashkelon and Ashdod – were eventually approved and the projects built.

This intensive development of the coast stirred up significant controversy and public debate on the merits of developing the seashore versus preserving it for public use, nature and landscape conservation and for future generations. Over the past decade or so, this trend toward intensive real-estate development along the coastline has begun to decline somewhat, especially following the passage of the Protection of the Coastal Environment Law in 2004, which established a new legal-institutional reality in which environmental considerations and the public interest were given greater weight in decisions on coastal planning and development. Yet, a number of threats to what is left of Israel's open coastline remain. These are detailed below.

#### **5.6.1. Pre-1983 building plans**

While NOP 13 (1983) effectively prohibited new construction within 100 meters of the sea and the Law for the Protection of the Coastal Environment (2004) established additional protections within a 300-meter zone, these laws only apply to plans submitted to planning authorities after they came into force; they do not apply retroactively to previously existing plans. Thus, several dozen plans for construction along Israel's Mediterranean coastline which were approved by planning authorities before these laws came into force, but were never built, are still technically pending, and could theoretically be built at any time. According to a report released in 2013 by Israel's State Comptroller (more on that below), some 53 such plans are currently pending along Israel's Mediterranean coastline, mainly for tourist resorts and similar projects.<sup>19</sup>

However, as developers have attempted to implement some of these plans in recent years, their attempts have inspired a broad public backlash, with a number of local activist campaigns being waged by people on behalf of beaches located close to their communities, with the aid of local and national NGOs. As economic incentives for developers to revive these old plans have increased, so has public awareness of the necessity to preserve what remains of Israel's open beaches. Mounting conflicts between opposing interests manifest themselves time after time in the planning bodies. These clashes have led to demands for amending the law such that older plans are reevaluated in light of more modern planning norms.

Over the years, the planning authorities have adapted to these changing norms, issuing decisions which give greater weight to environmental considerations, demanding changes to

---

<sup>19</sup> Representing almost 11 million square meters of potential construction in total. The report also notes the existence of 32 such plans along the Sea of Galilee and 6 along the Dead Sea. The report is based on data from the Israel Lands Authority, but notes that there are other approved plans which do not appear in the ILA's data.



plans and sometimes even outright rejecting such plans. This trend began with the backlash against plans for a number of marinas up and down the coastline in the 1990s (see below) and continued into the 2000s against plans for seaside resorts.

In 2005, the CPCE, mandated to examine all plans for construction within 300 meters of the sea, rejected a plan to build a hotel and tourist complex at the Zikim beach in southern Israel.<sup>20</sup> In its decision, the committee noted that the site in question was one of the most sensitive natural areas along the southern coastline and that the potential negative impact of the proposed construction on the environment and in limiting public access outweighed its potential benefits.

The cases of Betzet beach (near Israel's northern border) and Palmachim beach (in the south) established even more dramatic precedents. In both cases, construction plans were approved before passage of the 2004 law (Betzet in 2002, Palmachim in 2000). Both involved plans for large tourist resorts (480 acres in Betzet, 414 acres in Palmachim) on areas which were previously open sandy beaches outside of urban areas. In both cases, local residents launched massive public campaigns against the projects when the developers began construction (in 2007), which they managed to sustain over several years, contributing to significant delays in construction.

In the case of Betzet beach, the developers themselves decided to cancel their plans, withdrawing from a tender which they had won. They are now negotiating their compensation with the Israel Lands Authority, which originally marketed the land for the project.<sup>21</sup>

The case of Palmachim beach is more complex. In the wake of sustained public opposition to the project, the State Comptroller decided to examine the subject in his 2009 annual report. The Comptroller found a number of shortcomings in the way the land for the project was marketed by the Israel Lands Authority as well as in the various stages of the planning process. He recommended that the District Planning Committee and the Committee for the Preservation of the Coastal Environment reassess the plan and its previous decisions on it, considering the great public interest in the plan and the existence of the new law. In 2010, the government stepped in and referred the matter to the District Planning Committee, asking it to reexamine the plan.<sup>22</sup> The district committee held several discussions on the matter before deciding to transfer it to the National Planning and Construction Council, where it is still pending.<sup>23</sup>

In 2012, the District Planning Committee rejected a plan for another resort village just north of Kibbutz Nachsholim, located on the coast south of the city of Haifa. The plan included construction of 500 hotel rooms at the edge of the coastal zone (just beyond the 300-meter

---

<sup>20</sup> See committee's decision regarding plan 14/234/02/6 from Dec. 28, 2005.

<sup>21</sup> "119 Threats to Open Spaces in Israel," a report published by SPNI and written by Itamar Ben-David, 2013 (Hebrew).

<sup>22</sup> Government Decision 1954, July 11, 2010.

<sup>23</sup> As of the writing of this report in July 2013.



zone defined by the 2004 law). After 1,130 formal objections to the plan were submitted to the planning committee, a special reviewer was appointed<sup>24</sup> who also recommended preserving the site as an open green area for leisure and recreation. The committee voted to accept this recommendation.<sup>25</sup>

Another example of this trend is a plan for a resort village at Nitzanim, in southern Israel. The plan was created in the framework of a broader master plan for housing Jewish settlers evacuated from the Gaza Strip by the Israeli government in 2005. The master plan<sup>26</sup> applied to a mostly undeveloped area of sandy dunes located between the southern coastal cities of Ashdod and Ashkelon, part of which is a declared nature preserve. The new resort village was meant to be built in the heart of the nature preserve, with 900 vacation units on an area of some 300 acres, at a distance of around 300 meters from the waterline. Following a broad public campaign against the plan<sup>27</sup> which also managed to garner the support of the Ministry of Environmental Protection, the Israel Lands Authority announced that it had no further interest in promoting the project. It is important to note, however, that the plan for the resort village was not removed from the NOP.

While most of these plans are for construction outside of urban areas, there are also examples of such plans along urban coastlines. For example, a plan to renovate the promenade along Haifa's southern beach, while retroactively approving commercial structures was approved by the National Planning and Building Council in 2012, despite the fact that the structures were located within 100 meters of the waterline. However, the Council rejected part of the plan, which would have allowed for new construction along the promenade.

In Tel Aviv, a master plan for a new urban district along the city's northern coast aims to develop one of the last undeveloped areas within the city limits. The plan, promoted by the city government, calls for construction of between 11,000 and 12,000 housing units as well as over 1,000 hotel rooms, 150,000 square meters of office space and a new municipal stadium on an area of just under 2 square kilometers. The plan also includes an expansive park along the coastline with a width of approximately 235 meters. According to the plan, 3

---

<sup>24</sup> reviewers in cases where certain construction plans garner an unusual number of formal objections.

<sup>24</sup> District Planning Committee decision from July 31, 2012 on plan 336/336.

<sup>24</sup> NOP 39, approved in 2005. The government originally planned to build 4 new villages for the evacuees, but following a campaign by the environmental organizations, it decided to build one new village and expand one existing village, both on land formerly used for agriculture.

<sup>24</sup> Called "The Campaign to Save the Nitzanim Sand Dunes," it was led by the SPNI, the Israel Union for Environmental Defense and other environmental NGOs. Israeli planning bodies appoint special reviewers in cases where certain construction plans garner an unusual number of formal objections.

<sup>25</sup> District Planning Committee decision from July 31, 2012 on plan 336/336.

<sup>26</sup> NOP 39, approved in 2005. The government originally planned to build 4 new villages for the evacuees, but following a campaign by the environmental organizations, it decided to build one new village and expand one existing village, both on land formerly used for agriculture.

<sup>27</sup> Called "The Campaign to Save the Nitzanim Sand Dunes," it was led by the SPNI, the Israel Union for Environmental Defense and other environmental NGOs.

shopping centers would be built within the area of the park, while 6 underground parking lots, with a total of 4,000 parking spaces would be built beneath it.

A previous version of the plan (2700/חל), which was promoted by the city in the 1990s, did not include the park. Under that plan, construction would have reached all the way to the 100-meter line – but it was never officially approved. In the early 2000s, the city started working on a new version of the plan (3700/חל), this time with the involvement of the SPNI, which managed to insert the park into the plan. In the late 2000s, this plan was deposited with the district planning committee for objections. Local residents challenged the park's concept, opposing the plan for parking and shopping centers within the park. Their objection was rejected, but they appealed. The issue is currently pending with the National Planning and Building Council.

Following all of these public campaigns waged by citizen-activists against pre-1983 construction plans along the coastline, Israel's State Comptroller decided to look into the matter. In a report released in 2013, the Comptroller examined procedures for the approval of construction projects along the Mediterranean coast based on plans approved prior to the Law for the Preservation of the Coastal Environment. In his report, the Comptroller criticized state and local planning bodies for continuing to advance these plans, noting that many were based on outdated planning concepts which were out of step with current environmental norms. Furthermore, he argued, society's development needs and environmental consciousness have evolved in the interim, necessitating the need for a reassessment of the old plans in light of contemporary reality and legislation.

The Comptroller also called on the management of the Israel Lands Authority to hold a comprehensive discussion on its development policies as they pertain to coastal areas, especially in cases where they are perceived as being harmful to the public interest. The Comptroller also called on the planning authorities to consider periodically reassessing plans that were approved years ago in light of contemporary approaches.

In addition, the State Comptroller determined that as part of the auction for land marketing, on which the provisions of the old plans for the coast apply, the trend of the new legislation will serve as a guideline for the Israel Land Administration and, this way, will ensure the conservation of the land and the development of the area for the benefit of the general public.

New legislation has also been drafted, with the help of the Israel Union for Environmental Defense and Bar-Ilan University legal clinic, that would mandate a reassessment of any plans for construction along the coast that were approved eight years ago or more (including along the Red Sea and Sea of Galilee coastlines) by the CPCE. The bill was approved by the Ministerial Committee for Legislation, a cabinet-level body that determines the government's position on proposed legislation, clearing its way for its passage through the Knesset. However, its approval was appealed by the Tourism Minister.

### 5.6.2. Infrastructure projects

Israel's coastal zone has historically been seen as an attractive area for construction of infrastructure projects, such as power plants and commercial ports. While some types of infrastructure (such as desalination plants) require locations in proximity to the sea, Israel's limited land reserves and the intense opposition of residential communities to any attempt to locate new infrastructure projects near their homes, have reinforced this trend to locate them along the coast.

In recent years, as vast offshore reservoirs of natural gas have been discovered in Israel's territorial waters, planning bodies have had to address the issue of where to construct the infrastructure facilities necessary for the development of this new economic sector – offshore, onshore, or some combination of the two. The Interior Ministry is currently preparing a national outline plan (NOP 37 Het – Processing Facilities for Natural Gas from Discoveries) that would provide a policy framework for this. While placing these facilities offshore would be more expensive than building them onshore, various public campaigns have expressed opposition to their construction in proximity to existing communities – in part based on considerations of defense/security. There is less significant public resistance to placing these facilities at sea, but the Ministry of Environmental Protection has recommended that in such a case they be located at a distance of at least 7.5 km from the coastline, in order to reduce their impact on the coastal landscape.

The government is also considering construction of artificial islands at sea, in order to create a platform on which to locate new infrastructure. While in the 1990s construction of artificial islands was seen as a potential solution for creating residential space, today it is seen as a way to create space for clusters of various technological facilities, and various government teams have examined its feasibility. In June 2012, the government decided to establish an inter-ministerial steering committee, led by the Ministry of Science and Technology, charged with evaluating the technical feasibility of constructing artificial offshore islands (Government Decision 4776, June 17, 2012 - Feasibility Study for the Construction of Artificial Islands for Infrastructure Clusters). Among the projects being considered for inclusion in such a “cluster” are a power plant, a military testing facility, a seawater desalination plant, a recycling facility, a wind energy facility and an airport. The committee's recommendations have yet to be released. Ramifications of such projects could include environmental externalities such as air and sea pollution, noise, unwanted effects on flora and fauna and displacement or other consequences for other sea-based activities.

### 5.6.3. Marinas

Israel currently has seven marinas, defined as protected harbors with moorings for small ships, along its Mediterranean coastline: in Akko, Haifa, Herzliya, Tel Aviv, Jaffa, Ashdod and Ashkelon.<sup>28</sup> The term “marina” is not a recognized statutory concept in Israeli planning. National Outline Plan 13, which provides the framework for the planning of the country's

---

<sup>28</sup> The Israeli Coastline, report by the Society for the Protection of Nature in Israel and the Forum of Coastal Organizations, Papai, 2003.

coastal areas, addresses only the concept of “a space for the docking of small water crafts...”

Three of these – the marinas in Herzliya, Ashdod and Ashkelon – were constructed in the 1990s. During that decade a number of similar plans for construction of large marinas were aggressively promoted in the cities of Nahariya, Akko, Haifa, Netanya and Tel Aviv (in the Yarkon River estuary). All of these included extensive plans for residential and hotel construction alongside the actual marinas. In addition, conceptual plans were floated for new marinas in the towns of Jisr a-Zarka, Hadera and Bat Yam, as were plans for the expansion of Jaffa’s ancient fishing marina.<sup>29</sup>

These were essentially real estate schemes, many of them containing so-called “vacation apartments” (see below), and their construction carried serious implications for the beaches and cliffs located to their north, due to their potential to block sand flows. As a result, this trend was eventually halted, with all plans for new marinas being taken off the table during the past decade or so (with some of them stuck in planning limbo, neither actively promoted nor outright rejected by the planning institutions).<sup>30</sup>

#### **5.6.4. ‘Vacation apartments’**

National Outline Plan 13 designated the entire Mediterranean coastline for public uses, including hotels, recreation and tourism. Residential construction was prohibited... Nevertheless, during the 1990s, thousands of residential apartments were approved and marketed under the guise of being “vacation apartments” in projects along the coast in multiple cities.

Public-interest groups, led by SPNI and the Israel Union for Environmental Defense, challenged this practice in court, claiming that building what were essentially residential units contradicted the policy, anchored in NOP 13, that the coast should be developed for tourism and recreation, not for residential use. In a series of key decisions, the courts accepted this argument, ruling that NOP 13 intended for these units to be used literally as vacation dwellings, not as regular residential apartments.

Following these court rulings, planning authorities discontinued this practice, and the term “vacation apartment” is no longer used in plans. As for those “vacation apartments” already built, the courts determined that they must be put to public use, and therefore “the appropriate solution is that the apartment owners will make their apartments available to the use of the general public whether through using a database of apartments, or by any other means, for most of the time, meaning more than six months per year in the aggregate” (Civilian appeal 1054/98, Carmel Beach Recreation and Tourism Ltd. versus Israel Union for

---

<sup>29</sup> The Israeli Coastline, Papai, 2006.

<sup>30</sup> Ibid.

Environmental Defense). This decision was reinforced in later rulings and was also adopted by policy makers.<sup>31</sup>

#### **5.6.5. Erosion of the coastal cliff**

Around 45 km of Israel's coastline consist of unstable coastal cliffs, rising 10 meters or more above sea level. In recent decades, these cliffs have been retreating east at a rate of several dozen centimeters per year. This is a natural process, but one accelerated by human activity such as unauthorized use of motorized vehicles in these areas and the construction of marinas (see above), which obstructed the natural flow of sand up the coastline. It is also affected by the accelerated rise in the sea level caused by climate change. In some areas, densely populated residential areas were built on top of the cliffs (such as in the towns of Netanya, Ashkelon and Herzliya).

A policy document drafted by the Prime Minister's Office and the Ministry of Environmental Protection in 2010 (The Collapse of the Coastal Cliff in Israel by Bein, Edelman and Cohen) recommended a multi-disciplinary approach with two major recommendations for mitigating the problem: 1) Construction of physical protections and reinforcements to stabilize the cliff and prevent its collapse – including in Ashkelon, Herzliya and Netanya, where adjacent residential buildings could be at risk. 2) New regulations, including new standards and better supervision of future construction in cliff areas, prohibiting new construction in at-risk areas and a gradual and judicious process of removing existing structures located in the immediate high-risk zone.

The government later adopted these recommendations (Government Decisions 1620 from May 24, 2010 and 3097 on May 3, 2011) and allocated a budget of approximately 105 million euros to carry them out. According to the plan, a government company led by the Ministry of Environmental Protection and charged with protecting the coastal cliff will be established. The company will build bulwarks along some 13.1 km of the cliff, with those protecting archaeological sites and coastal areas of Ashkelon, Herzliya and Netanya being built in the first stage. At the same time, another government entity will be established for the purpose of facilitating the flow of sand to the relevant beaches, constructing breakwaters and stabilizing the slopes of the cliffs, in coordination with the national and local governments.

#### **Obstacles to free public access**

The Law for the Protection of the Coastal Environment (2004) enshrined the public's right to free passage along the coastline. However, the law provides a relatively long list of uses and facilities exempted from the requirement to ensure free public access, including infrastructure facilities, ports, and military installations. As a result, examples abound of beaches and coastal areas that are off-limits to the public, including the Crusader fortress at Atlit (which serves as a military base) and the beach along the Orot Rabin power station near the city of Hadera.

---

<sup>31</sup> For example, Amendment No. 1 to NOP 12 for tourism defines "special hotel accommodation" as being "owned by more than one entity and available to the general public for most of the year..."

Over the years, some local governments have also instituted admission fees at various beaches. This practice was challenged in court by public-interests groups, including the Israel Union for Environmental Defense, based on the claim that it violates the public's right of free access to the beaches, particularly people of limited means. In response, the state agreed to formulate clear guidelines for approving requests by local governments to collect admission fees and parking fees at public beaches. These guidelines are based on the principle that the beaches are a shared natural resource to which the public has the right of free access. According to the guidelines, admission fees can only be charged if special services are provided that exceed the basic services provided on all beaches, while parking fees must be appropriately priced and cannot block pedestrian access routes to the beach.

The Supreme Court ruled that "the necessary balance between regulated coastal areas which require an admission fee, and open spaces which allow free access, stands at the heart of this petition. Within this balance, the principle of public access, free of charge, to the beach, as a national resource available to the public, should have preeminence. Alongside free access to beaches, other regulated areas which may require an admission fee may exist, but in appropriate and reasonable proportion, given the nature and purpose of the public lands, and taking into account the right of the public to enjoy these areas. Keeping the ratio and proper balance between the open and the regulated areas for which a paid admission is required is the primary role of the law-enforcement authority involved. The law-enforcement authority must strictly maintain this ratio, to ensure proper execution of the procedures and the provisions of the law with respect to any coast of Israel, including the Sea of Galilee".

#### **5.6.6. Conflicts over interpretation of 100-meter setback**

NOP 13 declared a beach setback of 100 meters from the sea within which construction was prohibited. However, the actual definition of the waterline, as defined by the NOP, became the subject of some controversy. While the plan clearly laid out a "prohibition on the construction of buildings within a distance of at least 100 meters from the upper waterline,"<sup>32</sup> the exact location of the "upper waterline" was not specified. The original intention of the Tama editors in 1983 was that this line will reflect the state of the beach in most of the days of the year and in the greater part of the day. However, the ambiguity and lack of clarity of this definition on one hand, and the lack of decisiveness by the planning authorities issue, on the other, left open a loophole which allowed a number of projects to be constructed along the coastline.

In the petition submitted by the Israel Union for the Environmental Defense against the motel in Nahariya (Het. Peh. (Het Yud) 30012/97 Israel Union for the Environmental Defense – Israel Environmental Protection Society against the Local Committee for Planning and Construction in Nahariya) the Israel Union for the Environmental Defense claimed, among other arguments, that the project was built too close to the water line, in violation of Tama 13 which prohibited construction within the 100 meter setback zone. To prove its claim, the Israel Union for the Environmental Defense submitted an expert opinion prepared by a

---

<sup>32</sup> Article 12 (2) (a), NOP 13.



qualified surveyor who measured the actual distance from the water line during different times and determined that the building falls within the setback zone, tens of meters short of the required 100 m distance.

The court noted that although some shifting is apparent in the shoreline, it does not fully explain the large discrepancy between the measurements of the petitioners' experts and the government's experts. The court's conclusion was that the measurements submitted by the local planning committee were not accurate. Regarding the extent of the deviation, the court transferred the right for the last word to the National Council.

In turn, the National Council determined that the upper water line, from which the 100 meters of prohibiting construction of buildings is measured, will be set to the 0.00 contour. Following the 1999 Coastal Waters Policy Paper, an inter-ministerial interdisciplinary team for setting the height of the upper water line was established in 2000. The committee submitted its recommendations in mid-2001, according to which the water line will be determined by measured and fixed points (coordinates) and the 1.5 meter contour will be used as the upper water line. Although several hearings were conducted on this issue, the committee's recommendations were not accepted and the planning void remained unchanged (Ezra d. (with no date), the planning policy in reference to the coastline, a background paper for the discussion of the Coastal Environment Protection Committee).

The Coastal Environmental Protection Law which came into effect in November 2004, partially implements the recommendations of the expert committee, according to which the shoreline will be determined by fixed and measured points. The law determined the reference line at a height of 0.75 meters above the national zero line, a height lower than the committee recommendations and higher than current measured height.

#### **5.6.7. Pollution of the Sea**

Israeli law (see above) prohibits the dumping of sewage and waste into the sea, unless a specific permit to do so is granted by the Inter-ministerial Committee for Granting Permits for Discharge into the Sea. The committee is authorized to grant such permits only in the event that the pollution cannot be treated on-land (through municipal sewage systems, waste recycling means or other means). In addition, when a discharge permit is rendered, the receiver of the permit must also obtain a permit to install technological BAT (Best Available Technology: The best technology available which is economically feasible) means.

At present, the largest source of marine pollution in Israel is the Shafdan wastewater treatment plant, which handles all of the sewage and wastewater from the greater Tel Aviv area (serving close to 2 million people) and currently dumps the sludge that remains after treatment some 5 km off Israel's coastline, through an undersea pipeline. However, the Shafdan is slated to cease its dumping in the near future as it begins converting the sludge into compost for agricultural use.

In the past, the main sources of pollution were the industrial plants around the Kishon River, outside of Haifa, which discharged raw sewage and waste into the river, which empties into



the Mediterranean. With the introduction of a permit system –regulating the factories' waste discharged in 1998, the quality of industrial effluents discharged into the river dramatically improved.

The Marine and Coastal Environmental Division supervise all plants and discharge sources which carry discharge permits. In recent years, it is apparent that a dramatic reduction in pollutant loads which are discharged to the sea had occurred as a result of ministry efforts to implement the decisions of the committee for granting permits.

In order to ensure the health of beach-goers, Israel's Ministry of Health monitors water quality at the country's recreational beaches and publishes the results online: [http://www.health.gov.il/Subjects/Environmental Health/Pages/ShoresMap.aspx](http://www.health.gov.il/Subjects/Environmental_Health/Pages/ShoresMap.aspx). During periodic episodes of beach pollution, the ministry declares these beaches closed to the public.

## 6. ITALY

---

### **(Planning issues along the Sicilian coastline and the “condoni”<sup>33</sup>)**

Sicily’s experience with illegal and unregulated construction along its coastline serves as a cautionary tale of how well-intentioned laws and policies can backfire when badly designed, serving to encourage the very behaviors which they were originally intended to prevent. The implementation gap between national and regional laws on the one hand, and local planning and regulatory interventions de facto on the other, is largely illustrative of the situation in southern Italy, as well as in other countries throughout the region.

Most of the urban development in Sicily is concentrated along the coastline, including the island’s two major cities. This is largely due to the island’s physical topography, with mountainous areas covering much of the island’s interior, as well as some of the coastline.

The coastal development includes mainly harbors, industrial areas and urban development, with the latter falling into two main categories: residential construction and tourism/second homes. There are also numerous development constraints along the coastline, including a number of large nature parks and preserves, archaeological and historical sites and a series of beachfront watchtowers, built in the Middle Ages as part of a defensive system against foreign invaders. Offshore, tuna stocks are another constraint that has to be taken into account.

The legal structure that affects the Sicilian coastline involves a mix of national and regional laws and regulations, with local authorities being immediately responsible for overseeing planning in a way that conforms to these. While Sicily has been an autonomous region since WWII, national laws (as well as EU legislation) on heritage-site preservation and the environment generally apply. The planning system is primarily a regional and local “conformative” system, in which plans lower down in the hierarchy must respect the stipulations of plans higher up in the hierarchy.

In 1976, a Sicilian regional law on tourism (L.R. 78/76) defined a 150-meter zone along the coast, beginning at the waterline and extending inland, in which all construction would be prohibited. This preceded Sicily’s regional planning law, which was passed in 1978. However, the law did not expressly prohibit construction within that zone, but rather obligated local governments on the island to prepare binding statutory master plans which would contain the 150-meter rule.

However, due to the political sensitivity of the issue, local authorities lacked the political will to exercise the authority granted to them by the law and failed to formulate binding master plans. In the meantime, the knowledge that such a rule existed but was not enforced proved

---

<sup>33</sup> Based on a presentation to Mare Nostrum in March 2013 in Haifa by project consultant Prof. Francesco Lo Piccolo of the University of Palermo on planning issues along Sicily’s coastline.

a powerful incentive for increased construction inside the 150-meter zone, as people attempted to establish facts on the ground while there was still a lack of enforcement.

Seeing that local authorities had failed to act on the authority granted to them by the 1976 law, the regional government of Sicily eventually passed a new law in 1991 which simply prohibited all construction within the 150-meter zone outright, without regard for local master plans.

Meanwhile, in 1985 a national law for environmental protection (“Galasso Law,” L. 431/1985) prohibited all construction within a 500-meter zone along the coastline. In the same year, however, the state issued the first “condono” – essentially a general pardon or amnesty, which retroactively legalized all such construction within the zone of prohibition in exchange for a fine paid by individual offenders.

The concept is derived from a medieval practice of the Catholic Church, in which people were allowed to pay a fine in order to absolve themselves of their sins. This practice became deeply rooted in Italian culture, and after the first “condono” in 1985, people realized that they could continue building illegally, as they would probably be able to retroactively legalize later in the next condono.

In Sicily, however, the national condoni did not cover structures built within the 150-meter zone, which remained illegal according to regional law. As a result, these buildings could not be sold nor passed down as part of an inheritance, and many lacked basic infrastructure and were not covered by building regulations. Nor did they appear in land-use plans, which often designated de facto built-up areas as agricultural lands. The data shows a significant jump in such construction activity along the coastline after 1976.

Thus, most of the illegal construction along the coastline was the result of disperse action by thousands of individuals, not of commercial developers or corporate actors like hotels (which, unlike private local citizens, were not allowed to build near the coastline without planning permission). For the most part, these are “second homes,” or vacation homes that families from places inland built for their own personal use. For this reason, the fact that they cannot be rented or sold is less significant for the owners. This phenomenon began to gather force in the late 1960s and early 1970s, and is widespread in Sicily not just among the wealthy, but among middle-class families and even lower-middle class.

The most extreme example of this in Sicily is in Triscina, where the growth in vacation homes by the sea has been particularly dramatic. Five thousand such houses were built there illegally and most of them having standing demolition orders against them. Elsewhere, near the city of Palermo, vacation homes built near the city became an informal affordable housing option in the 1980s, when real estate pressures made this economically feasible.

To this day, no politically feasible solution to the problem of illegal construction along Sicily's coastline has been found. These houses can neither be demolished (due to political pressure on local authorities), nor bought and sold on the open market, nor legalized, and thus continue to exist in a state of planning and legal limbo.

While the situation described above is particular to Sicily, it is largely illustrative of much of southern Italy, where coastal areas are characterized by similar phenomena. This is not, however, the case in northern Italy, where most of the construction along coastlines is planned, legal and carried out either by wealthy families or developers.

## 7. MALTA

---

### 7.1. The implementation gap

This report provides an overview of the policies and legislation pertaining to coastal zones, and coastal zone management, and provides in doing so, a review of all the relevant policies and acts that affect or are affected by, and are in some way connected to the implementation, or future implementation, of the relevant legislation. The report covers this issue from a number of angles, in the first instance it provides a detailed, yet brief overview of the current policies and legislation in place in the various sectors related to coastal zones and coastal zone management, development, environment and heritage in a broad sense. Definitions and explanations provided in these sections are extracted from government documents, and documents pertaining to the relevant ‘competent authorities’ in charge of each sector. An analysis is then provided in the following sections, of the ways in which legislation has been implemented, or has failed to be implemented, eliciting examples of specific issues, and cases that highlight the latter, as well as a discussion of shortcomings both in the implementation of policies and legislation, as well as gaps, and the absence of proper legislation and enforcement. These in a large part contribute to the ‘implementation gap’.

Malta is a small island state in the middle of the Mediterranean Sea, comprising 3 inhabited islands: Malta, Gozo and Comino, as well as smaller uninhabited islands such as Cominotto and Filfla. The Maltese Islands are home to over 416,000 inhabitants, measure approximately 316 km<sup>2</sup> and boast around 270 km of coastline (NSO, 2012). Malta is a signatory party to major supra-national agreements on the marine and coastal environment, such as the Law of the Sea, which was actually initiated by Maltese diplomat Arvid Pardo; the Ramsar Convention on wetlands; the Barcelona Convention, including the ICZM Protocol; and many EU Directives. Although Malta has ratified the ICZM Protocol to the Barcelona Convention, the provisions of this protocol have not yet been transposed into national legislation. Nevertheless, even though there is not yet any specific coastal legislation in place, Malta has an extensive body of legislation, dating back to the times of the Knights, and many of these decrees relate to the coastal zone, both directly and indirectly.

The entire country can be considered to be a coastal area, due to its small size and focus on coastal activities, such as fishing, shipping and tourism. This in itself creates difficulties in determining where and how coastal legislation is drawn up and implemented, now or in the future. Many major infrastructural installations, such as desalination plants, sewage treatment plants and power stations are found in a coastal location. The coastal zone is intensely covered with significant cultural and natural heritage, such as old fortifications, watch towers, spectacular cliffs and protected *Posidonia oceanica* meadows. Furthermore, even activities that take place in the interior of the islands affect the coast, such as run-off from agriculture land that ends up in the sea and the rapid development in valleys that at times create flooding in low-lying coastal zones.

The post-war move of populations from older settlements towards coastal communities, and the introduction of international tourism in the 1950s have greatly increased pressure on the coastline and sparked a booming construction industry. Up until today, the construction sector is seen as a major contributor to economic growth, despite the staggering numbers of empty property. Over-development is visible at several locations along Malta's shores, in the form of vacated hotels or unfinished apartment blocks. Illegal developments and activities, such as the use of boathouses as summer residences, illegal kiosks and caravans on the waterside, and bird hunters and trappers who claim public coastal land as their own and thereby inhibit public access to the coast, are some common practices.

The fragmentation of coastal legislation and a sectoral approach in policy making are the main contributors to the implementation gap in coastal zone management in Malta. Although demands for a comprehensive coastal strategy date back to the 1990s, to date there is still limited cooperation and coordination between different policy domains and institutions. Furthermore, the heavy tonnage of laws, as well as conflicting or overlapping policies make it difficult to understand which law or regulation applies in which case, making enforcement actions to counteract illegal practices difficult to put into effect in the coastal zone.

## 7.2. National legislation

As a result of 180 years as a British colony, Malta's parliamentary system is modelled on the British parliamentary system.<sup>34</sup> Malta gained independence in 1964 following a Constitutional referendum, which was passed by a majority of 54.5% of voters and paved the way for an independent nation.<sup>35</sup> However, several laws were already in place from before that time, with the oldest law, dating back to 1828, being the *Ecclesiastical Courts (Constitution and Jurisdiction) Law* (1828, Cap. 1) on the regulation of the constitution and courts having jurisdiction in religious matters.<sup>36</sup> However, decrees had already been issued by the Knights of St. John during their sojourn in Malta.

The Maltese legal system is built on three pillars, exercising legislative, executive and judicial powers respectively. There are different sources of law: Acts of Parliament (Primary Legislation); Regulations, Rules, Orders, and By-laws (Subsidiary Legislation); and EU Law, including decisions of the European Court of Justice.<sup>34</sup> European regulations, directives and decisions, as well as legally binding international treaties are ratified and transposed into national legislation.<sup>37</sup>

---

<sup>34</sup> European e-Justice Portal, 2012. *Law – Member State Law – Malta*. Retrieved May 14, 2013 from the website of the European e-Justice Portal: [https://e-justice.europa.eu/content\\_member\\_state\\_law-6-mt-en.do?member=1](https://e-justice.europa.eu/content_member_state_law-6-mt-en.do?member=1)

<sup>35</sup> Description of Referenda in Malta: The Questions and the Voters' Responses. Retrieved from: <http://www.maltadata.com/ref-votes.htm>

<sup>36</sup> Ecclesiastical Courts (Constitution and Jurisdiction) Law, 1828. Cap. 1 of the Laws of Malta.

<sup>37</sup> Government of Malta, 2013. The Judiciary in Malta. Retrieved May 14, 2013 from the website of the Government of Malta: <https://gov.mt/en/Services-And-Information/Business-Areas/Justice/Pages/Judiciary-in-Malta.aspx>

The Constitution is the basic source of national law and stipulates that laws have to be passed by Parliament in the form of Acts of Parliament. However, Parliament can also delegate legislative powers to other bodies (i.e. a Minister or Authority), and empower them to make subsidiary legislation within the sphere of authority delegated to them by an Act of Parliament. After a minister proposes a Bill, a draft law, it is published in the Government Gazette for a first reading in Parliament. Depending on the importance, it is optional to publish a white paper on the topic of the proposed law, which sets out the envisaged policy direction while at the same time invites discussion on the particularities. The House of Representatives then forms a committee that will examine the Bill in detail. In a second reading, the members of Parliament have the opportunity to comment on the draft legislation. After the committee has stated its comments, the Bill is sent back to Parliament for a third and final reading. When the Bill passes Parliament and is assented to by the President of the Republic, it becomes an Act of Parliament.<sup>34</sup> Legal Notices are used to amend Acts and introduce additional regulations, rules or orders.<sup>38</sup>

In this report, all relevant primary legislation, Acts of Parliament, are defined by their chapter number under the Laws of Malta (indicated by Cap.). All relevant subsidiary legislation, the Legal Notices, are defined by their Subsidiary Legislation number (indicated by SL) under the relevant chapter. All relevant subsidiary legislation is listed in Appendix A.

### 7.2.1. Definitions of the coastal zone and marine area in national legislation

This section presents the definitions of the Maltese coastal zone and marine area, as found in national legislation and policies, to better understand the meaning of, and rationale behind these concepts.

#### Coastal zone

In the 1990 Structure Plan, the first comprehensive planning document providing strategic guidance on land use in the Maltese Islands, the definition of coastal zone reads: “the interface between two environmental domains, the land and the sea”.<sup>39</sup> Figure 7-1 gives a graphic impression of the different subdivisions that can be made within the two domains that constitute the coastal zone, as it was presented in the Structure Plan. However, besides references to the definition of coastal zones in scientific literature, and the collection of definitions related to the coastal zone in the figure below, there is no adoption of a formal definition for the coastal zone in the Structure Plan.

In the Coastal Strategy Topic Paper, the coastal zone is defined as “a geographical space incorporating land and sea areas within which the natural processes interact to create a unique dynamic system. It also incorporates those activities on land and at sea where

---

○ <sup>38</sup> Justice Services, 2013. *Legal Publications*. Retrieved May 14, 2013 from the website of the Government of Malta:  
<http://justiceservices.gov.mt/LegalPublications.aspx?pageid=25>

<sup>39</sup> Planning Services Division, 1990a. *Structure Plan for the Maltese Islands. Report of Survey, Volume 1*. Works Department, Ministry for Development of Infrastructure, Government of Malta. Floriana, Malta, p. 230.





In the National Environment Policy the coastal zone is defined as a zone including both coastal land and coastal waters extending up to 12 NM.<sup>43</sup> In the Environment Report, the coastal land is further specified to include: habitats and ecosystems that are directly affected by the marine environment; coastal resource areas; coastal issue areas; transitional waters; and, those areas for which management is necessary to control impacts on the coastal marine environment.<sup>44</sup>

Since Malta is a small island state, with a surface area of about 316 km<sup>2</sup> and around 270 km of coastline, the whole surface area of the islands could be considered to be part of the coastal zone. Many important land uses on the Maltese Islands require a coastal location. Historically, the coastal zone was important for shipping and fishing, with the addition of the more recently introduced fish farms. Certain infrastructural uses, such as sewage treatment and disposal, desalination plants, power stations and the road network also need a coastal location. Since the rise in tourism in recent decades, land use in the coastal zone has been dominated by tourism and recreational uses, such as accommodation, bathing, water-sports, yachting, and scuba-diving<sup>45</sup>. Pressure as a result of tourism, a major economic sector responsible for about 15% of employment nationwide<sup>46</sup>, has increased extensively over the years. Whereas in 1986 tourism numbers amounted up to about 574,000 per year<sup>47</sup>, in 2011 this multiplied by almost a factor 2.5, to 1.4 million tourists yearly.<sup>48</sup>

### Marine area

Malta's marine areas have been defined in the Territorial Waters and Contiguous Zone Act (1971, Cap. 226). The territorial waters are defined as all parts of the open sea within twelve nautical miles (NM) off the coast of Malta, measured from the low-water mark.<sup>49</sup> The contiguous zone extends to 24 NM from the baselines from which the breadth of the territorial waters is measured.<sup>50</sup> Malta has not established an Exclusive Economic Zone.<sup>51</sup>

<sup>43</sup> MTCE, 2012a. *National Environment Policy*. Ministry for Tourism, Culture and the Environment, February 2012.

<sup>44</sup> MEPA, 2010. *The Environment Report 2008*. Sub-Report 6. Coastal and Marine Environment. Malta Environment and Planning Authority, March 2010, p. 2.

<sup>45</sup> Pickaver, A.H., 2010. *From a sectoral to an integrated management approach*. OURCOAST, the European portal for ICZM, ICZM database, Malta. Retrieved from: <http://ec.europa.eu/ourcoast/index.cfm?menuID=8&articleID=32>

<sup>46</sup> MEPA, 2011. *Report on the Implementation of the Recommendation of the European Parliament and of the Council concerning the implementation of Integrated Coastal Zone Management in Europe (2002/413/EC)* Malta. Malta Environment and Planning Authority, March 2011, p. 11.

<sup>47</sup> UNEP-BP/RAC, 1989. *Futures for the Mediterranean Basin. The Blue Plan*. Grenon, M. & M. Batisse (eds.), Oxford University Press, p. 143

<sup>48</sup> MEPA, 2012a. *The Environment Report. Indicators 2010-2011*. Malta Environment and Planning Authority, in partnership with the National Statistics Office. June 2012, p. 15

<sup>49</sup> Territorial Waters and Contiguous Zone Act, 1971. Cap. 226 of the Laws of Malta, Art. 3(1).

<sup>50</sup> Territorial Waters and Contiguous Zone Act, 1971. Cap. 226 of the Laws of Malta, Art. 4(2).

<sup>51</sup> European Commission Maritime Affairs, 2011, *Exploring the potential of maritime spatial planning in the Mediterranean Sea. Country report Malta*. Retrieved May 14, 2013 from the website of the European Commission Maritime Affairs, p.1: [http://ec.europa.eu/maritimeaffairs/documentation/studies/documents/malta\\_01\\_en.pdf](http://ec.europa.eu/maritimeaffairs/documentation/studies/documents/malta_01_en.pdf)

However, instead it has established a so-called Exclusive Fisheries Zone, in the case of Malta a special 25 NM zone, termed the Fisheries Conservation and Management Zone.<sup>52</sup> By amendment, the Territorial Waters and Contiguous Zone Act has adopted a provision that for the purposes of the Fisheries Conservation and Management Act (2001, Cap. 425) and of any other law relating to fishing, “the territorial waters of Malta shall extend to all other parts of the open sea within twenty-five nautical miles, with respect to the exercise of sovereign rights for the purpose of exploring and exploiting, conserving and managing the living and, or non-living natural resources therein, and for these purposes jurisdiction shall extend accordingly”.<sup>53</sup> The continental shelf has been defined in the Continental Shelf Act (1966, Cap. 194) as “the sea bed and subsoil of the submarine areas adjacent to the coast of Malta but outside territorial waters, to a depth of two hundred metres or beyond that limit”.<sup>54</sup> In the latter case, it is necessary to decide on the boundary of the continental shelf with states bordering Malta’s coast. That these agreements do not always come about easy is proven by the territorial dispute involving Malta, Libya and Italy over the Medina Bank. The contested area is located south-east of the Maltese Islands and is considered by Malta to form part of its continental shelf. After an incident where a Maltese oil company handed out oil exploration licences for the Medina Bank area, the Libyan government retaliated with a warning not to drill in disputed areas, and was backed up by the International Court of Justice, which ruled in favour of Libya for part of the site in 1985. However, contentions over other parts of the bank remain, and oil and gas exploration is difficult in the disputed area.<sup>55</sup> Malta’s different zones in coastal and maritime waters, according to legislation, have been schematically presented in Figure 7-2.

As a result of the small size of the Maltese Islands and its location in the middle of the Mediterranean Sea, Malta’s territory includes much more sea than land: the territorial waters within the 12 NM boundary, the 25NM Fisheries Management and Conservation Zone, and the continental shelf. The territorial waters are considered to be coastal waters<sup>56</sup>, the waters between the 12 NM boundary and the 25NM Fisheries Management and Conservation Zone are considered to be solely marine. The extent of Malta’s maritime jurisdiction is only clear up to the 12NM boundary<sup>57</sup>, with exception of the provision made for laws relating to fishing mentioned here above.

The Maltese exclusive fishing zone is determined by the 25 NM Fisheries Management and Conservation Zone, where Malta exercises strict control over the number of vessels and

---

<sup>52</sup> Churchill, R. and D. Owen, 2010. *The EC Common Fisheries Policy*. Oxford EC Law Library, Oxford University Press, p. 63.

<sup>53</sup> Territorial Waters and Contiguous Zone Act, 1971. Cap. 226 of the Laws of Malta, Art. 3(2).

<sup>54</sup> Continental Shelf Act, 1966. Cap. 194 of the Laws of Malta, Art. 2.

<sup>55</sup> Cordina, J., 2012. Oil on the Horizon? The Malta Independent, 28 August 2012. Retrieved from: <http://www.independent.com.mt/articles/2012-08-28/news/oil-on-the-horizon-315161>

<sup>56</sup> MEPA, 2010. The Environment Report 2008. Sub-Report 6. Coastal and Marine Environment. Malta Environment and Planning Authority, March 2010, p. 3.

<sup>57</sup> MTCE, 2012a. *National Environment Policy*. Ministry for Tourism, Culture and the Environment, February 2012, p. 49.

their fishing gear. Only trawlers that are complying with the regulations on the sustainable exploitation of fishery resources (EC 1967/2006)<sup>58</sup> in terms of size and capacity are allowed to fish in the zone. Outside the Fisheries Management and Conservation Zone there are no legal restrictions on trawling. The measure to minimise trawler use is designed to protect the fisheries' resources of the sea area and the ecosystems on which they depend. More intensive trawling would have a negative impact on conservation of existing 'refugia' and fragile benthic ecosystems. Furthermore, Malta is obliged to monitor the sea grass beds affected by bottom towed nets by the same regulations.<sup>58</sup> In order to fulfil this obligation a pilot study has been initiated to identify the impacts of towed gears on the *Posidonia oceanica* ecosystem that extends along the North Eastern shores of the Maltese Islands.<sup>59,60</sup>

Upon accession to the EU, fishermen with boats larger than 12 meters have lost their right to fish in the Fisheries and Conservation Management Zone. Furthermore, the fishing zones allocated by the EU for commercial fishing consist mainly of rocky plains.<sup>61</sup> The 12 NM territorial waters are exclusively for Maltese fishermen, but the 25 NM Fisheries Management and Conservation Zone is not really an exclusive fisheries zone, as it is also accessible to other EU fishing vessels, and subject to very strict conditions. Maltese fishermen claim to be unfairly treated because of these measures.<sup>62</sup> On the other hand, the conservation measures imposed on fishing in this zone protect the livelihood of the bulk of commercial Maltese fishermen, who use small scale fishing vessels.<sup>63</sup>

---

<sup>58</sup> Council Regulation (EC) 1967/2006, concerning management measures for the sustainable exploitation of fishery resources in the Mediterranean Sea, Art. 3.

<sup>59</sup> Description of Threats to Habitats on the website of MEPA. Retrieved from: <http://www.mepa.org.mt/biodiversity-habitats-threats>

<sup>60</sup> Description of The Maltese Fisheries Management Zone (FMZ) on the website of the University of Malta. Retrieved from: [http://www.um.edu.mt/science/biology/staff/profpatrikschembri/empafish/malta\\_fisheries\\_mgt\\_zone](http://www.um.edu.mt/science/biology/staff/profpatrikschembri/empafish/malta_fisheries_mgt_zone)

<sup>61</sup> Drag net fishermen gather in Grand Harbour, plan protest. Times of Malta, 12 December 2012. <http://www.timesofmalta.com/articles/view/20121212/local/drag-net-fishermen-gather-in-grand-harbour-plan-protest.449303>

<sup>62</sup> Big fishing zone is of little benefit to Maltese fishermen. Times of Malta, 8 July 2009. Retrieved from <http://www.timesofmalta.com/articles/view/20090708/local/big-fishing-zone-is-of-little-benefit-to-maltese-fishermen.264120>

<sup>63</sup> Conservation zone protects local fishermen. Times of Malta, 10 July 2009. Retrieved from <http://www.timesofmalta.com/articles/view/20090710/letters/conservation-zone-protects-local-fishermen.264398>

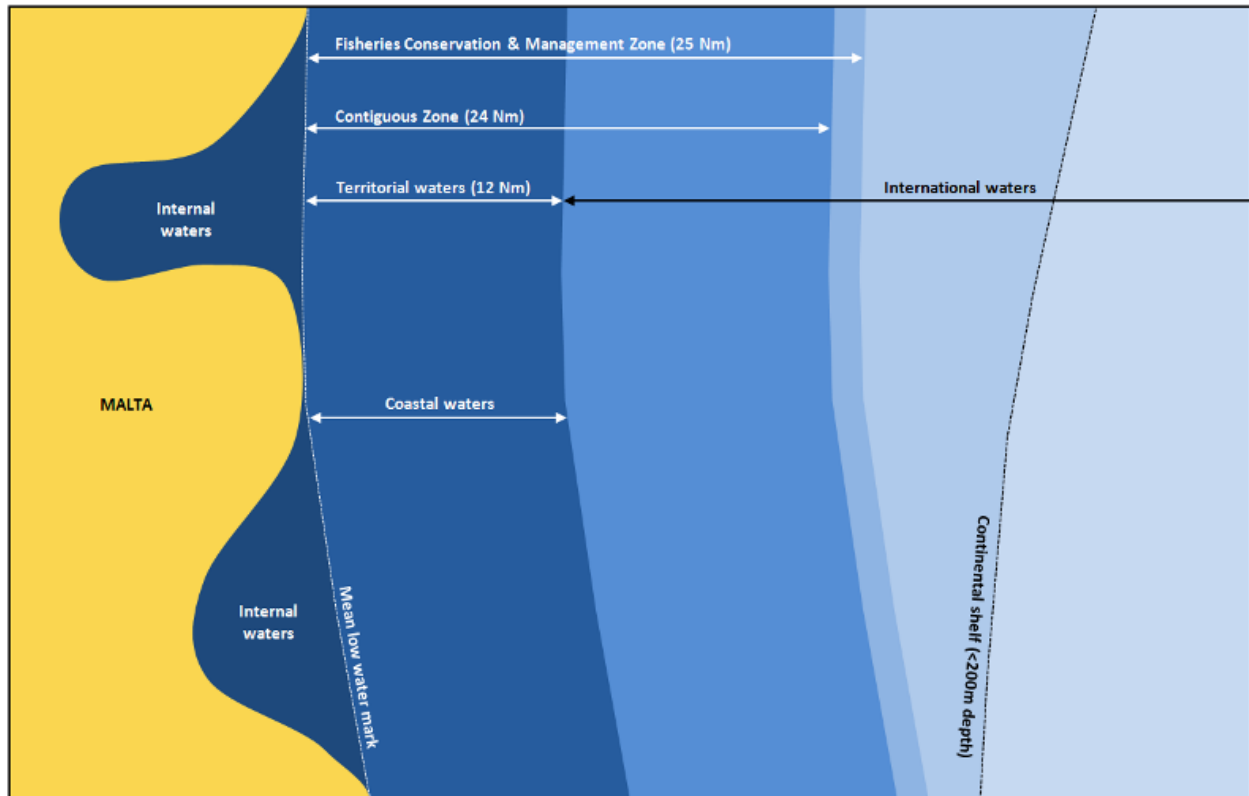


Figure7- 2 Schematic representation of the different zones in coastal and maritime waters

### 7.2.2. Coastal zone legislation

To date no dedicated coastal legislation exists in Malta. However, the Structure Plan, the document that regulates development on the Maltese Islands, contains specific passages on coastal uses and coastal zone management, and as a result represents the only legal document on the latter. A wider scope is adopted in the following sections (2.3, 2.4 and 2.5), where environment and planning legislation, other legislation, and plans, policies and strategies with relevance to coastal zone management are discussed respectively.

In the Structure Plan, three policies have been adopted that specifically address coastal zone management: Policy CZM1, CZM2 and CZM3. Policy CZM 1 and CZM2 are both of an administrative nature, and make proposals for the set-up of a coastal zone management unit and a coastal zone management Subject Plan respectively. Policy CZM3 is the only policy that actually makes provisions on the use of the coastal zone, and states that “public access around the coastline immediately adjacent to the sea or at the top of cliffs, including in bays, harbours and creeks, will be secured”, and that “all the coastline will be brought into public ownership within a specified period”. It is stated that this process will include the appropriation of shore lands into public ownership, suitable construction works and Government acquisition of illegal developments and encroachments, and that in cases where public access to the coast is not feasible, for example because of security

considerations, detours will be provided.<sup>64</sup> By order of the *Environment and Development Planning Act* (2010, Cap. 504), a permit is required for all types of development on land or at sea, including the clearing of valleys, land reclamation, aquaculture and beach developments,<sup>65</sup> providing the legal ground for planning, control and enforcement of development in the coastal zone.

Article 8, subparagraph (a) of the Protocol on Integrated Coastal Zone Management in the Mediterranean (ICZM Protocol, Barcelona Convention) states that the signatory Parties to the Protocol shall establish a setback zone of at least 100 meters in width from the highest winter waterline, where construction is not allowed. Stricter national measures already in place will continue to apply. Subparagraph (b) of the same article allows for the possibility to loosen the provisions in subparagraph (a), and states that Parties may adapt these provisions for projects of public interest, as well as in areas having particular geographical or other local constraints, especially related to population density or social needs, provided that this is consistent with the objectives and principles of the ICZM Protocol.<sup>66</sup> However, to date the provisions from the ICZM Protocol have not been transposed into Maltese national legislation yet, although Malta's National Focal Point to the Priority Action Programme/Regional Activity Centre (PAP/RAC), part of the Mediterranean Action Plan, has informed them that legislation transposing Article 8 of the ICZM Protocol is currently in preparation (see Figure 7-3).<sup>67</sup>

---

<sup>64</sup> Planning Services Division, 1990b. *Structure Plan for the Maltese Islands*. Works Department, Ministry for Development of Infrastructure, Government of Malta. Floriana, Malta, p. 118.

<sup>65</sup> Environment and Development Planning Act, 2010. Cap. 504 of the Laws of Malta, Art. 67.

<sup>66</sup> UNEP/MAP, 2005. Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean and its Protocols. UNEP/MAP, Athens, Greece.

<sup>67</sup> PAP/RAC, 2011 in SHAPE, 2013. *Establishment of coastal setback. An explanatory report on Article 8-2 of ICZM Protocol. Issues to be Considered*. SHAPE: Shaping an Holistic Approach to Protect the Adriatic Environment: between the coast and sea, p. 9.



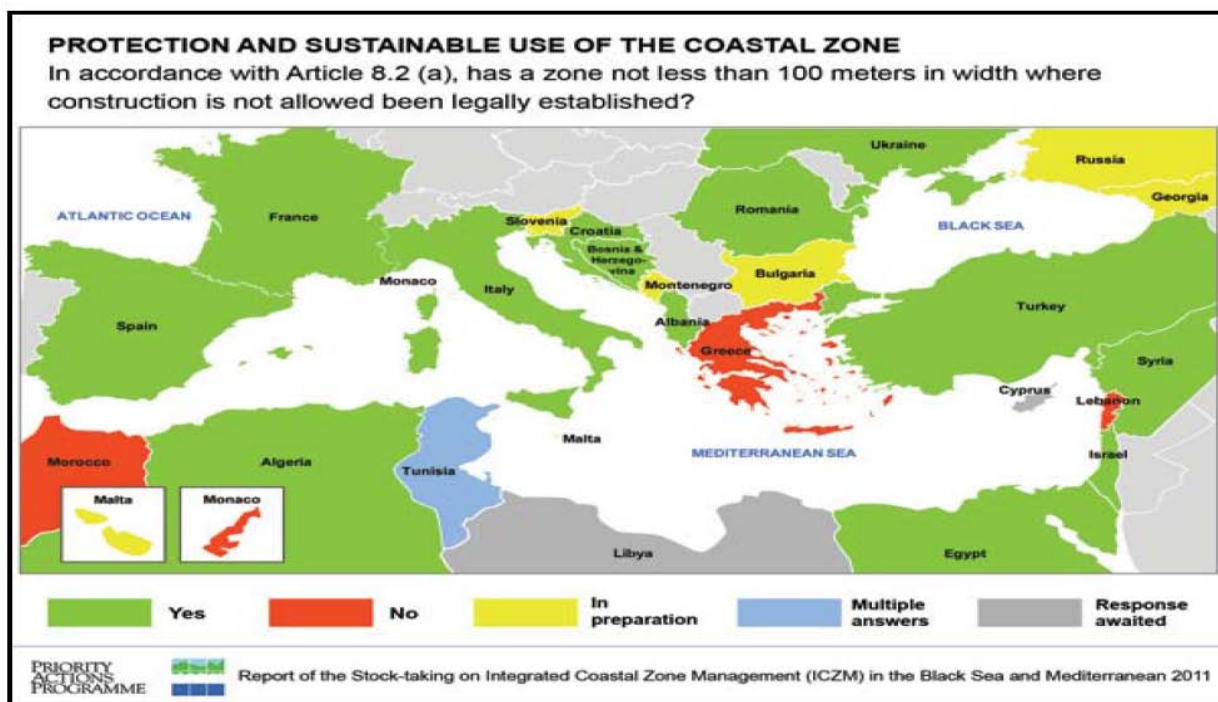


Figure 7-3 Stock-taking on ICZM in the Black Sea and Mediterranean<sup>67</sup>

### 7.2.3. Environment & planning legislation

The *Environment and Development Planning Act* (EDPA), together with its subsidiary legislation, is the main body of legislation on environment and planning in Malta. Passages and themes relevant to coastal zone management are presented here.

The *Environment and Development Planning Act* (2010, Cap. 504) contains the principal environment and planning legislation and aims to “protect the environment, to make provision for the planning and management of development and for the establishment of an authority with powers to that effect”. The Act places on all members of society, together with the government, the duty to protect the environment and to manage natural resources in a sustainable manner.<sup>68</sup>

#### MEPA

The *Environment and Development Planning Act* establishes the Malta Environment and Planning Authority (MEPA) as the responsible authority.<sup>69</sup> The Authority’s main responsibilities are comprised of: the formulation and implementation of policies related to sustainable development, environmental protection and natural resource use; the promotion of proper planning at land and at sea, both public and private; and control of development in

<sup>68</sup> Environment and Development Planning Act, 2010. Cap. 504 of the Laws of Malta, Art. 3.

<sup>69</sup> Environment and Development Planning Act, 2010. Cap. 504 of the Laws of Malta, Art. 6(1).



accordance with plans and policies. The Authority is also responsible for monitoring the quality of the environment and publishing the results every three years in a State of the Environment report. The Authority is expected to cooperate or make arrangements with other entities or persons when necessary to better monitor the implementation of, and compliance with provisions of the Act.<sup>70</sup>

### **The Tribunal**

If a person who submitted an application to the Malta Environment and Planning Authority considers the conditions imposed upon a licence or permit, or refusal of such a licence or permit unreasonable, he or she may lodge an appeal with the Environment and Planning Review Tribunal. The Tribunal's jurisdiction is to hear and determine all appeals against decisions made by the Authority, on matters of development planning and environmental protection. The verdicts of the Tribunal are final.<sup>71</sup>

### **The Structure Plan & the Strategic Plan for the Environment and Development**

The Malta Environment and Planning Authority is responsible for the preparation of the Strategic Plan for the Environment and Development (SPED), the successor of the 1990 Structure Plan, which is the main instrument for spatial planning and development control. The SPED is directed at regulating the sustainable management of land and sea resources, based on an integrated planning system. It will set out policies in relation to the development and use of land and sea while ensuring that such plans, policies and programs are spatial, holistic and comprehensive, balance demands for development with socio-economic considerations and the need to protect the environment, and are integrated and coordinated with other sectoral policies and activities.<sup>72</sup> The SPED was due in 2012, but has not been published to date.

The Structure Plan is further specified in subsidiary plans. Three standard types of plans exist: Subject Plans, Local Plans and Action Plans. A Subject Plan is “a plan that deals with a specific environmental or development planning policy or matter, setting out detailed specifications intended for its implementation”.<sup>73</sup> A Local Plan is “one which is made by the Authority for any area where the Authority considers that the rate of development or re-development cannot be satisfactorily managed, or where special factors cannot be taken into account solely on the basis of the SPED”.<sup>74</sup> An Action Plan, also called Management Plan, is “made by the Authority for an area where the Authority considers that it has to pay particular attention in order to better manage it or where special factors have to be taken into account which otherwise cannot be taken”.<sup>75</sup> If these types of plans do not suffice for the proper and effective management of environment and development on land and sea, it is

---

<sup>70</sup> Environment and Development Planning Act, 2010. Cap. 504 of the Laws of Malta, Art. 8.

<sup>71</sup> Environment and Development Planning Act, 2010. Cap. 504 of the Laws of Malta, Art. 40.

<sup>72</sup> Environment and Development Planning Act, 2010. Cap. 504 of the Laws of Malta, Art. 51.

<sup>73</sup> Environment and Development Planning Act, 2010. Cap. 504 of the Laws of Malta, Art. 54(1).

<sup>74</sup> Environment and Development Planning Act, 2010. Cap. 504 of the Laws of Malta, Art. 55(1).

<sup>75</sup> Environment and Development Planning Act, 2010. Cap. 504 of the Laws of Malta, Art. 56(1).

possible to create more detailed policies or plans, in so far as the Authority deems appropriate.<sup>76</sup>

By means of the *Environment and Development Planning Act*, the Minister and the Authority have several instruments for control of development at their disposal: regulations, orders, environment and development briefs, licences and permits. An environment and development Brief is a document setting out detailed planning guidance for the development of a specific site, where the Authority or the applicant deem this necessary to ensure proper and orderly environment management or development of that site, or to properly implement policies in a plan.<sup>77</sup>

If the Minister considers it necessary he/she has the power to make new regulations. Some examples of regulations that are relevant to coastal zone management include: prescribing measures to control, prevent, manage or reduce pollution and degradation of the environment; declaring any site on land or in the internal or territorial waters as a protected area; and regulating the construction, demolition or alteration of buildings.<sup>78</sup> An order can be used to regulate development or other activities that are within the scope of plans and policies approved under this Act, and which may otherwise require the submission of an application prior to their carrying out. An order can also, for example, enable the Authority to require the removal of an illegal development or the discontinuance of an activity that has been carried out in breach of the provisions of this Act.<sup>79</sup>

### **Licences and Permits**

Licences and permits are used to respectively restrict certain activities and developments to ensure only those persons who have applied for and received the licence or permit are allowed to implement the activity or development. Of the many activities and developments that require a licence or permit, some examples pertaining to the coastal zone include: a licence required for activities that could affect protected areas; and a development permit required for all forms of development; building, engineering, quarrying, mining or other operations for the construction, demolition or alterations on any land or at sea, including the clearing of valleys, land reclamation, aquaculture and beach developments, as well as operations of a range of commercial and industrial activities. Permits can take different forms, either requiring compliance with general binding rules or with specific imposed permit conditions.<sup>80,81</sup> A number of activities that fall within the scope of the environmental permit

---

<sup>76</sup> Environment and Development Planning Act, 2010. Cap. 504 of the Laws of Malta, Art. 57(1).

<sup>77</sup> Environment and Development Planning Act, 2010. Cap. 504 of the Laws of Malta, Art. 65.

<sup>78</sup> Environment and Development Planning Act, 2010. Cap. 504 of the Laws of Malta, Art. 61.

<sup>79</sup> Environment and Development Planning Act, 2010. Cap. 504 of the Laws of Malta, Art. 63.

<sup>80</sup> Environment and Development Planning Act, 2010. Cap. 504 of the Laws of Malta, Art. 66.

<sup>81</sup> Environment and Development Planning Act, 2010. Cap. 504 of the Laws of Malta, Art. 67.

system are typically found along the coast, in particular hotels, marinas, boat repair yards, fuel terminals and sewage treatment plants.<sup>82</sup>

### **Scheduled Property**

The Authority is also responsible for the preparation and review of a list of scheduled property, termed the Malta Scheduled Property Register. Areas, buildings, structures and remains of geological, paleontological, cultural, archaeological, architectural, historical, antiquarian, or artistic or landscape importance, as well as areas of natural beauty, ecological or scientific value, which are to be scheduled for conservation can be included on the list by issuing a conservation order.<sup>83</sup>

### **Natura 2000 sites**

The *Flora, Fauna and Natural Habitats Protection Regulations* (SL 504.73) have been adopted to preserve biodiversity through the conservation of natural habitats and of wild fauna and flora in the Maltese Islands.<sup>84</sup> The regulations transpose the provisions laid down in the Habitats Directive (Directive 92/43/EEC), the Birds Directive (Directive 79/409/EEC), the UN Convention on Biological Diversity (UNCBD), the Convention on the Conservation of European Wildlife and Natural Habitats, the Convention on the Conservation of Migratory Species of wild Animals, and the Protocol for Specially Protected Areas and Biological Diversity in the Mediterranean of the Barcelona Convention.<sup>85</sup> MEPA has been established as the Competent Authority for the administration and implementation of these regulations.<sup>86,87</sup>

The Competent Authority is obliged to set up a coherent ecological network of protected areas, containing representative types of biodiversity; endangered habitats; sites critical to the survival of endangered or endemic species; Natura 2000 sites; and sites of particular importance because of their scientific, ecological, biodiversity, biogeographical, zoological, botanical, aesthetic, cultural, landscape or educational interest.<sup>88</sup> They are also expected to contribute to the setting up of Natura 2000 sites, consisting of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), areas protected under the Habitats and Birds Directive respectively, both on land and in the marine environment.<sup>89</sup> In this respect MEPA has the authority to issue a management plan for these protected sites, including provisions about the planning, management, supervision and monitoring measures, and a long-term

---

<sup>82</sup> MEPA, 2011. *Report on the Implementation of the Recommendation of the European Parliament and of the Council concerning the implementation of Integrated Coastal Zone Management in Europe (2002/413/EC) Malta*. Malta Environment and Planning Authority, March 2011, p. 12.

<sup>83</sup> Environment and Development Planning Act, 2010. Cap. 504 of the Laws of Malta, Art. 81.

<sup>84</sup> Flora, Fauna and Natural Habitats Protection Regulations, 2006. SL 504.73 of the Laws of Malta, Art. 2.

<sup>85</sup> Flora, Fauna and Natural Habitats Protection Regulations, 2006. SL 504.73 of the Laws of Malta, Art. 2(3).

<sup>86</sup> Flora, Fauna and Natural Habitats Protection Regulations, 2006. SL 504.73 of the Laws of Malta, Art. 3.

<sup>87</sup> Flora, Fauna and Natural Habitats Protection Regulations, 2006. SL 504.73 of the Laws of Malta, Art. 4.

<sup>88</sup> Flora, Fauna and Natural Habitats Protection Regulations, 2006. SL 504.73 of the Laws of Malta, Art. 5.

<sup>89</sup> Flora, Fauna and Natural Habitats Protection Regulations, 2006. SL 504.73 of the Laws of Malta, Art. 6.

ecological vision for the protected site and the related terrestrial, coastal and marine communities.<sup>90</sup> Examples of Natura 2000 land sites include Għadira and Is-Simar nature reserves, Buskett woodland and the North Western cliffs of Malta.<sup>91</sup> There are currently five Marine Protected Areas (MPAs), all part of the Natura 2000 network: a large area along the North East boundary of the Islands, where *Posidonia oceanica* meadows are found, and four smaller areas at Rdum Majjiesa, Mġarr ix-Xini, Dwejra and between Għar Lapsi and Filfla.<sup>92</sup>

### Urban waste water

The *Urban Waste Water Treatment Regulations* (SL 504.40) concerns the collection, treatment and discharge of urban waste water and the treatment and discharge of waste water from certain industrial sectors in order to prevent adverse effects on the environment as a result of discharge of waste water.<sup>93</sup>

### Environmental Impact Assessments

An Environmental Impact Assessment (EIA) is a decision making tool, to ensure that proposed projects are assessed and their environmental impacts are taken into consideration. This was first introduced in Malta for certain projects in the late 1980s.<sup>94</sup> The *Environmental Impact Assessment Regulations* (SL 504.79) provides the regulations concerning Environmental Impact Assessments, and MEPA is the authority responsible for overseeing this. An EIA is meant to identify, describe and assess the direct and indirect effects of an individual proposal for development on the flora and fauna; on soil, water, air, climate and the landscape, covering also the coastal periphery and submarine features; the interaction between different components of the environment; material assets and cultural heritage; and finally human beings and their interaction with the above factors.<sup>95,96</sup> Coastal projects that have to undergo an environmental impact assessment include yacht marinas, breakwaters, coastal defences, creation of new sandy beaches, dredging, and aquaculture projects.<sup>94</sup> For an EIA, the relevant planning policies, development plans and provisions of the Environment and Development Planning Act, as well as other laws, which affect the development are also supposed to be analysed.<sup>97,98</sup>

<sup>90</sup> Flora, Fauna and Natural Habitats Protection Regulations, 2006. SL 504.73 of the Laws of Malta, Art. 14.

<sup>91</sup> Natura 2000 Public Viewer. Retrieved from: <http://natura2000.eea.europa.eu>

<sup>92</sup> Four New Marine Protected Areas. MEPA Newsletter, Outlook 5, Article 2. Retrieved from: <http://www.mepa.org.mt/outlook5-article2>

<sup>93</sup> Urban Waste Water Treatment Regulations, 2004. SL 504.40 of the Laws of Malta, Art. 2.

<sup>94</sup> MEPA, 2011. *Report on the Implementation of the Recommendation of the European Parliament and of the Council concerning the implementation of Integrated Coastal Zone Management in Europe (2002/413/EC) Malta*. Malta Environment and Planning Authority, March 2011, p. 9.

<sup>95</sup> Environmental Impact Assessment Regulations, 2007. SL 504.79 of the Laws of Malta, Art. 3(2).

<sup>96</sup> Environmental Impact Assessment Regulations, 2007. SL 504.79 of the of the Laws of Malta, Art. 15(a).

<sup>97</sup> Environmental Impact Assessment Regulations, 2007. SL 504.79 of the Laws of Malta, Art. 15(b).

<sup>98</sup> Environmental Impact Assessment Regulations, 2007. SL 504.79 of the Laws of Malta, Art. 3(1).

In addition, the *Development Notification Order* (SL 504.80) grants development permits to certain property development works, instead of the normal procedure involving a Development Application with the Malta Environment & Planning Authority. The permission is subjected to certain conditions, and MEPA needs to be notified of such a development. Certain developments are exempted from this scheme.<sup>99</sup>

### Strategic Environmental Assessment

Strategic Environmental Assessments (SEA) assess the likely significant impacts of plans and programmes on the environment, including the coastal environment, and are more of a recent addition to the already existing EIAs.<sup>100</sup> The *Strategic Environmental Assessment Regulations* (SL 504.102) aim to contribute to the integration of environmental consideration into the preparation and adoption of plans and programmes, to provide a high level of protection of the environment and promote sustainable development.<sup>101</sup> A Strategic Environmental Assessment (SEA) is carried out for plans and programmes – for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism, town and country planning or land use – that are likely to have significant effects on the environment.<sup>102</sup> The Competent Authority is the SEA Focal Point, under the Office of the Prime Minister.<sup>103</sup> Designated authorities that have to be consulted because of their specific environmental responsibilities are: MEPA or any successor entity responsible for the environment; and where applicable the MRA, or any successor entity or entities responsible for water, energy and resources; the competent authority responsible for agriculture; the competent authority responsible for fisheries; or any other authority which is deemed to have relevant input by the responsible authority.<sup>104</sup>

### The Marine Strategy Framework Directive

The *Marine Policy Framework Regulations* (SL 504.107) transpose the provisions of the Marine Strategy Framework Directive (Directive 2008/56/EC), and establish a framework within which Malta shall take the necessary measures to achieve or maintain good environmental status in terms of marine environment by the year 2020 at the latest.<sup>105</sup> These regulations aim to ensure the integration of environmental concerns in other policies, agreements and legislation which impact the marine environment.<sup>106</sup> The Office of the Prime Minister is responsible for the application and coordination of these regulations. The endorsement of the Minister responsible for environmental matters must be sought on

---

<sup>99</sup> Development Notification Order, 2007. SL 504.80 of the Laws of Malta, Art. 3.

<sup>100</sup> MEPA, 2011. *Report on the Implementation of the Recommendation of the European Parliament and of the Council concerning the implementation of Integrated Coastal Zone Management in Europe (2002/413/EC) Malta*. Malta Environment and Planning Authority, March 2011, p. 10.

<sup>101</sup> Strategic Environmental Assessment Regulations, 2010. SL 504.102 of the Laws of Malta, Art. 2(1).

<sup>102</sup> Strategic Environmental Assessment Regulations, 2010. SL 504.102 of the Laws of Malta, Art. 4.

<sup>103</sup> Strategic Environmental Assessment Regulations, 2010. SL 504.102 of the Laws of Malta, Art. 3(1).

<sup>104</sup> Strategic Environmental Assessment Regulations, 2010. SL 504.102 of the Laws of Malta, Art. 7(3).

<sup>105</sup> Strategic Environmental Assessment Regulations, 2010. SL 504.102 of the Laws of Malta, Art. 1(2).

<sup>106</sup> Marine Policy Framework Regulations, 2011. SL 504.107 of the Laws of Malta, Art. 1(3).

environmental targets, and the endorsement of the Government on the marine strategy and programme of measures.<sup>107</sup> These regulations call for the development and implementation of a marine strategy for Malta's marine waters, which protects and preserves the marine environment, as well as prevents and reduces inputs to the marine environment. The marine strategy will adopt the ecosystem-based approach to the management of human activities. In developing the marine strategy, the Competent Authority responsibilities include recognising that Malta's marine waters form an integral part of the Mediterranean Sea, and ensuring cooperation with other EU member states sharing the same marine subregion.<sup>108,109</sup> The Authority responsible, with respect to the Central Mediterranean Sea marine subregion, also needs to identify the measures that need to be taken to ensure good environmental status.<sup>110</sup> The programme of measures includes spatial protection measures that contribute to coherent and representative networks of Marine Protected Areas (MPAs).<sup>111</sup>

### Industrial installations

Industrial installations, which can result in various severe environmental impacts, are regulated by the Environment and Development Planning Act and subsidiary legislation, such as:

- *Industrial Emissions (IPPC) Regulations* (SL 504.54), which regulate high-risk installations, such as power stations, certain waste management activities, and large farms.
- *Waste Regulations* (SL 504.37), which define waste management permits and registration systems.
- Additional permitting regulations on specific issues and/or sectors, for example on marine discharges, petrol stations & fuel terminals, and bunkering installations.
- Facilities that fall under these regulations, or whose development permit includes this as a condition, need to apply for an environmental permit, which can also be done on a voluntary basis.<sup>112</sup>

### Sustainable Development

The Sustainable Development Act (2012, Cap. 521) is an Act to mainstream sustainable development, understood as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”<sup>113</sup>, across the

<sup>107</sup> Marine Policy Framework Regulations, 2011. SL 504.107 of the Laws of Malta, Art. 3.

<sup>108</sup> Marine Policy Framework Regulations, 2011. SL 504.107 of the Laws of Malta, Art. 4.

<sup>109</sup> Marine Policy Framework Regulations, 2011. SL 504.107 of the Laws of Malta, Art. 5.

<sup>110</sup> Marine Policy Framework Regulations, 2011. SL 504.107 of the Laws of Malta, Art. 7.

<sup>111</sup> Marine Policy Framework Regulations, 2011. SL 504.107 of the Laws of Malta, Art. 10.

<sup>112</sup> Description of Environmental Permitting on the website of MEPA. Retrieved from: <http://www.mepa.org.mt/environmentalpermitting>

<sup>113</sup> Sustainable Development Act, 2012. Cap. 521 of the Laws of Malta, Art. 3.



workings of government, to raise awareness of sustainable development issues and practices across society and to promote the adoption of these practices. The Competent Authority, the Office of the Prime Minister, is responsible for the development and implementation of Malta's sustainable development strategy, in line with national, European and international developments.<sup>114</sup> Furthermore, it is responsible for advocating sustainable development across the public administration, the private sector and society in general, and for close cooperation and consultation with Local Councils and other stakeholders for the promotion of sustainable development at a local level.<sup>115</sup>

#### **7.2.4. Other relevant legislation**

Malta is a signatory party to many international and supranational agreements, which are briefly described at Appendix B. Other relevant national legislation within the scope of coastal zone management is discussed in later sections.

#### **7.2.5. Relevant policies and strategies**

There are different plans, policies and strategies relevant to the regulation of land use planning, environmental protection and coastal zone management. First, the Structure Plan, the main instrument for land use planning and development control, its successor, the Strategic Plan for the Environment and Development, and the subsidiary Local Plans are discussed. Other plans, policies and strategies with implications on coastal zone management are presented in later sections.

##### **Structure Plan**

The Structure Plan is the legally-binding planning policy of Malta and the main strategic instrument available to control development along the coast.<sup>116</sup> The Structure Plan was drawn up by the Planning Services Division (now replaced by the Malta Environment and Planning Authority; MEPA) and provides strategic guidance on land use on the Maltese Islands. It is aimed at encouraging social and economic development, while using land and buildings efficiently and ensuring and improving the quality of all aspects of the environment.<sup>117</sup> The Temporary Provisions Schemes, zoning schemes supporting the Structure Plan, indicate the type of development likely to be acceptable in specific areas, subject to existing policies. Zoning indicating areas for urban development mostly concentrates on areas around existing and established built-up areas, and land zoned for future industrial development focuses on areas in the proximity of existing industrial areas, an attempt to preserve areas that still maintain a natural or rural character. Some of the coastline, mostly low-lying rocky shoreline, received the classification 'White Area', which

---

<sup>114</sup> Sustainable Development Act, 2012. Cap. 521 of the Laws of Malta, Art. 4.

<sup>115</sup> Sustainable Development Act, 2012. Cap. 521 of the Laws of Malta, Art. 5.

<sup>116</sup> UNEP/MAP/PAP, 2005. *Coastal Area Management in Malta*. Priority Actions Programme, Regional Activity Centre, Mediterranean Action Plan (MAP), UNEP. Split, Croatia, p. 47.

<sup>117</sup> Planning Services Division, 1990b. *Structure Plan for the Maltese Islands*. Works Department, Ministry for Development of Infrastructure, Government of Malta. Floriana, Malta, p. 24.



promotes opportunity areas where some form of development may be considered.<sup>118</sup> The Malta Environment and Planning Authority is legally obliged to review the Structure Plan to address issues that are relevant now, or that will become relevant over the next 20 years<sup>119</sup>. The *Building Permits (Temporary Provisions) Act* (1988), which was replaced by the 2010 Environment and Development Planning Act, was the Act which required the preparation and use of a structure plan and more detailed plans. The *Environment and Development Planning Act* provides the legal basis for the successor of the Structure Plan: the Strategic Plan for the Environment and Development.

The Structure Plan is focused on setting out policy directions for the management and use of resources and the shaping of Malta's future environment, both the natural and man-made parts. As Malta is a small country with a high population density, land is a much contested resource, which has to be managed and conserved with care. The plan is mostly focused on resource creation, management and protection, especially in related top land, architectural and cultural heritage, natural and rural environments, coastline, marine resources, and non-renewable resources.<sup>120</sup>

- Structure Plan policies with relevance to coastal zone management, environment and planning have been listed for reference, as some are mentioned and reflected upon throughout this document, and can be found in Appendix D.

### Structure Plan Review

After the first structure plan was completed in 1990, the Malta Planning Authority was set up in 1992<sup>121</sup>. The Authority was established under the mandate of the Development Planning Act (1992) and the Environment Protection Act (2001) of the Laws of Malta, which were replaced by the 2010 Environment and Development Planning Act<sup>122</sup>. A decade after the drawing up of the Structure Plan, halfway through its lifetime, the Malta Environment and Planning Authority conducted a review of the Plan in light of the preparations of the replacement plan, the Strategic Plan for the Environment and Development (SPED). To this end, a number of Topic Papers, identifying key land use issues that would need to be addressed in the replacement plan, were prepared, on topics such as housing, coastal strategy, urban development, rural strategy and landscape<sup>123</sup>. In the Coastal Strategy Topic Paper, proposals were made for a zoning scheme for the coastline, based upon two

<sup>118</sup> Planning Authority, 2002a. *Coastal Strategy Topic Paper*. Planning Authority, February 2002, p. 100.

<sup>119</sup> Description of the Structure Plan on the website of MEPA. Retrieved from: <http://www.mepa.org.mt/lpg-structureplan>

<sup>120</sup> Planning Services Division, 1990b. *Structure Plan for the Maltese Islands*. Works Department, Ministry for Development of Infrastructure, Government of Malta. Floriana, Malta, p. 12.

<sup>121</sup> Calleja, C., 2013. *Giving a brief history of overdevelopment*. Times of Malta, 10 May 2013. Retrieved from: <http://www.timesofmalta.com/articles/view/20130510/local/Giving-a-brief-history-of-overdevelopment.469087>

<sup>122</sup> Description of the organisation of the Malta Environment and Planning Authority on the website of MEPA. Retrieved from: <http://www.mepa.org.mt/organisation>

<sup>123</sup> MEPA, 2012b. *Document to establish the Strategic Objectives: Public Consultation Draft*. Strategic Plan for the Environment and Development, Malta Environment and Planning Authority, February 2012, p. 2.

categories for the terrestrial coastline: predominantly urban and predominantly rural, as well as taking into account the marine environment<sup>124</sup>.

### Strategic Plan for the Environment and Development

The *Environment and Development Planning Act* calls for the preparation of a Strategic Plan for the Environment and Development (SPED). The SPED is the successor of the Structure Plan and should provide an updated strategic policy framework for land use planning and environmental protection up to 2020, following the direction of social, economic and environmental objectives set by the Government for that period. The SPED will regulate the sustainable management of land and sea resources, providing guidance on the development and use of land and sea areas while ensuring adequate protection of the environment.<sup>125</sup>

The Environment and Development Planning Act requires that the SPED takes a holistic approach and integrates the different sectoral policies and activities, making sure to follow other national policies and plans<sup>126</sup>. As the Structure Plan, the Strategic Plan for the Environment and Development is a legally binding document and has to pass through parliament for approval<sup>127</sup>. The SPED should have been in force starting from 2012, but apart from the results of the public consultation process, no parts of the plan have been issued yet<sup>128</sup>.

### Local Plans

It is the Planning Authority's responsibility to prepare Local Plans, which further specify the implications of the Structure Plan policies for specific areas and are the most up-to-date policies for land use planning, and subsequently, provide guidance on development in the coastal zone<sup>129</sup>.

The Local Plans make use of environmental zoning to clearly identify areas that should be protected and where development is allowed or not. Categories that are distinguished are: Urban Conservation Areas (UCA) and Rural Conservation Areas (RCA) where new development is not allowed, the so-called Outside Development Zones (ODZ), and Development Zones (DZ), where development is possible, subject to further conditions.<sup>130</sup> In the Local Plans, certain areas are designated to be Areas of Ecological Importance or Sites of Scientific Importance. Under this designation these areas are subject to strict

<sup>124</sup> Planning Authority, 2002a. *Coastal Strategy Topic Paper*. Planning Authority, February 2002, p. 110.

<sup>125</sup> MEPA, 2011. Report on the Implementation of the Recommendation of the European Parliament and of the Council concerning the implementation of Integrated Coastal Zone Management in Europe (2002/413/EC) Malta. Malta Environment and Planning Authority, March 2011, p. 31.

<sup>126</sup> Description of the Strategic Plan for the Environment and Development on the website of MEPA. Retrieved from: <http://www.mepa.org.mt/sped>

<sup>127</sup> Environment and Development Planning Act, 2010. Cap. 504 of the Laws of Malta, Art. 53.

<sup>128</sup> **New Strategic Plan to Replace 1990 Structure Plan. MEPA Media Releases - News Details. Retrieved from:** <http://www.mepa.org.mt/news-details?id=772>

<sup>129</sup> MEPA, 2011. Report on the Implementation of the Recommendation of the European Parliament and of the Council concerning the implementation of Integrated Coastal Zone Management in Europe (2002/413/EC) Malta. Malta Environment and Planning Authority, March 2011, p. 7.

<sup>130</sup> MEPA, 2007a. *Local Plans Interpretation Document*. Malta Environment and Planning Authority, May 2007.

development control measures and in certain cases require the development of a management plan.<sup>131</sup> In the SPED Consultation Document, the following zones are identified as distinct spatial areas, on the basis of natural characteristics, existing uses and their interactions as well as administrative boundaries: the Urban Area (Development Zone), the Rural Area (Outside Development Zone), the Coastal Zone and Coastal Waters (up to 12 nautical miles), and the Marine Area (between 12 and 25 nautical miles) as can be seen in Figure 7-4<sup>132</sup>.

### **Other policies**

Next to the Structure Plan, the Strategic Plan for the Environment and Development, and the Local Plans, there are many others policy and strategy documents that relate to certain aspects of coastal zone management. The following documents, and the objectives and policies they describe, will be briefly discussed here:

- National Sustainable Development Strategy for the Maltese Islands
- National Environment Policy
- Tourism Policy for the Maltese Islands 2012 – 2016
- National Water Policy
- Water Catchment Management Plan
- National Energy Policy
- National Climate Change Adaptation Strategy
- Solid Waste Management Strategy for the Maltese Islands
- Aquaculture Strategy for Malta
- Fisheries Operational Programme
- Rural Development Programme for Malta 2007 – 2013

### **National Sustainable Development Strategy for the Maltese Islands**

The National Sustainable Development Strategy for the Maltese Islands has been developed following the United Nations Conference on Environment and Development (UNCED), when the Maltese Government committed itself to adopt a strategy for sustainable development. The Maltese strategy builds upon the Agenda 21 action plan, one of the results of the UNCED conference, as well as the subsequently developed Sustainable Development Strategy of the EU and the Plan Bleu Mediterranean Strategy for Sustainable Development.<sup>133</sup> The key issues addressed in the strategy follow the three pillars of sustainability and address the environmental, economic and social dimensions. The aims are to manage the environment and its resources, to promote sustainable economic development, to foster sustainable communities and to address cross-cutting strategic

<sup>131</sup> Borg, M., 2010. *The potential and limitations of land and sea use planning to manage coastal and marine resources*. OURCOAST, the European portal for ICZM, ICZM database, Malta. Retrieved from: <http://ec.europa.eu/ourcoast/index.cfm?menuID=8&articleID=303>

<sup>132</sup> MEPA, 2012b. *Document to establish the Strategic Objectives: Public Consultation Draft*. Strategic Plan for the Environment and Development, Malta Environment and Planning Authority, February 2012, p. 8.

<sup>133</sup> NCSD, 2006. *A Sustainable Development Strategy for the Maltese Islands 2007 – 2016*. National Commission for Sustainable Development, December 2006, p. 5-6.

issues. Amongst the strategic cross-cutting issues identified are the following objectives: drawing up an integrated spatial development plan, and conduct an enforcement audit, to assess the adequacy of current mechanisms.<sup>134</sup> In the strategy it is recommended to develop an Integrated Spatial Development Plan (ISDP) by 2010 to take the vision of the National Sustainable Development Strategy forward and to set up key objectives for sustainable development. It is envisaged that by using such a spatial plan, sustainable development can be promoted by strategic land use, properly locating development in energy, transport and natural resources, encouraging effective use of already built-up areas, protecting and enhancing the natural and built environment and integrating social and economic goals<sup>135</sup>.

### **National Environment Policy**

The National Environment Policy aims to highlight and strengthen the environmental pillar of the National Sustainable Development Strategy for the Maltese Islands. The environmental policy is striving to clearly communicate the nation's environmental commitments and objectives and provides direction in the environmental field to public and private institutions and the wider public. The document stresses the holistic approach that has been adopted to interweave the different environmental policies with policies in related fields, so that synergies can be exploited and conflicts avoided. The policy integrates the environmental activities for the period 2012 – 2020, focusing on improving policy implementation in the environmental field, and policy integration between the environment policy and social and economic policies<sup>136</sup>. In terms of the coastal and marine environment, the policy stresses the importance of the coastal zone to the Maltese identity, as it is essential for the island character of the country and supports major economic sectors, such as tourism, shipping and fishing. However, the threats to the coastal zone and existing and potential conflicts are also acknowledged and the policy states that integrated policy solutions are necessary for those coastal areas that suffer from different pressures and uses. The policy proposes to manage coastal areas on the basis of integrated coastal zone management, aiming to reduce conflict, protect the environment and the landscape, control development and erosion and maximize physical, and where that is not possible, visual access to the coast. An integrated maritime monitoring system will be put in place in line with Malta's monitoring obligations and through the implementation of the measures drafted up in the Water Catchment Management Plan the quality objectives for ecological and chemical status of coastal waters should be achieved. The policy also contains provisions on the formulation of

---

<sup>134</sup> NCSD, 2006. *A Sustainable Development Strategy for the Maltese Islands 2007 – 2016*. National Commission for Sustainable Development, December 2006, p. 7.

<sup>135</sup> NCSD, 2006. *A Sustainable Development Strategy for the Maltese Islands 2007 – 2016*. National Commission for Sustainable Development, December 2006, p. 58.

<sup>136</sup> MTCE, 2012a. *National Environment Policy*. Ministry for Tourism, Culture and the Environment, February 2012, p. 12.

a marine spatial plan, which will be formulated in line with the EU's Integrated Maritime Policy.<sup>137</sup>

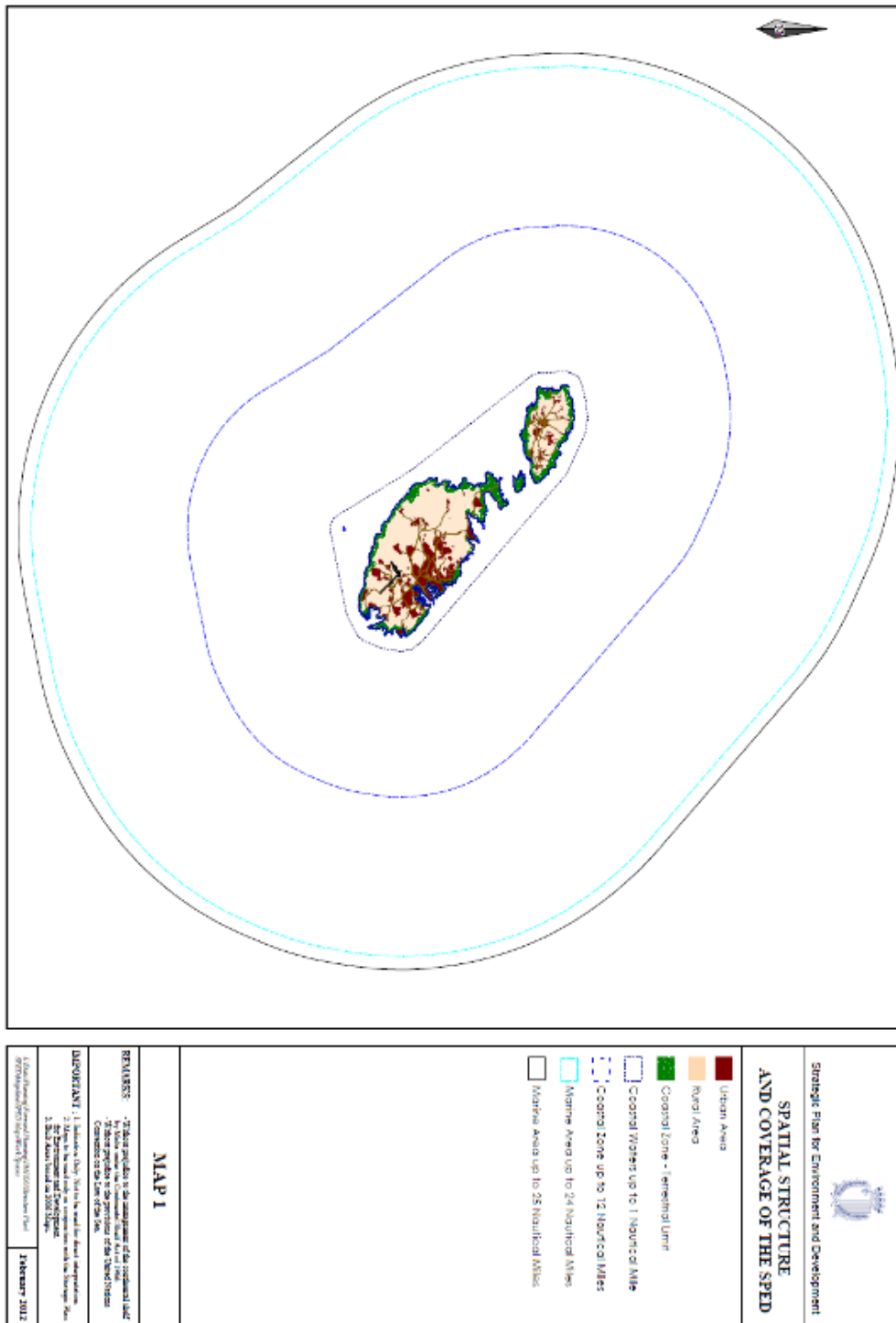


Figure 7-4 Spatial structure and coverage of the SPED<sup>132</sup>

<sup>137</sup> MTCE, 2012a. *National Environment Policy*. Ministry for Tourism, Culture and the Environment, February 2012, p. 49.

Furthermore, the designation of marine protected areas, including marine Special Protection Areas (SPAs, bird protection sites under the Birds Directive) will be promoted. Beaches, particularly the limited amount of sandy beaches on the Maltese Islands will be given special importance for integrated management approaches, as they represent areas with sensitive ecological characteristics, yet at the same time with high socio-economic value and demand. The aims and objectives for a sustainable fisheries sector are explained in more detail in the Fisheries Operational Programme, and the impacts of and interaction between aquaculture and the environment is addressed in the National Aquaculture Strategy.<sup>138</sup>

### **Tourism Policy for the Maltese Islands 2012 – 2016**

The Tourism Policy for the Maltese Islands 2012 – 2016 exists within the country's wider social, environmental and economic strategic framework. The overarching goals of the Tourism Policy are to ensure tourism remains on the national agenda and is taken into account and integrated into all other major policy areas.<sup>139</sup> Maintaining the position of tourism as one of the main economic sectors and a driver of social change, while ensuring environmental protection and sustainable development is the major task at hand for the tourism sector.<sup>140</sup> Policy measures for the coastal zone and marine environment are related to tourism sectors such as cruises, diving, beach recreation, historic harbour towns and fishing villages and, and rural tourism.<sup>141</sup>

### **National Water Policy**

The National Water Policy presents a framework for action in the water sector and identifies priority areas that need to be addressed in respect of sustainable water management in Malta. Water is a very scarce resource in Malta, but is essential for humans and nature, as well as for agriculture, industry and all aspects of the economy. Therefore, sustainable management of water resources is of utmost importance. The main objectives of the Water Policy are: good quality water supply; sustainable use and management of water resources; protection of water resources and the aquatic environment; fair and transparent regulation of the water industry; flood mitigation; and adaptation to climate change. In relation to coastal zone management the policy measures concerning protection of surface and coastal waters from pollution and risk management associated with floods have most relevance.<sup>142</sup>

### **Water Catchment Management Plan**

The Water Catchment Management Plan (WCMP) translates the provisions of the EU Water Framework Directive, which have been transposed in national legislation in the *Water Policy Framework Regulations*, into a strategic plan for Malta. In the legislation, the Malta

<sup>138</sup> MTCE, 2012a. *National Environment Policy*. Ministry for Tourism, Culture and the Environment, February 2012, p. 50.

<sup>139</sup> MTCE, 2012b. *Tourism Policy for the Maltese Islands 2012-2016*. Ministry for Tourism, Culture and the Environment, p. 15.

<sup>140</sup> MTCE, 2012b. *Tourism Policy for the Maltese Islands 2012-2016*. Ministry for Tourism, Culture and the Environment, p. 17.

<sup>141</sup> MTCE, 2012b, *Tourism Policy for the Maltese Islands 2012-2016*. Ministry for Tourism, Culture and the Environment.

<sup>142</sup> MRRA, 2012. *A Water Policy for the Maltese Islands*. Ministry for Resources and Rural Affairs.



Resources Authority (MRA) is defined as the competent authority for groundwater and inland waters; with the exception of inland surface waters protected under the *Environment and Development Planning Act*, which are placed under the competency of the Malta Environment and Planning Authority (MEPA), which is also responsible for the coastal waters.<sup>143</sup> The Water Catchment Management Plan contains proposals for the management of Malta's water resources, in order to protect and improve water quality and quantity of water resources on and around the Maltese Islands. The aims, as laid down in the Directive and adopted in the WCMP, are to reduce all forms of water pollution, promote sustainable water use and contribute to mitigating the effects of floods and droughts.<sup>144</sup> For the management of coastal waters, the plan divides the coastal waters around the Maltese Islands into 9 different zones, on the basis of predominant physical and ecological characteristics, as well as on the nature and magnitude of pressures on the coastal water environment. For each distinct coastal water body the ecological and chemical status of the water quality is determined the different problems in the distinct zones are addressed with specific measures.<sup>145</sup> The contribution of activities in the coastal zone to the Maltese economy represents 13% of GDP and about 15% of total employment. Recreation and tourism in the coastal zone are widespread, but in some areas pollution from point and diffuse sources is still a major threat. Although improvement in water quality has been achieved due to the implementation of measures contained in several EU Directives (e.g. the IPPC Directive, the Nitrates Directive and the Urban Waste Water Directive), additional measures are required in some water bodies, most notably the harbour areas, to ensure compliance with the objectives set in the Water Framework Directive.<sup>146</sup>

### **National Energy Policy**

The National Energy Policy sets out the strategy and policy objectives with regards to energy provision (from both renewable and non-renewable sources) and energy efficiency measures. It is based on five main principles: 1) Efficiency and Affordability; 2) Security of Supply; 3) Diversification; 4) Flexibility; and 5) Sustainability.<sup>147</sup> The environmental impacts of the energy sector, such as emissions of greenhouse gases and other pollutants, the discharge of heated water into the sea and waste disposal need to be well monitored, to be able to control and ultimately improve air, soil and water quality. Regulatory procedures, in the form of environmental permitting are already in place to address the potential environmental impacts arising from the energy sector.<sup>148</sup> Off-shore exploration and

<sup>143</sup> MEPA & MRA, 2011. *Water Catchment Management Plan for the Maltese Islands*. Malta Environment and Planning Authority & Malta Resources Authority. March 2011, p. 14.

<sup>144</sup> MEPA & MRA, 2011. *Water Catchment Management Plan for the Maltese Islands*. Malta Environment and Planning Authority & Malta Resources Authority. March 2011, p. 6.

<sup>145</sup> MEPA & MRA, 2011. *Water Catchment Management Plan for the Maltese Islands*. Malta Environment and Planning Authority & Malta Resources Authority. March 2011, p. 19.

<sup>146</sup> MEPA & MRA, 2011. *Water Catchment Management Plan for the Maltese Islands*. Malta Environment and Planning Authority & Malta Resources Authority. March 2011, p. 97.

<sup>147</sup> MRRA, 2012a. *The National Energy Policy for the Maltese Islands*. Ministry for Resources and Rural Affairs, Government of Malta, p. 40.

<sup>148</sup> MRRA, 2012a. *The National Energy Policy for the Maltese Islands*. Ministry for Resources and Rural Affairs, Government of Malta, p. 162.



exploitation of gas and oil reserves can cause impact on the environment. To minimise the risks of possible negative impact on the environment, contractors are bound to conduct operations in a manner that promotes the conservation of Malta's natural resources and protect the environment in accordance with best international practice, as well as employ the best techniques for preventing environmental damage.<sup>149</sup> A key principle for a modern energy policy is that of ensuring environmental sustainability through investing in renewable energy. One of the possibilities that is being assessed is that of wind farms, either on- or off-shore. The Malta Resources Authority is working together with the Malta Environment and Planning Authority to study the suitability of on-shore and off-shore sites for large conventional electricity generation and renewable energy plants or farms. If sites are deemed to be potentially suitable they will be subjected to an environmental assessment, either an EIA or SEA, depending on the nature of the project or programme.<sup>150</sup>

### **National Climate Change Adaptation Strategy**

The National Climate Change Adaptation Strategy has been drafted following the recommendations made by a specially set up Climate Change Committee for Adaptation (CCCA) to the Ministry of Resources and Rural Affairs.<sup>151</sup> Their recommendations focus on no-regret options: policy objectives that address issues that require attention also independently of climate change considerations and that will deliver tangible improvements in the state of the environment. The strategy stresses the importance of securing synergy and coordinated policy efforts for strategies and policies aimed at climate change and adaptation.<sup>152</sup> Current environmental impacts and potential impacts of climate change with relevance to coastal zone management that are being discussed in the strategy are: biodiversity conservation, salinity levels, flooding, changing coastal dynamics, erosion, population dynamics in fisheries, and natural hazards and disasters.<sup>153</sup> The reliance on Reverse Osmosis (RO) plants for water provision, and the energy that is necessary to operate these plants, is identified as a major threat.<sup>154</sup> Another serious problem is the continuing development along the coast, increasing the areas vulnerable to flooding and posing threats to the preservation of the rural environment and natural areas, which will only become more important in light of adaptation to climate change.<sup>155</sup>

---

<sup>149</sup> MRRA, 2012a. *The National Energy Policy for the Maltese Islands*. Ministry for Resources and Rural Affairs, Government of Malta, p. 159.

<sup>150</sup> MRRA, 2012a. *The National Energy Policy for the Maltese Islands*. Ministry for Resources and Rural Affairs, Government of Malta, p. 192.

<sup>151</sup> MRRA, 2012b. *National Climate Change Adaptation Strategy*. Ministry for Resources and Rural Affairs, Government of Malta, May 2012, p. 1.

<sup>152</sup> MRRA, 2012b. *National Climate Change Adaptation Strategy*. Ministry for Resources and Rural Affairs, Government of Malta, May 2012, p. 2.

<sup>153</sup> MRRA, 2012b. *National Climate Change Adaptation Strategy*. Ministry for Resources and Rural Affairs, Government of Malta, May 2012, p. 3.

<sup>154</sup> MRRA, 2012b. *National Climate Change Adaptation Strategy*. Ministry for Resources and Rural Affairs, Government of Malta, May 2012, p. 20.

<sup>155</sup> MRRA, 2012b. *National Climate Change Adaptation Strategy*. Ministry for Resources and Rural Affairs, Government of Malta, May 2012, p. 18.



### **Solid Waste Management Strategy for the Maltese Islands**

The 2010 Solid Waste Management Strategy for the Maltese Islands presents an update to the first ever Maltese waste management strategy document, which was devised in 2001. In that decade many changes in the waste sector took place, such as the set-up of WasteServ Malta Ltd, responsible for services and facilities for waste management, the closure of two landfills, the introduction of bring-in centres and civic amenity sites, and the upgrading of waste plants and development of a composting facility. The strategy is built up of 9 guiding principles for sustainable waste management in Malta between 2010 and 2015, which are backed up by 9 policy objectives. These guiding principles are: 1) Sustainability; 2) Proximity; 3) Precautionary; 4) Polluter Pays; 5) Waste Hierarchy; 6) Achieve Best Practicable Environmental Option; 7) Mitigation to Climate Change; 8) Waste as a Resource; and 9) A Collective Strategy.<sup>156</sup> The Malta Environment and Planning Authority (MEPA) is the responsible authority for waste management, and takes care of issuing of licenses or permits for waste management facilities and activities, monitoring and inspection of compliance with license or permit conditions, and taking enforcement action where applicable. MEPA's Waste Management Inspectorate are required to develop a plan of action which is aimed at monitoring compliance of existing waste management facilities and initiatives in light of EU and national legislation and policies.<sup>157</sup> The main waste management issues related to the coastal zone identified in this strategy are waste from shipping and in ports, and the disposal of construction and demolition waste at sea. Every port or terminal operator was obliged to produce a waste management plan for the provision and use of port reception facilities by November 2004 in accordance with the *Port Reception Facilities for Ship-generated Wastes and Cargo Residues Regulations*.<sup>158</sup> A private entity was at the time of writing of the strategy, contracted by WasteServ to acquire and manage the disposal of construction and demolition waste in former quarries. However, as there is a limit to the space available for disposal, discussion has been opened on the topic of disposing of construction and demolition waste at sea as a temporary measure, or by turning it from a waste into a resource for the reclamation of land from the sea or the creation of islands. Proposals are also being made about creating a tax exemption on recycled building materials, in order to encourage re-use and reduce the amount to be disposed. No policies or policy direction have been devised yet to deal with this matter.<sup>159</sup>

---

<sup>156</sup> Parliamentary Secretary for Tourism, the Environment and Culture, 2010 *A Solid Waste Management Strategy for the Maltese Islands*. First Update. Ministry for Tourism, Culture and the Environment, Government of Malta, December 2010, p. 2-3.

<sup>157</sup> Parliamentary Secretary for Tourism, the Environment and Culture, 2010. *A Solid Waste Management Strategy for the Maltese Islands*. First Update. Ministry for Tourism, Culture and the Environment, Government of Malta, December 2010, p. 10.

<sup>158</sup> Parliamentary Secretary for Tourism, the Environment and Culture, 2010. *A Solid Waste Management Strategy for the Maltese Islands*. First Update. Ministry for Tourism, Culture and the Environment, Government of Malta, December 2010, p. 16.

<sup>159</sup> Parliamentary Secretary for Tourism, the Environment and Culture, 2010. *A Solid Waste Management Strategy for the Maltese Islands*. First Update. Ministry for Tourism, Culture and the Environment, Government of Malta, December 2010, p. 22.

### **Aquaculture Strategy for Malta**

The Aquaculture Strategy for Malta is the newest strategy document on aquaculture that has been issued since aquaculture started as an economic sector in Malta in the late 1980s. It was not until 1994 that the first policy on aquaculture was issued by the then Planning Authority entitled “Policy and Design Guidelines - Fish Farming”. This document was issued after investors showed a great interest in aquaculture. In 2001, a Supplementary Guidance entitled “Policy & Design Guidance on Fish Farming - Search area policy (Amendment), 2001” was endorsed. The main recommendation of the amendment was to delete the previously proposed search areas and that no further applications were to be accepted for farms less than 1 nautical mile from the shore or in less than 50m water depth until the new policy was formulated. The following was the National Policy on Aquaculture published in 2004. With regard to the location of aquaculture developments, the policy includes the Strategy for the Development and Management of Marine Installations and the Strategy for the Management of Land Developments.<sup>160</sup>

### **Fisheries Operational Programme for Malta 2007-2013**

The Fisheries Operational Programme for Malta 2007-2013 (FOPM) was prepared in accordance with Council (EC) Regulation No. 1198/2006 regarding the European Fisheries Fund 2006, the purpose of the programme being to identify priorities for the development of Maltese fisheries, aquaculture and processing in accordance with the objectives of the Common Fisheries Policy. The FOPM is based on Malta’s National Strategic Plan for Fisheries 2007-2013, whose objectives are to stabilise existing aquaculture production, increase product diversification and improve the value added of the sector. Specific actions include closing the production cycle of existing aquaculture production and achieving the diversification of cultivated species; and reducing the negative impact of existing operations on the environment. A priority was given also to the establishment of a hatchery to provide juveniles of both existing and new species for the local industry. The Aquaculture strategy for Malta states that the original 1994 Policy and Design Guidelines was in many aspects more explicit than the 2004 Policy. A further observation on policy is that whilst there is reference to consultation between relevant Government departments and agencies, and little or no consultation with the aquaculture industry itself. This is contrary to EU and national legislation and policy, which emphasises the need for proper stakeholder consultation.<sup>160, 161</sup>

### **Rural Development Programme for Malta 2007 – 2013**

The Rural Development Programme for Malta 2007 – 2013 has been published by the Agriculture Directorate of the Ministry for Resources and Rural Affairs, which: assists local farmers, promotes improved methods of production in agriculture, horticulture and animal products, as well as ensuring health and safety of both producers and consumers, and

---

<sup>160</sup> Stirling Aquaculture, 2012. *An Aquaculture Strategy for Malta. Final Draft Report*. Institute for Aquaculture, University of Stirling. Preparatory study and recommendations prepared for the Ministry of Resource and Rural Affairs, Government of Malta, March 2012.

<sup>161</sup> Fish and Farming Regulation and Control, 2008. *Fisheries Operational Programme for Malta 2007 – 2013*. Ministry for Resources and Rural Affairs, Government of Malta, October 2008.

safeguarding the rural environment.<sup>162</sup> The Rural Development Programme has made an analysis of the strengths and weaknesses of rural development in its current state, and proposes strategies to secure the strengths and address the weaknesses. Some of the main rural issues that have been identified relate to the coastal zone. An example is land abandonment on coastal slopes and cliffs, due to difficult access to water, transport options and increased salinity because of salt spray. Pollution of coastal waters due to surface run-off containing excessive nitrates due to fertilisation practices in agriculture is another serious issue, and Malta, in its entirety defined as a Nitrate Vulnerable Zone is failing to comply with the EU Nitrates Directive (91/676/EEC). Provisions for fertilizer use are not anchored in Maltese legislation, although the Maltese Code of Good Agricultural Practice contains a list of good fertilization practices, amongst others recommending to avoid storage of fertilizer within 150m of a drinking water well and 300m from the coast and to avoid the application of liquid and solid manure within 100m from the coast.<sup>163</sup>

### **Lacking policies**

For certain sectors, clear policy direction seems to be lacking. With relevance to land use planning and environmental issues, the lack of a transport policy and a housing policy is apparent. Apart from the transport policies and housing policies in the Structure Plan and provisions on transport and housing in the Local Plans, there is no dedicated Transport Policy or Housing Policy for Malta.

### **7.2.6. Compliance and enforcement**

This section outlines the organisation of law enforcement, the institutions responsible for enforcement and the enforcement actions in their powers. Contemporary enforcement issues related to planning and the coastal environment are also discussed.

#### **Law enforcement**

Law enforcement on the Maltese Islands is in the hands of a number of Government entities, including the Malta Police Force, the Armed Forces of Malta, the Civil Protection Department, and Local Wardens.<sup>164</sup> The Malta Police Force contains several branches, of which the ALE, the Administrative Law Enforcement Unit, deals with environmental crime. The ALE was set up in the 1990s to assist the district police officers in policing environmental crime. Because of the increase and severe changes in environmental legislation it was considered worthwhile to set up a dedicated police section to deal with offences that fall under those laws. The ALE is responsible for direct action in case individuals fail to comply with enforcement notices issued by MEPA or the Lands

<sup>162</sup> Description of the Rural Development and Aquaculture Department on the website of the MRRA. Retrieved from <http://www.mrra.gov.mt/page.aspx?id=161>

<sup>163</sup> MRRA, 2012c. *Rural Development Programme for Malta 2007 – 2013*. Ministry for Resources and Rural Affairs, Government of Malta, June 2012.

<sup>164</sup> Description of Law Enforcement and Public Safety in Malta on the website of the Government of Malta. Retrieved from: <https://gov.mt/en/Services-And-Information/Business-Areas/Law%20Enforcement/Pages/Law-Enforcement-and-Public-Safety.aspx>

Department. Other responsibilities of the ALE include policing wildlife crime and the enforcement of maritime regulations in the inner coastal areas.<sup>165</sup>

MEPA can take planning enforcement action in cases where there is illegal development: development without a permit or development that is being carried out in a way that breaches the conditions laid down in the permit. Enforcement actions can also be taken for other issues, the most common being, next to development without a permit: unauthorised change of use of land or building, and untidy land. Planning enforcement does not deal with the following issues: noise pollution, investigation of land ownership, and third party damage from development. The enforcement process contains the following elements, carried out by the Enforcement Officer: monitoring of development; detecting unpermitted development; taking enforcement action; action on enforcement cases; investigating complaints; representing MEPA at appeals and Court; and in case of subsequent compliance: issuing of a compliance certificate, which confirms that the developments have been carried out in accordance with the approved plans and conditions of the permit.<sup>166</sup> A complete list of the offences under the *Environment and Development Planning Act* and enforcement options are found in Part VI: Powers of the Authority and Enforcement of Control of that same law. The *Crimes against the Environment Act* (2012, Cap. 522) transposes the EU Directive 2008/99/EC on the protection of the environment through criminal law. The Act states that: “whosoever shall knowingly commit any unlawful act shall be guilty of an offence and shall be liable, on conviction to punishment”.<sup>167</sup> Unlawful acts can be related to: discharge or emission of materials into air, soil or water; handling of waste; operation of a plant including dangerous activities or substances; handling of nuclear waste or other hazardous radioactive substances; killing, destroying, possessing or trading protected wild fauna or flora; deterioration of protected habitats; and production and use of ozone-depleting substances.<sup>168</sup> Punishments include fines and imprisonment, depending on the severity of the offence.<sup>169</sup> Additional legislation also makes provisions for law enforcement, for example for transport and sea shipping. The *Transport Enforcement Officers Regulations* (2008, SL 499.51) provide the Transport Authority with the ability to appoint Enforcement Officers to supervise and enforce traffic and transport laws.<sup>170</sup> The *Enforcement of Sea Fishing Conventions Order* (2011, SL 425.08) provides for the enforcement of restrictions and obligations relating to sea fishing in conventions to which Malta is a party, provides for the constitution of infringements of such conventions as an offence against the Fisheries Conservation and Management Act and establishes the applicable penalties.<sup>171</sup>

<sup>165</sup> Description of the Administrative Law Enforcement unit on the website of the Malta Police Force. Retrieved from: <http://www.police.gov.mt/en-us/ale.aspx>

<sup>166</sup> Description of Enforcement on the website of MEPA. Retrieved from: <http://www.mepa.org.mt/permitting-enforcement-intro>

<sup>167</sup> Crimes against the Environment Act, 2012. Cap. 522 of the Laws of Malta, Art. 3(1).

<sup>168</sup> Crimes against the Environment Act, 2012. Cap. 522 of the Laws of Malta, Art. 3(2).

<sup>169</sup> Crimes against the Environment Act, 2012. Cap. 522 of the Laws of Malta, Art. 5.

<sup>170</sup> Transport Enforcement Officers Regulations, 2008. SL 499.51 of the Laws of Malta.

<sup>171</sup> Enforcement of Sea Fishing Conventions Order, 2011. SL 425.08 of the Laws of Malta.



**Enforcement issues:****Illegal development and overdevelopment**

Lack of information on land ownership in the coastal zones has hampered effective enforcement of illegal developments and the implementation of policy measures to increase public access to the coastal zones. Most recreational areas in the coastal zones are designated Outside Development Zones (ODZ), where development is not allowed, although exceptions exist. However, these areas are dotted with illegal structures, such as boathouses, hunting and trapping hides, caravans and kiosks, complete with concrete platforms to place tables and chairs. Enforcement action on illegal structures dotting the coastal zones or on illegal activities creating conflict with other coastal uses would become clearer if landownership would be known.<sup>172</sup> Also, the lack of clear definitions of spatial boundaries and time-frames in the policies that exist for the coastal zone, such as Policy CZM 1, CZM 2 and CZM 3 in the Structure Plan, make implementation and enforcement difficult.

The inability to enforce the law, because of a lack of resources and a lack of political will, has led to serious overdevelopment, such as the illegal building of boathouses as summer residences, together with the continuation of illegal practices along the coast and in the countryside, in the form of illegal bird hunting in the nature reserves. Successive governments have been unsuccessful in bringing illegal or incompatible practices of powerful lobby groups, such as the construction industry, boathouse owners and bird hunters, to a halt, for fear of losing votes. Apart from political pressure, there have been cases of abuse by the political elite, in order to facilitate the issuing of development permits and licences.<sup>173</sup>

The recent elections sparked a big discussion on the construction sector in Malta. NGOs and the Green Party, Alternattiva Demokratika, have been speaking out against overdevelopment and the staggering amount of empty property found on the islands.<sup>174, 175</sup> The newly installed Labour government however, is proposing new plans to further encourage the construction industry, through proposals to reduce planning application fees and simplify the development planning procedures.<sup>175</sup> Local NGOs have voiced their concerns about fast-tracking planning applications, and fear that it could reduce transparency and opportunities for the public to have their say on land use issues. **Error!**

**Bookmark not defined.**

One of the early actions by the new government has been to issue a call for expressions of interest for land reclamation. This action has been met by disapproval of local NGOs and the Green Party. However, there are also indications that the government may not pursue land

<sup>172</sup> Planning Authority, 2002a. *Coastal Strategy Topic Paper*. Planning Authority, February 2002.

<sup>173</sup> Calleja, C., 2013. *Giving a brief history of overdevelopment*. Times of Malta, 10 May 2013. Retrieved from: <http://www.timesofmalta.com/articles/view/20130510/local/Giving-a-brief-history-of-overdevelopment.469087>

<sup>174</sup> Land Reclamation: Civil Society being ignored. Press release by Alternattiva Demokratika (AD; the Green Party), 19 April 2013. Retrieved from: <http://www.alternattiva.org/land-reclamation-civil-society-being-ignored>

<sup>175</sup> Calleja, C., 2013. *Giving a brief history of overdevelopment*. Times of Malta, 10 May 2013. Retrieved from: <http://www.timesofmalta.com/articles/view/20130510/local/Giving-a-brief-history-of-overdevelopment.469087>



reclamation as an option.<sup>174</sup> Furthermore, the *Environment and Development Planning Act* clearly demands a development permit for all types of development in land and at sea, including land reclamation<sup>176</sup>, and an environmental impact assessment is mandatory for large-scale projects that are “likely to have significant effects on the environment”.<sup>177</sup> Additionally, “any plan setting the framework for land reclamation projects on the Maltese coastline would have to be assessed through a Strategic Environmental Assessment”.<sup>178</sup>

### **Fishing industry**

Malta has strict regulations in place with regards to fishing vessels allowed within the 25 NM Fisheries Management and Conservation Zone. Poor regional control and enforcement in the large areas of high seas present a threat to the Maltese fisheries. Moreover, Japanese fishing fleets have been known to fish in the Mediterranean high seas using sophisticated earth observation techniques to trail fishing shoals whilst other trawling fleets regularly trawl the areas immediately outside the 25 NM zone since they are in close proximity to the main Sicilian fishing ports, many times using purse seine fishing nets. On several occasions, reports have been made of illegal trawling in the Maltese 25 NM zone.<sup>179</sup> Instances of Italian fishing vessels entering the Fisheries Management and Conservation Zone,<sup>180,181</sup> but also of illegal fishing by Spanish fishermen,<sup>182</sup> have been documented in the past.

### **Lack of capacity ALE**

BirdLife Malta, an NGO striving for the protection of birds and nature, has been complaining about the lack of capacity of the ALE for years. According to the organisation, the ALE, responsible for, amongst others, enforcement action on wildlife crime and maritime offences in the inner coastal areas, is “under-staffed and under-resourced, and the majority of offenders continue to receive low fines”.<sup>183</sup>

---

<sup>176</sup> Environment and Development Planning Act, 2010. Cap. 504 of the Laws of Malta, Art. 67.

<sup>177</sup> Environmental Impact Assessment Regulations, 2007. SL 504.79 of the Laws of Malta, Art. 3.

<sup>178</sup> Debono, J., 2013. *Government evasive on calls for impact studies on land reclamation*. Malta Today, 24 April 2013. Retrieved from: <http://www.maltatoday.com.mt/en/newsdetails/news/national/Government-evasive-on-calls-for-impact-studies-on-land-reclamation-20130424>

<sup>179</sup> Fish and Farming Regulation and Control, 2008. *Fisheries Operational Programme for Malta 2007 – 2013*. Ministry for Resources and Rural Affairs, Government of Malta, October 2008.

<sup>180</sup> Italian admits illegal fishing after plea agreement. Times of Malta, 6 July 2009. Retrieved from: <http://www.timesofmalta.com/articles/view/20090706/local/fish.263921>

<sup>181</sup> AFM catch Italian trawler fishing in Maltese waters. Times of Malta, 26 January 2010. Retrieved from:

Times of Malta. Various articles: <http://www.timesofmalta.com/articles/view/20100126/local/afm-catch-italian-trawler-fishing-in-maltese-waters.291336>

<sup>182</sup> Court fines two Spanish captains €28,000 for illegal fishing. Times of Malta, 20 November 2008. Retrieved from: <http://www.timesofmalta.com/articles/view/20081120/local/court-fines-two-spanish-captains-euro-28-000-for-illegal-fishing.233821>

<sup>183</sup> Three protected birds fall victim to illegal hunting. Malta Today, 1 October 2010. Retrieved from: <http://www.maltatoday.com.mt/en/newsdetails/news/national/Three-protected-birds-fall-victim-to-illegal-hunting>

### 7.2.7. Court decisions

Major conflicts appearing in the Maltese coastal zone mostly relate to various and conflicting interests in land use, often in the form of tension between urban expansion and nature conservation. To illustrate this situation some relevant and media-exposed examples of MEPA appeal decisions are presented here, including issues of illegal buildings (boathouses), urban and infrastructural extensions in the coastal zones with high ecological importance, and issues of securing public access to the coast.

#### Illegal boathouses

The case of boathouses in Armier bay presents a conflict that escalated in 1991, when the boathouse owners strongly resisted the police and army personnel trying to demolish their summertime dwellings on grounds that they were illegal. Over the years, the boathouse owners organised themselves and set up a company called Armier Developments Ltd, in order to submit an application to redevelop the boathouses into organised clusters of beach houses.<sup>184</sup> In March 2013, Prime Minister Joseph Muscat confirmed an agreement on the Armier boathouses with this company. The company claimed that in terms of the agreement, it would handle a project for the building of beach rooms to replace old boat houses, while offering a number of rooms for new users. The project is expected to feature some 1,000 rooms for use during the summer only. The agreement was originally reached already in 2002 but until this decision no major actions were taken.<sup>185</sup>

Another issue of illegal boathouses has taken place in St Thomas Bay, Marsascala, where the Environment and Planning Review Tribunal rejected an appeal from Enemalta to build an electricity substation. The decision was based on one of the fundamental principles of the Structure Plan stating that there is no planning justification to build outside the development zone except for buildings related to agriculture. The tribunal pointed out that the area was dominated by beach rooms and boathouses, some of which were illegal.<sup>186</sup>

Having a look at the appeal decision where an individual person made an appeal against MEPA regarding alteration to an existing summer residence reveals another example of the illegal boathouses issue.<sup>187</sup> The appeal was refused on the grounds of the PA Circular 2/96 (Planning Authority Circular)<sup>188</sup>, stating that the existing boathouse was actually an illegally built dwelling. Furthermore, the proposed development also conflicted with Structure Plan

<sup>184</sup> No commitment by government over Armier shantytown. Campaign to reclaim illegally-occupied public land. Times of Malta. 15 October 2008. Retrieved from: <http://www.timesofmalta.com/articles/view/20081015/local/no-commitment-by-government-over-armier-shantytown.228946>

<sup>185</sup> Government reacts as Muscat 'confirms' Armier boathouses agreement. Times of Malta. 7 March 2013. Retrieved from <http://www.timesofmalta.com/articles/view/20130307/local/muscat-confirms-agreement-with-armier-boathouses-company.460617>

<sup>186</sup> Illegal boathouses will not get electricity, tribunal rules. Times of Malta, 18 February 2013. Retrieved from <http://www.timesofmalta.com/articles/view/20130218/local/Illegal-boathouses-will-not-get-electricity-tribunal-rules.458110>

<sup>187</sup> Appeal No. 36/11 CF, MEPA Case No. PA 4381/99, 8 November 2012. Retrieved from: <http://www.mepa.org.mt/pdfreport?PrintoutType=ADCN&AppealRef=PAB/00036/11>

<sup>188</sup> Planning Authority, 1996. PA Circular 2/96. Retrieved from: <http://www.mepa.org.mt/file.aspx?f=3840>

Policy SET 11 which does not permit urban development outside existing and committed built-up areas. The proposed development did not fall into a category of non urban development which may be permitted outside existing or committed built-up areas in accordance with Paragraph 7.6 of the Structure Plan. There was also no justification why the proposed development could not be located in an area designated for developing existing built up area (Structure Plan policy SET 12). However, there is also legislation in favour of owners as they are able to claim that their boathouse is legal due to the law where MEPA assumes old pre-1967 buildings to be legally constructed.<sup>187</sup>

### Development on the coast

Different interests occur also in the matter of further urban expansion in the Maltese coastal zone. One of the most newsworthy examples was an attempt to extend the Portomaso complex in St. Julians with 46 new apartments covering approximately 7,543m<sup>2</sup> between a centuries-old coastal entrenchment wall and the sea. The MEPA permit from June 1996 states that no extensions or enlargements of this development, its individual elements or any related development will be permitted. The need to protect this zone was identified in the environmental impact assessment (EIA) carried out with the original permit application for the Portomaso project in 1996, and all permits obliged the developers to fence off and protect the ecological zone throughout the construction period and after. Later on MEPA's Environmental Planning Directorate found no overriding ecological purpose for the retention of the ecological zone. Their statement was based on ecological surveys which did not indicate any appearance of the Wedgefoot Grass, the key species when the area was first given an ecological importance. This action was criticised by an NGO, saying that MEPA should investigate reasons for the disappearance of the species and not to do away with the ecological status of the zone. The opposition, the potential developers, argued that the local plan approved 10 years later in 2006 included this particular site as suitable for development. In April 2012 the MEPA board made the decision to turn down the extension of the Portomaso complex.<sup>189, 190, 191</sup>

Sandy beaches have a high ecological importance for the Maltese islands and the infrastructure in the presence of these sites has to be adjusted. The main issue here are the kiosks. One example of this kind is an appeal<sup>192</sup> to erect a new kiosk in the vicinity of the Għajn Tuffieħa sandy beach. The proposed appeal was refused by the Commission for the Control of Development due to the fact that the need for this kiosk was not justified and because the proposed development is in conflict with Structure Plan Policy SET 11, which

<sup>189</sup> Portomaso project will destroy protected ecological zone. Times of Malta. 18 March 2012. Retrieved from <http://www.timesofmalta.com/articles/view/20120318/letters/Portomaso-project-will-destroy-protected-ecological-zone.411596>

<sup>190</sup> Portomaso extension is treachery, say objectors: Public anger as case officer recommends approval for 46 new apartments. Times of Malta. 22 April 2012. Retrieved from <http://www.timesofmalta.com/articles/view/20120422/local/Portomaso-extension-is-treachery-say-objectors.416477>

<sup>191</sup> Mepa turns down Portomaso extension with chairman's casting vote. Times of Malta. 26 April 2012. Retrieved from <http://www.timesofmalta.com/articles/view/20120426/local/portomaso.417191>

<sup>192</sup> Appeal Decision Notice PAB 50/05 RT, Appeal No. PA 0963/03, 9 January 2008. Retrieved from: <http://www.mepa.org.mt/pdfreport?PrintoutType=ADCN&AppealRef=PAB/00050/05>

does not permit urban development outside existing and committed built-up areas. A timber kiosk for selling drinks and snacks with a permission to erect and operate close to this site was already operating. However, the appeal revealed an important policy, namely the Policy & Design Guidance - Kiosks (May 1994), which in the Paragraph 5.2 specifies that kiosks or stalls will not be permitted on sandy or other beaches in accordance with Structure Plan Policy RCO 16. The policy further states that in cases where there are no facilities for the provision of drinks or snacks, the provision of a temporary kiosk may be considered, subject that it is sited in such a manner that does not adversely affect the landscape, ecology or other interests of the areas.<sup>192</sup>

### Public access to the coast

Safeguarding public access to the coastline has also been the subject of legal decisions. One example of this case is the appeal<sup>193</sup> in the name of the St. George's Bay Hotel Ltd about a yacht club in Dragonara Road, St. Julians. The application was refused by the Development Control Commission, the legally constituted decision-making body on planning applications,<sup>194</sup> mainly because the proposal ran counter to Structure Plan policy CZM 3, which states that public access around the coastline shall be secured and should not be developed for private use. The proposed development also infringed Structure Plan policy RCO 15 since the area is a garigue habitat, which is recognised as a feature of scientific importance. Furthermore, the findings of the Yachting Subject Study which were approved by the Planning Authority in 1997 had already ruled out the area of St. Georges Bay in St. Julians as a possible site for a yacht marina.<sup>193</sup>

### 7.2.8. Adaptation of national legislation

As an EU member, Malta is obliged to transpose EU Directives into national law. Although a directive is binding on a Member State with regards to the objective of the directive, the directive does not supersede national law and the Member State has the freedom to adapt their national law in the manner they prefer, as long as in the end they comply with the provisions of the directive.<sup>195</sup>

Although until today no specific coastal legislation exists in Malta and the provisions of the ICZM protocol or the new EU Directive on Marine Spatial Planning have not yet been transposed into national legislation, Malta has a multitude of laws with implications on coastal zone planning and management. The implementation of the following EU Directives has led to the adoption of national legislation on matters affecting the coast:

- the *Bathing Water Directive* (2006/7/EC, repealing 76/160/EEC), transposed via LN 380 of 2003; Quality of Bathing Water Regulations;

<sup>193</sup> Appeal No. PAB 293/99 KA, MEPA Case No. PA 5258/98, 3 November 2000. Retrieved from: <http://www.mepa.org.mt/pdfreport?PrintoutType=ADCN&AppealRef=PAB/00293/99>

<sup>194</sup> Description of Development Planning Control on the website of MEPA. Retrieved from: <http://www.mepa.org.mt/topics-planning>

<sup>195</sup> Borchardt, K-D, 2010. *The ABC of European Law*. European Union. Publications Office of the European Union, Luxembourg.

- the *Birds Directive* (2009/147/EC, amending 79/409/EEC), transposed via LN 79 of 2006, amended by LN 39 of 2007; Conservation of Wild Birds Regulations;
- the *Environmental Impact Assessment Directive* (85/337/EEC), transposed via LN 114 of 2007, repealing LN 204 of 2001; Environmental Impact Assessment Regulations;
- the *Urban Waste Water Treatment Directive* (91/271/EEC), transposed via LN 340 of 2001, amended by LN 120 of 2005; Urban Waste Water Treatment Regulations;
- the *Habitats Directive* (92/43/EEC), transposed via LN 311 of 2006; the Flora, Fauna and Natural Habitats Protection Regulations;
- the *Water Framework Directive* (2000/60/EC), transposed via LN 194 of 2004, Water Policy Framework Regulations;
- the *Strategic Environmental Assessment Directive* (2001/42/EC), transposed via LN 497 of 2010, repealing LN 418 of 2005; Strategic Environmental Assessment Regulations; and
- the *Marine Strategy Framework Directive* (2008/56/EC), transposed via LN 73 of 2011; Marine Policy Framework Regulations.

For example, the designation of Natura 2000 sites, Special Areas of Conservation (SACs, under the Habitats Directive) and Special Protection Areas (SPAs, under the Birds Directive) on land and in the marine environment, has greatly increased the extent of protected areas within the coastal zone and marine environment.<sup>196</sup> Now, even though legislation transposing the 100 meter setback rule of the ICZM Protocol is only in preparation<sup>197</sup>, a large share of the coastal zone is already under protection by means of their designation as a Natura 2000 site. Incompatible uses can be regulated through a management plan as stated in the Flora, Fauna and Natural Habitats Protection Regulations.<sup>198</sup>

### 7.3. Institutional analysis

There are several government institutions responsible for administering the law and implementing policies in Malta related to coastal zone management, as well as other relevant public, private and non-governmental organisations. The Malta Environment and Planning Authority (MEPA) is the main institution responsible for matters related to coastal zone management, being the national agency responsible for land use planning and environmental protection. However, many other institutions and organisations work on related topics. It is therefore important to include their relations, conflicts and mechanisms for cooperation, in order to find out how to further coastal zone management in the Maltese context.

<sup>196</sup> MEPA, 2011. Report on the Implementation of the Recommendation of the European Parliament and of the Council concerning the implementation of Integrated Coastal Zone Management in Europe (2002/413/EC) Malta. Malta Environment and Planning Authority, March 2011, p. 10.

<sup>197</sup> PAP/RAC, 2011 in SHAPE, 2013. *Establishment of coastal setback. An explanatory report on Article 8-2 of ICZM Protocol. Issues to be Considered*. SHAPE: Shaping an Holistic Approach to Protect the Adriatic Environment: between the coast and sea, p. 9.

<sup>198</sup> Flora, Fauna and Natural Habitats Protection Regulations, 2006. SL 504.73 of the Laws of Malta, Art. 14.

Figure 7-5 provides a visual overview of the ministries of the Maltese government and their respective responsibilities and entities that fall under the ministry. The table at Appendix C gives a broader overview of the Maltese institutions relevant within the scope of coastal zone management, identifying their main responsibilities, the law granting them power and policies and plans developed under their umbrella. Contemporary changes in administration and conflicts between institutions, as well as mechanisms for cooperation and overcoming conflicts are discussed here.

### 7.3.1. New government

National elections were held in Malta in March 2013, and these have led to a change in administration from Nationalist government to Labour government. This represents a major political change, as the Nationalists had been in power for 15 consecutive years. Under the new government, some shifts in ministries and responsibilities that fall under these ministries have taken place.<sup>199</sup> There are now more ministries than there were under the previous administration, however, even previously several ministries were directly involved with regulating coastal and marine areas or uses: the National Report on the Implementation of the EU ICZM Recommendation prepared by MEPA in 2006 identified that eight out of fourteen Ministries at that time dealt with these topics.<sup>200</sup>

### 7.3.2. New plans

As stated earlier, the main planning instruments are the Structure Plan and the Local Plans, however the Structure Plan which dates back to 1990, was earmarked to have been replaced by its successor, the Strategic Plan for Environment and Development (SPED).<sup>201</sup> The SPED was originally due in 2012, but it has not yet been published, leaving decisions on development and environmental issues without a clear policy direction.

The Local Plans will also be revised within the next two years and are to be completed by the end of 2014. The Parliamentary Secretary for Planning (falling under the Office of the Prime Minister), stated that some of the Local Plans are outdated, such as the Marsaxlokk Bay Local Plan dating back to 1995, which does not reflect today's reality anymore. The most important change which is being planned for the end of 2014 is that of the separation of the environment from the planning department, thus taking the E out of MEPA. According to environmental organisations, as well as some developers, the combination of the two

<sup>199</sup> Description of the Ministries of the Government of Malta. Retrieved from: <http://gov.mt/en/Government/Government%20of%20Malta/Ministries%20and%20Entities/Pages/Ministries-and-Entities.aspx>

<sup>200</sup> MEPA, 2007b. *An Overview of the State of Marine Spatial Planning in the Mediterranean Countries*. Malta Report. Malta Environment and Planning Authority, May 2007, p. 3.

<sup>201</sup> Description of the Strategic Plan for the Environment and Development on the website of MEPA. Retrieved from: <http://www.mepa.org.mt/sped>



departments is leading to many conflicts of interest, and it is envisaged that the split will benefit the environment.<sup>202</sup>

### 7.3.3. Overlapping or ambiguous responsibilities

A ministerial and departmental sectoral approach is one of the most apparent obstacles for an integrated coastal zone management to succeed in Malta, as inconsistencies between existing and emergent legislation has led to several instances of overlapping or ambiguous responsibilities<sup>203</sup>, as well as contradictory regulations and legal loopholes.<sup>204</sup> A clear example is given by/with a Structure Plan policy, Policy AHF 1 (see Appendix D), a strategic policy on the improvement of the agricultural, horticultural, and fishery sectors in Malta. However, since this policy objective actually falls within the domain of the agricultural department, it is difficult to implement from within the development and planning process,<sup>205</sup> and there is no corresponding strategic objective coming from the agricultural sector.

The tradition to have distinct departments, responsible for a specific theme, has however loosened up slightly since the introduction of some agencies with more cross-cutting responsibilities, such as the Marine Protected Areas Steering Committee, the Marine Safety and Pollution Prevention Committee and the Bathing Waters Committee, all incorporating members from different institutions, such as government entities responsible for environment, fisheries, transport, security, health, waste management, civil protection and tourism.<sup>206,207</sup> These examples of cooperation between departments and other government agencies are testimony to the fact that progress is being made on this front.<sup>208</sup>

---

<sup>202</sup> Xuereb, M., 2013. *Local Plans to be revised by end 2014*. Times of Malta, 02 April 2013. Retrieved from: <http://www.timesofmalta.com/articles/view/20130402/local/Local-plans-to-be-revised-by-end-2014.463828>

<sup>203</sup> UNEP/MAP/PAP, 2005. *Coastal Area Management in Malta*. Priority Actions Programme, Regional Activity Centre, Mediterranean Action Plan (MAP), UNEP. Split, Croatia.

<sup>204</sup> NGOs issue warning over planning abuse. Times of Malta, 14 April 2013. Retrieved from: <http://www.timesofmalta.com/articles/view/20130414/local/NGOs-issue-warning-over-planning-abuse.465529>

<sup>205</sup> Planning Authority, 2002a. *Coastal Strategy Topic Paper*. Planning Authority, February 2002, p. 109.

<sup>206</sup> UNEP/MAP/PAP, 2005. *Coastal Area Management in Malta*. Priority Actions Programme, Regional Activity Centre, Mediterranean Action Plan (MAP), UNEP. Split, Croatia, p. 46.

<sup>207</sup> MEPA, 2011. Report on the Implementation of the Recommendation of the European Parliament and of the Council concerning the implementation of Integrated Coastal Zone Management in Europe (2002/413/EC) Malta. Malta Environment and Planning Authority, March 2011, p. 12.

<sup>208</sup> UNEP/MAP/PAP, 2005. *Coastal Area Management in Malta*. Priority Actions Programme, Regional Activity Centre, Mediterranean Action Plan (MAP), UNEP. Split, Croatia, p. 58.

Office of the Prime Minister	Ministry for Tourism	Ministry for Sustainable Development, the Environment and Climate Change	Ministry for Transport and Infrastructure	Ministry for Energy and the Conservation of Water	Ministry for Education and Employment	Ministry for European Affairs & the Electoral Manifesto	Ministry for the Economy, Investment and Small Business Portfolio	Ministry for Health	Ministry for Foreign Affairs	Ministry for Social Dialogue, Consumer Affairs and Civil Liberties	Ministry for Family and Social Solidarity	Ministry for Home Affairs and National Security	Ministry for Finance
Sustainable development strategy	Tourism	Environment and Climate Change Policy	Construction and Maintenance	Energy Policy	Education	Relations with the EU	Industry	Health Services	Relations with Foreign and Commonwealth Countries	Social Dialogue	Social Housing	Civil Protection	Economic Policy
Strategic Policy Coordination	Cultural Heritage	Waste Management Strategy	Coordination of Major Government Projects	Water Policy	Employment and Training	EU Internal Coordination	Government Investments	Occupational Health and Safety	Relations with International Organisations and Institutions	Civil Liberties	Social Policy	Land Registry	Contracts
Marine Policy Framework	Restoration	National Parks, Afforestation and the Countryside	Internal transport	Development of Alternative Energy Sources	Research and Innovation	EU Funds and Programmes	Maritime Affairs	Health Services Regulations and Standards	International Economic Relations	Equality		Defence	Customs and Excise
Coordination of Planning, Policy and Priorities	Valletta Cultural Capital 2018	Rural Development	Roads		Science and Technology Policy		Ports			Non-Governmental and Voluntary Organisations		Courts of Justice	
	Local governments	Agriculture & Horticulture	Coordination of Road Building, Maintenance and Landscaping				External trade & Trade services			Industrial and Employment Relations		Immigration	
		Fisheries & Aquaculture	Oil exploration							Competition and Consumer Affairs			
Malta Environment and Planning Authority	Malta Tourism Authority	WasteServMalta Ltd.	Transport Malta	Malta Resources Authority	Employment and Training Corporation		Malta Enterprise			Malta Council for the Voluntary Sector	Malta Housing Authority	Armed Forces of Malta	
Lands Department	Heritage Malta	Strategic Environment Assessment Audit Team		Enemalta Corporation			Malta Investment Management Co Ltd (MIMCOL)			Malta EU Steering and Action Committee		Malta Police Force	
Centre for Development, Research and Training		Majjistral Nature and History Park Management Board		Water Services Corporation			Malta Freeport Cooperation			Malta Council for Economic and Social Development			
SEA Focal Point		Integrated Pollution and Prevention Control Committee											

Figure 7-5 Visual overview of ministries, their responsibilities and entities that fall under the respective ministries<sup>199</sup>

## 7.4. Review of coastal management and planning in Malta

This section presents a review of relevant articles, reports and other publications evaluating efforts related to ICZM in Malta, as well as discussing environment and development planning in the coastal zone, in order to expose the main recurrent themes.

### 7.4.1. Sectoral approach

One of the main barriers to integrated coastal zone management is the absence of a holistic vision and integration between government agencies. The Malta Environment and Planning Authority (MEPA) is responsible for regulating and controlling development on land and at sea, whereas the development of different sectors (e.g. agriculture, transport) is the responsibility of other agencies. The existing planning policies address coastal issues without taking the interactions that exist between coastal resources and uses into account.<sup>209</sup> The sectoral approach within agencies that have jurisdiction over the coastal areas and/or specific uses is not conducive to integrated management. Furthermore, overlapping responsibilities or uncertainty about responsibilities – brought about by a lack of harmonization of existing legislation, administrative procedures and institutions with emergent legislation – make effective management even more difficult to achieve. For example, in a study conducted by the National Audit Office about Malta's groundwater resources, a table is presented summarizing the various government entities responsible for the implementation, monitoring and enforcement of the groundwater regulatory framework. At least seven different entities are involved, with varying responsibilities according to different themes, such as water catchment management, nitrate pollution and climate change adaptation. This complex institutional set-up means it is not easy to coordinate the national efforts to safeguard groundwater.<sup>210</sup>

However, improvement is visible. A decade ago, only MEPA had a legal obligation to consult other agencies when drafting up a strategic plan<sup>209</sup>, but currently these legal requirements exist also for other public authorities, the Cultural Heritage Act for example makes legal provisions for the Superintendence for Cultural Heritage and the agency Heritage Malta, to advise and coordinate with MEPA and the Malta Tourism Authority, in an effort to ensure better policy coordination.

Dedicated coastal legislation, strategy or policy is becoming common practice globally and many countries around the Mediterranean have adopted coastal legislation or related policies. Figure 3 shows how most Mediterranean countries have legally established the 100 meter setback zone where development is not allowed, in accordance with Article 8.2(a) of the ICZM Protocol.<sup>211</sup> However, in Malta, even though

<sup>209</sup> Planning Authority, 2002a. *Coastal Strategy Topic Paper*. Planning Authority, February 2002.

<sup>210</sup> NAO, 2011. *Safeguarding Malta's Groundwater*. Performance Audit. National Audit Office, p. 19.

<sup>211</sup> SHAPE, 2013. *Establishment of coastal setback. An explanatory report on Article 8-2 of ICZM Protocol. Issues to be Considered*. SHAPE: Shaping an Holistic Approach to Protect the Adriatic Environment: between the coast and sea.

there have been calls for a dedicated coastal management plan since the 1990s (Structure Plan Policy CZM 2)<sup>212</sup>, this has not materialized to date. Even since the adoption of the Barcelona Convention (including the ICZM Protocol) no legislation specific to the coastline has been adopted yet, although this is currently in preparation.<sup>211</sup>

Despite the absence of a specific coastal strategy, Malta has an extensive set of laws and policies that deal with different aspects of coastal zone management, such as related to agriculture, tourism, fishing, aquaculture, waste management, and port industry, and policy objectives specific to coastal and marine areas feature in several policy documents, such as in the National Environment Policy, in the Water Catchment Management Plan, and in the Tourism Policy for the Maltese Islands. Also, a number of measures that promote more integrated management of coastal resources have been implemented in the last few years, such as the management plans for SACs and SPAs, the environmental permitting procedure and the Water Catchment Management Plan.<sup>213</sup>

#### 7.4.2. Ineffective policies

A large share of Malta's coastline is classified as an Outside Development Zone (ODZ), where development is not allowed. These regulations have been laid down in clear policies in the Structure Plan dating back to 1990, such as Policy SET 11: "No form of urban development will be permitted outside existing and committed built-up areas".<sup>214</sup> There are provisions for exceptions to this policy (e.g. Policy SET 12 and BEN 5), but these do not provide an excuse for the extensive coastal areas that have been lost to development due to the unlawful appropriation of the coastline by members of the general public and private investors. The omission of a clear description of legitimate coastal uses; developments that justify a coastal location because of their operational requirements, further adds to the confusion about what is and what is not allowed.<sup>215</sup> The apparent ineffectiveness in enforcing these policies sheds doubt on the success that can be expected from the implementation of newer policies, such as Action 19 of the National Climate Change Adaptation Strategy: "a strict 'no tolerance' ODZ policy, in particular for any new residential development or any increase in scale of existing residential development in these areas"<sup>216</sup> and Measure 2.3.32 and 2.3.33 of the National Environment Policy, which aim to: "ensure that the spatial planning system makes efficient use of land, without the need of extending the development

<sup>212</sup> Planning Services Division, 1990b. *Structure Plan for the Maltese Islands*. Works Department, Ministry for Development of Infrastructure, Government of Malta. Floriana, Malta.

<sup>213</sup> MEPA, 2011. Report on the Implementation of the Recommendation of the European Parliament and of the Council concerning the implementation of Integrated Coastal Zone Management in Europe (2002/413/EC) Malta. Malta Environment and Planning Authority, March 2011.

<sup>214</sup> Planning Services Division, 1990b. *Structure Plan for the Maltese Islands*. Works Department, Ministry for Development of Infrastructure, Government of Malta. Floriana, Malta, p.38.

<sup>215</sup> Planning Authority, 2002a. *Coastal Strategy Topic Paper*. Planning Authority, February 2002.

<sup>216</sup> MRRA, 2012b. *National Climate Change Adaptation Strategy*. Ministry for Resources and Rural Affairs, Government of Malta, May 2012, p.18.

boundaries” and that “only uses that specifically require a location outside the development zone, and where alternatives are not possible, will be permitted in such areas by the spatial planning regime”.<sup>217</sup>

Another policy from the 1990 Structure Plan that has clearly been disrespected is Policy CZM 3, which states that the entire coastline should be accessible to the public, as well as that the entire coastline will be brought into public ownership “within a specified period”.<sup>218</sup> Several problems have been encountered during the implementation of this policy: the absence of an identified geographical area within which the policy applies, the absence of a timeframe for bringing the entire coastline into public ownership, and the lack of information on landownership have hindered measures to bring coastal areas into public ownership as stated in the policy. Policy CZM 3 is overlooked in the 1995 Policy and Design Guidance for Development outside Built-up areas, a document that provides specific guidance for development in ODZ areas, indicating localities where development is to take place even though it is outside the development schemes. However, since this policy guidance does not address Policy CZM 3, the issue of safeguarding coastal access for public use is left without any specific policy direction. Furthermore, the zoning of the Temporary Provisions Schemes (TPS), indicating the type of development allowed in specific areas subject to existing policies, also fails to incorporate Policy CZM 3. All zones identified in the TPS extend to the water’s edge, not recognizing the coastal zone as a distinct area and thus not proving effective in safeguarding public access to the coastline.<sup>219</sup> This is also reiterated in the 2011 Report on the Implementation of the Recommendation of the European Parliament and of the Council concerning the implementation of ICZM in Europe, which stated that “current policy is not sufficient to protect coastal areas for public use. If no policy changes are made, coastal areas available for informal recreation would continue to decrease and the loss of natural and cultural heritage along the coast would be irreversible”.<sup>220</sup>

The other two policies focusing specifically on coastal zone management, Policy CZM 1 and CZM2, have no actual value in controlling development, as they primarily address administrative measures to adopt coastal zone management.<sup>221</sup> Furthermore, the measures described in these two policies: “a professionally staffed and adequately resourced coastal zone management unit” and “a subject plan for coastal zone management” have not seen the light of day. On the website of MEPA, integrated coastal zone management is described as one of the responsibilities of the authority, but upon further inquiry it appears there is no unit, nor person, responsible for the

<sup>217</sup> MTCE, 2012a. *National Environment Policy*. Ministry for Tourism, Culture and the Environment, February 2012, p.55.

<sup>218</sup> Planning Services Division, 1990b. *Structure Plan for the Maltese Islands*. Works Department, Ministry for Development of Infrastructure, Government of Malta. Floriana, Malta, p.118.

<sup>219</sup> Planning Authority, 2002a. *Coastal Strategy Topic Paper*. Planning Authority, February 2002.

<sup>220</sup> MEPA, 2011. Report on the Implementation of the Recommendation of the European Parliament and of the Council concerning the implementation of Integrated Coastal Zone Management in Europe (2002/413/EC) Malta. Malta Environment and Planning Authority, March 2011.

<sup>221</sup> Planning Authority, 2002a. *Coastal Strategy Topic Paper*. Planning Authority, February 2002.

matter, and no subject plan has been developed either. In the final report on CAMP Malta from 2005<sup>222</sup>, the setting up of MEPA was seen as a positive development for the integration of environmental and planning matters, and it was “anticipated that ICZM will acquire more (and deserved) importance and coherence”. This anticipation has clearly not materialized, and whether the planned separation of the environment and planning departments bodes well or not for the implementation of ICZM remains to be seen.

#### 7.4.3. Lacking legislation

The marine environment is not yet covered by an adequate property management system,<sup>223</sup> which represents a major legal loophole. Although five Marine Protected Areas (MPAs) have been established in the past decade, and some marine issues have been addressed in the Local Plans (e.g. development control over fish farms), there is no integrated approach for marine spatial planning.<sup>224</sup> In light of the EU Directive on marine spatial planning and integrated coastal management that is currently being developed, there will be a clear need for the development of such a marine spatial plan and an integrative coastal strategy that relates marine matters with their coastal counterpart.

The Maltese coastline and coastal waters are rich in cultural heritage, such as coastal towers, fortifications and salt pans. However, only the temples of Ħaġar Qim and Mnajdra have been given legal protection (by means of Structure Plan Policy ARC 4), all other coastal cultural heritage are not specifically protected under legislation or under a policy in the structure plan, nor is there a holistic vision of how cultural heritage relates to other coastal uses and the natural characteristics of the coastal zone, although they can be specified as scheduled property under the Environment and Development Planning Act.

#### 7.4.4. Changing policies

There have been instances of changes to policies on several occasions, leaving the beneficiaries of these policies without a clear direction and compromising long-term environmental and planning objectives. Examples include changes to development permission requirements and environmental and planning policy to accommodate demands from the construction industry. A large contemporary construction project, Smart City Malta, is a newly developed technology park on private coastal land acquired by a Dubai based company, located on the outskirts of the locality of

<sup>222</sup> UNEP/MAP/PAP, 2005. *Coastal Area Management in Malta*. Priority Actions Programme, Regional Activity Centre, Mediterranean Action Plan (MAP), UNEP. Split, Croatia.

<sup>223</sup> MEPA, 2012b. *Document to establish the Strategic Objectives: Public Consultation Draft*. Strategic Plan for the Environment and Development, Malta Environment and Planning Authority, February 2012.

<sup>224</sup> MEPA, 2007b. *An Overview of the State of Marine Spatial Planning in the Mediterranean Countries*. Malta Report. Malta Environment and Planning Authority, May 2007.



Kalkara.<sup>225,226</sup> In order to accommodate this project changes had to be made to the local plan, throwing plans for a public footpath along the coastline overboard<sup>227</sup> and therewith ignoring the requirements with regards to public access to the coast, as stated in the ICZM Protocol under the Barcelona Convention and Structure Plan Policy CZM 3.

Recent changes to local plans, by means of an adjustment policy for building heights, have paved the way for increasing building heights for hotels in tourism areas,<sup>228,229</sup> which is considered a dangerous precedent by some concerned citizens<sup>230</sup> for adding additional floors to hotels and apartment blocks.

#### **7.4.5. Legislation empowering civil society**

This section provides an overview of international and national agreements and legislation empowering civil society, NGOs and the general public, and describes the role, rights and responsibilities of civil society in the Maltese context.

#### **7.4.6. International agreements and legislation**

Malta is a signatory party to several international agreements that deal with freedom of information and public participation processes.

<sup>225</sup> No fast track for Smart City. Times of Malta, 5 February 2013. Retrieved from: <http://www.timesofmalta.com/articles/view/20130205/local/no-fast-track-for-smartcity.456252>

<sup>226</sup> Red letter day for SmartCity as first block is inaugurated. Times of Malta, 10 October 2010. Retrieved from: <http://www.timesofmalta.com/articles/view/20101010/local/smart-city.330767>

<sup>227</sup> MEPA, 2007c. *Grand Harbour Local Plan Review*. Malta Environment and Planning Authority, April 2007, p.6.

<sup>228</sup> MEPA, 2012c. *Height Limitation Adjustment Policy for Hotels in Tourism Areas*. Malta Environment and Planning Authority, 16 November 2012.

<sup>229</sup> Policy changed to allow hotels in tourism zones build an extra two floors. Times of Malta, 23 May 2013. Retrieved from: <http://www.timesofmalta.com/articles/view/20130523/local/hotels.470896>

<sup>230</sup> Proposed Height Limitation Adjustment Policy by MEPA. Gozo News, 29 December 2012. Retrieved from: <http://gozonews.com/26808/proposed-height-limitation-adjustment-policy-by-mepa/>

## Agenda 21

Agenda 21, a non-legally binding document and one of the outcomes of the 1992 UN Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil, describes a global action plan for sustainable development. The actions are addressed to the UN, multilateral organizations and individual governments from the global to the local level. Section III of the document calls for broad public participation for decision-making. Chapter 28, part of section III, explicitly addresses the local dimension of Agenda 21 and states that “Each local authority should enter into a dialogue with its citizens, local organisations and private enterprises and adopt a Local Agenda 21”. This statement is built on the belief that local authorities can learn from citizens, civil society, businesses and other organizations through consultation and consensus-building, with the aim of formulating a common vision for the future of their community, and better strategies to realise this vision.<sup>231</sup>

According to the Malta National Report to the World Summit on Sustainable Development Agenda 21 has had a positive effect on Malta by stimulating the government to update and introduce legislation, and seek public participation in light of the adoption of policies and taking action conducive to sustainable development.<sup>232</sup> These statements received scorn from one of the local NGOs, Friends of the Earth Malta, who issued a press release saying that “Malta has not initiated even one local Agenda 21 process and hardly anyone in Malta knows what Agenda 21 is”.<sup>233</sup> In actual fact, contradicting statements could be found within the National Report, as later it was stated that Maltese local authorities had not developed a national action plan to subscribe to the Agenda 21 programme yet, but that plans were underway to do this in partnership with NGOs and the Ministry responsible for the environment.<sup>234</sup>

## The Aarhus Convention

The Aarhus Convention<sup>235</sup>, the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, was adopted on 25 June 1998 in the Danish city of Aarhus (Århus) by the United Nations Economic Commission for Europe (UNECE). It entered into force on 30 October 2001. The Aarhus Convention establishes a number of rights of the public with regard to the environment. The Convention provides for:

- *Access to environmental information*: the right of everyone to receive environmental information that is held by public authorities;

<sup>231</sup> Sors, J.C., 2001. *Public Participation in Local Agenda 21: A Review of Traditional and Innovative Tools*. Fondazione Eni Enrico Mattei, January 2001, p. 4.

<sup>232</sup> Government of Malta, 2002. *Malta National Report*. Submitted by the Government of Malta to the World Summit on Sustainable Development. August 2002, p. 5.

<sup>233</sup> What action? What policies? Times of Malta, 28 August 2002. Retrieved from: <http://www.timesofmalta.com/articles/view/20020828/local/what-action-what-policies.168256>

<sup>234</sup> Government of Malta, 2002. *Malta National Report*. Submitted by the Government of Malta to the World Summit on Sustainable Development. August 2002, p. 63.

<sup>235</sup> Description of the Aarhus Convention. Retrieved from: <http://ec.europa.eu/environment/aarhus>

- *Public participation in environmental decision-making*: the right to participate in environmental decision-making.
- *Access to justice*: the right to review procedures to challenge public decisions that have been made without respecting the two aforementioned rights or environmental law in general.

In 2003 two Directives concerning the first and second "pillars" of the Aarhus Convention were adopted<sup>235</sup>; they were to be implemented in the national law of the EU Member States by 14 February and 25 June 2005 respectively:

*Directive 2003/4/EC* of the European Parliament and of the Council of 28 January 2003 on public access to environmental information.

*Directive 2003/35/EC* of the European Parliament and of the Council of 26 May 2003 providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment and improving public participation and access to justice.

### **EIA & SEA Directives**

Provisions for public consultation are also found in the *Environmental Impact Assessment Directive* (Directive 2011/92/EU) and the *Strategic Environmental Assessment Directive* (Directive 2001/42/EC). These directives contain clear clauses on public consultation and participation during the assessment of specific projects (in the case of EIA) and plans and programmes (in the case of SEA).

The EIA Directive states that public participation in the decision-making process enables the decision-maker to take account of opinions and concerns of the public. By taking comments from the public on board, the accountability and transparency of the decision-making process can be increased, as well as public awareness of environmental issues and support for decisions. Provisions are made for informing the public about development applications, the need for an Environmental Impact Assessment, the available information, the procedures for public participation and decisions made.<sup>236</sup> It is stated that the public should have early and effective opportunities for participation in environmental decision-making processes.<sup>237</sup> Specific time-frames for the distribution of information and participation process, and other detailed arrangements for public participation can be determined by the Member States themselves.<sup>238</sup> Members of the public concerned have access to a review procedure before a court of law to challenge a decision subject to the public participation

<sup>236</sup> Directive 2011/92/EU of the European Parliament and of the Council, on the assessment of the effects of certain public and private projects on the environment, Art. 6.2 and 9.1.

<sup>237</sup> Directive 2011/92/EU of the European Parliament and of the Council, on the assessment of the effects of certain public and private projects on the environment. Art. 6.4.

<sup>238</sup> Directive 2011/92/EU of the European Parliament and of the Council, on the assessment of the effects of certain public and private projects on the environment, Art. 6.3, 6.5 and 6.6.

provisions in the EIA Directive.<sup>239</sup> For this purpose, Member States shall ensure that the public has access to practical information on administrative and judicial review procedures.<sup>240</sup>

In the SEA Directive provisions are made for public consultation during the assessment of plans and programmes. Draft plans and programmes, relevant information, and the decision on adoption or refusal of a plan or programme have to be communicated to the relevant authorities and the public.<sup>241</sup> Relevant authorities and the public have to be given early and effective opportunity, within appropriate time frames, to express their opinions. The public is further specified to include members of the public that is (likely to be) affected by, or has an interest in, the subject of the plan or programme, and specifically mentions non-governmental organisations.<sup>242</sup>

#### 7.4.7. Transposition into national legislation

The Parties to the Aarhus Convention were required to make the necessary provisions in their national legislation so that public authorities (at national, regional or local level) will contribute to these rights to become effective. Malta has transposed the two Directives, Directive 2003/4/EC on access to environmental information and Directive 2003/35/EC on public participation, through this subsidiary legislation under the Environment and Development Planning Act: the *Freedom of Access to Information on the Environment Regulations* (SL 504.65); and the *Plans and Programmes (Public Participation) Regulations* (SL 504.69) respectively.

##### Access to environmental information

After the adoption of the *Freedom of Access to Information on the Environment Regulations* in order to transpose Directive 2003/4/EC under the Aarhus Convention<sup>243</sup>, the Maltese Government adopted a more encompassing Act on Freedom of Information. The *Freedom of Information Act* (FOIA; Cap. 496, 2008) states that anyone can make a request for information under the FOIA, from all public authorities, meaning the Government, any ministry or department, government Agencies, as well as any entity established under national law in which the government of Malta has a controlling interest or over which it has effective control.<sup>244,245</sup>

<sup>239</sup> Directive 2011/92/EU of the European Parliament and of the Council, on the assessment of the effects of certain public and private projects on the environment, Art. 11.1.

<sup>240</sup> Directive 2011/92/EU of the European Parliament and of the Council, on the assessment of the effects of certain public and private projects on the environment, Art. 11.5.

<sup>241</sup> Directive 2001/42/EC of the European Parliament and of the Council on the assessment of the effects of certain plans and programmes on the environment, Art. 6.1.

<sup>242</sup> Directive 2001/42/EC of the European Parliament and of the Council on the assessment of the effects of certain plans and programmes on the environment, Art. 6.4.

<sup>243</sup> Freedom of Access to Information on the Environment, 2005. SL 504.65 of the Laws of Malta.

<sup>244</sup> Freedom of Information Act, 2008. Cap. 496 of the Laws of Malta.

<sup>245</sup> Frequently Asked Questions about the Freedom of Information Act. Retrieved from: <http://foi.gov.mt/faqs>

Most of the environmental information provided by MEPA is accessible on-line and free of charge. However, in some cases the environmental information is available for a fee, which is also foreseen in the Aarhus Convention where it is stated that these charges should not exceed a reasonable amount.<sup>246</sup> In July 2008, NGOs and local councils were given free and unlimited access to digital plans for all planning applications provided by MEPA through its e-applications systems.<sup>247</sup>

### Public participation

The *Plans and Programmes (Public Participation) Regulations* transposes Directive 2003/35/EC on public participation<sup>248</sup>, but other provisions on public consultation and participation (e.g. from the EIA and SEA Directives) have been included in several other examples of legislation., such as in the *Industrial Emissions (Integrated Pollution Prevention and Control) Regulations* (SL 504.54), in the *Environmental Impact Assessment Regulations* (SL 504.79), in the *Strategic Environmental Assessment Regulations* (SL 504.102), in the *Marine Policy Framework Regulations* (SL 504.107) and in the *Water Policy Framework Regulations* (SL 423.20). The relevant clauses provide the public with the right to early and effective opportunities to participate and comment on the issues defined in the respective pieces of legislation. Furthermore, these laws also grant public access to Environment and Planning Review Tribunal hearings, meetings of MEPA, and hearings presenting the results of Draft Environmental Impact Statements.

As an example, any Environmental Impact Statement (EIS) public consultation consists of two processes: an on-site notice or notice in the newspapers and a public meeting. The Environment Protection Directorate informs the public about the public hearing through a notice published in the government gazette and in local newspapers, published between 15 and 30 days before. In the meantime, the Authority has to inform the consultants and other persons about the public hearing, at least 15 days before. The public may inspect a draft copy of the EIS at MEPA and the Local Council/s throughout the public consultation period. After the EIS has been certified, MEPA is obliged to organize and chair a public exhibition and meeting. During the public hearing, the Local Council, NGOs and the public can comment on the EIS and express views on the impact of the proposed development. Following the public meeting, the public may submit further queries to MEPA for a period of 7 days.<sup>249</sup>

The Aarhus Convention obliges MEPA to include reasonable time-frames for public participation procedures concerning plans, programmes and policies relating to the environment, allowing sufficient time for informing the public and for the public to

<sup>246</sup> Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, 1998, Aarhus, Denmark, Art. 4.8.

<sup>247</sup> NGOs and local councils given free access to plans of on-line development applications. MEPA Media Releases. 19 July 2008. Retrieved from: <https://www.mepa.org.mt/news-details?id=213>

<sup>248</sup> Plans and Programmes (Public Participation) Regulations, 2006. SL 504.69 of the Laws of Malta.

<sup>249</sup> Description of public hearing on the website of MEPA. Retrieved from: <http://www.mepa.org.mt/permitting-ea-eiapublic>

prepare and participate effectively during the environmental decision-making.<sup>250</sup> However, the Aarhus Convention and the Directives 2003/4/EC and 2003/35/EC do not state a specific time frame for this action. In Maltese national legislation this time-frame is defined in the Environment and Development Planning Act. There, it is stated that MEPA has to inform the public and provide opportunities for the public to present their opinion on the matter.<sup>251</sup> Further on, when the subsidiary plan or policy or a revision has been prepared it should be a subject to a further round of public consultation and the plan or policy should be published together with a statement of the representations that have been received, as well as responses to those representations. MEPA is obliged to invite representations of the plan or policy to be submitted within a minimum period of six weeks. Where minor modifications not affecting the substance of planning policy are being proposed, the minimum period has to be three weeks.

Article 62.1 of the Environment and Planning Development Act includes the procedure of public consultation, with a minimum of 4 weeks, as a statutory requirement for any regulations made by the Minister under this Act.<sup>252</sup>

The practice of public consultation and informing the public about proposed planning applications was introduced to Malta in 1992 with the creation of a new planning system through the Development Planning Act. Upon the revision of the Development Planning Act in 2001 (now part of the Environment and Development Planning Act), the new planning system started to incorporate more opportunities for dialogue between the different actors in the development process. It was deemed to have enhanced the possibilities for public participation in the decision-making process, as well as to have increased access to environmental and planning information.<sup>253</sup> A decade later, MEPA states its intention to move its decision-making procedures even more from being consultative to truly participative. The Authority is interested in engaging the public in planning processes from the very start of new projects and developments, based on the belief that ownership and responsibility of local planning and the local environment are key to turn sustainable development into a manageable principle “that drives the country forward”.<sup>254</sup> For example, in 2010, the 14 day period in which a person could submit an objection for a proposed development to the Authority was extended to a 20 day period. The measures did include affixing a site notice on the site of the proposed

---

<sup>250</sup> Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, 1998, Aarhus, Denmark, Art. 6.2 and 6.3.

<sup>251</sup> Environment and Development Planning Act, 2010. Cap. 504 of the Laws of Malta, Art. 58(2)(a) and 58(2)(b).

<sup>252</sup> Environment and Development Planning Act, 2010. Cap. 504 of the Laws of Malta, Art. 62(1).

<sup>253</sup> Government of Malta, 2002. *Malta National Report*. Submitted by the Government of Malta to the World Summit on Sustainable Development. August 2002, p. 51.

<sup>254</sup> Engaging with the Public - The Art of Participation. MEPA Newsletter, Outlook 11, Article 8. Retrieved from: <http://www.mepa.org.mt/outlook11-article8>



development and posting notification chits with details of a proposed development to households and residents in the vicinity of the site treated.<sup>255</sup>

Opportunities for public participation in environmental decision-making, access to information on environmental matters, and information from public authorities in general, have increased greatly over the past decade. What remains underexposed is how many people make use of these rights, and to what extent they feel capable of participating in these processes. For example, the vast majority of the public lack the necessary skills to interpret the data presented in Environmental Impact Assessment reports and to organise themselves into effective pressure groups.<sup>256</sup> Empowering people through capacity building is one means of addressing this lacuna. Additionally, **NGOs can and do fulfil an important role in bridging this gap.**

#### 7.4.8. The role and activities of civil society

Non-governmental organisations (NGOs) fulfill a valuable role in Maltese society, as they have an important function in raising awareness and lobbying for the causes they uphold. There are several NGOs active in Malta, on themes ranging from education and social welfare to environmental protection and sustainable development.<sup>257</sup> In the Malta National Report to the World Summit on Sustainable Development an appeal was made for the setting up of legislation recognising the importance of NGO involvement and participation in society, in order to create a more enabling environment for civil society.<sup>258</sup> Their call was heard, and in 2007 the Voluntary Organisations Act (Cap. 492, 2007) was introduced, making provisions for NGOs to have legal status and to be recognised as legal entities.<sup>259</sup> It is however not obligatory for an NGO or other voluntary organisations to register themselves under the Voluntary Organisations Act.

As in many countries, a common challenge faced by NGOs is securing access to funding.<sup>260</sup> An interesting initiative in light of these challenges is the Environment Fund, set up by MEPA.<sup>261</sup> The Environment Fund accumulates funds from the issue of particular development permits and has made these funds available to a selected

<sup>255</sup> Measures to improve consultation of proposed development. MEPA Newsletter, Outlook 6, Article 10, September 2010. Retrieved from: <http://www.mepa.org.mt/outlook6-article10>

<sup>256</sup> Government of Malta, 2002. *Malta National Report*. Submitted by the Government of Malta to the World Summit on Sustainable Development. August 2002, p. 57.

<sup>257</sup> Government of Malta, 2002. *Malta National Report*. Submitted by the Government of Malta to the World Summit on Sustainable Development. August 2002, p. 61.

<sup>258</sup> Government of Malta, 2002. *Malta National Report*. Submitted by the Government of Malta to the World Summit on Sustainable Development. August 2002, p. 62.

<sup>259</sup> Voluntary Organisations Act, 2007. Cap. 492 of the Laws of Malta.

<sup>260</sup> Caruana, 1998 in Government of Malta, 2002. *Malta National Report*. Submitted by the Government of Malta to the World Summit on Sustainable Development. August 2002, p. 62.

<sup>261</sup> Environment and Development Planning Act, 2010. Cap. 504 of the Laws of Malta, Art. 38.

number of NGOs to use it to work in partnership on environmental improvement projects.<sup>262</sup>

NGO representation in government bodies takes different forms. The board of MEPA, which provides strategic guidance for the Planning Directorate and the Environment Protection Directorate<sup>263</sup>, is composed of members from different backgrounds, and includes at least one person with knowledge of and experience in the environment voluntary sector and/or civil society.<sup>264</sup> Several NGOs are responsible for the management of nature reserves on government land. The Gaia Foundation is responsible for the management of two areas of ecological and scientific importance that fall within the European Natura 2000 network: G ħajn Tuffieħa on Malta, and Ramla l-Ħamra on Gozo, under an agreement with MEPA and the Ministry responsible for the environment.<sup>265</sup> Birdlife Malta manages two nature reserves – Għadira and Is-Simar, both Ramsar wetland sites – and co-manages an afforestation project called Foresta 2000, together with NGO Din l-Art Ħelwa and the Ministry department responsible for parks.<sup>266</sup> Nature Trust Malta, one of the oldest environment NGOs on the islands, also manages several natural parks: Wied G ħollieqa Nature Reserve, Xrobb L-Għagin Nature Park, Marsaxlokk Nature Reserve, Pembroke Natura 2000, and Majjistral Park in cooperation with the Gaia Foundation and Din l-Art Ħelwa.<sup>267</sup> The Gaia Foundation has also been involved in an EU LIFE funded project for the management of two protected coastal areas, in cooperation with the Euro-Mediterranean Centre on Insular Coastal Dynamics (ICoD) of the University of Malta, and the Ministry for the Environment. The management strategy, comprising of a combination of rehabilitation and protection of habitats and landscapes, regulation of recreational uses and education and awareness raising activities, proved to be effective and brought together a variety of stakeholders. At the same time, the project is exemplary for successfully transferring responsibility for the management of protected areas from central government to a non-governmental organization.<sup>268</sup> NGOs, represented by Nature Trust Malta, were also actively involved in the Coastal Area Management Programme (CAMP), a programme under the umbrella of the Mediterranean Action Plan aimed at

---

<sup>262</sup> Government of Malta, 2002. *Malta National Report*. Submitted by the Government of Malta to the World Summit on Sustainable Development. August 2002, p. 62.

<sup>263</sup> Description of the MEPA board on the website of MEPA. Retrieved from: <http://www.mepa.org.mt/mepa-board>

<sup>264</sup> Environment and Development Planning Act, 2010. Cap. 504 of the Laws of Malta, Art. 6.

<sup>265</sup> Description of the Gaia Foundation. Retrieved from: <http://www.projectgaia.org>

<sup>266</sup> Description of the nature reserves managed by BirdLife Malta. Retrieved from: <http://www.birdlifemalta.org/Content/Naturereserves/1132/#.UYpxFKI4dr9>

<sup>267</sup> Description of the natural parks management by Nature Trust Malta. Retrieved from: <http://www.naturetrustmalta.org/what-we-do/natural-parks>

<sup>268</sup> Cassar, M., 2003. A project for the integrated management of protected coastal areas in Malta. *Journal of Coastal Conservation*, Volume 9, p. 79.

integrating environmental concerns into development planning with the goal of sustainable coastal management.<sup>269</sup>

Apart from managing nature reserves, NGOs also fulfil a role as watchdogs in environmental matters. NGOs and other civil society organisations are fundamental in organising public pressure. The NGO Flimkien g ħal Ambjent Aħjar (FAA), Together for a Better Environment, has set up a Tree protection group together with other NGOs and people from civil society, to campaign against the unprofessional pruning and wanton uprooting of trees. They have been instrumental in raising media attention through organized protests and online petitions. Recently, through a combination of a public outcry and active lobbying, plans for the regeneration of the Senglea marina that involved the removal of trees were changed and 44 trees were saved but the struggle continues, as other development plans involving the removal of trees in other towns have since been published.<sup>270</sup> FAA is also active on advocacy and lobbying for the protection of historic buildings, gardens and other cultural and natural heritage, and has a long track-record of raising opposition against new developments in such areas. Recently, a group of NGOs issued a statement together saying that recent plans by MEPA to fast-track the planning application system by-passes and violates national and European legislation as it leaves no adequate time for public consultation and participation.<sup>271</sup>

The involvement of NGOs in decision making processes on environmental issues has been increasing over the years. In June 2009 MEPA announced it would start taking decisions on development briefs in public, to guarantee a greater level of transparency and public participation.<sup>272</sup> Another example of involving public users in decision making is an initiative by MEPA, inviting NGOs to make comments or observations on the draft Water Catchment Management Plan, following the obligations under the Water Framework Directive.<sup>273,274</sup> The public consultation ran from May to November 2010 and during this period, members of the general public were invited to contribute to the plan and several stakeholder bilateral meetings were held. This was followed in 2011 by the public consultation on the Strategic Environmental Assessment of the Draft Water Catchment Management Plan. Public comments received, with

<sup>269</sup> UNEP/MAP, 2003. *MAP CAMP Project Malta: Final Integrated Project Document and Selected Thematic Documents*. MAP Technical Reports Series No. 138, Vol. I & II. UNEP/MAP, Athens, Greece, p. 1.

<sup>270</sup> FAA Tree Group thanks Authorities for Saving Senglea's Trees but worries for Paola's. News section on the website of FAA. Retrieved from: <http://faa.org.mt/faa-tree-group-thanks-authorities-for-saving-sengleas-trees-but-worries-for-paolas>

<sup>271</sup> NGOs issue warning over planning abuse. Times of Malta, 14 April 2013. Retrieved from: <http://www.timesofmalta.com/articles/view/20130414/local/NGOs-issue-warning-over-planning-abuse.465529>

<sup>272</sup> Greater transparency and public participation. **MEPA Media Releases - News Details, 23 June 2009**. Retrieved from: <http://www.mepa.org.mt/news-details?id=355>

<sup>273</sup> Directive 2000/60/EC of the European Parliament and of the Council, establishing a framework for Community action in the field of water policy, Art. 14.

<sup>274</sup> MEPA & MRA, 2011. *Water Catchment Management Plan for the Maltese Islands*. Malta Environment and Planning Authority & Malta Resources Authority. March 2011.

replies from MEPA, have been published on their website.<sup>275</sup> Contributions were considered and integrated into the plan where possible. All of the measures presented in the plan were expected to be carried out by the end of 2012 with the help of an inter-ministerial water committee in order to provide a significant improvement in surface and groundwater status by 2015.

## 7.5. Conclusions

The first sections to this report were dedicated to an overview of the varying acts, subsidiary legislation and policies that exist, and the authorities responsible for their enactment and enforcement. However, it was established that whilst the islands may boast an extensive structure in terms of laws, the lack of clear policies and realistic time frames, or indeed the absence of these, as well as an absence of boundary delineations, are largely responsible for the implementation gap when it comes to coastal management. As argued throughout the report, the relatively small size of the islands is a major factor that results in a fuzzy delineation of the boundaries between coastal management, land development and the definition of heritage, or heritage sites. This fuzziness in turn allows for legal loopholes when it comes to disputes involving property and property development along the coast.

Admittedly, the introduction of the Structure plan in the 90's and more recently the accession into the EU, have broadened the implementation of environmental measures; and these factors have played a significant role in the implementation of and introduction of more steadfast legislature. However, although several laws and policies address coastal issues on paper – such as the Environment and Development Planning Act, the Cultural Heritage Act, the Marine Pollution (Prevention and Control) Act, and plans and policies for environment, tourism, water, fisheries and energy – in practice coordination between these different policy domains and institutions is lacking. This evident lack of cohesion between responsible authorities again points to conflicts that arise out of the islands' size, and the limitations posed by proximity and interrelation between coast and hinterland, reaffirming the need for a more holistic strategy.

The increasing presence and pressure of NGOs, and their involvement in the management of coastal nature parks and beaches, ensures the voice of civil society is heard more strongly in land use planning and environmental issues in the coastal zone. On the other hand, even though there is legislation in place to provide freedom of information and public participation, it appears public participation processes are often considered a nuisance and waste of time by developers, and are sometimes rushed or hushed. The public participation process could be better strengthened, and with the Aarhus convention starting to be implemented locally, this augurs well to empower local communities to have a say in the decision making process on projects that directly impact the quality of their lives, and simultaneously to act as a bridge between conflicting ends of the spectrum, in terms of stakeholders, when it comes to coastal

---

<sup>275</sup> Description of Water Public Consultation on the website of MEPA. Retrieved from: <http://www.mepa.org.mt/topic-waterpc>

zone management. Innovative participatory endeavours that target communities may provide an alternative form of legislative acceptance.

Contemporary developments, such as the change in government, the expected introduction of the Strategic Plan for the Environment and Development – the successor of the Structure Plan – and the proposed separation of the planning and environment departments of MEPA, the most important entity in coastal zone management, will undoubtedly change the management of the Maltese coastal zone. Transitions like these provide an opportunity to come up with more effective policies, management strategies and enforcement options.

## 8. SPAIN

---

### 8.1. Introduction

This chapter lists and describes the main policies and instruments that have been utilized in recent years in Spain, while analyzing the extent of their implementation and impact on coastal management within the European context.

In addition, the chapter identifies and describes the major conflicts encountered when implementing these instruments, especially in light of recent moves to review and amend Spain's coastal laws and regulations.

The recent ratification of the Protocol on Integrated Coastal Zone Management in the Mediterranean, the proposal for an EU Framework Directive on ICZM and Marine Spatial Planning and the process of amending Spain's Coastal Law make this discussion all the more relevant at the current time.

#### 8.1.1. An overview of the Spanish coastline

The Spanish coastline is around 8,000 km long, of which 3,000 km belong to islands<sup>276</sup>. A significant percentage (25%) corresponds to beaches, which in some Mediterranean regions, such as Valencia, constitute some 60% of the total coastline.

More than half of the Spanish coastline (55%) borders the Atlantic Ocean, where tidal effects result in oscillations of between 1.5 and 4 m. In these areas, the area of interaction between land and sea extends well inland, through wetlands and riverbed deltas.

Spain has 10 coastal Autonomous Regions, comprising 25 provinces and a total of 487 coastal municipalities. In addition to 8 peninsular Regions (Basque Country, Cantabria, Asturias, Galicia, Andalusia, Murcia, Valencia and Catalonia) there are also the Balearic and the Canary Islands, and the autonomous cities of Ceuta and Melilla, located in northern Africa.

Spain's nearly 500 coastal municipalities account for 7% of the country's territory and 45% of the population. In Valencia, nearly 70% of the population lives in coastal municipalities.

Population density in the coastal zone is about four times the average further inland (782 inhabitants per square km, versus 207, in the case of Valencia, for example). The seasonal influx of tourists effectively multiplies this figure by three. These numbers provide some indication of the magnitude of pressures on natural and urban systems (use of infrastructures, demand for water and electricity and other services, for example).

---

<sup>276</sup> *Towards sustainable management of the Spanish coastline*. Ministry of Environment, 2005.



Over the past fifty years, the Spanish coastline has undergone intense development processes similar to those that have taken place in other countries with extensive coastlines. As a result, the coastline has become a strategic economic asset due to the following key factors:

- The economic importance of tourism: 75% of tourists visiting Spain head for coastal areas, generating nearly 10 % of GDP and 12% of employment
- The growing role of maritime trade: Spain, due to its peninsular character, has 45 ports of general interest (state-owned) and almost 375 regional ports
- The energy industry and offshore oil deposits

Many Spanish coastal areas have gradually adapted to these new economic functions, while neglecting traditional primary activities such as fishing and agriculture. This trend has been strongest on the Mediterranean coast, on the south-Atlantic coast and on the Canary Islands. However, on the North Atlantic coasts, where climatic conditions are less favorable for tourism and the economic fabric more diversified, this process has been more moderate.

A significant part of this great transformation took place during the 1970s and 1980s, sometimes on the basis of urban plans, urban regulations and a coastal law (1969) – long before the incorporation of environmental considerations, as we know them today, into planning regulations.

In this regard, the preamble to the 1988 Coastal Law<sup>277</sup> describes a Spanish coastline characterized by various threats to its use and conservation, including an accelerated process of land use, the gradual privatization of the coast and the destruction of natural areas.

As explained below, this law established the framework for coastal management as it is practiced today in Spain. Although environmental regulations have been instituted over time, many of the problems mentioned in 1988 remain (according to a document submitted by Spain to the EU<sup>278</sup> in 2005, in compliance with the European Recommendation on Integrated Coastal Zone of 2002), such as:

- The loss of natural landscapes due to urban development in high-value landscape areas along the coast.
- Alteration of coastal dynamics due to a high degree of human intervention in the shoreline, and the existence of ineffective coastal defense infrastructure, rather than solving problems, simply displaces them to other places along the coast. The construction of ports, actions carried out in river basins and inadequate management of dredging are also factors that have contributed significantly to changing coastal dynamics.
- Reduction of water quality in coastal water bodies.

---

<sup>277</sup> <https://www.boe.es/buscar/doc.php?id=BOE-A-1988-18762>

<sup>278</sup> See reference 1

- Environmental degradation of ecosystems and habitats as a result of development exceeding carrying capacity (e.g. spills, fishing, boats, coastal urban development).
- Higher risks of environmental hazards (floods, marine pollution, erosion) due to an increase in development pressures in coastal areas.

Thus, coastal protection is essential, especially considering that coastal resources are environmentally sensitive and economically strategic, and that any damage to them is difficult to reverse.

## 8.2. Distribution of powers

The Spanish Constitution of 1978 sets out in Articles 148 and 149 the distribution of powers between the three basic levels of public administration: state, regional and local governments. The basic distribution of powers regarding policies with a direct impact on coastal areas is set out in the following table:

POLICIES	Administration		
	Central	Regional	Local
Coast			
Environment			
Infrastructure			
Water resources			
Spatial planning			
Tourism			

*Table 1: Basic scheme of distribution of powers between the levels of government.*

It should be noted that in Spain, the coastal legislation, despite being cross-sector and affecting the policies outlined above, is framed within environmental legislation. In this regard, the state<sup>279</sup> holds the power to pass basic legislation on environmental protection, while the Autonomous Regions are empowered to establish additional protections.<sup>280</sup>

Moreover Article 132.2 of the Spanish Constitution recognizes Public Properties as those stated by law, including the maritime zone, beaches, territorial waters and the natural resources of the economic zone and the continental shelf. This poses a uniqueness that is worth considering, as it is the only public domain that the

<sup>279</sup> Article 149. 1. 23° of the Spanish Constitution.

<sup>280</sup> Article 148. 1. 9° of the Spanish Constitution.

Constitution defines with such precision, which indicates the importance that the legal system gives to this part of the territory.

In the Spanish system, the public domain is state-owned and must be intended for a public service or public use. The Constitution states that the public domain is inalienable (cannot be sold, is not subject to trade), non-prescriptible (no prescription is applied to its public character, so it cannot be acquired by the mere passage of time, by adverse possession) and cannot be imposed under any circumstances.

As discussed in later sections, the Spanish Coastal Law defines and regulates the Maritime Terrestrial Public Domain (MTPD) and other areas in order to ensure its protection and public use more precisely, in accordance with the Constitution, under the following basic scheme:

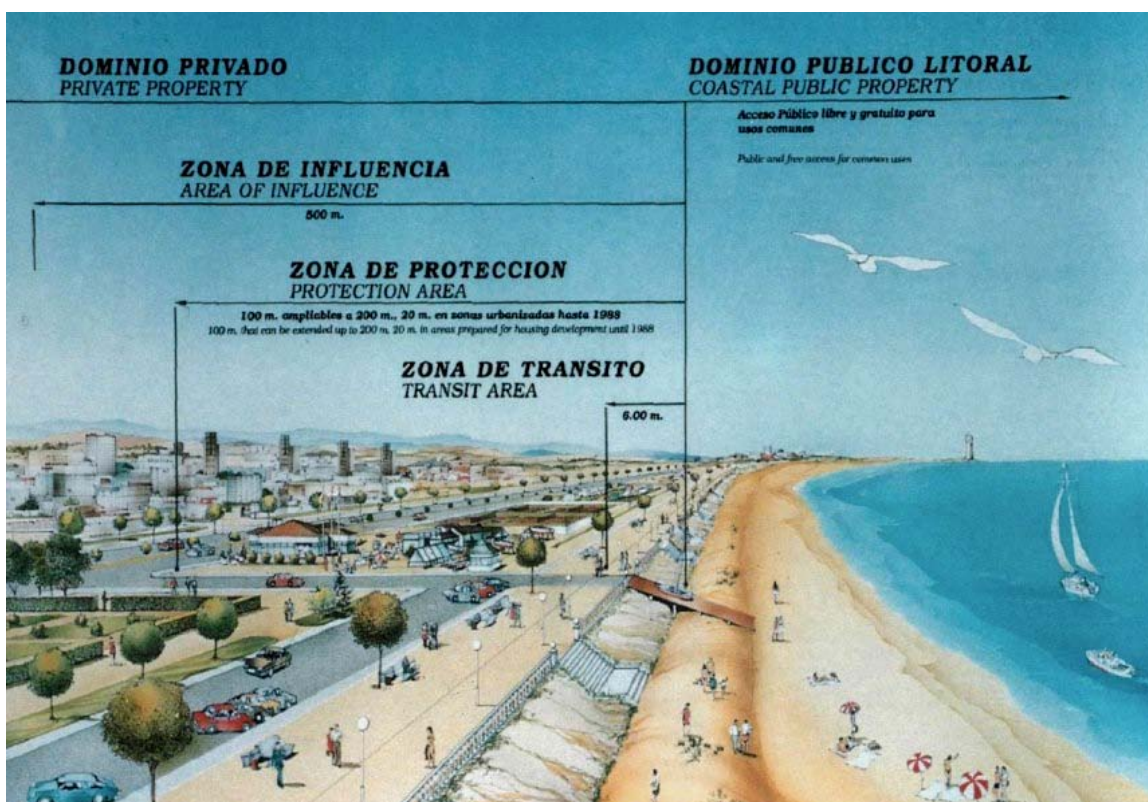


Figure 1: Basic Scheme of the MTPD and areas set aside for protection and public use.

Although elements of the coastal zone (maritime zone, beaches, etc.) in any case belong to public domain, the ownership does not entail a full reservation of powers to the national government. The management of the coastal zone is shared with the regional and local levels. So in the coastal zone there is a concurrence of national, regional and local powers, as well as private interests such as tourism, ports, fishing, and environmental conservation.

In Spain, the distribution of powers related to the coast could be summarized as follows.<sup>281</sup>

### 8.2.1. Central government

- Demarcation of MTPD.
- MTPD management and authorizations in the right-of-way strip (which varies in width between 6-20 meters, following the inner boundary of the seashore) and in the access to the sea.
- Coastal protection and environmental restoration projects.
- Through the River Basin Authorities, the state holds powers over water resources management<sup>282</sup> of River Public Domain.
- Other powers related to infrastructure, major commercial ports, control of ships, fishing, cultural heritage (basic regulation) and research on the territorial sea and the exclusive economic zone.

### 8.2.2. Regional governments

- Powers related to spatial and urban planning, tourism planning and promotion, control of wastewater discharges into the sea, additional regulation on the environment, protected natural areas, ports (not owned by the state) and cultural heritage.
- Authorizations for uses and activities in the protected zone (which reaches up to 100 meters inland from the inner boundary of the seashore).
- Fisheries, aquaculture and shellfishing in coastal waters.

Under the Spanish Constitution, regional governments hold the powers conferred by their respective Statutes of Autonomy, among them the power to conduct spatial planning, including in coastal areas.

Under a process of revision of Regional Statutes which took place over the past decade, some regions (Catalonia, Andalusia and the Balearic Islands) have been granted additional powers over the management of the MTPD, which are meant to be devolved from the state. This transfer of powers has already taken place in Catalonia<sup>283</sup> and Andalusia.<sup>284</sup> In these regions, the regional government is empowered to manage the MTPD, while the state retains the power to demarcate and protect the MTPD.

---

<sup>281</sup> Based on P. Arenas, 2008

<sup>282</sup> It should be noted that the Water Framework Directive lays down rules on the quality of coastal waters.

<sup>283</sup> Royal Decree 1404/2007, of 29 October, on the transfer of functions and services of the State Administration to the Generalitat of Catalonia in coastal planning and management (authorizations and marine facilities) (<http://www.boe.es/boe/dias/2007/10/30/pdfs/A44055-44057.pdf>)

<sup>284</sup> Royal Decree 62/2011, of 21 January on the transfer of functions and services of the State Administration to the Autonomous Community of Andalusia in coastal planning and management. (<http://www.boe.es/boe/dias/2011/02/11/pdfs/BOE-A-2011-2617.pdf>)

### 8.2.3. Municipalities

Local governments hold the power to plan and manage land use in the Zone of Influence (which extends inland at least 500 meters from the inward boundary of the seashore), though final approval must be granted by the regional government. In this sense, given the importance of urban planning for an adequate protection of the MTPD, the Coastal Law establishes the need to require report to the State Administration for the approval of such instruments.

Municipal governments are also charged with managing beach services, including ensuring security and cleanliness, treating wastewater and solid waste, safety and lifeguard services.

The following table summarizes the distribution of powers between the state, the regions and municipalities:

Policy area	State	Regions	Municipalities
Coastal zone	<p>MTPD, demarcation and management</p> <p>Access and right-of-way</p> <p>Studies, projects and public works of general interest</p> <p>Coastal protection and restoration</p> <p>Basic regulation of fishing</p>	<p>Management of the protected zone</p> <p>Spatial planning (including coastal areas)</p> <p>Projects and public works of regional interest</p> <p>Fishing in coastal waters</p> <p>Aquaculture and shellfishing</p>	<p>Urban planning</p> <p>Management of beach services: use, safety and cleanliness of beaches</p> <p>Maintenance of the beaches</p> <p>Certifications</p>
Marine area	<p>Water resources and hydraulic infrastructures affecting more than one region</p> <p>Discharges in non-coastal waters</p>	<p>Water resources and hydraulic infrastructures affecting one region</p> <p>Wastewater discharges in coastal waters</p> <p>Control and monitoring of quality in coastal water bodies, in coordination with the</p>	<p>Wastewater treatment</p> <p>Supply of drinking water</p>

Policy area	State	Regions	Municipalities
		state	
Biodiversity	Legal framework Coordination and promotion of environmental protection policies International agreements National parks	Planning and management of protected natural areas Additional regulation	
Tourism	Definition, development, coordination and implementation of national tourism policies	Promotion and planning of tourism	Promotion of local tourism
Ports and navigation	Commercial ports Coastal lighthouses and maritime signals Control of ships Maritime rescue	Ports not owned by the state	

Table 2: Distribution of powers for coastal management between three levels of government.<sup>285</sup>

<sup>285</sup> See reference 1.



### 8.3. Legislation

#### 8.3.1. Supranational legislation

The Rio Summit of 1992 marked a turning point and a major boost in the internalization of issues such as sustainable development and integrated coastal zone management, which have since become an integral part of the policies of many countries. Since then the EU has promoted documents, recommendations and regulations designed to protect the coastal and marine environment, advocating for integrated management.

Major milestones in this process include the Demonstration Program of the European Commission on ICZM, developed in the second half of the 90s, the Recommendation of the European Parliament and of the Council of 30 May 2002 on the Implementation of ICZM in Europe, and the signing of the Protocol on Integrated Coastal Zone Management in the Mediterranean. The latest step is a proposal for a Framework Directive on Integrated Maritime Spatial Planning and Integrated Coastal Zone Management, which is currently being processed.

The following is a list of these initiatives, presented in chronological order:

#### **Towards a European Strategy for Integrated Coastal Zone Management (1999)**

This document has a dual purpose:

- To collect and disseminate key policy-related lessons to be drawn from the experiences to date of the Demonstration Program of the European Commission on Integrated Coastal Zone Management (1996)<sup>286</sup>
- To generate debate and consensus on a European strategy for the integrated management of coastal areas to reverse the prevalent unsustainable trend in coastal areas of Europe

The document was submitted to public consultation. Despite being a document that addresses the problems of coastal management at the European level, it establishes general principles of conduct whose translation to the local and regional levels is absolutely current and valid, and points out some of the weaknesses that are at the root of the problem.

#### **Communication from the Commission to the Council and the European Parliament on ICZM: A Strategy for Europe (2000)**<sup>287</sup>

The above-mentioned document resulted in this Communication, in which the European Commission staked out a position on the issue.

<sup>286</sup> Program based on about 35 local and regional projects aimed at demonstrating the implementation of ICZM, a series of horizontal thematic analyzes and research projects, all completed with regular meetings with a group of experts (consisting of national experts and representatives of the administrations local socio-economic actors and NGOs) and extensive contacts with other outside organizations.

<sup>287</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2000:0547:FIN:ES:PDF>

The Communication set out a European strategy for action on integrated management of coastal zones, through which it sought to foster a collaborative approach to planning and management of coastal areas, based on partnerships with civil society. The European Union's role in this context is to lead and guide the Member States in the field of ICZM at the local, regional and national levels.

The strategy includes a proposal for a Recommendation of the European Parliament and of the Council to the Member States.

**Recommendation of the European Parliament and of the Council of 30 May 2002 on the Implementation of Integrated Coastal Zone Management in Europe<sup>288</sup>**

This Recommendation continues to formulate the general principles set forth in the above-mentioned documents, based on a global, thematic and geographic perspective. It offers a long-term framework, while allowing for adaptive management and adjustments based on local conditions.

At the same time, it encourages Member States to develop a national inventory of major actors, laws and institutions related to coastal zone management in all sectors and at all levels, as a basis for formulating a national ICZM strategy.

According to this Recommendation, the national strategies should define and determine all factors relating to the agents, instruments, media and dissemination of information, specifying the role of administrative agents and their coordination to enable adequate control and consistency in actions and enforce laws relating to marine areas and coastal land areas. They should also identify measures for promotion of public participation and securing sustainable sources of funding.

**Report to the European Parliament and the Council: An Evaluation of the Integrated Management of the Coastal Zone in Europe (2007)<sup>289</sup>**

This report analyzes the work of the Commission which was set up as part of the implementation of the above-mentioned EU Recommendation. Of the 20 coastal EU Member States, 14 submitted official reports to the Commission. This represents 65% of coastal EU Member States and over 70% of the European coastline. Spain was one of the countries that submitted the report, to which several references are made in this work.

The Recommendation had many positive effects. Most coastal Member States have since adopted strategies for coastal zone management. However, funding and indicators for these programs are still insufficient. Major issues, including adapting to climate change and environmental risks, still require additional attention.

---

<sup>288</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32002H0413:ES:HTML#texte>

<sup>289</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2007:0308:FIN:EN:PDF>

**Protocol on Integrated Coastal Zone Management in the Mediterranean, 2008<sup>290</sup>**

This protocol was adopted in 2008, was ratified by Spain in 2010, and entered into force in March 2011. Through this protocol the Parties establish a common framework for the integrated management of Mediterranean coastal areas and for adopting the necessary measures to strengthen regional cooperation to this end. The Protocol's geographical scope covers the Mediterranean Sea Area as defined in Article 1 of the Convention.<sup>291</sup> The consistency of Spanish legislation with the principles established in the Protocol will be examined below.

**Directive 2008/56 of the European Parliament and of the Council, which establishes a framework for Community action in the marine environmental policy<sup>292</sup> (FDMS, 2008)**

This directive requires Member States to take the necessary measures to achieve or maintain good environmental status of the marine environment by 2020. For this, each state must develop a marine strategy for each marine region or subregion. As in the case of the Water Framework Directive, which establishes a framework for protection and quality objectives which include coastal waters, the scope of this Directive covers only offshore areas.

**Proposal for a Directive of the European Parliament and of the Council Establishing a Framework for Maritime Spatial Planning and Integrated Coastal Management (2013)<sup>293</sup>**

This proposal for a Directive represents the culmination of the process described above, which began in the mid-1990s. Its main objective is to promote sustainable growth of maritime and coastal activities and sustainable use of coastal and marine resources through the establishment of an adequate framework for the effective implementation of maritime spatial planning in EU waters and integrated coastal management in the Member States.

It proposes, among other things, that Member States regulate, through marine spatial plans, activities that take place in marine and coastal areas (e.g. offshore wind power production, cable routes and submarine pipelines, navigation, fishing and aquaculture), in order to encourage more efficient use of the seas.

Simultaneously, it also proposes that Member States develop coastal management strategies to coordinate the different sectoral rules applicable to activities undertaken in coastal areas. These integrated coastal zone management strategies should contain at least an inventory of existing measures applied in coastal zones and an analysis of the need for additional actions.

---

<sup>290</sup> [http://195.97.36.231/dbases/webdocs/BCP/ProtocolICZM08\\_eng.pdf](http://195.97.36.231/dbases/webdocs/BCP/ProtocolICZM08_eng.pdf)

<sup>291</sup> Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean, adopted at Barcelona on February 16, 1976, as amended on June 10, 1995

<sup>292</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:164:0019:0040:EN:PDF>

<sup>293</sup> [http://ec.europa.eu/environment/iczm/pdf/Proposal\\_en.pdf](http://ec.europa.eu/environment/iczm/pdf/Proposal_en.pdf)

Both marine spatial plans and coastal zone management strategies should respect the minimum requirements in the proposed Directive, ensuring sustainable growth and public participation, and fostering cooperation between neighboring states in cross-border cases.

### 8.3.2. Spanish legislation

As mentioned above, the Spanish Constitution of 1978 defines the state public domain in Article 132.2 as those areas "established by law and, in any case, the maritime zone, beaches, territorial waters and natural resources of the economic zone and the continental shelf." It also includes the obligation of public authorities to ensure "the rational use of all natural resources, in order to defend and restore the environment" (Art.45.2).

Ten years later, Spain's current Coastal Law came into force, replacing an older version of the law dating back to 1969. Its adoption generated controversy on several fronts. A number of regions appealed to the Constitutional Court, arguing that the law usurped their powers. Certain sectors of society argued that the law would slow economic growth, particularly in the areas of tourism and construction. Others argued that it did not respect existing property rights arrangements.<sup>294</sup>

**The Coastal Law (22/1988, of 28 July)** develops the principles set out in Article 45 of the Constitution. As will be seen later, the law incorporates certain environmental perspectives (ecosystem-based approach) in protecting the coast, using criteria contained in Recommendation 29/1973 of the Council of Europe and the Charter of the Coast, 1981. The Coastal Law is a before and after in the process of public intervention on the treatment of the Spanish coast.

It should be noted that this law mainly regulates the management and protection of the MTPD, meaning it applies to a narrow strip of territory, not to the entire coast.

As discussed in the previous section, the law's preamble describes the problem it is attempting to solve by drawing a rather alarming picture, characterized by a process of destruction and privatization of the coast. Among other causes, the text recognizes that this situation has been made possible by "serious administrative neglect" and unchecked urbanism.

The objectives of the Coastal Law on MTPD are essentially two:

- Ensure its public character and preserve its use by all citizens, in the face of processes of privatization
- Environmental protection and preservation of the coastline's natural characteristics, in the face of the prevailing trend of degradation

<sup>294</sup> See for example Coastal Law: assessment and prospects of a process Olmos, J. (1988):

[http://www.terracritica.org/articles.php?article\\_id=295&idioma=\\_v](http://www.terracritica.org/articles.php?article_id=295&idioma=_v)

In 1989, the government published the regulations<sup>295</sup> implementing the Coastal Law. In 1991, the Constitutional Court responded to several constitutional challenges to the Coastal Law and jurisdictional disputes brought forward by coastal regions (in Judgements 149/1991 and 198/1991). These rulings will be analyzed in section 6 of this chapter.

The Coastal Law has also undergone a number of revisions over the years, as a result of new legislation. Subsequent development laws that have altered the Coastal Law include:

- **Law 53/2002, of 30 December, on Fiscal, Administrative and Social Order.** Enter a term of 24 months for the notification of the boundaries (art. 12), and introduces modifications to common provisions for authorizations and concessions (art. 74).
- **Law 13/2003, of May 23, Governing the Concession of Contracts for Public Works** instituted changes in relation to authorizations to operate seasonal service on the beaches (art. 54), and Chapter of fees and charges (art. 84).
- **Law 42/2007, of December 13, Natural Heritage and Biodiversity.** This law lays out the rules for calculating fees for the use and exploitation of the MTPD for aquaculture, and introduces modifications in fees and charges affecting concessions or authorizations granted in MTPD (art. 84). On the other hand, it modifies Additional Provision 8, in relation to the discharge of hazardous substances in the marine environment by establishing quality objectives for the receiving environment and methods of measurement and monitoring, which are listed in the Annex of the Law. Later this annex was repealed by Royal Decree 60/2011, of 21 January, on environmental quality standards in the field of water policy.
- **Law 25/2009, of 22 December,** amended various laws in order to adapt them to the Law on Free Access to Service Activities and Exercise. It introduces a new paragraph in Art. 53 relating to procedures for granting of seasonal services on the beaches by the municipalities. It also amends Articles 74 and 75 in the same spirit.
- **Law 2/2013 for the Protection and Sustainable Use of the Coast and Modification of the Coastal Law.** This law substantially amends the original 1988 law. Consequently a specific section describing the main changes has been developed in this report (section 3.2.2).

The Coastal Law, as amended by Law 2/2013, continues to be the primary legislation in Spain addressing coastal management. It constitutes the basic legislation on coasts, identified the MTPD, seeks to institute conditions for any development within half a

---

<sup>295</sup> Royal Decree 1471/1989, of December 1, General Regulations for the development and implementation of Law 22/1988, of July 28, 1988

kilometer of the sea and defines the roles and responsibilities of the three levels of government.

### **The 1988 Coastal Law**

The stated objective of the Coastal Law is the identification, protection, use and police of the MTPD, particularly the *ribera* (coast, bank) of the sea.<sup>296</sup>

The law is structured around 6 sections:

#### **Section I: The Maritime-Terrestrial Public Domain (MTPD)**

This section defines the *ribera* and MTPD according to their natural features.

Building on the definition of “public domain” instituted by the Spanish Constitution, the law also takes several steps to ensure public ownership over these areas. It enables registration of these lands in the Land Registry as publicly owned lands, while requiring that the Land Registry and the various levels of government act in coordination. The goal of these provisions is to prevent private ownership of public lands.

At the same time, the law eliminates the possibility of acquiring private ownership of land reclaimed from the sea or any part of the public domain created as a result of works. Such actions had previously been used to facilitate property speculation within the public domain by private actors. The law seeks to include all lands that meet the requirements for natural environmental features within the MTPD and establishes mechanisms for reclassifying such land as part of the public domain.

The Constitutional principles of the imprescriptibility and inalienability of the public domain set out in Article 132.1 are thus developed by the CL, with the administrative faculty of possessory reinstatement *ex officio*, independent of the time lapsed. Thus, as a result of the incorporation of such principles, and despite the existence of certain assumptions under which the reversal of State ownership may occur, it can be argued that the CL determines the nature of the public domain as expansive.

#### **Section II: Limitations on property rights on land adjacent to the *ribera*, for the protection of MTPD**

The law institutes a number of limitations on the use of privately owned lands adjacent to the MTPD in order to prevent negative impacts on the coastal environment, which range from difficult and expensive to repair to irreparable. These limitations take the form of minimal regulations in the law, while regional governments are given the authority to supplement and expand these through their own policies.

The law defines a zone of protection with a width of 100 meters. In areas which are already urbanized, as well as areas with building plans which were approved before the law came into force (in 1988), the width of this strip is 20 meters. This narrower zone of protection can be extended to a maximum of 100 meters by the state government, in

---

<sup>296</sup> Fully defined in Article 3 of the Coastal Law and including, among other elements, the beach and dunes.



cooperation with regional and city governments, when such an action is deemed necessary in order to ensure the protection of a particular stretch of coast.

Within the zone of protection, a range of land uses are generally prohibited. However, those uses and activities which by their nature cannot be located elsewhere are allowed. Services related to the MTPD and uncovered sports facilities are also permitted under the law. These limitations are discussed in further detail below, in section 9.5.3.

Beyond the zone of protection, an adjacent zone of “zone of influence” is also delineated in the law. The law provides certain guidelines for planners within that area, which are designed to prevent the accumulation of excessive volumes of construction along the edge of the zone of protection.

Rights of way and access to the sea are also defined, in order to ensure the public’s right to use the sea and the seashore.

### **Section III: Use of the MTPD**

The default use within the MTPD is defined as open space, while special uses (those which involve intensity, danger, profitability and removable facilities, e.g. seasonal services) are subject to authorization, while fixed structures (e.g. ports) are subject to concession.

The privilege represented by the occupation of the public domain by those activities whose development within the same is not necessary is inhibited, more so than in the area affected by the protection zone. The Law authorizes the Administration to call tenders for the granting of licenses and concessions considered of special interest. In the case of concessions, it provides for a maximum term of 30 years, which is sufficient for the amortization of all types of facility.

### **Section IV: Fees and charges within MTPD**

The Law regulates the fees and charges payable in exchange for the right to occupy the public domain, which are meant to be granted by the state in the abovementioned schemes (authorization and concession), as well as **compensation for rescue**.

### **Section V: Offences and penalties**

Regarding infringements and sanctions, the law defines procedures for disciplinary proceedings and proposes various practical measures for improving the speed and efficiency of steps taken in **response to violations**. It draws a distinction between minor and serious offenses, defines penalties and creates the obligation to restore the legal status quo, regardless of the amount of time that has passed since **the offense**.

### **Section VI: Administrative powers**

In this section, the law specifically outlines the division of powers among state, regional and city governments, as described above in section 2 of this chapter. The powers of regional governments are not described in detail, as the scope and content of those powers must be defined in their regional Statutes of Autonomy.

This section also seeks to promote coordination through a system of mutual consultations and reciprocal reporting inside the planning system. This system, based on pre-existing schemes for inter-institutional relations, is designed to exploit the respective competencies of the various entities, while facilitating communication between them in a collaborative framework.

The law also provides for a transitional regime to allow adaptation of situations in existence prior to the entry into force of the law to the new regulations.

### **The Law on Protection and Sustainable Use of the Coastline and Amendment of the Coastal Law**

The Law of 1988 introduced significant changes in relation to the previous regime. With its passage, gradual steps forward were taken. The boundaries of the MTPD were delimited, degraded<sup>297</sup> sections of the coastline were recovered and uses within both the MTPD and the zone of protection were regulated in accordance with the new regulatory framework.

Since its adoption, successive governments have made their own changes to coastal policy, on the basis of previous experience and advances in environmental regulations, among other factors. Each government had its own priorities for achieving different goals, which were reflected in the allocation of budgetary resources.

During the second half of the previous decade, the government was particularly focused on coastal policy and enforcement of laws<sup>298</sup> relating to the coastal zone. This, however, engendered intense reactions among various groups which, along with other factors discussed below, contributed to a renewed debate on the law.

In mid-2012, a process of rewriting the Coastal Law was initiated. In May 2013, this process was completed with the approval of Law 2/2013 on Protection and Sustainable Use of the Coastline and Amendment of the Coastal Law.

The new law's preamble describes some of the limitations of the previous coastal legislation (including its non-application in some cases, as well as its inability to prevail over established social realities) and the objectives of the reform. As in the failings noted in the preamble to the 1988 law, much of the failure to solve certain problems related to the coastline appears related to its implementation by the government (more on this in section 9.6.2. below).

Among the law's objectives are providing greater legal certainty through a framework guaranteeing legal continuity over the long term. Another objective is to safeguard the integrity of the MTPD, while preventing urban development that goes against the law's prescriptions.

---

<sup>297</sup> *Degraded* can be understood in a broad sense i.e. referring to those stretches of coast that successfully meet their environmental, functional and social functions (as natural elements of coast protection).

<sup>298</sup> Progress was made, for example, in the delimitation of MTPD: In 2006 only 60% of the coast was marked off. By the end of 2011 this figure had risen to 97%.

The new law introduces the following amendments to the Coastal Law:

- Definition of the MTPD and the procedure for its demarcation
- Rules governing concessions and authorizations in the MTPD
- Limitations on private ownership of the land adjacent to the public domain (the zone of protection)

While the new law's approval is very recent and some of its contents have yet to be hashed out in new regulations, the new text, far from being supported by a broad social and political consensus, has been greeted with suspicion by various civil-society groups, particularly those advocating for conservation.

The new law clarifies the definition of the *ribera*, which may influence the demarcation process, in the following sense:

- In order to achieve a unified approach, the new law seeks to develop new regulations with technical criteria for defining the distance "reached by the waves at the strongest known storms"
- Sand dunes, which in the 1988 law were included in their entirety in the *ribera*, are now included only to the extent that is necessary to ensure the stability of the beach and coastal defenses.
- It specifies that artificially flooded areas are not to be considered part of the MTPD, unless they were already publicly owned before being flooded. This, however, does not apply if the flooded lands are navigable (as in the case of a marina, for example).

The new law also excludes certain population centers from the MTPD. These are historical residential areas, built before 1988, in which construction has caused the loss of the coast's natural characteristics. Due to the degradation caused and in light of the current physical status quo, the law determines it unnecessary to protect the MTPD in these areas. These areas were included in the MTPD based on demarcations made prior to the 1988 law, and are part of the 3% of the coastline which the government was unable to demarcate following passage of that law.

These changes have caused some controversy. First, the exclusion of artificially flooded land from the MTPD, which mainly affects salt mines, has been strongly criticized by conservation groups. In this case, there are boundaries approved in accordance with the 1988 law that include these lands. To analyze the real impact and possible future consequences of this change – in terms of soil classification changes or changes of uses that could affect the structure of the interconnected ecosystems that make up the coast – it would be necessary to study in detail the environmental protection regime of soils affected by these measures.

Furthermore, the exclusion by law of certain MTPD land is a shortcut to resolving conflicts with homeowners. The modified text includes, in an appendix, specific areas that it directly excludes from the MTPD by applying a solution that the text of 1988 raised as a possibility in generic terms. Opponents of this change allege a lack of objective criteria to justify the exclusion of certain urban cores, compared to others that have been or are slated to be demolished, and predict a domino effect scenario, in which many more areas will be exempted from the MTPD than foreseen.

With these changes, and as the law provides that demarcation can be initiated by the government or at the request of an interested party, some now expect a process of review of many of the demarcations made since 1988 (which, as will be seen below, were mostly declared valid by the Constitutional Court).

Regarding the MTPD, the law establishes a special regime for its delimitation on the island of Formentera (the Balearic Islands), in which a large part of its surface is made up of elements that define the MTPD.

As to the demarcation process, the Law requires the State Administration to register the MTPD assets with the objective of establishing a correlation between the physical reality of the coast and the Land Registry. The law guarantees registry proof of the administrative process of demarcation from its initiation. This is intended to enable citizens in general, and buyers in particular, to have access to accurate information on the land that pertains to, or which may in the future pertain to, the public domain. The public nature of the information is not limited to the registry, as the Law also requires the information to be published on the Ministry of Environment website.

The new law also introduces major changes in relation to the system of land concessions. In cases of review of boundaries due to changes in the configuration of the coast, the 1988 law granted a right of occupancy and use for 30 years (with an option to renew that lease for another 30 years) to landowners whose property became incorporated into the MTPD. The new text modifies the maximum duration of the concessions, which is extended to 75 years.

Moreover, the amendment allows for the extension of concessions granted under the 1988 Law (30 years, renewable for 30 more). The new text states that these extensions may be up to a maximum of 75 years, calculated from the date of the application, regardless of the time remaining for the termination of the concession that is extended. It should be noted that this extension does not operate automatically, since it is set out that "the concession holder may request the extension of the concession since the entry into force of this Law" (i.e., from June 2013), and "in any case, before the expiry of the period for which it was granted" (which in most cases will be July 2018).

This modification has been defended on the grounds that, on the one hand, it establishes a framework of legal certainty in the long run, and secondly, that the new terms (75 years) conform to those established in other Spanish laws. On the other hand, critics argue that it is an excessive term that mortgages recovery of MTPD for generations, more so delaying the solution of certain problems in the MTPD. In the

case of 75-year extensions, it is argued that an extension with a duration superior to the original period (30 years) is to be considered an exceptional circumstance.

However, when it comes to the granting of such extensions, the new text presents the following nuances:

- Depending on the applications, the government reserves the right to grant them in terms of less than 75 years and apply extensions.
- On the other hand, the modification of the law includes a new concept: stretches of coastline “in a situation of serious regression.” These are defined as parts of the coast in which the coastline is shown to be in retreat (based on technical criteria to be established in future regulations). Whenever such areas are deemed unable to recover their previous state via natural processes, the government reserves the right to take special actions. These might include refraining from granting titles in the MTPD or charging a special fee to concession holders in the MTPD or on adjoining lands, in cases where the government must erect coastal defenses.
- In cases of industrial use, the concession is conditioned on a favorable report from the regional environmental agency.

The new text also explicitly introduces the possibility of termination of the concession if the works and installations on a piece of land run a real risk of being reached by the sea. It also relaxes rules governing coastal defense works undertaken by holders of concessions: whereas the 1988 text allowed such works, provided that they generate no negative effects on the coasts and do not occupy the beach, in the new text only the former requirement is retained.

A key to the implementation of these principles will be the development of technical criteria that define the return period and the variables considered to establish the risk of scope of works by sea storms. As in the case of the technical criteria to be established for conducting boundaries, the return periods and variables considered are in the center of the debate because, depending on its magnitude, the result of the application of the law may vary significantly. So while some sectors of the owners of concessions inside the MTPD argue that these nuances create uncertainty and are not going to increase legal certainty, opponents of reform warn of the risk of return periods considered insufficient to provide a framework for management and protection of the coast consistent with the natural dynamics that determine their evolution.

Finally, the new text allows transmission *mortis causa and inter vivos* (actual and anticipated inheritance) of concessions and extends the work that individuals can carry out by imposing the only limitation that those works not involve an increase in volume, height or surface coverage.

Another amendment concerns the autonomous ports concessions or contracts for their construction, which happen to be governed by the same terms and conditions provided in the legislation on ports of general interest.

Licenses granted for installation of removable structures, such as seasonal beach services, are extended from a maximum period of one year to four years. On the one hand, this change is intended to expand the business horizon of certain facilities while reducing the volume of paperwork, which currently must be renewed each year. However, critics have argued that this modification could open the way to consolidation of land occupations in the MTPD during the offseason.

The main novelty introduced regarding the limitations on private property in the protected zone is that owners of legal buildings will be allowed to perform repair, improvement, modernization and consolidation works, provided that they do not involve an increase in the volume, height or surface area of the buildings. Until now, only repair and improvement works were allowed.

The procedure for handling these works has also been changed. Instead of securing prior administrative authorization for them, building owners will now be required to submit a "statement of responsibility." In this document, they are expected to state that their works will not result in an increase in the volume, height or surface area of the existing buildings, and that they will comply with certain requirements on energy efficiency and water savings, when applicable.

This change will simplify the process for landowners in the protected zone and reduce the administrative burden of authorizations. Previously, all such works (aside from a few permitted uses, mainly agricultural) were subject to prior approval.

This change, which implies the incorporation of certain mechanisms that have long been employed in the fiscal or industrial fields into the licensing regulations pertinent to land use, will represent a challenge for some regions, especially those on the Mediterranean, in which the upholding of disciplined urban development has so far been a utopia. This new mechanism will in all likelihood result in a significant increase in the administration's sanctioning activities

Another controversial change involves the boundaries of the protected zone. As noted above, this strip previously extended to a minimum width of 100 meters from the inner edge of the *ribera*, or 20 meters in urban settings or land with approved building plans dating from before 1988.

The new text extends the circumstances under which it is possible to reduce the width of this protected strip from 100 to 20 meters, in two cases:

- In population centers which, despite not being classified as urban land in 1988, had urban characteristics at that time (i.e. road access, water supply, waste-water disposal and electricity supply).
- On the margins of rivers up to the limits of the tidal action, in order to prevent the generation by default of a 100-metre protection zone in the stretches that lie away from the mouth of the river. Geomorphologic characteristics, vegetation environments, and distance from the mouth will be taken into account, according to criteria to be included in a future regulation.



The purpose of these changes, in line with the other changes, is apparently to reduce conflicts in some stretches of coast where the establishment of a protection zone of 100 meters generates additional difficulties due to the presence of population centers and human activities. This is true particularly in the latter case, as on Spain's Atlantic coast tidal effects can reach several kilometers inland through river channels.

These two points have generated suspicion especially among conservation organizations due to rezoning of land that could be carried out as a result of the reduction in the protection zone. On the other hand, some have posited that the possible reduction of the protection zone for areas with "urban characteristics" would not comply with soil classification criteria, which form the basis of spatial planning.

Finally, it establishes a special regulation for existing land-maritime developments, defined as residential areas on land endowed with a navigable road system, built from artificial flooding of private land. The law states that the waterways will be considered as part of the MTPD and that the corresponding territorial or urban management tool will establish transit and access to them.



*Figure 2: Ampuria Brava.*

### **Sectoral legislation which impacts the coast**

This section details basic national legislation which impacts coastal zone management (in relation to water quality, biodiversity and protected natural areas, the processes of information and public participation, the marine environment and ports), without an exhaustive description of each. It should be noted that in addition to this state legislation, there are plenty of rules at the regional level which impact the coast, regarding issues such as land planning, landscape and environmental impact, but which fall outside the scope of this analysis.

Theme	Major basic State legislation with an impact on the coast
<b>Water quality</b>	Royal Legislative Decree 1/2001, of 20 July, approving the revised text of the the Water Law <sup>299</sup>  Law 62/2003, of 30 December, on fiscal, administrative and social measures
<b>Biodiversity and natural areas</b>	Law 42/2007, of December 13, Natural Heritage and Biodiversity <sup>300</sup>
<b>Information and public participation</b>	Law 27/2006, of 18 July, which regulates the rights of access to information, public participation and access to justice in environmental matters (includes Directives 2003/4/EC and 2003/35 / CE) <sup>301</sup>  Law 9/2006 of 28 April on the assessment of the effects of certain plans and programs on the environment
<b>Marine Environment</b>	Law 41/2010 of 29 December on the protection of the marine environment <sup>302</sup>
<b>Ports</b>	Royal Decree 2/2011, of 5 Sept., approving the revised text of the Law of Ports and Merchant Navy <sup>303</sup>

Table 3: National sectoral legislation

### Water quality

The adoption of the EU Water Framework Directive (Directive 2000/60/EC, October 23, 2000) marked the beginning of a new approach to the management of water resources and aquatic ecosystems in Spain.

Transposition of the WFD into Spanish law was achieved through the passage of a number of laws:

- Royal Decree 1/2001, which approved the revised text of the Water Law
- Law 62/2003, of 30 December, on fiscal and administrative measures and social order, which included, in Article 129, the modification of the revised text of the Water Law

<sup>299</sup> <http://www.boe.es/buscar/doc.php?id=BOE-A-2001-14276>

<sup>300</sup> <http://www.boe.es/boe/dias/2007/12/14/pdfs/A51275-51327.pdf>

<sup>301</sup> <http://www.boe.es/buscar/doc.php?id=BOE-A-2006-13010# analisis>

<sup>302</sup> [http://www.boe.es/diario\\_boe/txt.php?id=BOE-A-2010-20050#top](http://www.boe.es/diario_boe/txt.php?id=BOE-A-2010-20050#top)

<sup>303</sup> [http://www.boe.es/diario\\_boe/txt.php?id=BOE-A-2011-16467](http://www.boe.es/diario_boe/txt.php?id=BOE-A-2011-16467)

- Royal Decrees 125/2007 and 126/2007 which, respectively, required the demarcation of watersheds and regulated the Competent Authorities Committees
- RD 907/2007 establishing the Water Planning Regulation
- Order ARM 2656/2008 - Water Planning Instruction

The WFD introduced a new approach, moving beyond traditional consideration of water bodies simply as exploitable resources to consideration of the quality of water-based ecosystems. Its transposition into Spanish law brought concern for coastal waters (which were less studied than land-based water bodies and more vulnerable to intense development pressures) into the field of water management, and set up a system for evaluating and managing them.

Though several years have passed since the entry into force of the WFD, there have been many delays in its implementation, which has taken place unevenly along the coast of the Spanish peninsula. Its implementation in coastal and transitional waters has been particularly complex due to a lack of coordination between various governing bodies, and because these entities are still rooted in the traditional approach, which is focused on the use of water and not on preserving the ecosystems they support.

### **Biodiversity and natural areas**

The Spanish coastline hosts a great variety of unique ecosystems (wetlands, estuaries, dunes, cliffs, etc.) based on the interface of land and sea. The proliferation of areas of high natural, ecological and environmental value along the coast plays a key role in the protection of the coastline, the MTPD and areas adjacent to it, as they are often protected by restrictions on land uses, activities, construction and infrastructure.

At present, Spain's natural areas can be categorized under three **general definitions**:

- Protected natural areas, including national parks (which are protected under Law 5/2007), nature reserves, marine protected areas, natural monuments and protected landscapes.
- Areas protected under the Natura 2000 Network, the Birds Directive (Directive 79/409/EEC) and the Habitats Directive (Directive 92/43/EEC). These include Sites of Community Importance, before being declared Special Areas of Conservation, and Special Protection Areas for Birds.
- Areas protected by international instruments.

Law 42/2007 on Natural Heritage and Biodiversity defines the country's protected natural areas and establishes rules governing these spaces. Under this law, Sites of Community Importance and Special Protection Areas for Birds are also considered protected areas.

Spain's regional governments have also established their own level of protections for natural areas, including in various coastal areas, in the framework of their particular powers. Their primary tools are management plans and regulatory measures, although

the law does give them the authority to put into place additional mechanisms with considerable potential for efficacy, such as land stewardship agreements.

Currently, approximately 30%<sup>304</sup> of the Spanish coastline consists of natural protected areas, most of which are due to the Natura 2000 network.

### **Information and public participation**

The Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, and the rules and norms derived from it, involve the concept of open and transparent public administration. According to it, the public has the right to open access to the environmental information that public authorities possess. Spain ratified the Aarhus Convention in December 2004. The convention came into force on March 31, 2005.

The right of access to environmental information is governed in Spain by Law 27/2006, of 18 July, which regulates the rights of access to information, public participation and access to justice in environmental matters. The law incorporates Directives 2003/4/EC and 2003/35/EC on public access to environmental information, and adapts them to the Spanish context.

Among the rights guaranteed to citizens under the law:

- Access to environmental information held by public authorities, without having to justify a particular interest.
- The right to receive information about the rights conferred by Law 27/2006 and be advised for its proper execution. This information must be provided within one month of receipt of any request to an administrative body or public authority. This period can be extended to up to two months, provided there is sufficient reason for the delay and that applicants receive some response within the first month.
- The right to receive requested environmental information in the form or format of choice, unless the public authority reasonably justifies delivery in another form or format, or unless the information has already been disseminated in another form or format, which the applicant can access easily.
- The right to receive assistance in the search for information.
- The right to be told the reasons for any possible refusal, as well as the right to know the list of fees and prices, where applicable, which citizens may be charged for receipt of the information, and the circumstances in which they may be levied or waived.

Law 9/2006, of 28 April, on the assessment of the effects of certain plans and programs on the environment, also includes the obligation to conform to procedures for public information, including regarding the formulation, modification and revision of

---

<sup>304</sup> Source: MARM. Natura 2000 Network. Information update: November 2010.

plans and programs. This Law incorporates into Spanish law the European SEA Directive (2001/42/EC). More recently, Directive 2011/92/EU<sup>305</sup>, on the assessment of the effects of certain public and private projects on the environment, took this principle one step further by stating that the public should be informed at an early stage of the decision-making process on environmental matters.

In Article 2, the definition of "environmental assessment" states that the above-mentioned consultations are an inseparable part of the process, and that their results must be taken into account in the decision-making process. If any of these elements are missing, environmental assessments cannot be considered valid under the law.

Under the law, all of the actors involved in the information and consultation processes have a role to play in the environmental assessment process:

- The person or entity that initiates proceedings for the preparation or adoption of the plan or program must integrate environmental aspects into that plan or program.
- The environmental body, in collaboration with the plan's initiator, ensures this integration.
- The entities consulted during the process: affected public bodies and any interested public.
- The general public must be informed of the decisions and determinations which are most relevant in the environmental assessment process.

### **Marine environment**

Law 41/2010, of 29 December, on the Protection of the Marine Environment transposes Directive 2008/56/EC of June 17, 2008, which established a framework for community action on marine environmental policy (known as the Framework Directive on Marine Strategy, hereafter FDMS).

With respect to coastal waters (extending out 1 nautical mile from the baseline), the law provides for the supplementary rule. That is, in cases where the law does not provide measures to achieve the objectives or those measures are insufficient, the stricter rule is given priority. Law 41/2010 mandates the formulation of marine strategies and action plans, to be updated every six years, for each of the five established marine boundaries: North Atlantic, South Atlantic, Strait and Alboran, Levantine-Balearic and Canary.

Furthermore, this law mandates that any sectoral policies that might affect the marine environment be compatible with and suit the objectives of marine strategies, with the active participation and cooperation of the authorities conducting activities in the marine environment.

The law directs the government to create an inter-ministerial commission for the coordination, development, implementation and monitoring of marine environmental

<sup>305</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:026:0001:0021:En:PDF>

planning. It also establishes monitoring committees for each of the five marine boundaries, composed of representatives of state and regional governments.

This law also creates a uniform regulatory framework whose goal is to ensure that human activities at sea do not compromise the conservation of marine ecosystems. It includes additional protection measures such as:

- The creation of a Network of Protected Marine Areas in SpainThe protection of marine habitats and species
- The regulation of dumping at sea

The Protection of the Marine Environment Law goes beyond the requirements of the Directive to establish additional measures to protect the marine environment in areas that were previously unregulated, in a way that provides a general framework for the planning and protection of the marine environment.

### **Ports**

The ports of general interest, even those which are located inside the MTPD, fall outside the scope of the Coastal Law, and are governed by specific legislation due to the uniqueness of these great public works. This is reflected in Article 67 of Royal Decree 2/2011, which approves the revised text of the Law on State Ports and Merchant Marine. The article states, that "ports of general interest are part of the MTPD... which is regulated by the provisions of this Law and, additionally, by the coastal legislation".

Ports owned by regional governments are also governed by specific legislation. Regarding construction or expansion of these, which may require occupation of additional lands that form a part of the MTPD, the Coastal Law sets out a mechanism for use of these lands by the regional government. The regions must attain a favorable report from the state government regarding the delimitation of the state lands in question, intended uses and measures necessary for the protection of public property, without which they may not be granted final approval.

### **8.4. Instruments of coastal policy implementation**

Until the mid-1990s, coastal policy was under the purview of the Ministry of Public Works, and was based on the execution of works and projects. In 1996 the Ministry of Environment was created and coastal policy became a part of environmental policy-making.

The new ministry made the first attempts to formulate planning documents for the coastline. Environmental elements began to be introduced into coastal policy, and the state began to act upon some of the provisions of the Coastal Law, such as the procedure for demarcation of the coast, which was originally meant to happen within four years of the law's passage.



The following section describes the main policy instruments for coastal management adopted by the state and regional governments in recent years.

#### 8.4.1. National policy instruments

Following the adoption of the European Recommendation of 2002, the Spanish government and regional governments began a process of reevaluating the country's coastal policies.

As a first step, the government decided to put together a national inventory (identifying relevant laws, stakeholders and regional institutional actors). A similar process was undertaken at the regional level, with each region putting together inventories of relevant regional laws, stakeholders and institutions.

In July of 2004 the Ministry of Environment pledged to pursue a sustainable, integrated and systematic program of coastal management. It set out a number of objectives including: protecting and preserving the integrity of coastal and marine systems, ensuring public access and use of the seashore, and the recovery and regeneration of urbanized and degraded seafronts. In order to achieve these objectives, the Ministry sought to formulate a national plan for sustainable coastal management, and a 5-year horizon for execution of the various steps was established (2005-2010).

OUTLINES OF NATIONAL COASTAL POLICY REORIENTATION (2004)	
OBJECTIVES	INSTRUMENTS AND STRATEGIC MEASURES
Protection/preservation of coastal and marine systems	National plan for coastal sustainability
	Program for acquisition of coastal lands, on basis of environmental criteria
	Completion of demarcation of Spanish coastline within 4 years
Ensure public access and use of the seashore	Increase controls over the granting of concessions and revoke those that do not conform to the Coastal Law
Transformation of urban and degraded seafronts	Pursue new framework for cooperation with regional governments to efficiently meet demand for leisure ports
Management and control of coastal erosion	Integrate these factors in urban plans and planning rules for coastal municipalities
	Application of criteria involving both economic rationale and environmental sustainability in construction and expansion of state-owned commercial ports

Table 4: Outlines of national coastal policy reorientation (Ministry of Environment, 2004).

The National Plan for Coastal Sustainability was supposed to incorporate the European Recommendation on ICZM (2002) and create guidelines and criteria for the implementation of ICZM, while forming the basis for an annual program of actions. However, this document was never formulated (MAGRAMA, 2012).

The program of coastal land acquisition was a nonbinding instrument, based on a provision of the Coastal Law allowing the state to acquire land in order to strengthen coastal protection mechanisms and facilitate long-term sustainable management. It was realized in the framework of various projects to preserve areas of high ecological value and urban land threatened by development pressure, in places adjacent to the MTPD. In some cases, this involved the demolition of existing structures.

In order to put an end to the uncertainty regarding the exact boundaries of the MTPD, which was causing hard both to interested parties and to the coastal environment, the Ministry of Environment established guidelines for demarcation of the MTPD with the objective of completing the demarcation of the entire Spanish coastline within a maximum period of 4 years.

#### **Strategy for Coastal Sustainability (2007)**

After the government abandoned the idea of promoting a binding National Plan for Coastal Sustainability (which was promoted during the years 2004-2006, but never adopted), it decided instead to pursue a Strategy for Coastal Sustainability, which was approved by the Cabinet in 2007.

The general objective of the Strategy was to recover overexploited coastal areas. Its specific objectives were to stop the intense overcrowding of the coast, to recover its physical and environmental functioning, to adapt to climate change and to impose a more integrated form of coastal management.

#### **Guidelines for Waterfronts (2008)**

These guidelines, developed by the Ministry of Environment, include recommendations for public coastal works (regulated in Article 111 of the Coastal Law), and seek to protect the integrity of the coast and its free and public use. The guidelines were meant to be binding for all coastal public works and projects. However, despite being a public document, it was not endorsed by any provision in the Official Gazette.

#### **Guidelines for Projects on Beaches (2008)**

This document, formulated by the Ministry of Environment, includes a series of guidelines regarding the content, approach and objectives of coastal projects. It lays out conditions and general instructions for construction on beaches, based on structural, environmental and social criteria. Like the Guidelines for Waterfronts, this document was meant to be binding on all public works and projects, but was never published in the Official Gazette.

### **8.4.2. Regional policy instruments**

Spain has 10 coastal regions: Basque Country, Cantabria, Asturias, Galicia, Andalusia, Murcia, Valencia, Catalonia and the Balearic and Canary Islands.

Through the REGIAL<sup>306</sup> project, headed by the University of Cádiz, the ICZM instruments developed by each of these regions were examined. This information was

---

<sup>306</sup> REGIAL Project (<http://hum117.uca.es/grupogial/paginas/proyectos/REGIAL>)

compiled in a final report entitled “*The Autonomous Communities and Integrated Coastal Zone Management in Spain.*” On the basis of this report the following table has been produced, showing the main instruments related to coastal management implemented in each of the Spanish coastal regions.

In **Galicia** there is no specific policy for ICZM. The region’s main policy instruments are the Law 6/2007, of May 11, on Urgent Measures in the field of spatial and coastal planning<sup>307</sup> and the Coastal Management Plan of Galicia.<sup>308</sup> The latter seeks to establish criteria, principles and general rules for sustainable urban planning in the coastal zone, as well as regulations to ensure the conservation and protection of the coastal zone. These two instruments constitute a first step toward ICZM in Galicia. However, in many parts of the Galician coastline it may already be too late to effectively protect areas from the dramatic and poorly regulated transformations they have undergone in recent years.

In **Asturias** the main instrument for managing the coast is the Special Territorial Plan of the Asturian Coast,<sup>309</sup> a spatial plan approved in 2005. Another interesting document is the MAREA Strategy, which proposes the creation of a governance framework for the management of coastal and marine areas. The MAREA Strategy appears as an example of good practices in several European publications. However, despite the financial and manpower resources invested in the document, which was completed in 2007, it has yet to be approved.

In **Cantabria** the main instrument for ICZM is Law 2/2004, of 27 September, which approves the Coastal Zone Management Plan.<sup>310</sup> The law establishes criteria for the protection and management of the Cantabrian coastline, and is the only regional ICZM instrument in Spain that has been adopted by law.

In 2007, the Ministry of Environment and the Government of Cantabria signed an agreement pledging collaboration on integrated and sustainable coastal zone management (Resolution of March 23, 2007, of the Directorate General of Coasts<sup>311</sup>).

<sup>307</sup> [http://www.planeamentourbanistico.xunta.es/lexislacion/g/localhost/1355\\_es.pdf](http://www.planeamentourbanistico.xunta.es/lexislacion/g/localhost/1355_es.pdf)

<sup>308</sup> [http://www.xunta.es/dog/Publicados/2011/20110223/Anuncio8142\\_es.html](http://www.xunta.es/dog/Publicados/2011/20110223/Anuncio8142_es.html)

<sup>309</sup> <https://sede.asturias.es/bopa/disposiciones/repositorio/LEGISLACION09/66/5/001U002CTG0004.pdf>

<sup>310</sup> <http://www.boe.es/boe/dias/2004/10/27/pdfs/A35454-35473.pdf>

<sup>311</sup> [http://www.boe.es/diario\\_boe/txt.php?id=BOE-A-2007-8164](http://www.boe.es/diario_boe/txt.php?id=BOE-A-2007-8164)

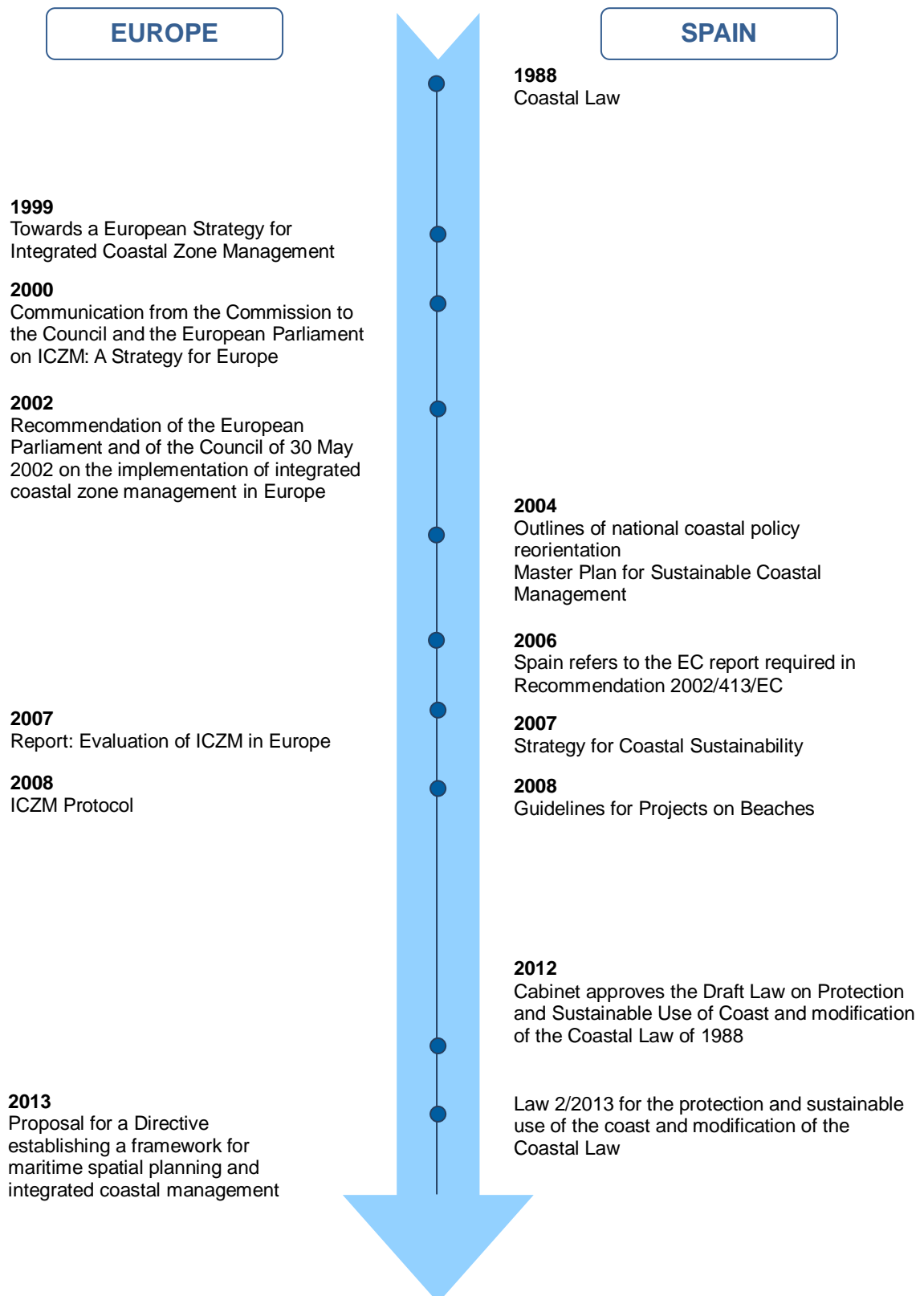


Figure 3: Timeline of major European and Spanish ICZM policy instruments.

Autonomous community	Regional instruments	Status
<b>Galicia</b>	Law 6/2007, of May 11, on urgent measures in the field of spatial and coastal planning	Approved by Law 6/2007
	Coastal Management Plan of Galicia	Approved by Decree 20/2011
<b>Asturias</b>	Special Territorial Plan of the Asturian Coast	Approved in 2005 (BOPA nº 197)
	MAREA: Maritime Strategy of the Principality of Asturias	Elaborated in 2007, has not yet been approved
<b>Cantabria</b>	Law 2/2004, of 27 September, Coastal Zone Management Plan	Approved by Law 2/2004
<b>Basque Country</b>	Sectoral Territorial Plan for Protection and Coastal Planning of Basque Country	Approved by Decree 43/2007
<b>Catalonia</b>	ICZM Strategic Plan of Cataluña	Elaborated in 2004, undeveloped
	Master Plan of the Catalan Coastal System (PDUSC)	PDUSC I y PDUSC II approved in May and December 2005 respectively
<b>Valencia</b>	Strategy for Integrated Coastal Management of the Valencia Region (EVGIZC)	Elaborated in 2002. With non-binding character. Poor development
	Territorial Action Plan of the Coast of the Valencia Region (PATLICOVA)	Public exposition in February 2006. Still not approved
	Territorial Strategy of the Valencia Region (ETV)	Approved by Decree 1/2011
<b>Murcia</b>	Guidelines and Coastal Spatial Plan of Murcia Region	Approved by Decree 57/2004
<b>Andalusia</b>	Regional Strategy on Integrated Coastal Zone Management of Andalusia (EAGIZC)	Elaborated in 2007
	Corridor Protection Plan of Andalusia Coast	Currently in progress
<b>Balearic Islands</b>	Coastal Management Plans	Approved by Decree 72/1994
	Insular Territorial Plans	All islands have an approved insular plan
<b>Canary Islands</b>	Coastal Planning Guidelines	In elaboration since 2004
	Insular Land-Use Plans	Each island have one plan

Table 5: Main ICZM instruments in the various Spanish coastal regions.

The regulatory framework for coastal and marine zones in the **Basque Country** contains no specific instruments for ICZM and is characterized by its sectoral nature. The most interesting instruments are related to spatial planning, particularly the Sectoral Territorial Plan for Protection and Coastal Planning of Basque Country (PTSL, approved by Decree 43/2007<sup>312</sup>). This is the only instrument of coastal management in Spain whose scope includes the marine environment as well. The PTSL establishes criteria for protection, improvement and conservation of coastal natural resources and provides guidelines for regulating the public's use of coastal undeveloped land.

The **Catalonia** has the ICZM Strategic Plan of Cataluña, which was formulated in 2004 as part of the ENPLAN Project.<sup>313</sup> However, despite a broad public participation process, the plan lacks institutional support and has become a guide to good intentions. The Master Plan of the Catalan Coastal System,<sup>314</sup> approved in 2005, seeks to protect open spaces and contain urban growth within 500 meters of the Catalan coastline. This region was the first to receive the effective transfer of certain functions regarding the MTPD (by Royal Decree 1404/2007<sup>315</sup>, and its extension by Royal Decree 1387/2008), which opens the way to a new model of coastal management.

Unlike the situation in other Spanish regions, the **Valencia Region**<sup>316</sup> new Statute of Autonomy does not provide for the transfer of certain powers regarding the Maritime-Terrestrial Public Domain (MTPD), which remain the responsibility of the State.

Although various initiatives have had a very positive impact on the coast, the Valencia Region has no specific policy on Integrated Coastal Zone Management (ICZM). The main instruments employed are:

- The Valencia Strategy for Integrated Coastal Management (EVGIZC), a non-binding document drawn up in 2002 and which has not met the expectations raised in relation to its progress.
- The Valencia Costal Territorial Action Plan (PATLICOVA), which was formulated in 2006 and has yet to be approved.
- The Valencia Territorial Strategy (ETV),<sup>317</sup> approved in 2011, Title VI of which is dedicated to the coast and includes aspects of great interest both on ICZM and

<sup>312</sup> [http://www.ingurumena.ejgv.euskadi.net/r49-565/es/contenidos/informacion/pts\\_litoral/es\\_7559/adjuntos/texto/decreto\\_pol.pdf](http://www.ingurumena.ejgv.euskadi.net/r49-565/es/contenidos/informacion/pts_litoral/es_7559/adjuntos/texto/decreto_pol.pdf)

<sup>313</sup> ENPLAN Project, financed by the Interreg IIIB MEDOC Program [http://www.interreg-enplan.org/home\\_es.htm](http://www.interreg-enplan.org/home_es.htm)

<sup>314</sup>

<http://www20.gencat.cat/portal/site/territori/menuitem.2a0ef7c1d39370645f13ae92b0c0e1a0/?vgnextoid=a4d0d96f731e8310VgnVCM2000009b0c1e0aRCRD&vgnnextchannel=a4d0d96f731e8310VgnVCM2000009b0c1e0aRCRD&vgnnextfmt=default>

<sup>315</sup> <http://www.boe.es/boe/dias/2007/10/30/pdfs/A44055-44057.pdf>

<sup>316</sup> Organic Law 1/2006, 10 April, on the reform of Organic Law 5/1982, 1 July, of the Regional Statute of the Valencia Region.

<sup>317</sup> [Decree 1/2011, 13 January, of the Valencia Regional Council, approving the Valencia Region Territorial Strategy](#)



regarding governance. Although voluntary in nature, in practice certain of its criteria have become binding in the approval of new urban development plans.

The Regional Government and the Ministry of Environment signed an initial collaboration agreement for the integrated management of Valencia's coasts<sup>318</sup>. While certain specific agreements have been developed under this commitment, progress so far can only be classed as inadequate.

In the **Murcia Region** certain powers related to MTPD and the marine environment remain the responsibility of the central government. While waiting for strategic tools that move in the direction of the ICZM and coastal governance, the main regional instruments are related to spatial planning. In 2004, the Murcia Region Coastal Spatial Guidelines and Plan<sup>319</sup> were approved, indicating an evolution from the current agricultural-based model towards a model focused on the development of tourism.

In 2007, **Andalusia** produced a proposal for an Andalusian Regional Strategy on Integrated Coastal Zone Management (EAGIZC), which determines the need to develop an ICZM Andalusian Law (Action 19) and to prepare a compendium of rules for the management of coastal and marine resources in Andalusia (Action 20).

The regional government is currently preparing an Andalusia Coastal Corridor Protection Plan, which is aimed at protecting the developable land that not been subject to planning processes, excluding those sectors deemed as exceptional due to their specific characteristics, in order to avoid endangering resources that are essential for economic activity, natural preservation or the well-being of society.

In the **Balearic Islands**, the regulatory framework for coastal and marine issues is sectoral in nature. There is no specific rule on ICZM. The most important policy instruments relevant to the coast generally fall into the realm regional planning, urban planning and the environment.

Insular Territorial Plans (which are the responsibility of the island councils) are currently the main instruments employed and serve as a frame of reference when considering ICZM initiatives. Each island has an approved Insular Territorial Plan: Mallorca, in 2004, Ibiza and Formentera, Menorca in 2005 and in 2006, respectively.

In the Canary Islands, the most relevant regional-local instruments in terms of ICZM are mainly related to planning, particularly the Coastal Planning Guidelines (by means of which the islands' coasts are divided into homogeneous sections for ordination) and the Insular Land Planning Plans (which in turn serve as Natural Resource Management Plans, streamlining the management of numerous of the Islands' protected areas, some of which lie on the coast).

---

<sup>318</sup> Resolution of July 21, 2005, by which the Framework Agreement between the Ministry of the Environment and the Valencia Regional Government (*Generalitat Valenciana*) for Integrated Coastal Zone Management in Valencia is made public.

<sup>319</sup> [Decree 57/2004](#)

### 8.5. Definition and specification of public coastal property and Legal Protection Zones

In Spain, the Coastal Law defines and regulates the Maritime-Terrestrial Public Domain (MTPD). This law is aimed at ensuring that everyone has the right to enjoy the assets that make up Public Coastal Property (beaches, dunes, cliffs, berms, marshes, etc.), which are highly valuable from an environmental point of view, through appropriate uses that neither compromise the Property's physical integrity nor exclude others from enjoying the Properties, too.

Furthermore, the Coastal Law also provides for a number of limitations to the property, on land adjacent to the coast, by establishing legal protection zones (protection, transit and access to the sea) to private land adjacent to the MTPD.

Following the definition of the MTPD, the technical instructions provided by the Ministry of Environment for the delimitation of MTPD are described, and finally the legal easements considered by the Coastal Law are described.

#### 8.5.1. Definition of MTPD

The maritime zones, beaches, inland waters, territorial waters and natural resources of the economic zone and the continental platform are included in the MTPD.

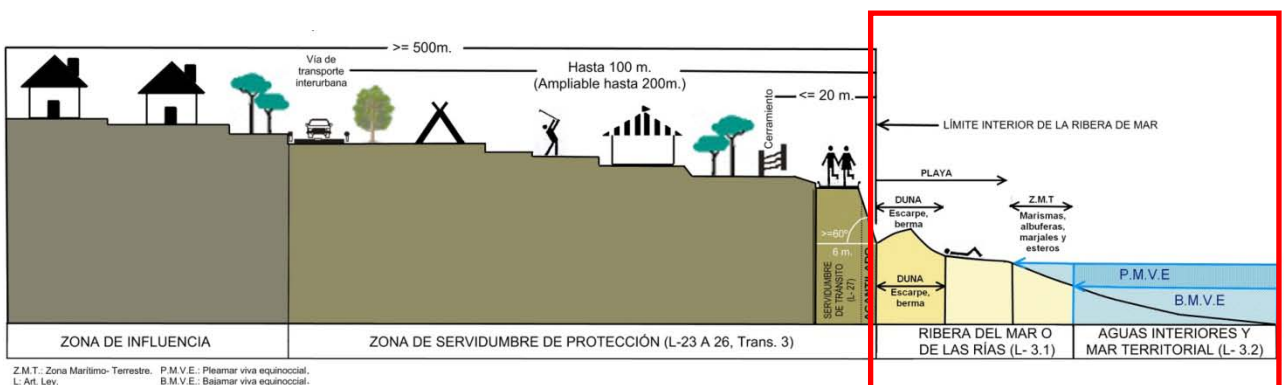


Figure 4: Schematic representation of Public Coastal Property and easements <sup>320</sup>

These concepts are specified in the Coastal Law (of 1988 as amended by Law 2/2013) as follows:

- The maritime terrestrial zone is the space between the low tidal line and the limit as corresponding to the largest recorded waves of storms, in accordance with the technical criteria established by regulation or, when this criterion is exceeded, the maximum high tide line. This area extends along the banks of rivers in so far as the tidal effect is noticeable.

<sup>320</sup> Source: www.juntadeandalucia.es

The maritime terrestrial zone also includes marshes, lagoons, *estuaries* and in general, parts of the lowlands that are flooded as a result of the ebb and *flow of the tides*, *waves* or sea water filtration, excluding those lands that are artificially flooded and controlled as a result of works or installations created for such a purpose, and provided that they did not belong to the public domain prior to flooding.

Thus, it is determined at the strip of land that can be covered by sea water (waves) during the strongest known storms or, when exceeded, the maximum high tide, according to verifiable references available. That is, not the limit that is ordinarily reached by the waves, but rather up to the limit reached by the waves in extraordinary, exceptional situations. This why in many areas of the MTPD, and specifically in the maritime terrestrial zone, it may reach areas that located at heights well above the maximum tide level.

The beaches or deposit of loose material, such as sand, gravel and pebbles, including scarps, berms and dunes. Law 2/2013, which amends the Coast Law, determines that dunes are to be included to the extent necessary to ensure the stability of the beach and the defence of the coast.

This definition includes dunes of any type and size, with or without vegetation. The concept of "beach" also includes spaces that are not reached by sea water, even during extreme storm situations, and thus in certain dune areas within the MTPD, specifically the "beach", it extends to limits that are relatively distant from the sea, and even located at a height above the maximum level of the sea.

- The territorial sea and inland waters, including its bed and subsoil.

The natural resources of the economic zone and the continental shelf, defined and regulated by the corresponding specific legislation

The following also belong to the MTPD:

- Attacks on the coast caused by the deposition of material or the withdrawal of the sea, independently of the cause.
- The land reclaimed as a direct or indirect result of works, and the draining of the banks.
- Land that is invaded by the sea (excluding those areas that are flooded artificially in a controlled manner as a result of works or facilities, provided that they did not previously form part of the MTPD), and in all cases any flooded lands that are navigable.
- Substantially vertical cliffs, which are in contact with the sea or with the spaces within the MTPD, to the highest points.
- Lands demarcated as public domain that, for whatever reason, have lost their natural characteristics as beaches, cliffs or maritime-terrestrial zones.
- Islets in inland waters and territorial sea.

- Land incorporated by concessionaires in order to complete the surface of an MTPD concession that they have been granted, when so required by the concession.
- Land bordering the coast which is acquired for incorporation into the MTPD.
- Coastal lighting and maritime signage works and installations, constructed by the State and independent of their location, as well as the affected land at the service of the same.
- The ports and port facilities owned by the State (which are governed by specific legislation).
- The sea shore is the area comprising the maritime-terrestrial zone and beaches. In some parts of the coast, the "sea shore" covers a considerable area, as when coastal wetlands are located behind sand strips and large dunes which separate them from the open sea.

#### **8.5.2. Delimitation of MTPD**

The MTPD exists independently of whether or not it is demarcated, as it is defined by its natural features. Its existence does not depend, as in the case of other public assets, on whether the MTPD has been declared as such, as it is characterized by its very nature.

Therefore, the demarcation process consists of identifying the areas that possess the characteristics determined for MTPD in the Coastal Law, establishing the limit that separates them from private property.

Chapter III of the Coastal Law is devoted to the demarcation process, determining the following aspects of the process, among others:

The demarcation process is initiated *ex officio* or at the request of an interested party, and must be approved by the State Administration

It is an open and public process in which both owners of assets bordering with the MTPD and the interested parties are heard, and in which City Councils and Regional Authorities are also involved.

Notification of the initiation of demarcation proceedings is sent to the Land Registry and a marginal note is inserted in the registrations of all properties that may be affected by the demarcation. Furthermore, following the entry into force of Law 2/2013 (first additional provision), the demarcation lines must be published on the Ministry of Environment's website.

Following the approval of the demarcation, the State's possession and ownership is declared, leading to marking of the corresponding boundaries: Land Registry registration cannot prevail over the public nature of the demarcated goods.

The owners of lands entering the MTPD become holders of a right of occupancy and use and are granted a concession by the Public Authorities. The existing uses and

exploitations are respected and the owners are not required to pay any fees. The maximum term for such concessions is 75 years. Upon the conclusion of such a concession, the Law establishes that any existing buildings are to be demolished.

The limits on these concessions have been softened with the modification of the 1988 text. As discussed in section 3.2.2., the new text allows mortis causa and inter vivos transmission of concessions, and extends the scope of the works that individuals can may implement, establishing as a sole limitation the prohibition to increase the existing volumes, heights or surfaces.

For buildings that are within the MTPD and do not have the required authorization or concession according to coastal legislation (illegal), the Law provides for their demolition.

In those areas in which substantial changes in the physical nature of the coast are observed (for example, when there is new flooding by the sea and there is proof of the sea exceeding the demarcation), or in those coastal sections demarcated using criteria established in provisions that are prior to those of the legislation in force, the Public Administration is required to undertake **a review of the boundary**. Consequently, modification of the boundary also implies a variation of the land affected by the right of protection.

The Law provides that land defined as State Heritage and adjacent to the MTPD or located in its area of influence, and which are necessary for the protection or use of the domain, is to be affected by the use of the same in the manner provided in the State Heritage legislation. Such land may not be disposed of without a prior declaration of the absence of its requirement to the above-mentioned effects.

The consideration of land as belonging to the MTPD may only be reversed in the following cases:

- Land which for any reason has lost its natural conditions as a beach, cliff or maritime-terrestrial zone.
- Land at the service of coastal illumination and maritime signage works and facilities that have been built by the State.

The process of demarcation of the Spanish coast, necessary to properly manage the MTPD, has important legal, economic, political, social and environmental implications, and must resolve various difficulties, including:

- Technical complexity, arising from the large number of technical studies necessary to justify that certain land belongs to MTPD.
- Administrative complexity, arising from the large number of stakeholders in the demarcation processes, making the process of handling information laborious.
- Socio-political complexity: arising from the significant social impact that a demarcation process has on the affected owners.

### 8.5.3. LEGAL EASEMENTS ON LAND ADJACENT TO THE SEA SHORE

The coastal law also provides for a number of ownership limitations on land adjacent to the sea shore by establishing legal easements: protection zones, rights of way and access to the sea and zone of influence. The concept of “sea shore” as defined in the previous section is important in so far as it establishes the boundary from which the width of the MTPD legal easement is measured.

The legal easements established in the Coastal Law (as amended by Law 2/2013) are as follows:

The **protection zone**, which falls on an area of 100 metres inland from the inner boundary of the sea shore, but which can range from 20 metres (in the case of land classified as urban or with urban land characteristics at the time of the entry into force of the Coastal Law; and river banks which are sensitive to tides in accordance with certain characteristics, to 200 metres (in those cases in which it is necessary to ensure the effectiveness of the easement, in accordance with the peculiarities of the stretch of coast in question).

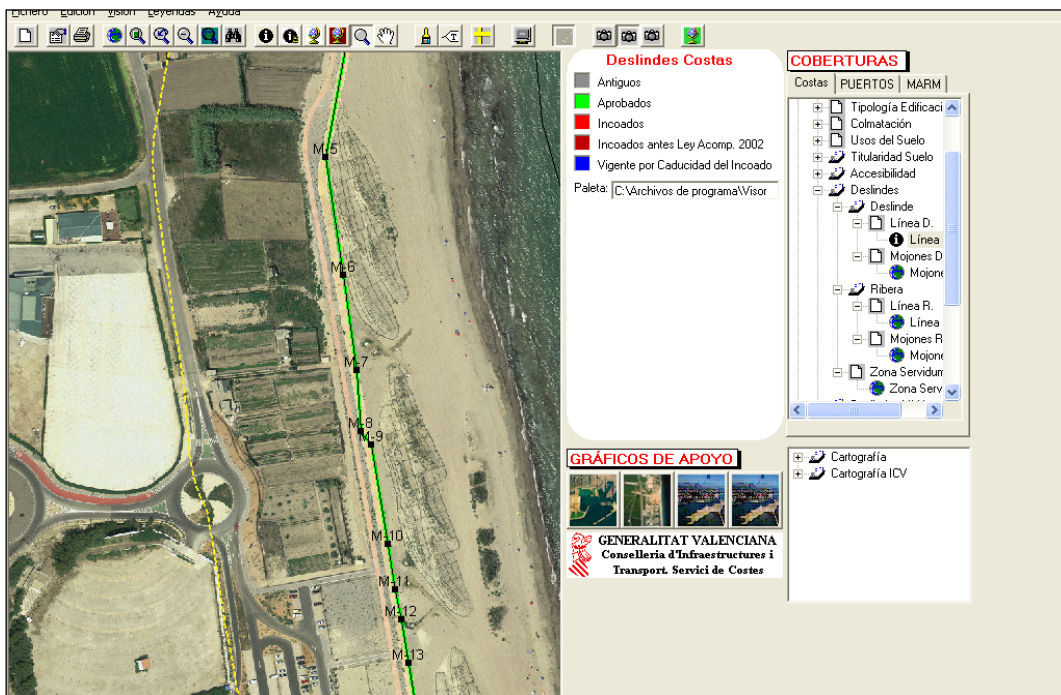


Figure 5: Example 1. Image of demarcation line drawn on a coastal stretch<sup>321</sup>.

<sup>321</sup> Source: GIS Viewer of Ports and Coasts. Valencia Regional Government



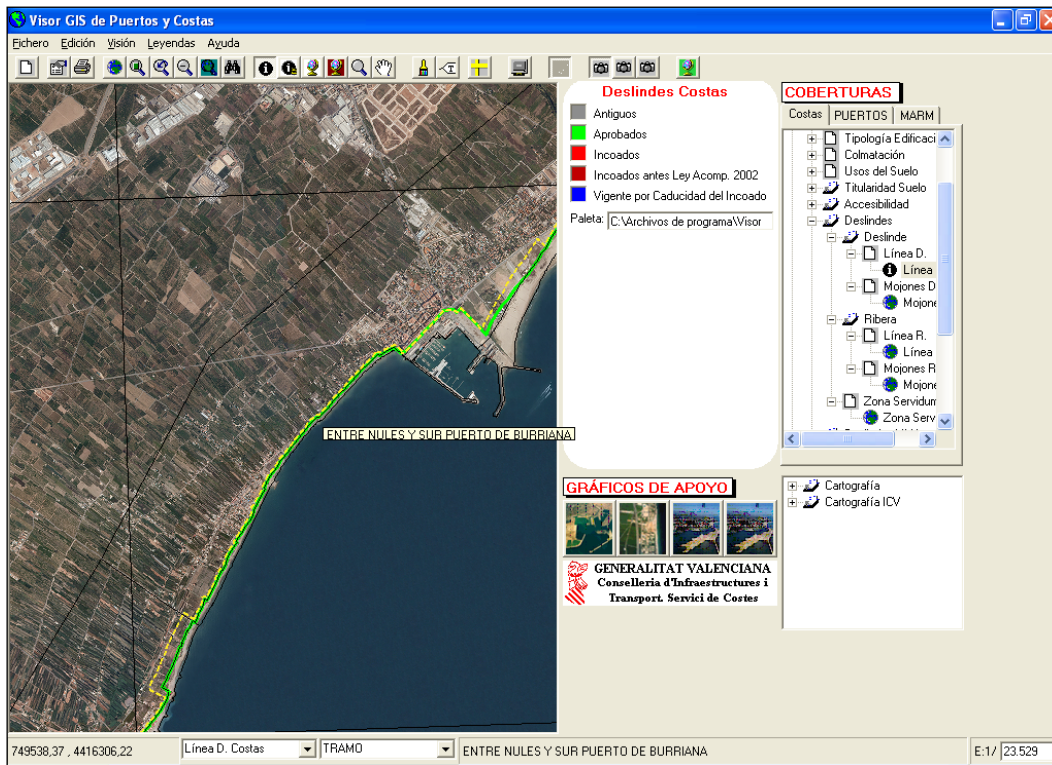


Figure 6: Example 2. Image of demarcation line drawn on a coastal stretch.

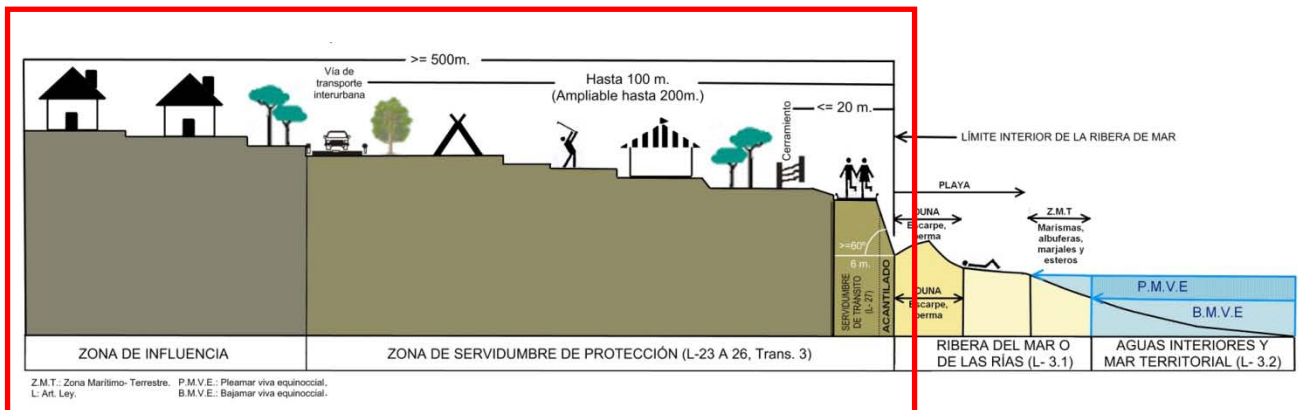


Figure 7: Schematic representation of the MTPD and easements

The uses in the protection zone must conform to the provisions of Articles 24 and 25 of the Coastal Law and must be authorized by the competent Regional body responsible for the management of the zone.

Possible uses in this strip include outdoor sports facilities, plantations, camping areas, and equipment and services for users of the coast, as well as other uses and activities which, due to their nature, cannot be carried out in a different location. The uses expressly prohibited in these zones include any form of residential activity, i.e., the

construction of housing, apartments or hotel is not allowed. Homes built in protection zones prior to the adoption of the Coastal Law are subject to special urban development regulations, equivalent to "outside planning control", which allows stakeholders to maintain their properties, with all the corresponding consequences, and to undertake the actions necessary to repair and condition their homes (when these do not involve increases in volume and provided they are authorized by the corresponding Spanish Autonomous Region).

Uses generally prohibited in protection zones include:

- The construction or modification of intercity transportation routes and those with a traffic intensity greater than 500 vehicles per day, as well as the corresponding service areas;
- The destruction of natural aggregate deposits;
- The installation of overhead high-voltage power lines;
- The dumping of solid waste, debris and untreated waste water; and

Exceptionally, the Council of Ministers may authorize the construction or modification of roads and overhead power lines and, under special circumstances (exceptional importance, economic justification) certain industries, provided they do not occupy protected beach zones, wetlands or protected areas.

Advertising posters or billboards or acoustic or audiovisual media are subject to special conditions, and until the recent amendment to the Law land clearing and the creation of embankments, as well as logging activities, were completely prohibited.

The **transit right of way** is a 6-metre strip of land, extendable to 20 metres, located next to the inner limit of the sea shore and which therefore forms part of the protection zone. This area must remain permanently unobstructed to public pedestrian traffic and to observation and rescue vehicles, except in specially protected areas in which, for reasons of environmental protection, limitations can be established.

The **right of access to the sea** is the area that covers the land adjoining or adjacent to the public domain in the length and width necessary to ensure public access and use thereof.

The Law states that territorial planning and urban development plans are to establish, except in areas classified as of special protection, the provision of adequate access to the sea and parking outside the maritime-terrestrial public domain. To these effects, the Law provides that, in urban and developable areas, the road traffic accesses must be separated by at most 500 metres, and pedestrian accesses by 200 metres.

Finally, the Coastal Law defines an **area of influence** covering at least 500 metres from the inner limit of the sea shore, in which minimum conditions for the protection of the MTPD are established and which must be respected by urban and territorial planning. In particular, it establishes:

- Limitations on aggregate extraction.  
The Law states that, in the final stretches of rivers, the depositions of aggregates must be maintained in the river mouths. Thus, authorization for the removal of aggregates requires a favourable report from the State Administration relative to the potential impact on the maritime-terrestrial public domain.

Moreover, aggregate deposits located in the area of influence are subject, due to their contribution to beaches, to the right of pre-emption and redemption in sale transactions, transfers or any other form of transmission, in favour of the State Administration.

- In stretches of beach with road traffic access, reserves of land must be provided for vehicle parking in an amount sufficient to guarantee parking beyond the right of way.
- Urban planning plans must avoid the formation of architectural screens or the accumulation of voluminous constructions. To these effects, building density cannot exceed the average of the scheduled developable land or the acceptable level for urban development within the respective municipality.

Within the framework of the Coastal Law, the Spanish Autonomous Regions are to exercise the powers they have been granted under their respective Statutes in matters of land and coastal planning, ports, town planning, sea dumping and, and other matters related to the scope of the Law.

## **8.6. COMPLIANCE WITH AND ENFORCEMENT OF THE COASTAL LAW**

The 1988 Coastal Law marked a milestone in the environmental protection of the Spanish coastline and in ensuring the prevalence of general interests over individual interest. The Law was completed the following year with the Regulations that develop it.

As noted in the introduction to section 3.2, its approval was surrounded by certain controversy and strong criticism. The arguments against the law were primarily focused on two issues:

- An encroachment on the powers of the Autonomous Regions in matters of territorial planning, which resulted in several appeals to the Constitutional Court;
- The effects on property rights (certain sectors of society argued that the Law did not respect acquired rights and thus generated legal uncertainty) and the obstacles it represent for the tourism and the construction sectors.

Of these two issues, only the first led to the introduction of changes to the Law. The appeals of unconstitutionality presented by the Regions led to the issue of sentences by the Constitutional Court which delimited the functions both of the Region and of the Administration.

Thus, Sentences 149/1991 and 198/1991 of the Constitutional Court (discussed above) stated that the powers of the regional governments in matters of territorial planning included the planning of coastal areas and, accordingly, the management of the Protected Right of Way Zone.

Apart from this delimitation of powers, there have been no further sentences calling into question the constitutionality of the text in reference to the second question (effects on property rights). Quite the opposite, Sentence 149/1991 upheld the constitutionality of the limitations on property rights established by the Law (in MTPD and the protection zone) and the compensation mechanisms for properties in the MTPD<sup>322</sup> (concessions). With regards the delimitation of the MTPD, the conflicts raised by the application of the Law's criteria have been resolved, in most of the cases in which the demarcation was appealed, in favour of the Administration.

However, during the period 1988 - 2013 it is possible to identify some factors that have played a decisive role in the implementation of the Law, and therefore have influenced the degree of compliance. Some of these factors are:

- Slow implementation of the Law;
- Insufficient coordination between Administrations; and
- Lack of specific planning instruments.

These factors are analysed in section 6.2., in which certain key factors relative to the limitations attributed to the Law, together with information that enables the successive phases of Mare Nostrum to be addressed, are provided.

#### 8.6.1. ANALYSIS OF JUDICIAL SENTENCES THAT HAVE INFLUENCED COASTAL POLICY

The tensions existent among the different Public Administrations generated by the Coastal Law was significantly eased with **Sentences 149/1991** and **198/1991**. With these decisions, the Constitutional Court responded both to the appeals of unconstitutionality lodged against the Law and to the jurisdictional conflicts generated by certain provisions of its Regulation. The appeals had been lodged by several coastal Regions.

While such sentences initially conditioned the implementation of the Law, their effects are centred on the exercise of powers between the different Public Administrations, and therefore to the adaptation period required for the exercise the new functions entrusted to them by the new Law.

The **Sentence 149/1991**<sup>323</sup> declared certain of the articles of the 1988 Coastal Law unconstitutional and therefore null, with the Court deeming that they limited the powers of the Regions (primarily in relation to territorial planning).

<sup>322</sup> The above 30 year-concessions renewable for another 30 years.

<sup>323</sup> [http://hj.tribunalconstitucional.es/HJ/es/Resolucion/Show/1788#complete\\_resolucion&completa](http://hj.tribunalconstitucional.es/HJ/es/Resolucion/Show/1788#complete_resolucion&completa)

In summary, the powers attributed to the Regions by this sentence were:

- The power to grant authorizations for permitted uses in the protection zone (art. 26.1 and related articles).
- The Constitutional Court considered that this power was derived from the implementation of regulations on environmental protection and territorial/urban planning, which were exercised exclusively by Regions.
- The power to establish the distribution of beach facilities under special conditions (art.33.4)
- As in the previous case, the Constitutional Court considered that this power was limited to the implementation of regulations on territorial/urban planning, provided the proposed distributions complied with the basic principles laid down in the Law<sup>324</sup>, and without prejudice to the power of the State Administration, as manager of the MTPD, to ultimately authorize or deny requests for authorization.
- Permits for land to sea discharges (Article 110, paragraph h), which are the responsibility of the Regions.
- Inspection and coordination of compliance with the international treaties implemented by the Regions in the exercise of their powers (Article 110, paragraph l). Thus, the Central Government can only inspect the implementation of such treaties by the Regions and urge, when appropriate, the Regional Administrations to take the necessary steps to comply with the obligations arising from the treaties<sup>325</sup>.

The sentence declared the provision that empowers the State Administration to issue "general and specific rules for certain stretches of coastline" unconstitutional, as it encroached upon the powers on territorial planning assumed by the Regions (art. 34). The sentence also declares art. 118, which "attributed to the State Administration the authority to coordinate the activities of the local administrations involved", void, since this provision opens the way for the State to assume the task of coordinating certain matters, such as territorial planning, that are responsibility of the Regions.

The sentence 149/91 states that the "*compensation scheme*" established by the Coastal Law in its first transitional provision in favour of individuals affected by a demarcation of the MTPD is constitutional. The concessions were deemed compensation for the loss of the right to ownership of property, which the owner may continue to enjoy, although under the conditions and limitations provided the Law.

---

<sup>324</sup> Distances between facilities and maximum areas, for example.

<sup>325</sup> The case of Natura 2000 could be taken as an example of this operating system. The Regions, by virtue of their environmental responsibilities, establish its definition and management, and the Central Government is responsible before the EU, collecting information from the Regions to verify compliance with Spain's obligations.

**Sentence 198/1991**<sup>326</sup> declared void certain articles of the General Regulations for the Implementation of the Coastal Law, approved by Royal Decree 1471/1989<sup>327</sup>, as they encroached upon the powers of the Regions.

The powers attributed to the Regions by this sentence were:

- The power to grant authorizations for permitted uses in the protection zone (art. 48.1; art. 50)
- Power to establish the distribution of beach facilities under special conditions (art. 67)
- The power to request incorporations to the MTPD to the State for transport routes and ports of owned by the Regions (independently of whether they are directly managed by the Regions) (Art. 103.2).
- The sentence also declared the subordination of incorporations to the MTPD to the prior approval of the demarcation of the affected area as unconstitutional (art. 103.3)
- The sentence declares null and void certain paragraphs of art. 203 (which is one of the articles delimiting the State's powers) due to their encroaching on Regional powers in relation with: authorizations in the protection zone (b), land to sea discharges (m), and inspection and coordination of compliance with international treaties by the Regions (l).
- The Sentence declares the attribution to the State Administration of the authority to coordinate local authority activities as unconstitutional (art. 211).

Finally, the Sentence states that the regulation infringes Regional powers as it attributes the power to issue "general and specific rules for certain coast strips on protection and use of the maritime-terrestrial public domain", nullifying articles 71-74 (and, consequently, all references to these provisions made in the arts. 101.3, 109.1 and 5, 111.1, 114.2 and tenth transitional provision). The sentence thus invalidates the regulatory development of art. 22 of the Law, which provided for the adoption of specific regulations to protect certain sections of the coast.

### 8.6.2. IMPLEMENTATION ANALYSIS

The 1988 Coastal Law marked a turning point in Spanish coastal policies, reinforcing the consideration of the coast as a key environmental element of an essentially public nature. However, its implementation was conditioned by certain limitations and it has generated specific conflicts, as detailed in this section.

Among the positive points it should be noted that, as stated above, the Act introduces two important factors in the definition of the public domain and the protection zone: an ecosystem-based approach and its inherent dynamism produced by natural factors as the action of waves.

<sup>326</sup> [http://hj.tribunalconstitucional.es/HJ/es/Resolucion/Show/1837#complete\\_resolucion&dictamen](http://hj.tribunalconstitucional.es/HJ/es/Resolucion/Show/1837#complete_resolucion&dictamen)

<sup>327</sup> <http://www.boe.es/buscar/act.php?id=BOE-A-1989-29127&b=73&tn=1&p=19911115>



Thus, since 1988 the demarcation of the Spanish coast according to the above criteria has almost been completed, establishing limits to urban development on the seafront, facilitating the elimination of illegal occupations in the public domain, reinforcing the public character of the coast and helping to raise awareness about the importance of the coast.

As discussed in previous sections, although the implementation of the Law has been subjected to criticism, the Law in itself has served to establish a basic framework for coastal management support based on new procedures that have helped to avoid many of the mistakes made in the past and that, even today, affect coastal management in certain locations.

As regards the **limitations**, the following may be mentioned:

- Slow implementation of the Law;
- Insufficient coordination between Administrations, and
- Lack of planning instruments that have facilitated the implementation of the Law.

As regards **conflicts**, we can basically identify those related to the following issues:

- Property rights and urban settlements in the public domain;
- Demarcation of the public domain;
- Urban planning;
- Authorization of uses, and
- Industrial activity in certain areas.

In terms of the **excessive lenitude in the implementation of the Law**, it should be noted that the Coastal Law **did not establish deadlines for the demarcation** of the Spanish coast, which has contributed to a slow and often uneven process of demarcation.

During the period 1993-1996, the Public Administration accelerated the process of demarcation, a progression that was consolidated after 1996 with the creation of the Ministry of Environment. By early 2012, around 97% of the coastline had been demarcated, although it should be noted that only six years before, in early 2006 and almost 20 years after the adoption of the Law, this percentage was about 60%.

This slowness was also reflected in the lack of resources to correct the shortages and imbalances accumulated before the Law came in to force. Despite the progress made in the environmental and functional regeneration of the coast, even today there still persist specific situations that, although considered normal some 30 years ago, are currently difficult to justify. This is especially so in areas with an environmental value as a tourist resource, or simply as a recreational area for the local population, that would justify special treatment

In this sense, mention may also be made of the absence of binding plans with an associated budget for their implementation. In addition to the actions carried out, the announcement of plans that were not accompanied by sufficient financial resources or whose budgets became outdated has been a common denominator.



Figure 8: Cape of Santa Pola (Source: PIE 2010-2020)

The second of the limitations concerns the **coordination between the different Public Administrations**. One of the most criticized aspects of the Law is that it does not articulate a system of coordination between the Public Authorities involved in coastal management. It merely refers to the general principles which must guide relationships between public powers (art. 116 Coastal Law). In this respect, the Public Administrations have not been able to enable coordination mechanisms capable of overcoming the situation of **jurisdictional concurrence**, which has resulted in numerous conflicts.

In this sense, there have been cases in which each Public Administration has exercised its powers with a focus limited to the stretch of territory assigned to it under the Law, to a certain degree fragmenting the management activities in a manner contrary to the principles of ICZM, and sometimes with harmful effects to the coast.<sup>328</sup>

---

<sup>328</sup> Cerdá, V. "The integrated coastal management. The last chance?" Magazine "Engineering and Territory" no. 61, 2003

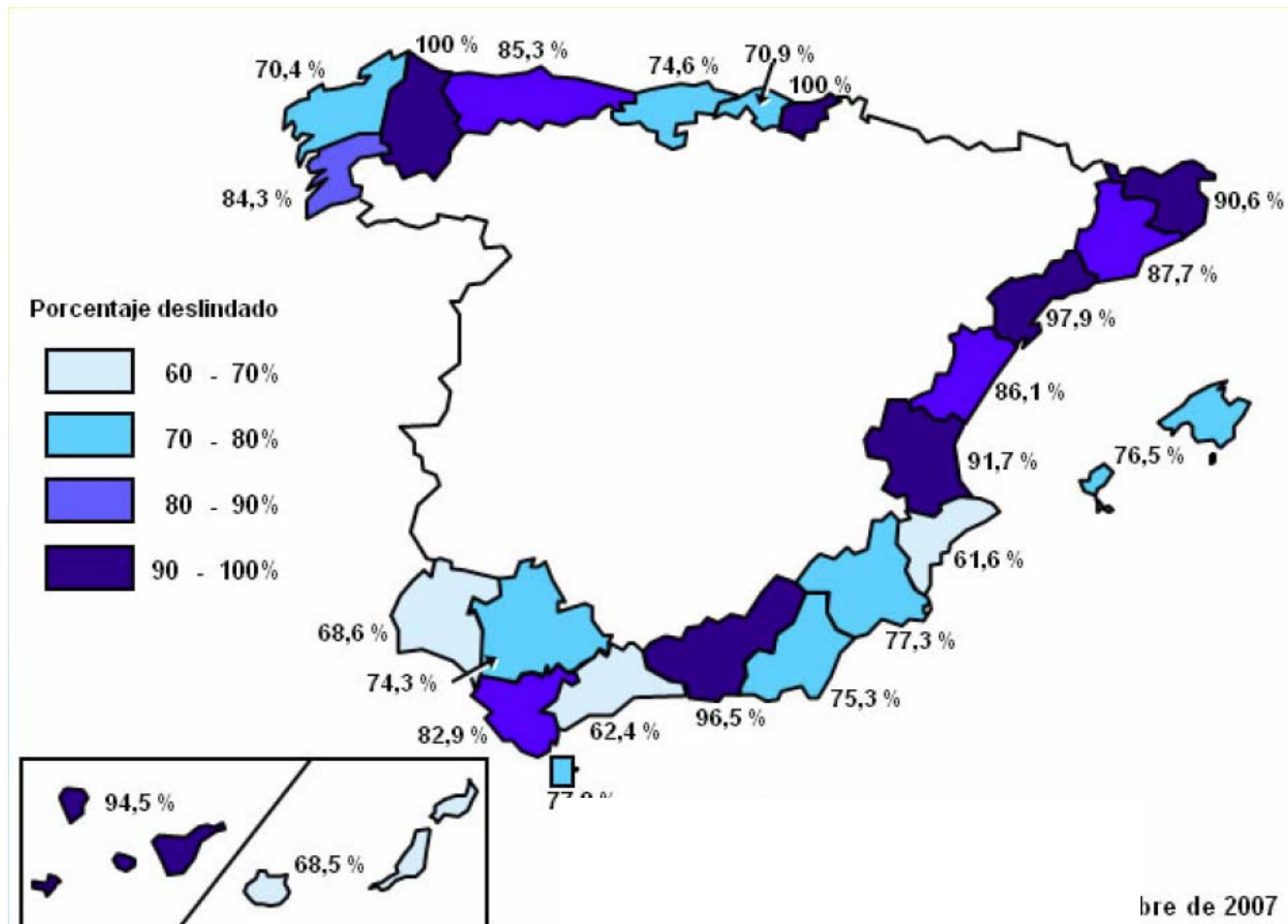


Figure 9: Distribution of demarcated areas in Spain as of 30/09/07

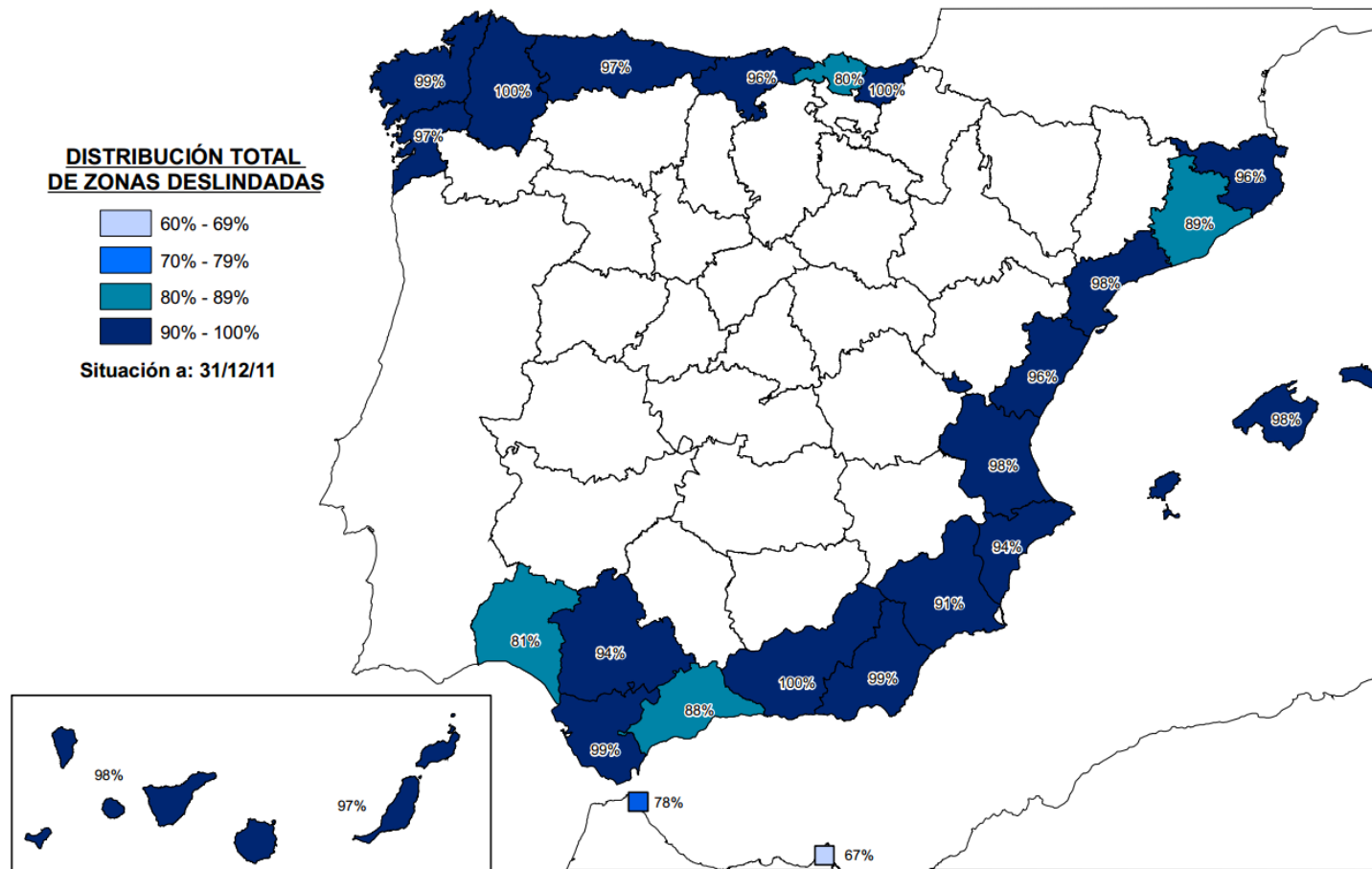


Figure 10: Distribution of demarcated areas in Spain as of 30/09/07

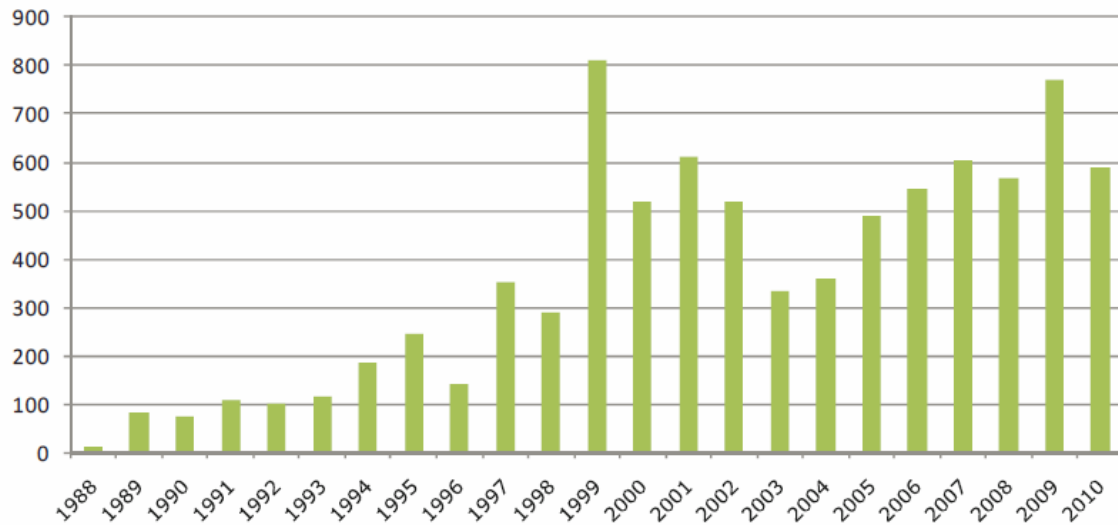


Figure 11: Annual evolution of MTPD demarcation (kilometres) from the enactment of the LC to December 2010 (Source: Ministry of Finance and Public Administration, 2012)

An example of the poor coordination between the Central Government and the Autonomous Regions has been the lack of a coastal sectoral conference to facilitate coordination between both Administrations, as is the norm within the framework of other policies whose implementation requires close collaboration between Central and Regional Administrations.

The Spanish Government made attempts to rectify this situation in the period 2004 - 2008. As indicated in section 4, the Ministry of Environment promoted a Master Coastal Sustainability Plan, which included the signing of the Framework Agreements with the Autonomous Regions, the establishment of a permanent coastal sustainability observatory and the creation of the National Coast Council as a participatory body to develop the sectoral and social representativeness established in the 2002 European Recommendation on the implementation of ICZM in Europe<sup>329</sup>. However, despite the signing of several Framework Agreements, this progress in terms of coordination has not led to the expected development and currently seems to be halted.

The third of the mentioned limitations is related to the **lack of planning instruments for the implementation of the Law**. Indeed, as some experts<sup>330</sup> have suggested, the absence of planning instruments in the Law is one of the shortcomings that have affected its implementation. It should be noted, as already mentioned, that the articles which hesitantly allude to the development of protection plans for certain

<sup>329</sup> See document sent by Spain in 2005 to the EU in compliance with European Recommendation on Integrated Coastal Zone Management in 2002, "The integrated coastal management in Spain", pp. 55,56

<sup>330</sup> See, for example, Arenas, P., 2008 or Cerdá, V., 2003

coastal zones were declared unconstitutional on the grounds that they encroached on Regional powers, and were subsequently declared void.

Moreover, the lack of culture in territorial planning<sup>331</sup>, which has resulted in few coastal territorial plans, together with the approval of urban developments that did not consider the coast as anything other than a setting for real estate development, instead of considering it as a complex space in which other variables play a central role, have confirmed that the Law alone has not been able to establish sufficient safeguards to integrate coastal variables into the design of the urban developments that have been carried out.

In short, the implementation of the Coastal Law and its regulation has been irregular and characterized by a weak political commitment. Some of the provisions that have experienced a **very limited development** are as follows:

- No regulations have been issued relative to the protection or management of certain stretched of coastline (art. 22 Coastal Law and 41 of its regulatory development).
- The application of the power to expand the Protection Zone to 200 m after agreement with the Regional and the Local Authorities (art. 23.2 Coastal Law, and RC 43.1) has been anecdotal, although the measure has been incorporated into some coastal territorial plans by the Autonomous Regions.
- The public Registry of Uses in MTPD (art. 37.3 Coastal Law), which should have been employed to register the incorporations and concessions, as well as the authorized contaminating discharges, authorized within the MTPD has not been created.
- The first transitional provision of the Coastal Law provides, in certain circumstances, the right to obtain an occupational concession within the MTPD for those who, due to the adoption of a demarcation in accordance with the Law, have lost their property. The processing of these concessions has certain peculiarities, as recognized by the courts in different sentences, requiring the need to approve specifications that regulate this type of concession. However, these specifications were not adopted until 2007 (nearly 20 years after the adoption of the Coastal Law), through the Order MAM/2305/2007<sup>332</sup>.
- According to Article 109 of the Coastal Law, "actions demanding the enforcement of this Law and the provisions issued for its development and application are to be public". However, such public action has been anecdotal.
- Finally, one of the biggest problems in the implementation of the Coastal Law has been the uneven application of the transitional arrangements. As pointed out, up until 2013 there were still certain situations generating unresolved

<sup>331</sup> As proof, the number of territorial plans approved by the Regions

<sup>332</sup> <http://www.boe.es/boe/dias/2007/07/30/pdfs/A33012-33014.pdf>



conflicts, mostly related to the process of concessions within the MTPD and the definition of the width of the protection zone (20 to 100 m).

Moreover, as indicated above, the **main conflicts** arising in relation to the implementation of the Coastal Law were as follows:

### **Property rights**

One of the main issues that has led to conflicts is related to the property rights of legal existing constructions (in the Maritime-Terrestrial Public Domain or in protection zones) prior to 1988. In fact, this has been one of the arguments used to justify the amendment of the Law.

There have been many cases in which private properties were included in the MTPD. For such cases, the 1988 Coastal Law provided a period of 30 years, extendable for another 30, in which owners have the right of use over the property. Under Law 2/2013, this period may be extended up to 75 years.

However, as has been noted, the courts declared this "compensation scheme", established by the Law in favour of individuals affected by a demarcation, as constitutional. It should be recalled that such concessions are compensations for the loss of the right of ownership of a property, which can continue to be used by the owner, but under certain limitations provided by the Law.

Despite changes in concessional terms, this circumstance will continue to occur in the future as the Law, far from conceiving the MTPD as a static body, has internalized its expansive nature and therefore the mobility of the reference establishing the protection zone. Thus, if a developed stretch of coast is subject to severe erosion, and it is impossible to correct the effects of these processes, the land subject to the land/sea interaction is incorporated into the MTPD and the protection zone is adjusted to the extent that the inner line of MTPD is modified.

Moreover, the imbalance between the demarcation of the MTPD and the entries in the land registry has given rise to certain conflicts. There have been cases of "good faith purchasers" who have bought homes on the seafront, only to realize that instead of owning a property they have a right to use a building that is located within the MTPD, or that the building is subject to certain limitations due to its location within the protection zone.

In this sense, it is necessary to mention the so-called Auken Report<sup>333</sup> on the impact of extensive urbanization in Spain on the individual rights of European citizens, on the environment and on the application of EU law, which led to a European Parliament resolution. The resolution appealed to the Spanish authorities "to review the Coastal Law and if necessary to revise it" in order to protect the rights of

---

<sup>333</sup> Report on the impact of extensive urban development in Spain on individual rights of European citizens, on the environment and on the application of EU law, based upon petitions received (2008/2248(INI))

legitimate home-owners. The resolution also differentiated between such home-owners and certain “developments which are planned as speculative ventures and do not respect the applicable EU environmental Directives”.

In relation to the Coastal Law, the resolution states the following:

*“...in 2008, the Spanish authorities issued instructions regarding the application of the 1988 Coastal Law, which had been neglected for many years during which time extensive environmental damage was done to coastal areas in Spain; whereas even the current instructions do not provide for clear implementing measures to be followed by the local and regional authorities involved, and whereas many new petitions received bear witness to the retroactive contents of the instructions and the arbitrary destruction and demolition of individuals' legitimately acquired property, their rights to such property and their ability to transfer their rights by means of inheritance...”*

*“The Committee understands and supports the Spanish authorities in their attempts to preserve and where possible restore the coastal environment. What it fails to understand is why the 1988 Coastal Law has been resurrected at this stage, in this time, when it has been in practical abeyance for thirty years when so much devastation took place. Why is its application such a shambles and so arbitrary when traditional coastal housing is being demolished and newly developed modern apartments being tolerated? Why were people allowed to buy such property during the last thirty years, respecting all the legal requirements with which they were faced, only to be confronted today with a law with retro-active effect which denies them the rights associated with legitimate ownership? That speculators and property developers who had the legal resources to know better should be penalised is reasonable; what is not is that people who have bought their property in good faith respecting all the demands made upon them should lose their rights, and that of their families and descendents to their homes”.*

It is worth noting that, as mentioned in section 3.2, the impulse given to coastal policy during the second half of the last decade, which led to the completion of 40% of the demarcation of the Spanish coastline during this period, reopened the debate on the Law. Indeed, the Auken Report terms the Coastal Law as "neglected", which is consistent with the statements made above about the slowness and unwillingness to implement the Law, factors that are behind of many of the limitations on implementation.

The references made by the Auken Report to the Coastal Law have served as justification for the need for the Law to be amended.

However, the report should be framed in its proper context. During the first half of the last decade, Spain suffered an unprecedented real estate boom which led to the construction of more homes than in Germany, France and Italy combined. This extensive urban development "race" led to the reclassification of land. Vast areas

saw their status changed from non-developable to the subject of development plans that were poorly controlled by local Authorities. These plans represented such high development costs to owners that in many cases they had to meet the payment with their own properties.

This situation sparked the reaction of civic associations who appealed to the European Petitions Committee and forced, in the case of the Valencia Region, the modification of the Urban Development Law. The numerous petitions triggered the visit of a European Parliament delegation headed by Danish MEP Margrete Auken. The situation became of so serious that the courts are even today sentencing on urban development plans pertaining to the past decade.

It should be noted that this period was accompanied by a pronounced increase in real estate transactions that were subjected to insufficient controls. Many of these transactions took place in coastal areas where *good faith purchasers* were later surprised by demarcations that left buildings within the MTPD or protection zone, with the limitations that both situations imply.

Therefore, the Auken Report contains criticism of the actions of the Administration in the implementation of the Coastal Law, mainly due to the combined effects of its non-enforcement and the lack of control over housing transactions in the seafront, and not for their determinations.

It should be noted that the report refers mainly to development abuses produced in relation to the approval of new plans for undeveloped land through the figure of the “*development agent*”<sup>334</sup>, among other issues. Only point 22 of the 36 that make up the report refers to the Coastal Law.

Due to major economic loss represented by the loss of possession in favour of the MTPD, many affected parties have undertaken legal action against the demarcations introduced in order to defend their right to the ownership of their properties. However, a high percentage (96%) of the appeals filed have been rejected in whole or in part by court rulings, and only 4% have been accepted in full.

The conflicts over property rights have been particularly intense in areas that, despite being urbanized, the Administration was unable to demarcate and had to include in the amended text as areas outside the MTPD.

---

<sup>334</sup> Urban development is considered a public function susceptible to concession by the administration to private individuals that act as a “property developer”.

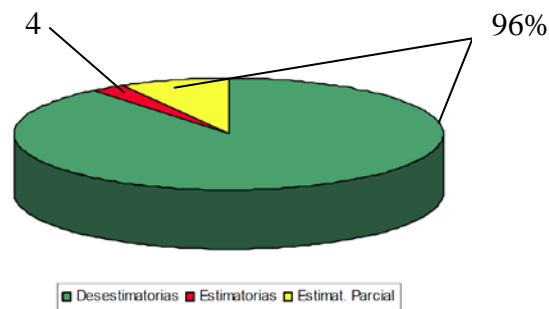


Figure 12: Appeals against judgments handed down on processed boundaries (Source: Ministry of Environment, 2010)

### Demarcation of MTPD;

One of the criticized aspects of the Coastal Law is the conceptual vagueness of definitions and the concept of "Sea Shore", which has led to disparate criteria in demarcation procedures, e.g., the inclusion of dune areas within the MTPD.

This conceptual imprecision, which was not resolved with the regulatory development of the Law, has drawn criticism that has occasionally termed the process of demarcation as arbitrary. As has been explained, this has been one of the arguments that have led to the amendment of the Law.

While the courts have ruled in favour of the administration in conflicts over the definition of the MTPD, it should be noted that it was not until 2006, 18 years after the adoption of the Law, when instructions and technical criteria for conducting demarcations were published.

The amendment of the Law, as pointed out in section 3.2.2, included new criteria for the definition of the MTPD and advanced that its regulatory development is include technical criteria for defining, for example, the distance reached by waves during sea storms.

### Conflicts related to urban planning

The adoption of Law 6/1998, on Land, led to a process of **real estate expansion**. The Law considered that any land that had not yet been incorporated into the urban development process, and which was not undevelopable as a result of environmental preservation reasons, was susceptible to be urbanized.

In many municipalities, "undevelopable" land has been reclassified as "developable" by means of local urban development plans, justified by the economic needs of municipalities and overlooking the singularity of coastal construction in the drafting of such plans.

As stated above, on one hand the absence of supra-municipal planning has undermined the possibilities of a territorial planning process in accordance with more rational guidelines, leading to linear urban development, conurbations, an impact on the landscape or a proliferation of infrastructures, among other effects.

Moreover, the Law and its development have not been capable of developing mechanisms to stop urban development that contravenes to the Coastal Law in time, which has resulted in conflicts of costly resolution. This fact is exemplified in some individual cases which have had great media impact, such as the infamous *Algarrobico* Hotel in the province of Almeria.



*Figure 13: El Algarrobico Beach*

In this sense, the amendment of the Law has established a mechanism that empowers the government to temporarily suspend works affecting the integrity of the MTPD.

In relation to urban planning, there have been certain limitations that have undoubtedly had an effect on the worsening existing problems.

The Public Administrations have been unable to define a cooperation framework to facilitate progress towards the coastal model established by Law (to free the MTPD and the protection zone from constructions).





Figure 14: Occupation of MTPD by buildings destined for residential use (Source: Ministry of Environment)



Figure 15: Simulation after the elimination of the buildings (Source: Environment Ministry)

Thus, the new urban developments have been carried out without taking into account the reality of the coast. Such plans have not internalized certain coastal problems (e.g., erosion) and the implementation of formulas to free the seafront from certain constructions.



In this sense, the approach of such plans has also been far removed from the inherited reality (described in the preamble to the 1988 Law), characterized by a high level of occupation of the coast that presents significant deficits affecting both the quality of the urban space and the guarantee of the free use of the MTPD. That is, regional and local governments, far from taking advantage of the real estate boom to try to correct the existing deficits along the developed seafront, focused their efforts on promoting new urban developments that were independent of the existing developments. This, among other consequences, has created additional usage pressures for areas that already suffered from accumulated problems, and which on the other hand represent the physical context for much of the tourist activity.

In the case of Valencia, this fact was already noted in regional documents such as the *Valencian Strategy for Integrated Coastal Management (2002)*, which is an example of the limited impact of non-binding planning documents.

At this point, the question arises of whether the urban development control mechanisms have been insufficient or whether the coastal issues were simply not among the critical factors to be monitored and, therefore, were not sufficiently taken into account

The actions of the local authorities have also contributed to this situation. Their views on the matter were often focused on the short-term and were overly exposed to individual interests.

In any case, this reinforces the fact that the application of the Coastal Law has been insufficient to protect the coast from mass-scale urban development.

### **Authorization of uses**

The authorization of uses in the MTPD and the protection zone has also been a source of conflict between Administrations, and between Administrations and individuals.

As regards the authorizations in the protection zone, the 1988 Law and its regulations established certain permitted uses, others were expressly prohibited, and around 15 cases subject to administrative authorization and for which the authorization criteria established were very general. In reality, the initial 15 or so possible are closer to 100. In these cases, due to the limited jurisprudence in this field and the distribution of powers set out in section 2, it is possible to find different criteria applied to coastal management within each of the provinces of a single Region, according to the interpretation of each administrative body.

This has meant that in certain situations, in accordance with the inter-administration coordination mechanisms established by the Law, the different interpretations of the regulations by the different administrative bodies has led to conflicts (e.g., when one administration has understood that a use could be authorized, while another has deemed the contrary). Thus, the Public Administrations have sometimes applied

different criteria in similar situations, depending on the province in which proceedings were conducted.

It is expected that the implementation of the new legal text will reduce the number of discrepancies in relation to these criteria, once the restrictions on permitted uses in the protection zone have been reduced.

The conflicts between the public administrations and individuals that have had the greatest impact in the media were those related to the authorization of establishments which provide seasonal services on beaches.

The 1988 Law established a specific regulation for such establishments, determining a maximum occupancy of the beach, minimum distances between the establishments and maximum surface areas, depending on the type of business. For example, the Law established a maximum surface area of 20 square metres and a minimum distance of 100 metres to any other facility for temporary facilities located within the MTPD and dedicated to the sale of food and drinks.

The lax application of these provisions for many years led to conflicts when, midway through the last decade, the Administration established stricter controls over the compliance of such criteria. This generated conflicts with many owners of seasonal establishments which had larger operational surfaces than those established by the Law, and on which on occasion were illegal.

At the time, the incipient economic crisis and the excessive political polarization in some cases led to harsh confrontations between Administrations using the application of the law as a political weapon that was not limited to the use of seasonal facilities. Later, the argument of the economic activity generated by these establishments was also used to justify changes in the Law.

In this sense, and pending the regulatory development of the new provisions, it seems that the occupancy criteria applicable to such facilities will depend on the characteristics of each beach (the classification of urban and non-urban beaches is to be established), while the authorizations for temporary facilities are to be extended from one to four years.

### **Conflicts between environmental values and economic interests**

In this case, a distinction must be made between the main economic interests relative to the Atlantic coastline and those of the Mediterranean coast.

On the Atlantic coastline, the conflicts are associated with large industrial areas located within the MTPD, frequently under concessions granted by the legislation

prior to the 1988 Coastal Law. In specific cases, legislative changes have been made to allow the long-term continuity of these activities<sup>335</sup>.



Figure 16: Muskiz

However, on the Mediterranean coasts the conflicts are associated to massive urban development processes and the intensive occupancy of land, which also determines a high demand for services that exert pressure on ecosystems that have already been subject to deterioration.

The construction and enlargement of port facilities have also generated such conflicts.

### 8.7. ICZM PROTOCOL VS. COAST LAW

The Protocol on Integrated Coastal Zone Management in the Mediterranean (Protocol ICZM), in accordance with the Barcelona Convention<sup>336</sup>, represents a milestone in the field of ICZM as it is the first legally-binding instrument to be introduced in the Mediterranean.

<sup>335</sup> For example, the Law 2/2011 on Sustainable Economy amended the Hydrocarbons Law to extend the concession in the public domain of the Petronor refinery in the Muskiz marshes (Vizcaya), which expired in 2012.

<sup>336</sup> for the Protection of the Marine Environment and the Coastal Region of the Mediterranean

The Protocol was ratified by Spain on 20 May 2010, entering into force on 24 March 2011<sup>337</sup>.

**ICZM** is defined by the protocol as a dynamic process for the sustainable management and use of coastal zones, taking into account at the same time the fragility of coastal ecosystems and landscapes, the diversity of activities and uses, their interactions, the maritime orientation of certain activities and uses and their impact on both the marine and land parts.

On the other hand, the Protocol defines the **coast zone** as the geomorphologic area either side of the seashore in which the interaction between the marine and land parts occurs in the form of complex ecological and resource systems made up of biotic and abiotic components coexisting and interacting with human communities and relevant socioeconomic activities;

Article 3 establishes the Protocol's limits of application. The external limit is defined by *the limit of the territorial sea*, while for the inner boundary, the landward limit of the coastal zone, the definition is more ambiguous: "*shall be the limit of the competent coastal units as defined by the Parties*".

The Protocol promotes an integrated view of the coast, as well as an ecosystem approach, and establishes public participation and institutional coordination as key elements of ICZM. It promotes cooperation between countries on issues such as training and research, scientific and technical assistance, the exchange of information, cross-border cooperation and strategic environmental assessment. It recognizes the erosion and climate change processes as risk factors, encouraging the Parties to develop policies and instruments to prevent them.

The protocol lays down the elements of ICZM and develops a series of **measures** for the protection and sustainable use of the coast. It also defines a set of **instruments** for implementing ICZM.

The following table summarizes the current degree of implementation of the different measures and instruments proposed by the ICZM Protocol in Spain. The first column shows the measures and instruments described in the Protocol, and the second column shows the different actions carried out in Spain in relation to each of these measures and instruments.

---

<sup>337</sup> State Official Gazette no. 70, 23 March 2011

ICZM Protocol	Measures implemented in Spain
Measures for the protection and sustainable use of the coast	
<p>The Parties shall establish in coastal zones, as from the highest winter waterline, a zone where construction is not allowed. Taking into account, inter alia, the areas directly and negatively affected by climate change and natural risks, this zone may not be less than 100 metres in width, with certain exceptions.</p> <p>(Art.8.2).</p>	<p>The coastal law defines the MTPD and the protection zone (an area that reaches up to 100 metres inland from the inner boundary of the coast, Art. 23). Under certain conditions, the protection zone can range from 20 m (urban land) to 200 m (when so required for the protection of the stretch of coast).</p> <p>The delimitation of the MTPD is established from the inner boundary of the coast, and not only from the highest winter waterline. Therefore, this measure is already implemented in Spain.</p>
<p>The Parties shall also endeavour to ensure that their national legal instruments include criteria for sustainable use of the coastal zone.</p> <p>(Art.8.3).</p>	<p>The coastal law does not develop specific criteria for the sustainable use of the coastal zone, if we understand this as a wider territory than that corresponding to the area of influence (500 m strip from the coast).</p> <p>The coastal law establishes general standards of use for MTPD and the influence zone (which includes the protection zone).</p> <p>In this sense, in 2008 the Ministry of Environment published the following recommendations:</p> <ul style="list-style-type: none"> <li>- Guidelines for the treatment of the coastline, and</li> <li>- Guidelines on beach interventions</li> </ul> <p>Thereby the Ministry of Environment provides guidelines on the content, approach and objectives of the projects in general interest coastal works. However, the scope is limited to the MTPD.</p> <p>In Spain, these criteria are set out in the land –use planning instruments relating to the coastal zone (see section 4). However, it should be noted that not all Regions possess this type of instruments.</p> <p>These criteria are also introduced in the environmental assessment procedures of plans, programs, and specific projects.</p> <p>In natural protected areas there are specific</p>

ICZM Protocol	Measures implemented in Spain
	instruments for their own management.
<p>Specific provisions for certain economic activities (Agriculture, industry, fishing, aquaculture, tourism, sporting and recreational activities, utilization of specific natural resources, infrastructure, energy facilities, ports and maritime works and structures, and maritime activities).</p> <p>(Art.9).</p>	<p>The coastal law establishes a general framework for uses in the MTPD and in the protection zone. These uses are those which cannot be transferred to another location (e.g. Ports).</p> <p>We can also find these references, in a disperse manner, in sectoral and land-use plans</p> <p>Among the specific determinations included in the Coastal law, it should be noted that:</p> <ul style="list-style-type: none"> <li>- The Coastal Law (art. 84) determines the basis for calculating the occupation fees by establishing specific determinations related to aquaculture activities, research activities, exploitation of mining and energy resources, and recreational sailing.</li> </ul> <p>The Coastal Law establishes that certain industrial activities affected by the Law 16/2002 for integrated pollution prevention and control (IPPC) must have been subject to a prior report by the Regional Environmental Authority in order to obtain a concession,</p> <p>The report is to consider the environmental aspects derived from the activity and shall include, where appropriate, the necessary conditions to ensure an adequate environmental protection.</p> <p>According to the Law 2/2013 (art.33.6), the rules for beach use are to be regulated in accordance with the nature of the same, distinguishing natural and urban sections.</p>
<p>Measures to protect the characteristics of certain specific coastal ecosystems: Wetlands and estuaries, marine habitats, Coastal forests and woods, and dunes.</p> <p>(Art.10).</p>	<p>The Coastal Law has a dual purpose: firstly, to ensure the public use of the MTPD, and secondly to preserve its characteristics and natural elements.</p> <p>The Coastal Law employs certain criteria to limit the MTPD under an ecosystem approach. For instance, it includes coastal wetlands and dunes within the MTPD.</p> <p>Additionally, Title II is dedicated to the protection of</p>



ICZM Protocol	Measures implemented in Spain
	<p>the MTPD. This title establishes various limitations on the ownership of land adjacent to MTPD, established as minimum regulations that are complementary to other regulations issued by the Regional Government. As such, the Coast Law establishes the basic conditions to ensure the effectiveness of the right of all to an adequate environment and the duty to preserve the same.</p> <p>Law 42/2007, on Natural Heritage and Biodiversity establishes the basic legal regulations for protected natural areas, thus including coastal natural areas.</p> <p>In Spain, the management of protected natural areas corresponds to the Regions, which have declared protected areas in different parts of the coast. The protection and conservation of these protected areas is implemented mainly through management plans and regulatory measures.</p>
<p>Measures to ensure the protection of coastal landscapes through legislation, planning and management.</p> <p>(Art. 11).</p>	<p>One of the Administration's goals is to regulate the use of the MTPD respecting the landscape (art. 2, Coast law).</p> <p>The Coastal Law provides general determinations about the permitted uses in the MTPD and the protection zone. The references to the landscape protection include the following:</p> <p>Requirement to adapt works in the MTPD to the conditions of the environment and the location of promenades outside the <i>sea shore area</i> (art.44);</p> <p>Distances and occupations of the seasonal services on beaches (art. 33);</p> <p>Determinations to avoid architectural screens in the influence area (art. 30); and</p> <p>Determinations to promote uniform seafronts (DT 3)</p> <p>Some Regions (including the Valencia Region) have specific legislation on Landscape Protection.</p>
<p>Measures to accord special protection to islands.</p>	<p>The Coastal Law makes no specific provisions in relation to this aspect</p>

ICZM Protocol	Measures implemented in Spain
(Art. 12).	
<p>Measures to preserve and protect the cultural, in particular archaeological and historical, heritage of coastal zones.</p> <p>(Art. 13).</p>	<p>One of the Administration's objectives is to regulate the use of the MTPD in relation to heritage (art. 2).</p> <p>The Coastal Law establishes a special regulation for the protection of cultural heritage, giving preference to the provisions of the Heritage Law (DA 11).</p>
<p>Measures to ensure the appropriate involvement of the various stakeholders, including: the territorial communities and public entities concerned, economic operators, non-governmental organizations, social actors, and the public concerned.</p> <p>(Art.14).</p>	<p>The Coastal Law determines that projects and works (art. 42 and 45), as well as requests for authorizations (art. 67) and concessions (art. 67), are to be the subject of public information processes.</p> <p>Moreover, in Spain the right of access to environmental information is regulated by Law 27/2006, of 18 July, which regulates the rights of access to information, public participation and access to justice in environmental matters, which incorporates Directives 2003/4/EC and 2003/35/EC on public access to environmental information.</p> <p>These principles have been incorporated into the environmental assessment procedures in basic sectoral legislation, although the Regions have the faculty to enact additional or complementary norms.</p> <p>In this sense, in the case of the Valencia Region, the landscape protection regulations establish mechanisms for public participation.</p>
<p>Measures to carry out awareness-raising activities on integrated coastal zone management and to develop educational programs, training and public education on this subject.</p> <p>(Art.15).</p>	<p>The Coastal Law makes no specific provisions in relation to this aspect</p> <p>The Ministry of Environment has promoted training courses<sup>338</sup> for the technical staff of its central and peripheral services on ICZM (Coastal Modelling Course, Postgraduate Course on ICZM provided by the University of Cantabria, Course on ICZM provided</p>

<sup>338</sup> Source: "Integrated Coastal Zone Management in Spain", 2006

ICZM Protocol	Measures implemented in Spain
	<p>by Biodiversity Foundation).</p> <p>The experience of the Research Group on ICZM of the University of Cadiz<sup>339</sup> in the training of technicians of administrations may be mentioned in this context.</p> <p>Several nationwide research groups associated with public and private universities have opened lines of research focused on ICZM. Other national research centres devote part of their efforts to the study of complex processes related to the coastal system: Higher Council of Scientific Research (CSIC), Centre for Public Works Studies and Experimentation (CEDEX), and the Spanish Institute of Oceanography (IEO).</p> <p>These scientific groups and Universities receive support from national and regional governments to carry out research projects. These projects have been funded directly by these institutions through research and development programmes (EU Framework Program, National Plans, etc.), or by co-financing within the framework of regional development programs (Interreg).</p>
<b>Instruments for Integrated Coastal Zone Management</b>	
<p>Monitoring and observation mechanisms and networks. Prepare and regularly update national inventories of coastal zones.</p> <p>(Art. 16).</p>	<p>In compliance with the requirements of Recommendation 2002/413/CE on the implementation of ICZM in Europe, in 2006 Spain prepared a national inventory which identified the laws, institutions and main stakeholders which influence the management of coastal zones in all relevant sectors.</p>

<sup>339</sup> <http://www.gestioncostera.es/>

ICZM Protocol	Measures implemented in Spain
<p>To implement regional action plans and national strategies taking into account the Mediterranean Strategy for Sustainable Development and in conformity with the integrated management objectives and principles of this Protocol.</p> <p>(Art. 17 and 18).</p>	<p>The impetus given to the coastal policy in Spain during the second half of the last decade resulted in the development in 2007 of the <i>Coast Sustainability Strategy</i>, the objective of which is the recovery of exploited coastal areas. The specific objectives are: to halt the intense overcrowding of the coast, recover its physical and natural functionality, to adapt to climate change, and to change the management model towards an integrated model.</p> <p>As a result of this process, agreements were signed between the Ministry of Environment and various Regions to drive ICZM, and the “MTPD Recovery Program” and the “Demarcation Plan” were implemented.</p> <p>Additionally, some regions have developed their own strategies for coastal sustainability (Andalucía and Valencia Region), and various coastal plans and programs (see section 4.2).</p>
<p>Environmental assessment for public and private projects likely to have significant environmental effects on the coastal zones.</p> <p>(Art. 19).</p>	<p>Although not specifically limited to coastal areas, Spanish legislation provides for the environmental assessments of certain projects (Royal Legislative Decree 1/2008, of 11 January, approving the revised text of the Law on Environmental Impact Assessment of projects)<sup>340</sup>.</p>
<p>Strategic environmental assessment of plans and programmes affecting the coastal zone.</p> <p>(Art. 19).</p>	<p>Although not specific to coastal areas, the Law 9/2006 of 28 April on the assessment of the effects of certain plans and programs on the environment<sup>341</sup>, includes the obligation to submit to public information procedures, processing, modification and revision of plans and programs.</p>
<p>To adopt appropriate land policy instruments and measures, including the process of planning.</p> <p>(Art. 20).</p>	<p>In Spain, territorial and urban planning powers fall within the exclusive jurisdiction of the Regions. Each Region generates its own instruments (regional guidelines, sub regional plans, and direct intervention instruments).</p> <p>The ten Spanish coastal regions have developed</p>

<sup>340</sup> <http://www.boe.es/buscar/doc.php?id=BOE-A-2008-1405>

<sup>341</sup> <http://www.boe.es/buscar/doc.php?id=BOE-A-2006-7677>

ICZM Protocol	Measures implemented in Spain
	different territorial instruments adopting different ICZM measures with different degrees of obligation and intensity (see section 4.2.).
Measures to adopt relevant economic, financial and/or fiscal instruments intended to support local, regional and national initiatives for IMCZ.  (Art. 21).	<p>The Spanish Ministry of the Environment's Directorate General of Coasts is the main vehicle for investment in the MTPD. The main objectives of these investments are the regeneration of the beaches, the construction of promenades and, to a lesser extent, land acquisition and the demarcation of MTPD.</p> <p>Regional budgets also include items destined to investment in coastal protection.</p> <p>Despite the above, economic, financial and fiscal instruments to support local, regional and national ICZM, are undeveloped in Spain.</p>

Table 6: Correspondences between ICZM Protocol and ICZM in Spain

### 8.7.1. PUBLIC PARTICIPATION AND NGO'S

As noted in section 3.2.3., Law 27/2006, of 18 July, which regulates the rights of access to information, public participation and access to justice in environmental matters, is the regulation which transposes Directives 2003/4/EC and 2003/35/EC on these matters, and which are aimed at ensuring the effective implementation of the Aarhus Convention.

Like all State environmental regulations, it is a basic Law, which means that, under the division of powers in the Spanish State, regional governments can adopt more demanding legislative decisions. It is therefore a regulation establishing a lowest common denominator.

The Spanish authorities believe that transparency and the promotion of citizen participation are the key instruments of modern, democratic environmental policy<sup>342</sup>.

Despite this recognition, which is particularly relevant to the coast for the environmental, cultural, economic and social reasons set out in section 1 of the report, we can say without doubt that the implementation of public participation policies is far from complete. The explanation for this is likely to be found in the short period of time that has passed since the adoption of the basic regulations governing

<sup>342</sup> See Spanish Report on Compliance with the Aarhus Convention (MAGRAMA, 2013)

these processes and their scant tradition, which slows the reaction of administrations even further when adopting these processes.

Thus, the greatest advances in this field have taken place in the process of environmental assessment and urban planning, especially as a result the active role played by citizens' movements prior to the adoption of these standards, and particularly those of conservationists. In this sense, environmental legislation has internalized the need for greater transparency and public information as of the early planning stages, which has facilitated citizen participation.

As noted, in the case of Valencia the landscape regulations establish the organization of public participation processes as obligatory in those plans and projects which have a significant impact on the landscape. The Valencia Landscape Regulation <sup>343</sup> establishes the minimum participation and requisites for the participatory plans. Although the scope of the implementation of participatory processes has been uneven as a result of certain factors (project types, the interest of development Administrations in participating or the technical team responsible for conducting the process, for example), it is undeniable that it this has represented a turning point in the approach established for plans and projects.

However, on a national level, the incorporation of public participation into coastal management has been sporadic, mainly through local experiences and with different degrees of intensity.

### MAIN STAKEHOLDERS

The national inventory prepared by Spain in 2006 pursuant to the requirements of Recommendation 2002/413/EC on the implementation of ICZM in Europe identified the main stakeholders, laws and institutions affecting the management of coastal zones. A summary of the stakeholders identified actors is shown in the following table:

Stakeholders Identified (State level)	
Institutions with executive power	
Ministry of Environment, and Rural and Marine Affairs	Environmental Advisory Council Spanish Office of Climate Change DG Environmental Quality and Assessment DG Environment and Forestry Policy DG Coast and Sea Sustainability

<sup>343</sup> Landscape Regulation approved by Decree 120/2006, of August 11, of the Valencia Regional Government, Official Journal of the Valencia Community No. 5325 of 16.08.2006. Title I, Chapter II, Articles 10-17.



	DG Fisheries and Aquaculture DG Water Meteorological Agency (AEMET)
Ministry of Public Works	DG Merchant Navy State Ports Port Authorities Safety and Rescue Society (SASEMAR) National Geographic Institute (IGN)
Ministry of Science and Innovation	Centre for Industrial Technological Development (CDTI)
Ministry of Tourism and Trade	DG Economic Policy National Institute of Statistics (INE) DG Cadastre
Ministry of Defence	Naval Hydrographic Institute
<b>Research Institutions</b>	
Centre for Studies and Experimentation of Public Works (CEDEX)	
Spanish Institute of Oceanography	
National Research Council (CSIC)	
<b>Companies and business organizations</b>	
The inventory cites federations and associations related to Aquaculture, Fisheries, Hospitality, Marinas, Canning and Spanish Confederation of Business Organisations (CEOE).	
<b>NGOs</b>	
Seo/Birdlife	
WWF	
Greenpeace	
Ecologists in Action	
Oceana	
Spanish Society of Cetaceans	
Friends of the Earth	
<b>Other stakeholders and associations</b>	
Associations of people affected by the Coastal Law	

Table 7: Stakeholders identified at the state level (compiled from information contained in the Report Integrated Coastal Zone Management in Spain, prepared by the Ministry of Environment)

Each of the identified stakeholders defends various positions in relation to coastal policy and management. Even with the limitations of performing such a simplification, the following table succinctly summarizes the main positions held by each of the stakeholder groups:

<b>Main positions held by the different stakeholders</b>	
<b>Stakeholders</b>	<b>Main positions</b>
<b>Institutions with executive power</b>	Position varies depending on the different political groups.
<b>Research institutions</b>	<p>They maintain that the Coastal Law is required to stop the "predation" on coastal resources, although it has some limitations.</p> <p>They maintain that coastal management is subject to economic interest, responding to a short-term strategy that does not take into account the environmental costs caused by economic activities centred on the coast.</p> <p>They defend the integrated management of coastal areas, sustainable development and preservation of natural heritage.</p>
<b>Companies and business organizations</b>	<p>In general, they criticize the Coastal Law, calling it arbitrary, confiscatory, unequal and unfair. They argue that it should establish uniform criteria for the application of regulations to ensure legal certainty, since the differences between the Regions are notable.</p> <p>The vision they have of the coast is that of a focus of economic potential that should not be wasted or limited.</p> <p>Their speech favours the preservation of private property and the implementation of economic activity.</p>
<b>NGOs</b>	<p>In general, they are environmental organizations which, although very critical of the application of the Coastal Law, defend it as a basic regulation for coastal protection.</p> <p>They defend the preservation of natural values against indiscriminate use and certain economic interests.</p>
<b>Associations of people affected</b>	They defend the preservation of private property and the economic activities developed along the coast.

Table 8: Main positions held by different groups of authors

## BODIES AND INSTRUMENTS OF PARTICIPATION

There is no specific national body in Spain for participation in coastal and marine issues. As noted in section 6, the absence of, for example, a sectoral coastal conference serving as a framework for the General State and Regional Administrations to pool certain key coastal management issues is noteworthy.

Nor at a regional level do we find specific bodies for participation in the coastal zone, although an increasing number of Regions are launching participation instruments, although not of an exclusively coastal nature.

The following table summarizes the main instruments of participation implemented in the different Regions:

Instruments of participation at a regional level	
Region	Instruments of participation
Galicia	<b>Galician Environmental Council</b> (Galicia Participation Agency) <b>Coastal Action Groups</b>
Asturias	There is no participation agency for coastal and marine issues. The <b>Asturias Sustainability Observatory</b> is an advisory body pertaining to the Administration. Its website includes platform for participation through which claims can be made via email in relation to the Asturias Sustainable Development Strategy.
Cantabria	The Cantabria government has created a range of tools for social intervention in environmental issues, although none is specific to coastal and marine issues.
Basque Country	There is no specific body for participation in ICZM. A pioneering initiative, <b>Irekia</b> (the open government platform of the Basque Country). This is a direct, online communication channel between citizens and the administration. Through this platform, all actions, laws, decrees, actions or decisions taken by the government will be discussed, evaluated, critiqued and supplemented by the views of citizens. Citizens may also raise their own proposals, ideas or initiatives to be discussed and analyzed together.
Catalonia	The Region is working on a draft Law on Local Catalonia Governments, which stipulates the figure of the <b>Participation Plan</b> . There have been sporadic experiences of participation in ICZM issues promoted by local governments.

Instruments of participation at a regional level	
Valencia Region	<p>There are no mechanisms or channels for social participation, institutional cooperation or advice geared specifically to ICZM.</p> <p>Law 4/2004 on Territorial Planning and Landscape Protection develops figures such as the <b>Territorial and Landscape Participation Bodies</b> as direct channels for public participation. <b>Public Participation Plans</b> are also proposed as roadmaps towards governance.</p> <p>In 2008, the Valencia Law on Citizen Participation was approved, highlighting the promotion of mutual support and cooperation between citizens associations and the introduction of new participatory tools that leverage new technologies</p>
Murcia	There are no mechanisms or channels for social participation, institutional cooperation or advice geared specifically to ICZM.
Andalusia	In 2011, the Commission on Participation in Coastal Planning and Management was created (BOJA no.161 of August, 18) as a public participation body.
Balearic Islands	<p>There are no mechanisms or channels for social participation, institutional cooperation or advice geared specifically to ICZM.</p> <p>Beyond the strict scope of ICZM, the <b>Decree 123/2002, on the implementation of Local Agenda 21 in the municipalities of the Balearic Islands</b> is voluntary instrument that strengthens public participation from the local level (with the creation of facilitator instruments such as Citizen Forums and Participation Plans).</p>
Canary Islands	<p>The <b>Canary Forum for Sustainable Development</b> (Decree 123/2004), although it has not produced the results expected and has not played an important role in coastal issues.</p> <p>A specific forum for Coastal Management in the Canary Islands was created, called <b>CANACOSTA</b>, (<a href="http://www.iccm.rcanaria.es">www.iccm.rcanaria.es</a> / canacosta), promoted by the Canary Islands Institute of Marine Science through the Interreg IVC project CoPraNet (Coastal Practice Network)</p>

Table 9: Instruments of public participation at the regional level (Source: The Regions and the integrated management of coastal areas of Spain. REGIAL Project (2011))

Experiences of participatory processes in coastal management have been scarce, and mostly of a local nature. However, there does seem to be an increasing interest in facilitating participatory processes that include users in the management of their own environment.

The most common ways to participate in Spain are:

- Through environmental and conservationist groups.

- Participation via certain mechanisms, such as strategic environmental assessments, landscape studies, landscape integration studies or Agenda 21.
- Through the application of formulas and land stewardship.

Non-governmental organizations play an important role in coastal protection, since many of them are dedicated to the environmental protection. Environmental organizations Greenpeace and Ecologists in Action have produced various annual reports ("Destruction at all Costs" and "Black Flags" respectively), indicating the issues that pose the greatest threats to coastal ecosystems and describing the conservation status of Spanish beaches.

On the other hand, is worth mentioning the role of Universities and scientific and research resources, which have helped to raise awareness of the importance of the coastal environment and the risks that threaten it.

## **8.8. Conclusions**

### **8.8.1. On major issues affecting the Spanish coasts**

As discussed earlier in this report, the coast is a strategic area for the Spanish economy, mainly due to the economic importance of coastal tourism, the increasing role of maritime trade (highly developed in Spain due to the country's peninsular character), and the energy industry (in relation to the supply of oil and derivatives by sea).

The gradual adaptation to these new economic functions has transformed the Spanish coast, generating major imbalances, such as the loss of natural landscapes through urban occupation, the alteration of coastal dynamics in many stretches of coastline, the loss of coastal water quality and the degradation of ecosystems and natural habitats.

These effects have a direct impact on environmental quality and land conservation, directly affecting the quality of life of a population that is mainly concentrated on the coast, and the quality of the tourism offer, being resources that form the basis of their activity and cannot be relocated. Such impacts are joined by the urban degradation problems present on some coastlines, precisely because their characteristics are those subject to more intensive use.

In view of this problem, it is necessary to promote new and effective policies and management tools that protect the coastline, which is subject to strong demands, especially considering that it is a highly sensitive area from an environmental perspective, as well as being economically strategic.

### 8.8.2. On policies and coastal management tools

In order to curb the imbalances created as a result of the intensive use of coastal areas, various policies and instruments have been promoted and implemented in the last 30 years at the state, regional and local levels in Spain with the aim of improving coastal management.

Instruments implemented at a national level have not had a regional impact, and most of them have gone from being mere exercises in diagnosis and ordering information documents without further significance than that of providing valuable information and a catalogue of strategic actions to be promoted.

Despite being allocated resources in State budgets, their non-binding nature has been a source of weakness that has prevented their implementation.

Plans and programmes have been implemented on a regional level, often without seeking coordination with the State or with the other regions, and for the most part they have not been binding. The scope of these instruments has been very uneven among the different regions, with clear differences regarding the protection of the MTPD and the coastal areas between the different regions.

In this context, many local governments have found little resistance when consuming coastal territory, causing the saturation of the coast's capacity in sections hitherto undeveloped, whilst on occasion avoiding the resolution of problems and the improvement of the existing urban areas.

In short, too many documents and a lack of political will to agree on common strategies.

### 8.8.3. About the Coastal Law and its role in ICZM

One of the most important milestones of public intervention in coastal management was the enactment of the Coastal Law of 1988, which was drafted with the aim of guaranteeing all citizens the use and enjoyment of the coast and its environment. However, since the Law's entry into force, its application has been controversial. In this sense, conflicts exist even today, after 25 years, and they remain unresolved.

Recently (May 2013) the Law 2/2013 on the Protection and Sustainable Use of the Coast and Modification of the Coastal Law has been approved, aiming to provide greater legal certainty in relation to the coast, put an end to the irregular situations that still exist in the coast and, ultimately, to ensure the protection of the coast. Its adoption has been controversial and, although it has not led to tensions between the Administrations as a result of the division of powers, postures similar to those encountered 25 years ago as a result of the adoption of the original text have appeared during the process.



The amendment of the Law essentially extends the time span for achieving certain of its objectives, reduces limitations on property rights, solves some specific problems on certain urban developments and clarifies certain criteria, for example, in relation to the delimitation of the MTPD. Its regulations and their implementation will determine its true scope and whether it really represents in the coastal policy maintained until now by the State.

Despite the unquestionable role played in the conservation of the MTPD, the Coastal Law has been insufficient to protect the coastline from a holistic perspective. Despite being a law containing certain elements that were highly-advanced in 1988 (and are still so today), it collides with an entrenched urban heritage and land development dynamic.

Moreover, the notable constraints that have hampered its development include an excessively slow implementation, an insufficient coordination between Administrations and the aforementioned lack of planning instruments.

It is necessary to improve the planning, management and coordination between the competent authorities in the field, and examine the complementarity with other policies that affect the coast.

#### **8.8.4. On education, training, information and public participation in Spain**

At the state level, there is no specific environmental education programme relative to the coastal and marine environment, nor directives or guidelines for their implementation. There are specific experiences undertaken by some municipalities.

With few exceptions, there is no training and complementary training directed to public managers. There are, however, specific university ICZM graduated programmes (such as that of the University of Cantabria).

Although there is extensive knowledge of the coast in the academic and scientific fields, there is no information system that brings together coastline information.

Framework agreements between the Ministry of Environment with the Regions and the Municipalities, are a major advance in inter administrative collaboration, but have not had the expected development.

In terms of participation, certain local experiences of participatory processes in ICZM have begun to appear, but there is still a long way to go.

In Spain, public participation in coastal management has been sporadic and has not occurred with the required intensity. Participation must not be limited to procedures for the approval of plans and other instruments, but must be present from the diagnostic phase of ICZM processes to the monitoring and improvement phases.

#### **8.8.5. On the implementation of the ICZM Protocol in Spain**

As regards the implementation of the ICZM protocol in Spain, it must be noted that while the Coastal Law contemplates many of the measures proposed in the Protocol, some of its provisions can only be identified generically in sectoral regulations.

## 9. TURKEY

---

### 9.1. INTRODUCTION

The purpose of this report is to make a contribution to the MARE NOSTRUM Project, an EU-funded cross-border project exploring new ways of protecting the Mediterranean coastline. The project's primary goal is to contribute to bridging the policy-implementation gap between the ideals of Integrated Coastal Zone Management (ICZM) and its effects on the ground.<sup>344</sup>

The length of the coastline of Turkey (excluding the islands) is the longest in the Mediterranean Region. Besides, Turkey is the most densely populated country along the Mediterranean coastline.<sup>345</sup> Therefore, an overview of the Turkish coastal legislation has been required in order to achieve the primary goal of the Project, which is to bridge the policy-implementation gap between the ideals of ICZM.

Turkey is a contracting party of the Convention of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) since 2002. Turkey is a party of the 5 protocols of the Barcelona Convention regarding the pollution and protection of the Mediterranean Basin.<sup>346</sup> However, Turkey is among the countries which have not been a party in the Protocol regarding the ICZM yet. On the other hand, there is an ongoing process of ICZM in Turkey, led by the Ministry of Environment and Urban Planning.

### 9.2. COASTS of TURKEY: FACTS and FIGURES

In this section of the report, facts and figures are displayed in order to comprehend the coasts of Turkey in geographical and administrative terms as well as their positions with respect to macro indicators such as contribution to the national economics and population growth rates.

The population growth rates and rates of urbanization of the coastal provinces are differentiated from the rest of the country in order to realize the developmental dynamics of the coastal regions comparatively.

#### 9.2.1. Coasts of Turkey in Geographical and Administrative Context

---

<sup>344</sup> [www.marenostrumproject.eu](http://www.marenostrumproject.eu)

<sup>345</sup> The population of Egypt is higher than Turkey in the Mediterranean Region. However, the coastline of Egypt along the Mediterranean sea is much less than Turkey and the population is expanded towards inlands.

<sup>346</sup> [www.mfa.gov.tr](http://www.mfa.gov.tr) (official website of Ministry of Foreign Affairs)

The total length of coastline in Turkey is 7 816 km. whereas the length of the inland borders is 2 949 km. The distribution of the coastlines among the surrounding seas is as follows: Black Sea 1 778 km., Marmara Sea 1 275 km., Mediterranean and Aegean Sea 4 763 km.<sup>347</sup>

The importance of the coastal management in the framework of the international relations is obvious when considering that the 73% of the total borderlines is the coastlines. 61% of the total coastlines of Turkey are in the Mediterranean Region. The coastal areas are approx. 30% of the country whereas almost 50% of the population is living in the coastal areas.

The above mentioned ratios are significant enough revealing the urgency of the establishment of the coastal zone management in Turkey as well as the pioneering role of the Mediterranean Region. In addition to that, Turkey has the longest coastline in the Mediterranean Region regarding the coastline of the mainland (excluding the islands). In this regard, the role of Turkey in the context of the international coastal zone management in the Mediterranean Region is unavoidable.

The geological and morphological characteristics of the surrounding seas are quite different. For example Mediterranean is one of the oldest seas in the world whereas the Aegean Sea is one of the youngest.

There are basically 5 types of coasts in morphological terms in Turkey. These are; parallel coastlines, both in the Northern and Southern coast of Turkey; perpendicular coastlines, in the Western coast of Turkey; Ria type of coastlines, in the Southwestern coast of Turkey and Eastern coast of Marmara Sea; Dalmatian type of coastlines, in the Southwestern coast of Turkey; Lagoon type of coastlines, in the Northern coast of Marmara Sea.

When we look at the administrative structure as a whole, there are two-tier local governmental administrations since 1984 in Turkey. Currently, 29 greater municipalities exist in Turkey, 13 of them are recently enunciated, in 2012. They are established by the Turkish Parliament, based on the Law of Greater Municipalities Act, in 1984. 28 of the 81 provinces in Turkey are located in the coastal regions. 15 of those cities are Greater Municipalities. 6 of them are recently enunciated (see Figure 9-1).

Although the Law orders the establishment of the greater cities according to economic and social criteria, most of the decisions are made due to the political considerations of the governments. Consequently, the recent greater municipalities have been subject to debate lately.

---

<sup>347</sup> [www.dsi.gov.tr](http://www.dsi.gov.tr) (official website of State Water Affairs)



**Figure 9-1:** Coastal Cities and the Greater Municipalities

*Produced by Asli Suha Donertas in the PhD process, advisor: Prof.Dr.Fatma Unsal*

**Coast of Turkey in Macro-economic Context and Population Growth**

The macro-economic indicators and the consequent development scheme clearly show that there is a developmental gap between the Eastern and Western regions of Turkey (see Figure 9-2). The highest gross value added per capita is almost 4 times higher than the lowest one.



**Figure 9-2:** Distribution of Gross Added Value per Capita (\$) 2008

(14 591 \$ < GVA per capita < 3 419 \$)

*Data produced by the Statistical Department of Turkey (TUIK) for the year 2008 is used.*

The unfair distribution of wealth among regions is the source of migration flows towards the more developed regions. The net growth rates of population due to internal migration clearly show that, there is a pressure of population growth especially over the Western and the Southern coasts of Turkey. It is obvious that Istanbul gets the lion's share in terms of migration flows. However, the net growth rate of Antalya, on the Southwestern coast, is also comparable to Istanbul and Ankara (see Figure 9-3).

**Figure 9-3: Net Population Growth Rate (%) 2010**

(%-16 < Net Population Growth Rate < %10)



*Data produced by the Statistical Department of Turkey (TUIK) for the year 2010 is used.*

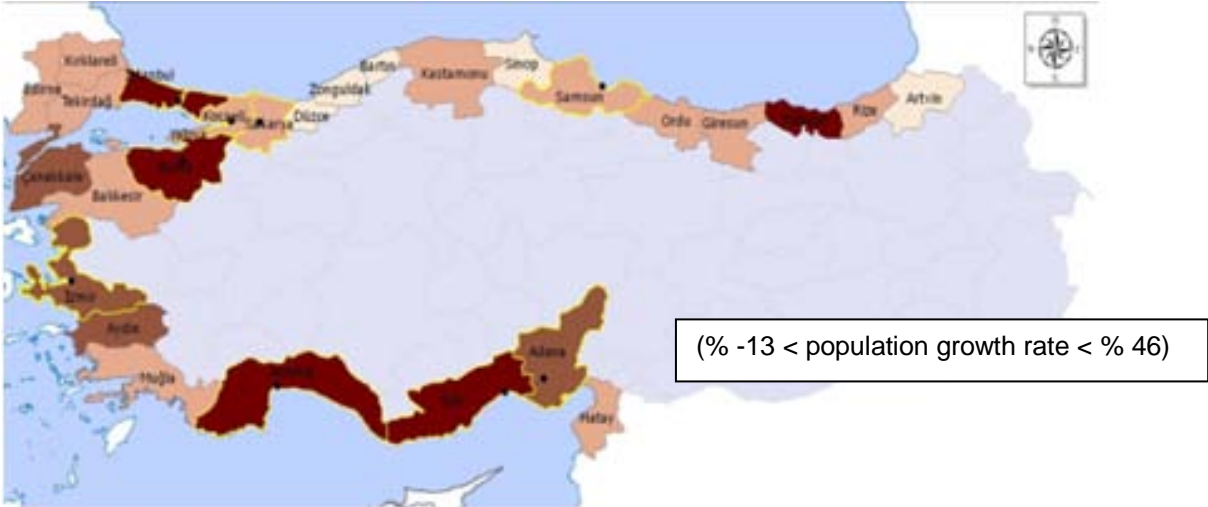
It should be taken into consideration that net growth rates due to migration have an exponential impact on the social profile. The magnitude of the change might be much more than the arithmetic difference.<sup>348</sup>

When the population growth rates and rates of urbanization of the coastal provinces are distinguished, it is observed that the population growth rates vary in a wide range. The highest rates are seen around Istanbul and the Southern coast. Conversely, the population growth rates in the Northern coastal regions are the lowest (see Figure 9-4).

<sup>348</sup> Some of the cities, which have high rates of urbanization, draw unqualified labor force, especially for the constructions, whereas educated people are leaving the metropolitan cities after retirement. Therefore, incoming and leaving population are balancing each other in terms of statistics. Therefore, net migration values do not solely explain the change of the social profile.



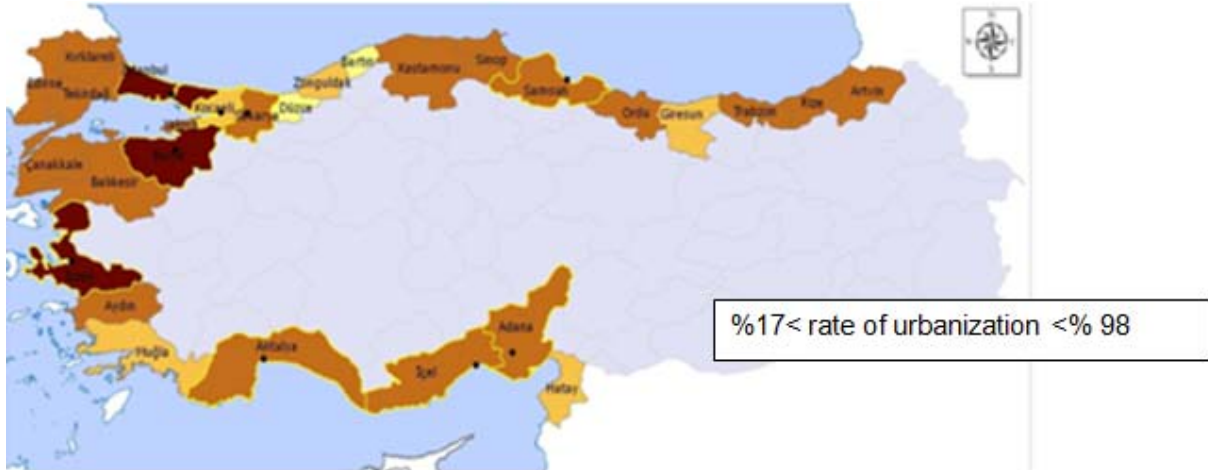
Figure 9-4: Population Growth Rates in Coastal Provinces



Produced by Asli Suha Donertas in the PhD process, advisor: Prof.Dr.Fatma Unsal

It is noteworthy that the Northwestern coastal region was the heavy industrial hub in 1960's. Although, the population growth rates are relatively low in the Northern coastal regions, urbanization rates are still high. It is not an indicator of being developed. It is due to the geographical conditions and the limited land squeezed between the mountains and the sea (see Figure 9-5).

Figure 9-5: Urbanization Rates in Coastal Provinces



Produced by Asli Suha Donertas in the PhD process, advisor: Prof.Dr.Fatma Unsal

### 9.3. COASTAL LEGISLATION

Coastal Law is the backbone of the coastal legislation in Turkey. However, the process before the Law came into force should be overviewed to comprehend the problems of implementation. Although the coastal legislation is comprehensive and protective in Turkey, a significant number of institutions are involved, with a lack of coordination, in the planning and development of the coastal areas.

#### 9.3.1. Before the Coastal Law

It was first mentioned in the Civil Law that the coasts are under the State's possession and can only be used for public benefit. However, the differentiation of the public and private properties was not sufficiently defined in legal terms.

It was first resolved in the Law of Structure and Roads that any structure cannot be built within a distance of 10m. from the coastline. The legal definitions of the coastal areas started to become clear in 1970's.

The shores of sea, natural or artificial lakes and rivers cannot be subject to any kind of land transaction by a decision of the Council of Ministers. The assignment of the coastal land for a private use or granting an easement to a person or a legal entity were also forbidden by the same decision of the Cabinet.

The first legal arrangement about coastal areas within the context of planning and development was made in 1972. The supplemental 7th article of the Law of Development was arranged by a new law and coastal areas were started to be subject to the order of planning. It was clearly mentioned that any building which is not open to public use cannot be built or a current building cannot be enlarged, within a distance determined by the Ministry from the coastline. In addition to that, the distance of any private ownership is at least 10m. from the coastline and private land cannot be acquired by reclamation.

Although the Regulation of Development was clear enough about the public accessibility to the coastal areas and the use of coastal areas solely for the public benefit such as ports, piers, wave breaker, landing platforms or similar uses, the protective strength and the social equality dimensions of the Regulation were questionable. As a matter of fact, many commercial activities started to take place along the coastlines afterwards.<sup>349</sup>

The change of the Constitution in 1982 was a breaking point for the coastal legislation as well as other legislations regarding the urban development. The conditions of development in the coastal areas were taken seriously enough to be mentioned in the context of the Constitution. In the 43rd article of the Constitution, the priority of the public benefit in using the coastal areas was emphasized and

---

<sup>349</sup> Belma BABACAN TEKINBAS, 2008, pp.305-307

utilization of those areas was mentioned as a subject to a special Law. The Coastal Law (1984/3086) was enacted, based on that article of the Constitution.

The process of the Coastal Law reveals the fact that the coastal areas had always been subject to the delicate balance between the private use of coastal areas and social rights. Although the Coastal Law prohibited the private ownership and developments along the coastline, in a width of 10m. in the planned areas whereas 30m. in the other areas, it was possible to construct factories for water products, shipbuilder's or repair shipyard, educational, sports and touristic establishments for the public benefit, by a decree of a development plan.

The Coastal Law was cancelled by the Constitutional Court (1986). Basically, the private ownership and the utilization of the coastal areas were against the social equity provided by the Constitution.

The second Coastal Law, modified the width of the coastal band in which development is prohibited. (20m. with an implementation plan, 50m. within the boundaries of a municipality but without an implementation plan and 100m. outside the development area.) The penalties for the unpermitted developments were also increased by the new Coastal Law (1990/3621).

Some of the articles of the Coastal Law were cancelled by the Constitutional Court. It was declared that the use of the sea, lake and the rivers depends on the free accessibility to the coastlines. Additionally, the differentiation of the planned and unplanned areas in the determination of the width of the coastal band practically disfavors the planned areas. It is claimed that the minimum width should be 100m. in all cases.

Consequently, a new Law came into force as an amendment to the Coastal Law (1992/3830)

### **9.3.2. Coastal Law**

The basic principles of the current Coastal Law is, protecting of the coasts of the seas, shores of the lakes and banks of the rivers; utilizing the coastal developments only for public benefit; enabling free access of public to the coastlines in order to enhance social equity; respecting the natural and cultural differences of the coastal areas; differentiating the coastal areas which are subject to a development plan and which are not.

However, the Coastal Law is certainly not a comprehensive coastal management law.<sup>350</sup>

---

<sup>350</sup> PAP/RAC, CAM in Turkey, 2005, p.39

### The critical definitions in the Regulation of the Coastal Law

**Coastline** is the natural line along which water touches the land and which is changing meteorologically at the coasts of seas, lakes and rivers. The condition of flooding is an exemption.

**Coast edge line** is the natural border determined by the inward motion of water from the coastline, including the land with sand, pebbles, boulders, rocks, reedy and marshland.

**Coast** is the area between the coastline and the coast edge line.

**Shore strip** is the area starting from the coast edge line and stretching inwards with a horizontal width of 100m. The shore strip is made up of two parts, each of 50m.

The width of the coastal band is unified with this Law as 100m.

A commission, of five members, reporting to the Governorship, is constituted for the determination of the coastal edge line which is subject to the approval of the Ministry of Public Works and Settlement. The members of the commission should be a geologist, agricultural engineer, city planner or architect, civil engineer and a surveyor.

According to the Coastal Law, the shore edge line should be determined before the planning process starts, theoretically prior to any development along the coastal area. However, it is not always in that order in Turkey as there is a significant amount of illegal developments in the coastal areas. Besides, the definition is not precise enough for specific ecological conditions.

#### Institutional 'Crowd'

The coastal legislation in Turkey covers many laws and regulations, besides the Coastal Law, addressing many institutions for planning and/or management of coastal areas (see Table 9-1a and Table 9-1b).

**Table 9-1a:** Institutional Structure Regarding Coastal Planning

ACTION	INSTITUTION	LEGAL BASIS
Regional Plan	Ministry of Development	State Planning Office Establishment Law (1960)
		Law of Development (1985/3194)

ACTION	INSTITUTION	LEGAL BASIS
Environmental Order Plan	Ministry of Environment and Planning	Law of Development (1985/3194) Decree of the Cabinet for Establishment and Responsibilities of the Ministry of Environment (1990/443)
	Special Provincial Government	Law of Special Provincial Government (2005/5302)
	Directorate of Specially Protected Areas	Decree of the Cabinet (1989)
Development Plan and Implementation Plan	Municipalities/ Metropolitan Municipalities/ Governorates	Law of Development (1985/3194) Metropolitan Municipalities Establishment and Administration Law(1984/3030)
	Ministry of Culture and Tourism (for tourism development areas)	Tourism Incentives Law (1982/2634) Decree of the Cabinet (1989)
	Ministry of Environment and Planning (for the reclaimed coastal land)	Coastal Law (1990/3621)
Development Plan and Implementation Plan	Directorate of Specially Protected Areas	Decree of the Cabinet (1989)
Development Plan for Protection	Protection Councils for Natural and Cultural Assets	Law of Protection of Cultural and Natural Assets (1983/2863)
Special Use and Management Plan	Directorate of National Parks	National Parks Law (1983/2873)
	Directorate of Forest Management	Law of Forest (1956/6831)
	Directorate of Specially Protected Areas	Decree of the Cabinet (1989)

ACTION	INSTITUTION	LEGAL BASIS
	Directorate of Privatization	Law of Privatization (1994/4046)
Infrastructural Plan	Ministry of Transportation, Maritime and Communication (MTMC)	Coastal Law (1990/3621) Executive Order of the Cabinet for the Establishment of MTMC(2011/655) Law of Establishment of Directorate for Highways (1950/5539)
	Directorate of State Water Works	Law of Establishment of Directorate of State Water Works (1953/6200)

Adapted from PAP/RAC: Coastal Area Management in Turkey, Priority Actions Programme Regional Activity Centre, Split, 2005, p.52 (original source R. Sonmez 2002)

**Table 9-1b:** Institutional Structure Regarding Coastal Development and Management

ACTION	INSTITUTION	LEGAL BASIS
Permit for Reclamation of Marine Areas, Construction of Harbours	Ministry of Environment and Urban Planning	Harbours Law (618)
	Governorates	
	Directorate for Maritime Affairs	Executive Order of the Cabinet for the Establishment of MTMC(2011/655)
Permit for Fishery Facilities	Ministry of Agriculture	Water Products Law (1971/1380)



ACTION	INSTITUTION	LEGAL BASIS
Security	Directorate of Coastal Security	Executive Order of the Cabinet for the Establishment of MTMC(2011/655)
	Ministry of Defense	Law of Development (1985/3194)

*Adapted from PAP/RAC: Coastal Area Management in Turkey, Priority Actions Programme Regional Activity Centre, Split, 2005, p.52 (original source R. Sonmez 2002)*

The display of the institutional structure in planning and development of coastal areas reveal the fact that almost all of them are central governmental institutions (the two local governmental institutions are the gray-shaded boxes). In despite of the fact that the Law of Development, which is the backbone of the planning legislation in Turkey, has empowered the local governments in terms of making and approving the development plans, central governmental institutions are the major decision makers for the development of the coastal areas.

## 9.4. Planning Issues

Three levels/types of plans can be distinguished for the coastal areas:

### 9.4.1. Environmental Order Plan

#### Regional Plan

There are two types of macro-scale plans in Turkey, which are made by different institutions.

Ministry of Environment and Urban Planning is the authority to prepare and approve the Environmental Order Plan. There were two different ministries, Ministry of Environment and Ministry of Public Works and Settlement until 2011. Therefore, there was a debate about holding the planning authority. However, the debate has been resolved after the merging of these two ministries.

The Environmental Order Plan guides the spatial developments in accordance with the national and regional socio-economic plans and sets the basic land-use decisions for housing, industry, commerce etc. as well as the major infrastructural facilities.

The other type of macro-scale plans are prepared by another ministry, Ministry of Development, under the title of regional plan. Ministry of Development was an

Undersecretariat reporting to the Prime Minister until 2011. Thus, the two ministries of the Cabinet have the responsibility of preparing and approving the macro-scale plans. Since 2006, The Law of Regional Development Agencies (2006/5449) was enacted and Regional Development Agencies at the NUTS 2 has started to be established.

The regional plans, either approved before the establishment of regional development agencies or afterwards, have almost the same conceptual approach to the spatial issues and the same kind of land-use decisions. However, there is not a legal binding way of coordination between these two separate planning processes.

#### **9.4.2. Development Plan and Application Plan**

The most solid planning level in Turkey is the development plans.

The Law of Development (1985/3194) grants the authority of preparing and approving of these plans to the municipalities and/or metropolitan municipalities within municipal borders and in annexed areas, Governorates in other areas. However, especially in the last decade, there is a tendency of the central government in Turkey in using the planning authority by the relevant ministries by the use of special purpose plans. The 4<sup>th</sup> and the 9<sup>th</sup> articles of the Law define the exemptions such as tourism development zones, special protection areas and major infrastructures, which are carried out by different ministries.

Thus, the planning practice is highly fragmented due to the use of planning authority by a variety of central, regional and local administrations.

#### **9.4.3. Special Purpose Plans**

In addition to the development and application plans, various other types of planning activities exist in Turkey. These include the management plans of the Ministry of Forestry in national parks and in other forest areas, and of the Ministry of Environment (Agency for SPAs) in specially protected areas. Furthermore, the nationwide planning of major infrastructures, such as highways, railways, airports, harbours, dams and irrigation canals, power transmission lines etc is carried out by the relevant authorities under the auspices of several different ministries.

Sectoral developments plans are another significant planning effort in Turkey. Important examples of this type of planning include tourism, ports (maritime transportation), marinas and fisheries.

Special purpose plans can be differentiated into two basic groups: for the protection of a special zone or for a special use of land. Integrated Coastal Zone Management (ICZM) is regarded as a special purpose plan.

## 9.5. Integrated Coastal Zone Management in Turkey

The trans-boundary nature of the environmental problems in the coastal areas has definitely necessitated international cooperation in the field of coastal planning and management. Turkey is the contracting party in two international conventions regarding the development of coastal regions; Bucharest Convention and Barcelona Convention.

The Convention on the protection of the Black Sea against pollution (Bucharest Convention), which was signed by Turkey, Romania, Ukraine, Bulgaria, Georgia and the Russian Federation in Bucharest on 21 April 1992, entered into force on 15 January 1994. As being one of the most contaminated seas in the world<sup>351</sup>, the Black Sea is polluted by the six coastal states (Russian Federation, Ukraine, Romania, Bulgaria, Georgia, and Turkey) and the ten riparian states of major European rivers that flow into the Black Sea.<sup>352</sup>

However, the four protocols of the Bucharest Convention to which Turkey is a party do not refer to the urban planning or coastal management issues.

On the other hand, The United Nations Environment Programme (UNEP) decision to place the protection of the Mediterranean Sea among its priority actions resulted in the establishment of the Mediterranean Action Plan (MAP) in 1975 which is an action-orientated effort involving the countries bordering the Mediterranean Sea as well as the European Union. In order to give the actions carried out under the MAP a legal foundation, the Convention on the Protection of the Mediterranean Sea Against Pollution (Barcelona Convention) was opened for signature on 16 February 1976 in Barcelona.

In conformity with the decisions of the United Nations Conference on Environment and Development, held in Rio de Janeiro in 1992, the Barcelona Convention was revised in 1995 to include coastal areas as well as the marine environment. The aim of sustainable development, increased public participation and environmental impact assessment were integrated into the Convention and its Protocols. In this context, the revised Convention was renamed as “The Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean” which entered into force in 9 June 2004. Turkey has become a Party to the Convention in 2002. Turkey is a party in five protocols regarding the prevention of pollution and preservation of the biological diversity.

---

<sup>351</sup> The Black Sea basin is home to some 160 million people which make up approximately half of Europe’s population. The Danube River, main source of pollution for the Black Sea, pours domestic and industrial wastes into the waters of the Black Sea. The only outflow of the Black Sea is through the Strait of Istanbul.

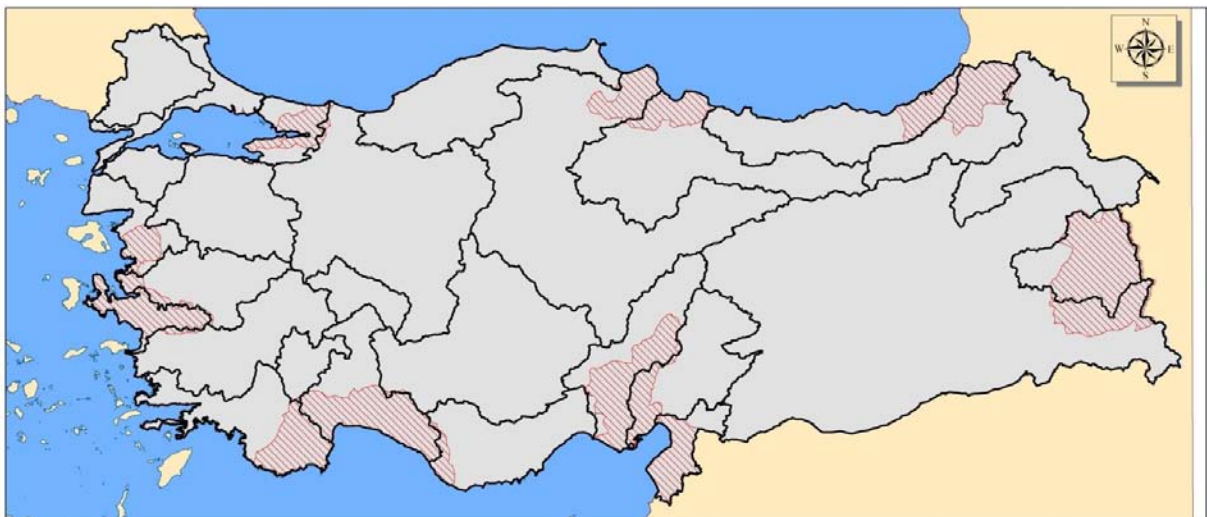
The natural ecological situation of the Black Sea deteriorated rapidly in the last 30 years. Over-fishing added to the environmental factors that lead to the breaking of the food chain in the Black Sea.

<sup>352</sup> [www.mfa.gov.tr](http://www.mfa.gov.tr) (official website of Ministry of Foreign Affairs)

The “Land-based Pollution National Action Plan” was prepared in 2005 in accordance with the Strategic Action Plan that was adopted in the framework of the Barcelona Convention and the Protocol for the Protection of the Mediterranean Sea Against Pollution from Land-Based Sources and Activities.<sup>353</sup>

However, Turkey is not a part of the Protocol on Integrated Coastal Zone Management (ICZM) in the Mediterranean. On the other hand, Ministry of Environment and Urban Planning put the issue of the “Project of Strategy and Action Plan for Integrated Coastal Zone Management” to tender and after two cancellations, the tender was completed in 14.11.2012, the due date of the Project is 03.06.2013.<sup>354</sup>

Although ICZM has not been legally defined in connection with the other plan types in the already complicated planning hierarchy in Turkey and does not have the proper implementation tools, there are ICZM plans completed in different geographical regions in Turkey (see Figure 9-6).



**Figure 9-6:** Integrated Coastal Zone Management Plans in Turkey

*Produced by Asli Suha Donertas in the PhD process, advisor: Prof.Dr.Fatma Unsal*

ICZM's, in which the balance of the ecological concern and the development pressure is the main concern, enhance not only the vertical coordination between the different levels of government but help to improve the horizontal coordination as well. The horizontal relations between the different sectoral targets, public benefit and private expectations, policy-makers and the academic knowledge are the basic requirements in the Turkish planning procedures. In other words, ICZM's will be a remedy for the malfunctioning of the planning procedures in Turkey, if they are

<sup>353</sup> [www.mfa.gov.tr](http://www.mfa.gov.tr) (official website of Ministry of Foreign Affairs)

<sup>354</sup> Prof. Dr. Erdan OZHAN, the Presentation in the National Workshop: Latest Developments in the Coastal Zone Management in Turkey, Marmaris, 2013.

properly established in cooperation with the other types of plans and the appropriate tools of implementation are provided.

The current ICZM's in Turkey are embedded in the planning system in the context of the Special Purpose Plans (SPP). SPP's are under the jurisdiction of the Ministry of Environment and Urban Planning rather than the local governments. Therefore, the positioning of the ICZM's in Turkey, contradicts with the idea of improving the public awareness and participation in the planning processes. Thus, the SPP's stimulate the lack of public embracement and problems of implementation, consequently undermine a healthy start up of ICZM's in Turkey.

Turkey has also been close collaborating with several other international institutions and governments on projects and capacity building in the field of coastal and marine management. Several coastal projects were realized through European Union programmes, such as the MEDCOAST's efforts for IC Meducation funded by the MED-CAMPUS (1993-96) and three coastal projects funded by the LIFE DC programme (Cirali Coastal Management and Tourism Project of DHKD/WWF Turkey; Cukurova Deltas Biodiversity Conservation Project of Cukurova University; Olu Deniz Lagoon Project of Turkish Marine Research Foundation, TUDAV).<sup>355</sup>

## 9.6. Concluding Remarks

The macroeconomic outlook of Turkey is promising, especially when compared with the surrounding regions. The growth forecasts of Turkey in comparison with the Euro Area, clearly expose the high rates of development (see Table 9-2).

The rewarding conditions in economics should be supported anyhow but the real estate dominated development trend in the economic domain threatening the delicate ecological balance should also be followed cautiously. Although the Turkish Legislation has a numerous protective Laws and Regulations, it cannot be said that the ecological concern is embraced widely by the society. The insufficient public awareness combined with the highly fragmented institutional structure and the overlapping jurisdictions for the coastal developments threaten the environment.

In this regard, ICZM's are considered as an opportunity for not only maintaining the ecological richness of the coastal regions in Turkey, but also improving the structural deficiencies of planning legislation in Turkey. However, ICZM's should be embedded properly in the planning legislation in order to avoiding underutilization.

---

<sup>355</sup> PAP/RAC, CAM in Turkey, 2005, P. 60

**Table 9-2:** Growth Forecasts for Turkey and the Euro Area

INSTITUTIONS		TURKEY	EURO AREA
IMF	2013	3,4	-0,3
	2014	3,7	1,1
OECD	2013	4,1	-0,1
	2014	5,2	1,3
WB	2013	4,0	0,7
	2014	5,0	1,4
UN	2013	3,2	-0,3
	2014	5,4	0,9

*Adapted from Economic Outlook, 2013, Ministry of Economy (original resource: IMF, OECD, WB, UN Statistics)*



## **PART III**

# **COASTAL MANAGEMENT PROGRAMS AND STATE OF THE ENVIRONMENT**

## 10. INVENTORY OF EU COASTAL MANAGEMENT ORGANIZATIONS, PROGRAMS AND PROJECTS

---

### PEGASO, 2010-2014

<http://www.pegasoproject.eu/>

(Algeria, Belgium, Egypt, France, Greece, Croatia, Italy, Lebanon)

The main objective of PEGASO is to build on existing capacities and develop common novel approaches to support integrated policies for the coastal, marine and maritime realms of the Mediterranean and Black Sea Basins in ways that are consistent with and relevant to the implementation of the ICZM Protocol for the Mediterranean.

PEGASO will use the model of the existing ICZM Protocol for the Mediterranean and adjust it to the needs of the Black Sea through three innovative actions:

- Constructing an ICZM governance platform as a bridge between scientists and end-user communities
- Refine and further develop efficient and easy to use tools for making sustainability assessments in the coastal zone (indicators, accounting methods, models and scenarios).
- Implementation of a Spatial Data Infrastructure (SDI), following the INSPIRE Directive, to organize and standardize spatial data to support information sharing on an interactive visor, to make it available to the ICZM Platform, and to disseminate all results of the project to the end users and interested parties.

The implications of accepting the precepts of ICZM and EsA (Ecosystem Approach) as fundamentally adaptive, problem solving techniques are profound for Pegaso, as its work program is being designed to achieve demonstrable social learning outcomes and documented behavior change.

---

### INSPIRE – Infrastructure for Spatial Information in the European Community

<http://inspire.jrc.ec.europa.eu/>

The INSPIRE Directive entered into force in Europe in May 2007, establishing an infrastructure for spatial information to support Community (27 Member States of the EU) environmental policies, and other policies or activities which may have an impact

on the environment. It is being implemented in stages, with full implementation required by 2019.

A European Spatial Data Infrastructure will assist in policy-making across boundaries. Therefore, the spatial information considered under the directive is extensive and includes a great variety of themes. To ensure that the spatial data infrastructures of the Member States are compatible and usable in a Community and transboundary context, the Directive requires that common Implementing Rules (IR) be adopted in a number of specific areas (Metadata, Data Specifications, Network Services, Data and Service Sharing and Monitoring and Reporting). These IRs are to be adopted as Commission Decisions or Regulations, and are binding in their entirety. A regulatory committee composed of representatives of the Member States and chaired by a representative of the Commission assist in the process of adopting the rules.

The project will assist in overcoming barriers, including:

- Inconsistencies in spatial data collection, where spatial data is often missing or incomplete or, alternatively, the same data is collected twice by different organizations
- Lack or incomplete documentation of available spatial data
- Incompatible SDI initiatives within a Member State that often function only in isolation
- Cultural, institutional, financial, and legal barriers preventing or delaying the sharing of existing spatial data
- The key elements to overcome these barriers include:
  - Metadata to describe existing information resources so data can be more easily found and accessed
  - Harmonization of key spatial data themes needed to support environmental policies in the European Union
  - Agreements on network services and technologies to allow discovery, viewing, and downloading of information resources and access to related services
  - Policy agreements on sharing and access, including licensing and charging
  - Coordination and monitoring mechanisms.

A first release of the INSPIRE Geoportal has been published. The INSPIRE geoportal provides the means to search for spatial data sets and spatial data services, and subject to access restrictions, to view spatial data sets from the EU Member States within the framework of the INSPIRE Directive.

<http://inspire-geoportal.ec.europa.eu/>

### COASTANCE Project

- Regional COmmon Action STRategy Against Coastal Erosion and climate change effects for sustainable coastal planning in the Mediterranean basin (Croatia, Cyprus, France, Italy, Greece, Spain), 2009 -2012

[http://www.coastance.eu/index.php?option=com\\_content&view=article&id=3&Itemid=8](http://www.coastance.eu/index.php?option=com_content&view=article&id=3&Itemid=8)

The increasing phenomena of erosion and marine flooding risks in the mid to long term related to the effects of climate changes (sea level rising, extreme storm events, increasing frequency & intensity) makes it necessary for Public Administrations to take a strategic approach for Integrated Coastal Zone Management (ICZM) with particular emphasis on coastal protection.

The objectives of the project:

- Capitalization of knowledge and resources already acquired in the field of coastal protection:
  - o Sustainable Technologies for exploiting sand stocks
  - o Sustainable Technologies for coastal protection and adaptation
  - o Environmental Impact Assessments of the new technologies (dredging activities, nourishment work etc.) and Strategic Environmental Assessment
- Mid to Long Term planning actions for climate change adaptation in coastal zones (EU Directive 2007/60/EC):
  - o Development of Territorial Action Plans for adapting coastal zones to climate change, against erosion effects and submersion risk
  - o Definition of Sediment Management Plans (SMPs) for both off-shore and littoral deposits exploitation
  - o Appropriate Environmental Impact Assessment Protocols in order to ensure correct procedures in intervening along coastal zone.
  - o Training and coordination of the competent authorities (ICZM and planning tools)

Technical reports were prepared on 1) the analysis of future scenarios, 2) state-of-the-art environmental impact studies for coastal works/ plans in EU, 3) present day littoral management practices in partner regions. The reports available for downloading, only for registered users, from the project's website:

[www.coastance.eu](http://www.coastance.eu)

---

**EUROMED – Euro-Mediterranean Partnership – 27 EU member states, 16 Southern Mediterranean, African and Middle Eastern countries**

The initiative was launched to strengthen the political dimension of the partnership between the European countries and other Mediterranean countries. It promotes economic integration and democratic reform across 16 neighbors to the south of the EU in North Africa and the Middle East.

Formerly known as the Barcelona Process, cooperation agreements were re-launched in 2008 as the Union for the Mediterranean. This was an opportunity to make relations more concrete and more visible with the initiation of new regional and sub-regional projects with real relevance for those living in the region. Projects address areas such as economy, environment, energy, health, migration and culture.

As of September 2010, the UfM has a functional secretariat, based in Barcelona, a Secretary General and six deputy secretary generals.

The UfM has a number of key initiatives on its agenda:

- the de-pollution of the Mediterranean Sea, including coastal and protected marine areas;
- the establishment of maritime and land highways that connect ports and improve rail connections so as to facilitate movement of people and goods;
- a joint civil protection program on prevention, preparation and response to natural and man-made disasters;
- a Mediterranean solar energy plan that explores opportunities for developing alternative energy sources in the region;
- the Mediterranean Business Development Initiative, which supports small businesses operating in the region by first assessing their needs and then providing technical assistance and access to finance.

---

### **Mediterranean coast project – ENPI CBCMED**

The objective of this proposal was the creation of a network of coastal actors, at cross border level, in the Mediterranean to promote an ICZM approach in all sectors involved in coastal-impact activities. A key activity was the sharing of best practices among countries and a collaborative approach when elaborating ICZM strategies to be adopted by the competent authorities to prevent deterioration of the coastal and marine environment. This identification and sharing of best practices and the joint development of activities was to strengthen integration between public and administrative authorities.

The project took into consideration other important tools such as the EU Marine Strategy Framework Directive or the Integrated Maritime Policy, among others directly or indirectly related. Priorities for ICZM were defined taking the Protocol as a basis to follow.

---

**MAREMED – Maritime Regions Cooperation for Mediterranean, 2010-2013**

<http://www.maremed.eu/>

In December 2006, the regions of the Mediterranean set up a Working Group on Maritime Policy under the sponsorship of the *CPMR Inter- Mediterranean Commission\** (see below), in order to contribute to the design and delivery of an integrated and sustainable Mediterranean maritime policy. It addressed the thematic areas of marine pollution, integrated management of coastal areas (ICZM), adaptation to the consequences of climate change, fisheries, marine research and data, and maritime policy governance. EU funding was allocated for the project for the creation of an integrated Mediterranean maritime policy. The project's kick-off meeting took place in June 2010 and fourteen regional partners from France, Italy, Spain, Greece and Cyprus together with the CPMR\* were tasked with carrying out an overview of policy implementation. **The objectives of the project:**

- to contribute to the development of integrated management activities across the Mediterranean basin;
- to exchange good practices and methods for developing management plans prepared by projects on ICZM, ICARBM, NATURA 2000 marine areas, protected marine areas or SPAMI projects;
- to identify pilot sites for transnational or interregional co-management;
- to assess the consistency of existing schemes with European and Mediterranean legislation and agreements (Mediterranean ICZM Protocol).

**Members:**

- all of Greece
- all French and Spanish maritime regions
- all Italian maritime regions
- 2 non-maritime regions: Umbria (Italy), Aragon (Spain)
- 2 Portuguese regions: Algarve and Alentejo
- the island of Gozo in Malta
- the Departments of Famagusta and Larnaca in Cyprus
- 3 Moroccan regions: Chaouia Ouardigha, Rabat-Salé-Zemmour-Zaer, Tangiers-Tétouan
- the Governorates of Sousse and Monastir (Tunisia)

(\***CPMR** - INTER-MEDITERRANEAN COMMISSION OF THE CONFERENCE OF PERIPHERAL MARITIME REGIONS - created in 1973, CPMR currently has 160 member Regions from 28 EU member and non-member countries, which represent almost 200 million inhabitants. It was created in Andalusia in 1990 to voice the common interests of Mediterranean regions in important European negotiations. The scope of its mission was later extended to include issues concerning all the peripheral regions of the



Mediterranean, particularly after the Barcelona Declaration in 1995 and the launching of the Union for the Mediterranean.

---

### **NOAA – Coastal Services Center**

<http://www.csc.noaa.gov/about/>

As part of the federal government's National Oceanic and Atmospheric Administration, the Coastal Services Center works with private and public sector partners to address coastal issues.

The NOAA Coastal Services was created to assist in addressing the challenges associated with flooding, hurricanes, sea level rise, and other coastal hazards. The Center's core areas of expertise include geospatial technologies. Products and services developed by the Center include data, tools, training, and technical assistance.

The Digital Coast, which was developed by the NOAA Coastal Services Center, is the delivery mechanism for many of the Center's web-based products.

---

### **The Coastal Society Mission in the US**

The Coastal Society is an organization of private sector, academic, and government professionals and students. It is dedicated to actively addressing emerging coastal issues by fostering dialogue, forging partnerships and promoting communications and education.

---

### **SHAPE – 3 year project, until March 2014**

Shaping a **H**olistic **A**pproach to **P**rotect the **A**driatic **E**nvironment between coast and sea.

SHAPE is a comprehensive project for the Adriatic Region aiming at creating the basis for the protection and the sustainable development of the coastal-marine environment. The project is to promote strengthening of institutional capacity to preserve and manage natural and cultural resources and risk prevention, assuring the rational use of the Adriatic Sea and its resources and enabling conflict resolution among different uses. The partners involved recognize the Adriatic Sea as a single water body (same approach is also envisaged in the EU Marine Strategy Framework Directive) because of its sensitivities and the growing pressures from human activities.

As it is an EU project, it is carried out through work packages:

- WP1 - Crossborder Project Management and Coordination
- WP2 - Communication and dissemination
- WP3 - Integrated Coastal Zone Management
  - The Adriatic coastal zone is an area of intense activity, an area of interchange between physical, biological, social, cultural and economic processes. The most important activity of PAP/RAC (the WP coordinator) within the SHAPE project is to provide its expertise and know-how in bringing regional partners together for successful cross-national and cross-sectoral cooperation within the ICZM framework; it will demonstrate the framework within the governance structure that needs to be in place for the Protocol implementation; it will provide capacity building for the partners, enabling them to take the lead in the ratification of the ICZM Protocol and implementation.
- WP4 - "Shipping" towards Maritime Spatial Planning
- WP5 - Within land and sea

---

**ENCORA - European Network on Coastal Research, a Coordination Action co-funded by the EU 6th Framework Programme, 2006-2009**

(Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Monaco, the Netherlands, Poland, Portugal, Russia, Spain, Sweden, the United Kingdom and Ukraine)

The initiative was launched to improve sharing of knowledge and experience within Europe, in two respects:

- Overcome existing fragmentation of coastal expertise. In all European coastal states many institutions are engaged in coastal and marine studies related to science, practice or policy. Together these institutions constitute a huge resource of knowledge and experience. However, as much work is done in isolation, this resource is not fully exploited.
- Better exploit scientific knowledge in practice. Scientific knowledge is communicated mainly among fellow experts; scientific publications focus on specific disciplinary aspects and are almost inaccessible to non-expert coastal and marine professionals. Existing publication practices are not appropriate for passing on new insight to practice.

It is a bottom-up project, built on national coastal networks in 13 EU countries and 5 non-EU countries and addresses 10 thematic networks. The national networks facilitate sharing of knowledge and experience among scientists, policymakers and practitioners in each country; the coordination offices of these networks also work together to facilitate sharing of knowledge among countries . ENCORA recognized

the need for addressing the coastal zone as an integral entity and took advantage of the GISIG network (Geographical Information Systems International Group) for geo-information.

The ENCORA Platform established to:

- Create contacts for exchange of knowledge and experience among coastal zone experts, including researchers as well as practitioners in order to fill information gaps
- Create communities of practitioners, and new occasions for collaboration
- Contribute to a State of the Art report on ICZM throughout Europe
- Contribute, in a second phase of the project, to a European Action Plan for integrated Coastal zone management.

The ENCORA Project succeeded in constructing a platform formed by national networks of coastal scientists, politicians and practitioners from Europe, the southern Mediterranean and Black sea states.

The Coastal and Marine Wiki was initiated under responsibility of the thematic networks providing information relevant for coastal practitioners and scientists in a searchable website that allows visitors to easily add, remove or otherwise edit and change available articles.

---

## OURCOAST

Three-year project (2009-2012) commissioned by the DG Environment of the EC to support and ensure the exchange of experiences and best practices in coastal planning and management

Through OURCOAST, the EC aimed to ensure that lessons learned from the coastal management experiences and practices could be shared and would be made accessible to those who are seeking sustainable solutions to their coastal management practices. It focused in particular on adaptation to risks and the impacts of climate change, information and communication systems, planning and land management instruments, and institutional coordination mechanisms.

OURCOAST sought to help fill in the gap regarding exchange of experiences and access to studies and best practices produced, and to provide a platform for exchange of knowledge. <http://ec.europa.eu/environment/iczm/home.htm>

The main final product of OURCOAST is the **ICZM Database** – a comprehensive compilation of hundreds of case study summaries that reflect successful examples of

ICZM tools applied throughout Europe. A multi-lingual website hosts the ICZM database and provides navigation and information in ten European languages. This has been done and complemented by a series of other activities, together with these of public interest for the implementation of ICZM in Europe. These include:

- Collection, description and evaluation of a minimum of 350 ICZM case studies
- Comparative analysis of ICZM experiences leading to an overview of the state-of-the-art by theme and typical success and fail factors
- Review of most relevant EU policies and legislation and their effects for the implementation of coastal zone management and marine planning
- Development and validation of guidance for authorities for future integrated coastal and marine planning and for the design of policies and tools.
- Development of recommendations that can set the implementation agenda of ICZM for the next decade
- Development of a contact list of EU, national, regional, local coastal and marine stakeholders and other interested parties on ICZM implementation.

### **World Bank Integrated Coastal Zone Management Projects**

*Albania* – the development objective of this *ICZM and Clean-up Project* was to set up and initiate an integrated coastal zone management approach to reduce coastal degradation through:

- enhancing regulatory policy and governance of the coastal zone, land use and regional planning, and institutional capacity;
- initiating targeted municipal and community investments in the southern coast to improve environmental conditions, enhance cultural resources and encourage community support for sustainable coastal zone management;
- reducing soil and groundwater contamination in a former chemical plant.

*India* – the objective of the *Integrated Coastal Zone Management (ICZM) Project* was to assist the Government of India in building national capacity for implementation of comprehensive coastal management approach in the country. There are four components to the project

- national ICZM capacity building - the national component will include mapping, delineation and demarcation of the hazard lines, and delineation of coastal sediment cells all along the mainland coast of India.
- piloting ICZM approaches in Gujarat - this component will support capacity building of the state level agencies and institutions, including preparation of an ICZM plan for the coastal sediment cell that includes the Gulf of Kachchh, and pilot investments.
- piloting ICZM approaches in Orissa - this component will include capacity building of the state level agencies and institutions, including preparation of

- an ICZM plan for the coastal sediment cells that include the stretches of Paradip-Dhamra and Gopalpur-Chilika, including a regional coastal process study, and pilot investments
- piloting ICZM approaches in West Bengal.

*Morocco* – the objective of the *Integrated Coastal Zone Management Project* is to pilot the application of the ICZM approach in the project area on the eastern Mediterranean coast of Morocco. There are three components to the project:

- capacity building and institutional strengthening to incorporate the ICZM approach into local development planning - the objective is to strengthen the capacity of government institutions and local communities to incorporate the ICZM approach into their local development plans.
- investments to improve coastal resource management and livelihoods through co-management approach - the objective is to support specific and appropriate investments that demonstrate the application of key tools available for use in an ICZM approach, within the project area.
- project management and Monitoring and Evaluation (M&E) - the objective is to ensure adequate management and coordination of project activities by supporting capacity building within, and activities of, the Project Management Unit (PMU).

---

**The RAMOGE project** (Saint-Raphaël - Monaco - Genoa) began in 1970 with a campaign against marine pollution in the coastal zone between Saint-Raphaël and Genoa.

The RAMOGE Agreement represents an instrument for scientific, technical, legal and administrative cooperation, whereby the three Governments jointly agree on the actions to be adopted for the purposes of integrated management of the coast. By using it, France, Italy and Monaco make combined efforts to deal with the problems of marine pollution in the region. The project area was later extended from Marseilles to La Spezia, and the partners adopted a functional structure including a commission, a technical committee, working groups and an executive secretariat.

Objectives:

- Understanding the state of the area concerned
- Examining the problems of common interest related to water pollution
- Harmonizing analytical and working methods
- Increasing awareness about the coastal marine environment
- Promoting respect for the environment among the public

- Supporting and instigating studies, research, sharing of information, and meetings of experts for the purposes of cooperation.

<http://www.ramoge.org/fr/default.aspx>

---

### **EUCC (Coastal and Marine Union) Coastal Guide**

<http://www.coastalguide.org/>

An information service aimed at professionals in coastal management, planning, conservation and research in Europe.

Mission: provide help in finding and accessing the best available information. The EUCC monitors ICM-progress in all coastal states. Regional overviews are now available for the Baltic Sea, the Black Sea, the Caspian Sea and the Adriatic. The EUCC is preparing a complete set of Country files; 28 summaries are now online. The database contains world-wide applied coastal (and marine) projects and regional case studies.

The EUCC is directly involved in formulating innovative European coastal policy aimed at the sustainable use of the coastline while protecting areas of high natural value. The integrated approach to coastal zone management relies on efficient flow of information - vertically and horizontally - as well as an informed public.

---

### **ICZM progress indicator set, 2003- present**

[http://www.eucc.nl/en/izcm\\_progress\\_indicator\\_set/index.htm](http://www.eucc.nl/en/izcm_progress_indicator_set/index.htm)

EUCC has been instrumental in the development of an indicator set to show the progress that is being made in the implementation of ICZM in Member States. The Indicator set was drawn up at the request of the EU ICZM Group of Experts which wished to see the use, by Member States, of comparable indicators to assess both the state of the coast and the degree to which ICZM is being implemented. The Progress Indicator set was approved in 2004 and there is a set of guidelines for the use of the methodology.

It is expected that this will not be a static methodology but that it will need to change as implementation of ICZM gets more sophisticated. Used alongside sustainability indicators for the coast, it should also determine just how good ICZM is as a management process. Guidance notes for completing Progress Indicator document:

[http://www.eucc.nl/en/izcm\\_progress\\_indicator\\_set/Progress\\_indicator\\_set.pdf](http://www.eucc.nl/en/izcm_progress_indicator_set/Progress_indicator_set.pdf)

---



**BaltSeaPlan**

The project BaltSeaPlan (2009-2012) accompanied the EU Maritime Policy by supporting the introduction of Integrated Maritime Spatial Planning and preparation of National Maritime Strategies within the Baltic Sea Region. It also contributed to the implementation of the HELCOM recommendation on broad-scale Maritime Spatial Planning.

**The Helsinki Convention (HELCOM)**

Issued to protect the marine environment of the Baltic Sea, the first Convention on the Protection of the Marine Environment of the Baltic Sea Area was signed in 1974 by the coastal states of the Baltic Sea at that time. It was the first international agreement to cover all sources of pollution, both from land and from ships as well as airborne. In 1992, a new Convention was signed including a new article (Art. 15) on nature conservation and biodiversity, which entered into force in 2000. The present contracting parties to HELCOM are Denmark, Estonia, European Community, Finland, Germany, Latvia, Lithuania, Poland, Russia and Sweden. The Helsinki Commission has established a system of more than 60 Baltic Coastal and Marine Protected Areas and established management plans for five large coastal lagoons and wetland areas along the south and south eastern Baltic coasts.

Integrated Coastal Zone Management is now under the responsibility of the Helsinki Commission Nature Conservation and Coastal Zone Management Group, commonly referred to as "HELCOM HABITAT". This group aims, among others, to promote the development of coastal zone management plans as instruments of resource management for environmentally sustainable development in coastal and marine areas. In order to reach these goals, the Group reviews the status quo of biodiversity conservation in the Baltic Sea countries, identify gaps and deficits, and develop strategies.

---

**BaltCoast - Pilot Initiative on Integrated Coastal Zone Management in the Baltic Sea, 2002-2005**

The project made the following recommendations:

- Role of Spatial Planning in ICZM
  - ICZM is the responsibility of political bodies of all levels
  - Do not create ICZM specific institutions – improve the use of existing ones
  - Cross-sectoral Agencies at Regional Level should take the Lead for implementation
  - Link the regional approach with case specific solutions
  - Spatial Planning should take a central role in ICZM
  - The focus should be on implementation rather than on theoretical ICZM discussions.

- Implementation of Sea-Use-Planning (extend spatial planning to the off-shore side)
  - Agree on the systematic information exchange concerning off-shore uses,
  - Prepare spatial plans for offshore areas where needed and
  - Introduce project oriented and cross-sectoral coordination procedures.

The main conclusion of BaltCoast was to use the strengths of spatial planning for successful implementation of ICZM and for cross-sector coordination of offshore development.

---

#### **HERMES (Deep Sea Research) – noted in report from Greece**

<http://www.eu-hermes.net/about.html>

The project (2005-2009) provided new insights into the biodiversity, structure, function and dynamics of ecosystems along Europe's deep-ocean margin with the goal of strengthening future development of a comprehensive European Ocean and Seas Integrated Governance Policy. It represented the first major attempt to understand European deep-water ecosystems and their natural environment in an integrated way by bringing together experts in marine geology, oceanography, biology, ecology, geophysics, microbiology, geochemistry, modeling and socio-economics.

---

#### **MedPAN (Mediterranean Protected Areas Network)**

Noted in report from Greece, Algeria, Croatia, France, Greece, Italy, Morocco, Malta, Slovenia, Spain, Tunisia and Turkey.

The project (2005-2007) created a network with the goal of facilitating exchange between managers of Mediterranean marine protected areas (MPA) in order to improve the efficiency of the management of these areas. It was funded by the Interreg III C South Initiative and brought together 23 partners from 14 countries around the shores of the Mediterranean.

---

**ECASA (Ecosystem Approach for Sustainable Aquaculture), noted in report on Greece**

The project involves 16 research partners from 13 member states with the goal of addressing the effects of aquaculture on the environment, especially in the Mediterranean.

The three main objectives:

- Identify and assess quantitative and qualitative indicators of the effects of aquaculture on the environment and vice-versa
- Assess and develop operational tools (models) to establish and describe the relationship between environmental conditions and aquaculture activities over a range of ecosystem conditions
- Develop effective environmental impact assessment and site selection.

---

**CADSEALAND, Integrated view of land-sea interaction, noted in report on Greece**

<http://www.cinfai.it/cadsealand/project.htm>

Italy was the lead partner out of 11 (2004-2006),

The project was the result of the merging of two different streams of activity for protecting coastal areas:

- protection of specific coastal areas (often stimulated by catastrophic events) with territorial problems. According to international documents, the percentage of protected coasts in these regions was less than 20%; serious problems of erosion were felt in the Italian, Romanian and Greek areas considered in the project.
- development of standards/guidelines for coastal management for assessing the “state of the coast”, its evolution and the causes of these changes.

---

**BEACHMED Regional Framework Operation, 2005- 2008**

Strategic management of beach protection for sustainable development of Mediterranean coastal zones

The main objective of the project was to identify and improve technical and administrative tools for the strategic management of coastal protection, in order to achieve sustainable development of the Mediterranean coastal zones.

Three main components were addressed:

- The design and implementation of technical tools regarding erosion at European level and to use resources in a sustainable way
- Establishment of tools to manage the connection between urban-land development and morphologically fragile areas (regarding ordinary and exceptional sea storms)
- Establishment of organizational tools so that all parties involved (private and public) can define, regulate and manage coastal protection.

**MedSeA - The European Mediterranean Sea Acidification in a Changing Climate (MedSeA), 3 year project that began in 2011 (The term ocean acidification is used to describe the ongoing decrease in ocean pH caused by human CO<sub>2</sub> emissions, such as the burning of fossil fuels.)**

The Initiative is funded by the European Commission and involves 22 institutions (including 6 associated partners) from Spain, France, Israel, Greece, Italy, UK, Germany, Morocco, Egypt, Tunisia. The project partners claim that there has been no concerted effort to study acidification in the Mediterranean Sea where more than 130 million people live (total population over 400 million) along its coastlines and another 175 million visit the region each year. MedSeA will assess uncertainties, risks and thresholds related to Mediterranean acidification at organismal, ecosystem and economical scales.

Experts in the project are providing science-based projections of Mediterranean acidification under the influence of climate change as well as associated economic impacts. Scientific advances should assist in providing advice to policymakers who develop regional strategies for adaptation and mitigation.

Project objectives:

- Identify where impacts of acidification will be significant
- Generate new observational and experimental data on Mediterranean organisms and ecosystem responses to acidification
- Provide best estimates and related uncertainties of future changes in Mediterranean Sea pH, CaCO<sub>3</sub> saturation states, and other biogeochemical-ecosystem variables

(A MedSeA team of Israeli and Italian scientists concluded a survey of vermetid reefs along the Mediterranean coast of Israel that took place from the 6th to the 10th of July. Vermetid reefs are considered hot spots of biodiversity in the Mediterranean Sea. These reefs are built by two species of sessile snails cemented by calcareous red algae, serving as ecosystem engineering species, for a rich community of invertebrates and fish.)

---

**CoastLearn is an internet based distance vocational training package on ICZM, an initiative of the Coastal and Marine Union - EUCC**

This self-learning tool targets primarily coastal managers and planners working at local, sub-national, and national levels. The secondary target groups are university students and NGOs. It is a multilingual tool, available fully or partly in 13 languages so far. It promotes the exchange of knowledge and experience by providing practical examples and case studies.

CoastLearn is divided into thematic modules that can be studied independently. One of the modules of the training package is on the principles of ICZM:

<http://www.coastlearn.org/intro/index.html>

Additional modules include: Policy Analysis; Geographical Information Systems; Planning; Environmental Risk Assessment; Sustainable Tourism;

Public participation; Biodiversity

There is an example of a case study from Kavala that identifies the need to establish a Coastal Observatory to retain geographic data and to organize a coastal monitoring program: <http://www.coastlearn.org/practice/kavala.htm>

---

**Horizon 2020 – Initiative that aims to de-pollute the Mediterranean by the year 2020**

One of the key initiatives of the Union for the Mediterranean, Horizon 2020 will fund projects that will tackle the sources of pollution that account for around 80% of the overall pollution of the Mediterranean Sea: municipal waste, urban waste water and industrial pollution.

The 2007-2013 Road-Map adopted by ministers focuses on the:

- Identification of projects to reduce the most significant sources of pollution.
- Identification of capacity building measures to help neighboring countries create national environmental administrations that are able to develop and enforce environmental laws.
- Use of the EU research budget to develop and share knowledge of environmental issues relevant to the Mediterranean.
- Develop indicators to monitor the success of Horizon 2020.

### **COBSEA –The Action Plan for the Protection and Development of the Marine Environment and Coastal Areas of the East Asian Seas Region**

Within the framework of UNEP's Regional Seas Programme, the action plan has ten member countries (Indonesia, Malaysia, Philippines, Singapore, Thailand, Australia, Cambodia, China, Korea, Vietnam). The main components of the plan are assessment of the effects of human activities on the marine environment, control of coastal pollution, protection of mangroves, seagrasses and coral reefs, and waste management. There is no regional convention, rather the program promotes compliance with existing environmental treaties and is based on member country goodwill.

#### **Objectives:**

- Strengthen information management through the development of a COBSEA Coordinating Centre
- Support national capacities in strengthening the implementation of relevant Multilateral Environmental Agreements
- Assist member countries in addressing strategic and emerging issues of priority to the region
- Strengthen regional cooperation through the establishment of formal and informal partnerships in order to minimize duplication of efforts

Extensive information and data have been generated for planning countries' coastal and environmental management programs. Country-specific problems have been identified and remedial measures recommended.

---

### **Spatial Planning in the Coastal Zone: Disaster Prevention and Sustainable Development, the project was funded by the Swedish International Development Cooperation Agency (Sida, 2010 – 2012)**

The overall goal of the project was to reduce and prevent the impacts of natural disasters, climate change and sea level rise and to promote sustainable development of the coastal areas in COBSEA member countries through the application of spatial planning for ICZM and Ecosystem Based Management.

Participating countries - Cambodia, Indonesia, China, Vietnam Thailand, South Korea. It was a 3 phase project:

Phase 1 – Manual for producing a spatial plan



Phase 2 – National consultation meetings on how manual should be implemented, it was clear that there was a need to train people (planners, government authorities, practitioners)

Phase 3 – Implementation of capacity building and adaptation activities – TRAINING

*Results:* Capacity-building needs were identified and national teams of instructors were created.

The Regional Resource Document “Spatial Planning in the Coastal Zone of the East Asian Seas Region: Integrating Emerging Issues and Modern Management Approaches” was the main outcome of Phase I of the project:

<http://www.cobsea.org/documents/COBSEA%20Spatial%20Planning%20Regional%20Resource%20Document.pdf>

---

### **ICAN – International Coastal Atlas Network, a global reference for the development of coastal web atlases (CWAs)**

CWA is defined as: ..."collections of digital maps and datasets with supplementary tables, illustrations, and information that systematically illustrate the coast, oftentimes with cartographic and decision support tools, all of which are accessible via the Internet".

They provide information across several themes: Marine spatial planning; Climate change impacts, coastal vulnerability; Coastal governance (boundaries, protected areas); Coastal conservation and protected areas management; Coastal hazards; Population pressures; Resource availability and extraction

The long-term strategic goal is to facilitate the development of digital atlases of the global coast based on the principle of distributed, high-quality data and information. These atlases could be local, regional, national and international in scale.

Objectives:

- Ensure that ICAN has representation from coastal web atlas development and user groups from across the world.
- Develop technical and policy guidelines to assist coastal web atlas developers in acquiring data and engaging with data providers.
- Highlight the benefits of standards based systems to the coastal atlas developer communities.
- Develop collaborative projects for the sharing of know-how, implementation of technical solutions and demonstration of atlas benefits to users.

- ICAN is developing several products, such as user and developer guides, handbooks and articles on best practices, information on standards and web services, expertise and technical support directories, education, etc.

---

**COREPOINT - a partnership of research centers, local authorities and coastal networks from Belgium, France, Ireland, the Netherlands, United Kingdom, funded under the INTERREG IIIB programme, 2004-2008**

The project aimed to advance integrated coastal zone management (ICZM) in northwest Europe through a network of local authorities, research organizations and NGOs. It involved 12 partners from Ireland, the United Kingdom, France, Netherlands and Belgium and enabled a comparison of approaches to ICZM at the northwest Europe scale; a series of workshops was hosted to promote the principles contained in the European Union's recommendation on ICZM. The objective of the project was to strengthen links between researchers and policy makers to orientate relevant research towards problem solving at the local level within the coastal zone.

Relationships between local authorities and research groups formed the basis of the project at nine study sites across North West Europe. Recommendations from the project include: continuing to advocate the use of ICZM as a means of bridging the strong land/sea divide; promoting the wider use of the ICZM Progress Indicator through wide stakeholder involvement and repeated assessment; continued support for communication, coordination and collaboration between planning and ICZM; other recommendations advocate new approaches or material for consolidating capacity building for ICZM in North West Europe.

---

**ECO-IMAGINE**

About 10 years ago, the Blue Plan developed the *Imagine* approach in order to address sustainable coastal zone management needs in the Mediterranean. This approach facilitates the shaping of a sustainable development vision by engaging stakeholders within a participatory process based on systematic analysis. The process is intended to describe, assess and examine the past, present and future levels of sustainability of a local system by means of indicators, setting goals and monitoring the system's progress towards sustainable development. The approach was implemented in Malta, Lebanon, Algeria, Slovenia and Cyprus within integrated coastal zone management projects under the CAMP.

---

**SUSTAIN, 2010 – 2012, Assessing Sustainability and Strengthening Operational Policy, funded through the INTERREG IVC programme**

The increasing intensity of human activities along our coastline (e.g. the development of ports and harbors, land reclamation, tourism and sand/gravel extraction) has a severe impact on coastal communities and natural habitats. The key objective of SUSTAIN was to develop a fully implementable policy tool, applicable for all 22 coastal states of the EU, to ensure that the integrated management of coastal issues will be sustainable. It is based on a set of easily measurable sustainability indicators that were developed and assessed during the project to enable Authorities to measure effectively the sustainability of the coasts. The project consisted of 13 partners (including regional and local authorities, universities and NGOs) representing the North Atlantic and South Atlantic seabords, the Mediterranean, Baltic and Black Seas.

SUSTAIN developed an indicator-based methodology and scoring system (numerical value) which enables a self- assessment approach for local and regional authorities, to evaluate their sustainability performance for the purpose of improving the management of coastal zones: [http://www.sustain-eu.net/what\\_are\\_we\\_doing/sustain\\_indicator\\_set.pdf](http://www.sustain-eu.net/what_are_we_doing/sustain_indicator_set.pdf)

---

**SPICOSA**

An EU integrated project, aimed to create a self-evolving, operational research approach framework for the assessment of policy options for the sustainable management of coastal zone systems. SPICOSA contributed to the understanding of social interactions within coastal zone systems and how these impact the environment and future policies.

---

**Interreg**

An initiative that aims to stimulate cooperation between regions in the EU on different levels. It began in 1989 and is financed under the European Regional Development Fund. The current program is Interreg IV, covering the period 2007-2013. One of its main targets is to diminish the influence of national borders in favor of equal economic, social and cultural development of the whole territory of the European Union. It does this by strengthening economic and social cohesion and promoting cross-border, transnational and interregional cooperation.

---

## **Australia**

The Framework for a National Cooperative Approach to Integrated Coastal Zone Management, endorsed in October 2003, addressed both development and conservation challenges for the coast that were of national scale and scope. It recognized the need for government to support ongoing economic, social and environmental well-being in the coastal zone. It set the scene for national cooperation in managing coastal issues and ensuring effective and complementary arrangements within and across jurisdictions, and to better reflect the interests of coastal stakeholders.

Six priority areas are addressed in the Framework:

- integration across the catchment coast ocean continuum
- land and marine based sources of pollution
- climate change
- pest plants and animals
- planning for population change
- capacity building

Jurisdictions have different legislative and administrative frameworks for managing the coastal zone. Adoption of a national cooperative approach addresses cross border and sectoral issues, harmonizes joint action towards management of common issues, and encourages investments from all the various jurisdictions.

The implementation of the Framework is managed through an Intergovernmental Coastal Advisory Group (ICAG), comprised of representatives from the Australian Government, each state government, the Northern Territory Government and the Australian Local Government Association (ALGA). ICAG members meet several times a year to share experiences and to work on Framework implementation.

National Cooperative Approach to Integrated Coastal Zone Management, Framework and Implementation Plan (2006):

<http://www.environment.gov.au/coasts/publications/framework/pubs/framework.pdf>

---

## **Ireland**

The Heritage Council was established as a statutory body under the Heritage Act, 1995. It takes an integrated approach to heritage, with responsibilities that include both its cultural and natural aspects. The Heritage Act provides a definition of 'heritage' - and its breadth is truly comprehensive. It includes monuments, archaeological objects, heritage objects such as art and industrial works, documents and genealogical records, architectural heritage, flora, fauna, wildlife habitats,

landscapes, seascapes, wrecks, geology, heritage gardens, parks and inland waterways.

In November 2002, the Heritage Council commissioned the Coastal and Marine Resources Centre (CMRC) in Cork to carry out a review of best practice in ICZM at a national and international scale. Its purpose was to inform the Marine and Coastal Committee on developments in this area, particularly in relation to:

- Providing a succinct review of best practice procedures for ICZM;
- Summarizing the findings of those practices most commonly used at different levels of administration and those that seemed to be more site/area specific.

During the course of the project, it was modified to an overview of ICZM practice. Examination of the Irish experience of ICZM formed a substantial section of the research. Techniques in the implementation of the ICZM and mechanisms to engage the public and other involved agencies were also reviewed.

Apparently Ireland did not report officially to the EU ICZM Recommendation.

---

### **Northern Ireland ICZM Strategy**

In 2006, Northern Ireland launched "An Integrated Coastal Zone Management Strategy for Northern Ireland 2006-2020".

Developed in partnership with all relevant government departments, the ICZM strategy for Northern Ireland is a living document, which reflects government's commitment to sustainable development through the key elements of society, environment, economics and integration.

In line with the EU Recommendation on ICZM, the strategy's action plan:

- Identifies the roles of different organizations as well as identifying ways in which these roles can be co-ordinated
- Identifies a suitable mix of techniques for implementing ICZM with due regard for the EU's ICZM principles
- Develops national, regional or local programs to address both the marine and landward areas of the coastal zones
- Identifies measures to promote public participation
- Identifies long-term and reliable sources of durable funding for ICZM initiatives
- Identifies mechanisms to ensure full and co-ordinated implementation and application of community legislation and policies that have an impact on coastal areas

- Includes adequate monitoring systems as well as information dissemination to the wider public
- Determines appropriate national training and education needs.
- The strategy is not:
  - A statutory document
  - A nature conservation plan
  - An economic development plan
  - A social development plan

# 11. THE MEDITERRANEAN COASTAL ENVIRONMENT

---

## 11.1. The environmental state of the Mediterranean coastline

### 11.1.1. Overview of the Sea

The Mediterranean Sea, the larger semi-enclosed sea on Earth (latitude: 30° - 46°N, longitude: 6°W – 36°E) lies between Europe, Asia and Africa and without the Black Sea covers about 2.5 million km<sup>2</sup> or 0.82% of Earth's surface (Bianchi & Morri, 2000). Its uniqueness arises from the limited connection with the Atlantic Ocean, through the narrow the Strait of Gibraltar, the man-made connection with the Red Sea via the Suez Canal, and the smaller semi-enclosed Black Sea through the narrow Bosphorus Strait (Turley, 1999). The water deficit, caused by greater evaporation than precipitation and river run-off, is mainly compensated for by the inflow of Atlantic water through the Straits of Gibraltar (1,800 km<sup>3</sup>) and by the water contribution from the Black Sea through the Straits of the Dardanelles (300 km<sup>3</sup>; Hopkins, 1985). The climate in the region is characterized by hot, dry summers and cool, humid winters.

The Mediterranean Sea is one of the most oligotrophic seas of the world, related to the interaction of the general circulation pattern with the productivity inside the basin and with the export production and remineralization along the water column (Crispi et al., 2002). An oligotrophic gradient exists spatially, increasing along both the west-east and north-south axes (Danovaro et al. 2010; Zenetos et al. 2002). This oligotrophic state induces low phytoplankton biomass and primary production values, except for coastal areas, due to the influence of major rivers (Lefevre et al., 1997). The sea is characterized by weak tides and associated tidal currents, inducing significant consequences on the characteristics of the shorelines and their pollution (Batisse & Grissac, 2003). The above processes induce considerable spatial variability among the East – West basins (in terms of hydrography and biodiversity), but also in the North – South divide in terms of climate and geomorphology and therefore in vegetation and land-use (Jeftic, Milliman & Sestini, 1992; Jeftic, Keckes & Pernetta, 1996).

### 11.1.2. Overview of the Coastal Zone

The Sea is confined by a coastline of 46,000 km long (27,000 km of continental shorelines and 19,000 km in islands), characterized by a narrow shelf and littoral zone (Menard & Smith, 1966; EEA, 2006). The coastal zone of the Mediterranean Sea (the area shallower than 200 m contour) represents approximately 578,000 km<sup>2</sup> or 20% of its total area (Würtz, 2010), encompassing a large, rich, and diverse set of coastal ecosystems (Jeftic et al., 1990). The Mediterranean coastal zone includes twenty-two coastal countries, most of them being part of the Barcelona Convention; seven of them (Spain, France, Italy, Slovenia, Greece, Malta and Cyprus) belong to



the EU, covering approximately half of the Mediterranean coastline (Sanò et al., 2010). Along this coastline there exist 122 marine and coastal protected sites, covering an area of 17,670 km<sup>2</sup>.

Many parts of the coastline are comprised from rocky shores (about 54%) with high cliffs, as the Alicante Spanish cliffs exceeding 150 m (Yébanez et al., 2002) and the Croatian mega-cliffs over 1,000 m. These rocky shores are interrupted by sedimentary shores (approximately 46% of total coastline length), that include important and fragile ecosystems such as beaches, dunes, reefs, lagoons, swamps, estuaries and deltas (CEPF, 2010). Larger coastal plains with extended sandy beaches are found in regions with large rivers (e.g., at the deltas of Ebro, Rhone, Po and Nile). These coasts shelter rich ecosystems forming priority, endangered, threatened and in need of conservation marine habitats, constituting a 'biodiversity hot-spot', characterized by both exceptionally high levels of endemism and critical levels of habitat loss, thus requiring conservation efforts (Meyers *et al.*, 2000). Marine habitats like the seagrass meadows (mainly *Posidonia oceanica*) appear ecologically significant (Boero, 2009) since they form extensive meadows along the greater parts of the Mediterranean coast changing the primary habitat that host them (from sandy to rocky) into a secondary habitat with vital functions for the rest of the Mediterranean biota. Other habitats, as the fragile coastal dunes, support indigenous vegetation and animal species in a small area characterized by strong environmental gradients (Acosta et al., 2009). Table 11-1 reviews the Mediterranean habitats covered by the Habitat Directive 92/43/EEC.

**Table 11-1.** Mediterranean habitat types covered by the EU Habitat Directive.

Habitat Code	Habitat Type
11	Open Seas and Tidal Areas
1110	Sandbanks, which are slightly covered by seawater all the time
1120	Posidonia beds ( <i>Posidonia oceanica</i> )
1130	Estuaries
1140	Mudflats and sand flats not covered by seawater at low tide
1150	Coastal lagoons
1160	Large shallow inlets and bays
1170	Reefs
8330	Submerged or partially submerged sea caves

It is very evident that the Habitat Directive did not consider the diversity of habitat types that characterizes the Mediterranean Sea. Coralligenous formations are not covered and, furthermore, the spectacular diversity of Mediterranean biota found on capes and promontories is ignored (Boero, 2009). However, all the above reveal the importance of the sustainability in the use of goods and services in the Mediterranean coastal zone, and the potential interest in applying an ecosystem management approach and conservation- and management-related measures not only to the areas under state jurisdiction, but also to the habitats and ecosystems that lie in waters outside national jurisdiction (UNEP, 2010). Such actions would protect the vast set of Mediterranean coastal ecosystems that deliver valuable benefits to all its coastal inhabitants, including brackish water lagoons, estuaries, or transitional areas; coastal plains; wetlands; rocky shores and nearshore coastal areas; sea grass meadows; coralligenous communities (UNEP, 2012).

### 11.1.3. Human Impacts on the Coastal Zone

Although Mediterranean coasts are highly valued, they are also heavily used receiving multiple pressures simultaneously and in many cases chronically. The main issues of concern are:

#### Human Population

The human population of the Mediterranean Sea is distributed along the coast and concentrated in coastal cities, and this trend is increasing. More than 145 million people live permanently along its coastline in 234 coastal administrative entities. Coastal Mediterranean population grew from 95 million in 1970 to 145 million in 2000 (approximately 50 million additional inhabitants within 30 years), at an average annual growth rate of 1.4% (Plan Bleu, 2005). By 2025 this figure will reach 174 million inhabitants, at an annual growth rate of 0.8%, a year that seasonal tourism flows also expected to escalate to a projected 350 million tourists (UNEP, 2012). In general the North African countries with the fast growing populations are also the ones with the highest rates of growth of coastal densities, including tourism densities (Algeria, Tunisia and Turkey) (Markandya et al., 2008).

#### Urban Sprawl

Numerous urban waterfront developments built on the sea along the Mediterranean coastline have resulted in large-scale destruction of the infralittoral zone (Meinesz et al., 1991). The artificial land cover is expanding at an alarming pace: about 40% of the Mediterranean coasts are now concreted due to urban sprawl, roads, tourist facilities, ports. Based on Blue Plan projections, by 2025, the artificial land cover of the coastal strip (0-10 km) would reach values close to saturation in Spain, Egypt and Lebanon (Pan Bleu, 2005). At the same time, few undeveloped areas remain along the northern side of the Mediterranean Sea. The seagrasses *Posidonia oceanica* (L.) Delile and *Cymodocea nodosa* (Ucria) Ascherson are the species most affected by this destruction.

### **Landscape Changes**

An unprecedented degradation of coastal landscapes has occurred along the Mediterranean coastlines, as a result of growing population and consumption expectations leading to rapid modifications and conversions of the landscapes on increasingly larger scales (Alpan, 2011). Landscape changes are associated to artificial land cover, urban expansion, tourism over-development, agricultural encroachment and intensification, sand dune afforestation, logging, removal of reed beds, etc.

### **Marine Litter**

Mediterranean coastal waters show increased quantities of marine litter on beaches, floating debris and the seabed (Galgani et al., 2010). The analysis of marine litter sources indicates the contribution of household disposal (17%), tourist facilities (16%) and runoff from waste dumps (15%). The majority of this litter is plastic (55%), wood (28%) and metal (11%). Large plastic material affect marine organism through indigestion and entanglement, but presently more attention is given to the impact of micro-plastics (UNEP, 2012).

### **Eutrophication**

Although the Mediterranean is an oligotrophic sea, there is a rim of eutrophic waters due to the terrestrial influx of nutrients, along the coastal areas (Nixon, 1990). Eutrophication is exerted by urbanization, tourism development, industrial effluents and agricultural fertilizers (Karydis & Hatzichristofas, 2003). Indeed, 26% of 104 coastal settlements with over 100,000 inhabitants and 32% of 489 settlements with population between 10,000 and 100,000 inhabitants are lacking of wastewater treatment plants. Rivers are also important transporters of nutrients and suspended solids in the Mediterranean Sea, as approximately 605,000 tonnes of N-NO<sub>3</sub> and 14,000 tonnes of P-PO<sub>4</sub> are entering annually into the Mediterranean Sea from the rivers Po, Rhône and Ebro (UNEP/MAP, 2003). Eutrophication increases chlorophyll-a concentrations in coastal areas, as the Nile delta from Alexandria to Gaza (Abdalla et al., 1995), the Gulf of Antalya (Turkey), the Ismir Bay (Turkey), Thermaikos Gulf (Greece), Pagasitikos Gulf (Greece), Northern Adriatic coast (Solic et al., 1997), Gulf of Lions (France), Barcelona and Valencia coasts (Spain) and the Gulf of Gabes (Tunisia).

### **Toxic Marine Pollution**

Organic and microbiological pollutants provided by untreated domestic and industrial wastewater discharges and affect directly the quality of bathing water. Such loadings can not only result in the deterioration of habitats and ecosystems, but also present another threat to human health. Pathogenic bacteria and viruses enter bathing waters and contaminated seafood (UNEP, 2012), while industrial effluents enrich coastal waters in heavy metals such as mercury, zinc, cadmium and copper, which may accumulate in seafood and present serious health risks to the population. The atmospheric pathways of most toxic pollutants (as organochlorines) are equally important to fluvial inputs (Martin & Milliman, 1997). Despite localised 'hotspots',

especially in the western Mediterranean (along the Marseille to Languedoc-Provence Cote Azur and Barcelona coastline), a general decline in PCB concentration has been observed over the last two decades (Tolosa et al., 1997), which coincides with legislative restrictions on their use and manufacture.

### **Biodiversity Changes**

A large amount of studies exists on threats to marine biodiversity and marine resources in the Mediterranean Sea (e.g. Galil, 2000; Danovaro, 2003; Ben Rais Lasram et al., 2010; Lejeune et al., 2010). However, there is still the need to investigate how human and natural drivers interact and how they affect communities and ecosystems as a whole. In the Mediterranean, a northwestern-to-southeastern decreasing gradient of species richness was observed in most groups of invertebrate and vertebrate species (Coll et al., 2010), attributed to species tolerance to environmental factors (i.e., temperature and salinity), connectivity between regions and possibly the lack of data. The distribution of elasmobranch species showed a higher concentration of species in the west, while fish species showed higher richness along the north coastal zone and the Adriatic Sea. Species exploitation, habitat loss and destruction, eutrophication, introduced predators and bioinvasions, diseases and the general human disturbance are considered as the basic threats to the biodiversity of the Adriatic Sea (Lotze et al., 2006). Exotic species have colonized Mediterranean coastal waters, with the higher richness occurring along the Israeli coast (Galil, 2007), due to Lessepsian migration and ship transportation. Climate change is also exerting a major effect on Mediterranean marine biodiversity through seawater warming, affecting the distribution of native and alien species. The increase in water temperature in the Mediterranean also alters jellyfish population dynamics (Molinero et al., 2009).

### **Fisheries Over-exploitation**

The pressures of fishery activities stem from commercial fisheries, recreational fisheries, and aquaculture. Fishing activity impacts both benthic and pelagic species (and habitats), utilizing a variety of fishing gear, such as traps, nets, lines and beach seines, some of which are still in use (Horden & Purcell, 2000). The number and power of fishing vessels as well as their efficiency increased abruptly at the end of the 1960s in some areas, to peak at the end of the 1980s (Colloca et al. 2004).

Based on the results of the MEDITS (International Bottom Trawl Survey in the Mediterranean), over-exploitation has led to a serious decline in many fish stocks, but a major impact of fishing on the marine ecosystem probably arises from the fact that fishing practices lead to discards (Bertrand et al. 2002). According to STECF (2010), 32 of 38 stocks assessed in Mediterranean European countries are overfished (about 84%), while only 4 stocks are considered sustainably exploited. In particular, all assessed demersal fish stocks (100% of 18 stocks) were found over-exploited, while among the nine crustacean stocks assessed, seven were over-exploited while the status of two stocks was unknown (Colloca et al., 2013). Over-exploitation was highly linked to the high exploitation rates on juveniles in sensitive areas such as nurseries

or spawning grounds of commercial species and the poor selectivity of fishing gears (Caddy, 1999). An evident decreasing trend in the mean size related to fishing exploitation was directly observed in commercial species like the sardine in the Aegean Sea (Voulgaridou and Stergiou, 2003), leading to a 'demographic erosion' in terms of size and age-structure of coastal fish population (Stobart et al., 2009). Such effect could make the stocks more vulnerable to environmental impacts and changes. Presently, fisheries management is still ineffective in the Mediterranean Sea, as only few actions have been undertaken to mitigate the fishing impact on the ecosystem and rebuild exploited populations (Mora et al. 2009).

### **Coastal Erosion**

Coastal erosion is an environmental threat, related to a combination of human activities such as damming and coastal development, the abandonment of agriculture, and global climate change. Based on the CORINE coastal erosion data, about 50% of the total coastline of the Euro-Mediterranean area is considered to be stable, as this coastline is rocky. On the other hand, about 25% of the Italian Adriatic coast and 7.4% of the Aegean Sea show evolutionary trends of erosion, especially at the sandy coastal parts. Coastline stability is also affected by the increase in artificial structures, both within the drainage basin, especially dams and reservoirs, retaining approximately 45% of sediment fluxes to be delivered in the coast (UNEP, 2009). For this reason, coastal erosion appears evident in the deltaic zones of Nile and Po Rivers (Özhan, 2002). Furthermore, the proliferation of coastal structures, as marinas and other urban and tourist-industry infrastructures also affect the erosion-accretion dynamics of the coastal zone (UNEP, 2012). More than 40% of beaches in France (French Riviera and delta of Rhone River), Italy (Emilia-Romagna coastline) and Spain (Catalan coasts and Ebro River delta) were found to be confronting coastal erosion. Erosion rates are expected to accelerate in the near-future, as sea level rise would eventually invade wetlands and lowlands.

## **11.2. Environmental assessment of Kavala Gulf and Kavala municipality coastline**

### **11.2.1. Overview**

Kavala is located at the northern part of Greece, near the borders with Turkey and Bulgaria. Since the area is considered a crossroad between East and West, the city of Kavala has a rich history starting approximately from the Homeric era. Kavala borders to the north, as mentioned, with the Paggeon Mountain, famous for its gold mines during the age of Alexander the Great, to the east with the River Nestos and to the west with the Strymon River, two transboundary rivers originating from Bulgaria and FYROM, respectively.

To the south one can view the Gulf of Kavala, the second in size semi-enclosed coastal water body of the Thracian Sea, which is part of the North Aegean Sea's continental shelf. The gulf and its coastal zone is rich in natural ecosystems

developing along the 65-km long coastline. Moving from east to the west, the Nestos delta area forms a natural reserve park, protected by the Ramsar Convention and the Natura 2000 international wetlands network. Nine coastal lagoons, with Keramoti, Eratino, Agiasma and Vassova being the larger, exist at the eastern part of the Gulf, isolated from the sea by a series of narrow and long sand bars, formed by the sediments supplied by the Nestos River. Extensive aquaculture of euryhaline fish species, like sea bass and sea bream, takes place in these lagoons by the local fishermen co-operative. A series of sandy beaches exists to the western part of the Gulf, from Palio to the Iraklitsa area, with the sand dunes of Peramos being protected by the Natura 2000 network. This is the most touristic zone of the Gulf, where people from Kavala and the nearby cities enjoy their summer vacations. Tourists from all over the world, come to this area to spend their summer in a wonderful setting near the sea, where the coastline forms small isolated gulfs with crystal clear water. Finally, at the western part of the zone, the Strymon river delta flows through the ancient ruins of Amphipolis, comprising a natural border for the Kavala Province.

### 11.2.2. Study Area Description

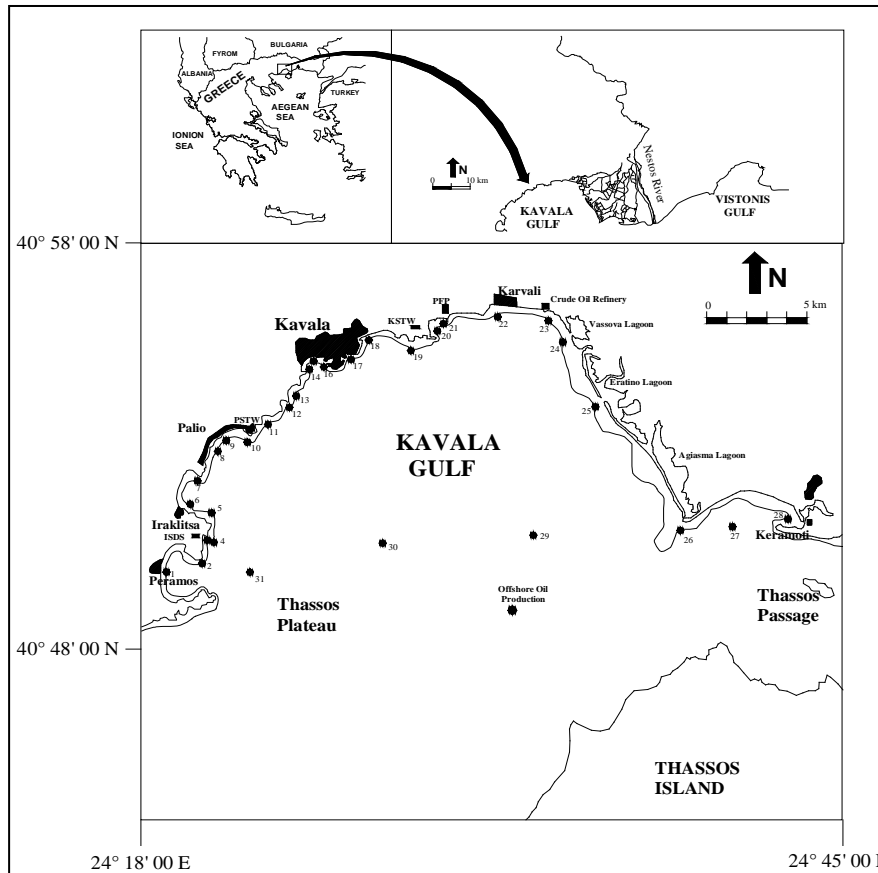
Kavala Gulf (40° 52' 50'' N; 24° 25' 00'' E) is the second in size semi-enclosed coastal water body in the Thracian Sea, the northern part on the continental shelf of the North Aegean Sea (Figure 11-1). The system covers an area of  $461.155 \times 10^6 \text{ m}^2$  and has a coastline length of 62,805 km. The east-west dimension of the gulf is 37,673 km and the north-south 18,923 km.

The Gulf's basin has an amphitheatric shape, with gentle slopes at the center (less than 0.2°), increasing rapidly towards the coast (2.4°), and a symmetry axis directed NNE-SSW (Papazacharias *et al.*, 1997). The Gulf's mean depth is 32 m, obtaining a maximum value of 60 m at Thassos Plateau (Figure 11-1). Kavala Gulf is connected with the North Aegean Sea through the Thassos Channel and Thassos Plateau. The Thassos Passage is a 7.3 km wide and 25 m deep sea channel at the eastern part of Kavala Gulf, while the Thassos Plateau is an almost flat sea-opening, 20 km wide 50 m deep, between the continental shelf and Thassos Island, allowing the renewal of Kavala Gulf sea water (Sylaios *et al.*, 2005; Sylaios *et al.*, 2013).

Three municipalities (Kavala, Pagaion and Nestos) have coastlines being parts of Kavala Gulf (Table 11-2).

The coastal zone of Kavala Gulf is consists of a set of independent but closely inter-related morphological and physiographic units, shown in Table 11-3.

Kavala City divides the Gulf into two main parts: a) the western part, where touristic activities prevail, especially at the villages of Palio, N. Iraklitsa and N. Peramos, and b) the eastern part, in which mostly productive activities with significant human impact are located, as industry, navigation and mariculture.



**Figure 11-1.** Kavala Gulf, main human activities along its coastline and offshore and stations for environmental state assessment (from Sylaios et al., 2005)

Table 11-2. Coastline length for the various administrative authorities of Kavala Gulf.

Municipality	Coastline Length (km)
Nestos	26.71
Kavala	22.53
Pagaion	13.57



Table 11-3. Morphological units of Kavala Gulf coastline.

Morphological Unit	Areal Coverage (km <sup>2</sup> )	Mean Depth (m)	Water Volume (× 10 <sup>6</sup> m <sup>3</sup> )
Keramoti Gulf	8.405	12	100.869
Agiasma Lagoon	3.723	1.5	5.584
Eratino Lagoon	3.507	1.5	5.260
Vassova Lagoon	1.326	1.0	1.326
Karvali Bay	9.294	8.0	74.356
Sfagia Harbor	1.772	5.0	8.863
Kavala Port	0.124	11.0	1.366
Rapsani Bay	0.683	9.0	6.147
Palio Bay	2.261	7.0	15.828
Iraklitsa Bay	2.848	12.0	34.176
Eleftheres Bay	5.306	14.0	74.288

### Hydrography, Climatology and Sedimentology

The area is micro-tidal, with tidal range varying between 0.12 m during neap tides and 0.30 m during spring tides under the prevalence of the semi-diurnal ( $M_2$ ) tidal constituent. This means that the tidal variability is mostly due to the Lunar gravitational influence causing a water level change with two maxima and two minima within a 24-hrs period. Other tidal constituents with periods between 12 and 13.5 hrs confluence in Kavala Gulf, propagating through the east and south-west opening of the Gulf (Sylaios *et al.*, 2005).

The input of Black Sea Water (BSW) through the Dardanelles governs the surface dynamics of the area by supplying low salinity (29–34), nutrient-rich BSW, which occupies the surface layer of the water column (20–40 m). The North Aegean Sea appears to be mostly influenced by BSW during spring and summer (April to July), but its metal load appears limited, occurring mostly in the dissolved phase (Lykousis *et al.*, 2002). A bottom nepheloid layer in the Thracian Sea continental shelf has been reported by Kanellopoulos *et al.* (2006), enriched in particulate trace metals of riverine origin, re-suspended by waves, currents, and fishing trawling activity.

The Nestos River, with a mean annual discharge of 88 m<sup>3</sup>/s (ranging between 8 m<sup>3</sup>/s during August to 106 m<sup>3</sup>/s from December to May), consists the only freshwater source in the area, outflowing about 5 km away from Gulf's eastern boundary, supplying freshwater and trace metals in Kavala Gulf (Skoulikidis et al., 1998). Under natural Nestos flow conditions, the total annual sediment flux to the coast was estimated to 2.0 × 10<sup>6</sup> m<sup>3</sup>/yr. However, the development of two hydroelectric dams along Nestos River, operating since 1997, resulted in flood minimization and sediment load reduction to 320,000 m<sup>3</sup>/yr (85% reduction), affecting directly the SPM distribution in the Kavala Gulf (Skoulikidis, 2009). Particulate metals in Nestos Delta and the adjacent coastal area were reported by Kamidis (written communication) at the levels of 43.6, 51.8, 39.9, 52.8, 0.6, and 14.5 µg/g for Cu, Ni, Pb, Cr, Cd, and Zn, respectively.

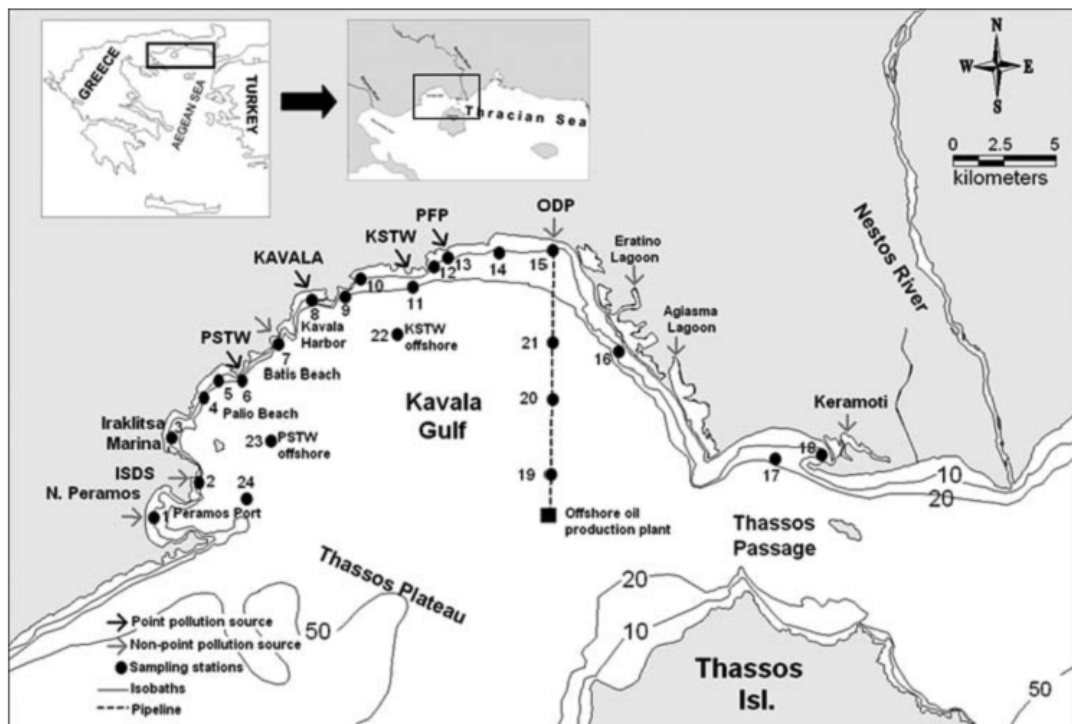
The climate of the broader area is characterized as intermediate between Mediterranean and continental type (Mariopoulos, 1982), dominated by moderate precipitation, cold winters, and arid summer periods. The mean air temperature is 4.0° C in January and 24.5°C in July. Average annual rainfall ranges from 500 to 700 mm. Mean annual precipitation for the period 1975–2000 was 394.2 mm, showing strong seasonal dependence, with 130.4 mm rainfall during the 'dry' period (April–September) and 263.8 mm during the 'wet' period (October–March). Eastern and northwestern wind directions are dominant during the winter period having frequencies of 7% and 10%, respectively. Wind directions change to south (4.7%) and south-west (8.3%) during the summer period.

The surficial sediments of Kavala Gulf are mostly fine-grained, consisting of sand and sandy silts, especially at the southeastern part of the gulf and along its northeastern and eastern coastline. The central part consists of clayey silts, becoming coarser both towards the coastline and the open sea (Perissoratis et al., 1987). The surface sediments of the central and northeastern parts of Kavala Gulf consist of highly plastic, relaxed in cohesion inorganic clays, characteristic of river fluvial deposits originated in the nearby Nestos River outflow. Moreover, the increased levels of bottom turbidity at the eastern and southeastern parts of the gulf, in association with the presence of illite as the most abundant sediment clay mineral, and the general anti-clockwise circulation along the Thracian Sea continental shelf, lead to the conclusion that Nestos River supplies most of the fine-grained sediments of the area (Perissoratis et al., 1987). Water circulation and size sorting by the near-bottom currents are the mechanisms controlling the clay mineral dispersal within the bay (Conispoliatis and Lykousis, 1986).

#### **Land-Uses and Activities along the coastal zone**

Kavala Gulf, and especially its central part, is the final recipient of wastes originating from various land-based activities, such as a phosphoric fertilizer plant (PFP), wastewater treatment works (Kavala Sewage Treatment Works, KSTW and Palio Sewage Treatment Works, PSTW), oil rigs, pipelines and an oil desulfurization plant (ODP), sea mariculture and mussel-culture facilities, and a newly built commercial

harbor (Figure 11-2). KSTW and PSTW provide conventional secondary wastewater treatment with an average capacity of  $3.5 \times 10^6$  m<sup>3</sup> and  $0.2 \times 10^6$  m<sup>3</sup> of wastewater annually, respectively (Sylaios et al., 2005). PFP processes large amounts of phosphate rock for phosphoric acid production, leading to calcium sulfate by-products, also known as phosphogypsum. Almost 4.5 tons of phosphogypsum are produced for each ton of phosphoric acid (Rutherford et al., 1994). The phosphogypsum is stored in open-air storage stacks, at the coastal zone near PFP (Sylaios et al., 2005; Sylaios et al., 2012).



**Figure 11-2.** Map of Kavala Gulf, location of point and non-point land-based pollution sources and sites monitored by DUTH

Other diffuse trace metal sources to the marine coastal area may include the transfer during rainfall of roadside soils and dust located along the Kavala coastal traffic network. Christoforidis and Stamatis (2009) reported significant mercury, arsenic, and lead contamination along Kavala coastal roads, due to vehicle traffic and industrial activities. Airborne particulate emissions from industrial sites may also contribute indirectly to coastal SPM enrichment in metals, but such information was unavailable.

Table 11-4 summarizes coastal activities and potential impacts along the coastal zone of Kavala Gulf. Activity belongs administratively to the adjacent Pagaion Municipality, activities and impacts 2 – 7 take place along the coastline of Kavala Municipality, while activities 8 and 9 are situated along the coastline of Nestos

Municipality. Activities 10 and 11 affect the all three coastal municipalities of Kavala Gulf.

Table 11-4. Human activities and potential impacts along Kavala Gulf coastline (Sylaios *et al.*, 2012b).

No	Location	Impact on the Coastal Environment
1	Iraklitsa Sewage Disposal Site (ISDS)	Sewage runoff to the coastal zone during periods of increased precipitation
2	Palio Sewage Treatment Works (PSTW)	Release of sewage sludge from a touristic coastal community where population increases up to four times during the summer months
3	Kavala main fishing port and auction market	Release of untreated organic waste from fish tissue during market cleaning
4	Kavala harbor	Navigation activity - discharge of main drain pipe network
5	Kavala Sewage Treatment Works (KSTW)	Release of sewage sludge from urban activity
6	Phosphoric fertilizers plant (PFP)	Uptake and release of 3,000 m <sup>3</sup> d <sup>-1</sup> of diluted phosphoric acid – Phosphogypsum disposal
7	Oil Desulphurization Plant (ODP)	Possible small scale pollution through oil leakages and spills during the regular marine oil transportation
8	Nestos river lagoons	Extensive aquaculture with 150 tn annual fishery production – Transfer of agricultural nutrients from Chrisoupolis plain
9	Keramoti harbor	Navigation activity - discharge of main drain pipe network
10	Oil rig	Possible small scale pollution through oil leakages during oil exploitation
11	Submarine pipeline	Possible small scale pollution through oil leakages during oil transfer to ODP

A series of nine small and medium in size coastal lagoons occupy the eastern part of the gulf's coastline. Extensive aquaculture takes place there. These lagoons act as buffer zones for the transfer of agricultural nutrients from Chrisoupolis plain to Kavala Gulf coastal zone (Theocharis *et al.*, 2000; Sylaios and Theocharis, 2002). In this area 11,000 ha are cultivated mostly with corn, rice and cereals, using several types and quantities of chemical fertilizers – particularly urea, ammonium sulfate and mixed fertilizers (NPK).

Suspended particulate matter from Nestos River, outflowing 15 km from the eastern boundary of Kavala Gulf, supplies the sand barriers of these coastal lagoons. Nestos River, with a mean annual discharge of  $88 \text{ m}^3 \text{ s}^{-1}$  (ranging between  $8 \text{ m}^3 \text{ s}^{-1}$  during August to  $106 \text{ m}^3 \text{ s}^{-1}$  from December to May) consists the only freshwater source in the area, outflowing about 5 km away from Gulf's eastern boundary (Skoulidakis, 1998). However, the development of two hydroelectric dams along Nestos River, operating since 1997, and the consequent reduction in freshwater flow and suspended sediment loads poses an important threat to the functioning of this coastal ecosystem (Sylaios *et al.*, 2012a).

### **Water Column Dynamics**

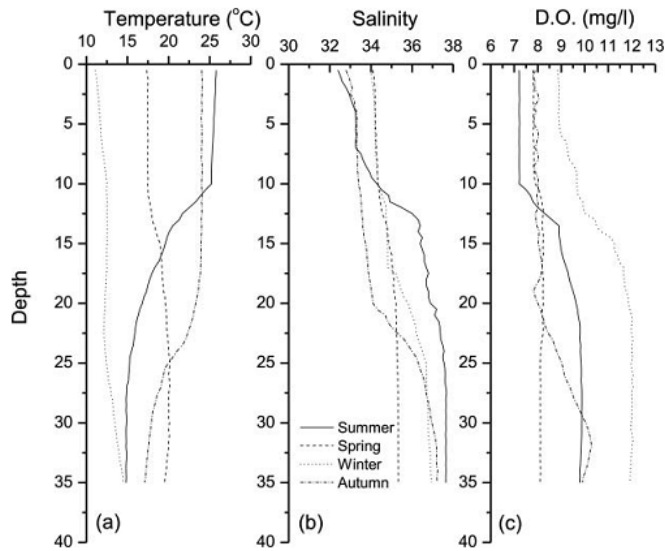
Surface water temperature ranges between  $10^\circ\text{C}$  and  $26^\circ\text{C}$  for winter and summer periods, respectively, depicting a seasonal thermocline at 10 m depth during summer months (June to August). In this water column, bottom temperature shows limited seasonal variability from  $15^\circ\text{C}$  in the winter to  $21^\circ\text{C}$  in spring. Surface water salinity obtains a mean annual value of 33-34, showing strong seasonal dependence due to BSW influence, with saltier water (35–36) occurring during the winter and fresher water (salinity less than 33) during spring and summer. In the summer, a halocline is developed at 7–12 m depth, separating surface low salinity water (32–33) from increased bottom values (36–37). The halocline deepens during autumn (up to 20 m depth), and disappears in the winter, as vertical homogeneity prevails in the system (Figure 11-3).

Dissolved oxygen (DO) concentration in the water column of the Kavala Gulf ranges between 7 and 12 mg/l, exhibiting significant spatial and temporal variability (even within the same sampling day), most likely due to the variable rate of photosynthetic activity that takes place in the water column. In the winter, almost homogeneous DO contents of 9.0 mg/l prevail in the water column. In late spring and summer, surface DO levels reduce (7.4–8.3 mg/l) compared to the bottom (8.6–9.5 mg/l), as a result of DO consumption during algae decomposition.

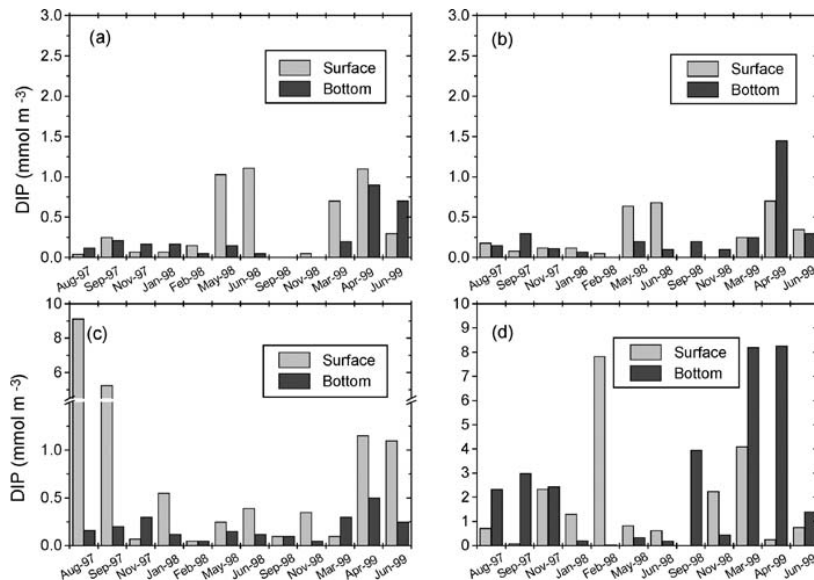
Higher pH values (near 8.0) were measured in the winter, showing a gradual increase eastwards. In summer, pH reduced to a mean value of 7.7, as a result of carbon dioxide release during organic matter oxidation.

An average surface chlorophyll-a value of  $1.1 \mu\text{g/l}$ , is detected in the Kavala Gulf, with higher values (up to  $4 \mu\text{g/l}$ ) along the central and eastern coastline. This is a result of the higher land-derived industrial and agricultural nutrient out flux, which

favors plankton growth. KSTW and PSTW supply nutrient effluents through underwater diffusers, producing highly diluted turbulent jets and thus having lesser impact on algal production.



**Figure 11-3.** Seasonal variability of (a) water temperature, (b) salinity, and (c) dissolved oxygen profiles at the middle of Kavala Gulf, during summer (solid line), spring (dashed line), winter (dotted line), and autumn (dashed-dotted line) (after Sylaios et al., 2012b).



**Figure 11-4.** Temporal variability of surface and bottom dissolved inorganic phosphate (DIP) concentrations at (a) PSTW, (b) Kavala Harbor, (c) KSTW, and (d) PFP.

Surface SPM concentrations ranged between 11 and 20 mg/l. Variability among sampling sites in SPM concentrations appears limited, with reduced relation to salinity, indicating the absence of river-associated terrigenous SPM source throughout the coastal zone, due to the recent Nestos River damming SPM concentrations remain to almost equal levels in winter and summer (16.0–18.5 mg/l) at the surface and the bottom.

### Nutrient Dynamics

Although punctuated by losses and gains (nutrients uptake and transformation), concentrations of dissolved inorganic nutrients showed a nearly stable temporal behavior, with locally increased values at stations highly influenced by terrestrial dissolved inorganic nitrogen ( $\text{DIN} = \text{N-NO}_3 + \text{N-NO}_2 + \text{N-NH}_4$ ) and dissolved inorganic phosphorus ( $\text{DIP} = \text{P-PO}_4$ ) inputs. Temporal trends and concentrations in surface and bottom waters were not systematically different from one another, in stations not affected by direct nutrient loadings (Sylaios et al., 2005). However, such surface to bottom differences became significant in stations near point land-based sources, such as PSTW, Kavala harbor, KSTW and PFP.

Nitrate appears as the dominant nitrogen species, with a participation of 75–85% in the total DIN. Nitrite and ammonium contribution to DIN is limited to 3–5% and 10–15%, respectively (Table 11-5). Nitrate nitrogen at the surface water of Kavala Gulf shows significant variability, with a mean concentration of  $3 \text{ mmol m}^{-3}$ . Increased mean nitrate nitrogen values are observed at Peramos harbor,  $6 \text{ mmol m}^{-3}$ , at KSTW ( $25.5 \text{ mmol m}^{-3}$ ) and PFP ( $13.3 \text{ mmol m}^{-3}$ ). Significant variability is also observed in ammonium concentrations (mean =  $1.5 \text{ mmol m}^{-3}$ ), with higher values recorded at PSTW ( $21 \text{ mmol m}^{-3}$ ), at KSTW ( $15.6 \text{ mmol m}^{-3}$ ), Iraklitsa harbor ( $20.8 \text{ mmol m}^{-3}$ ) and Agiasma lagoon ( $15.6 \text{ mmol m}^{-3}$ ).

**Table 11-5.** Summary of water quality parameters (mean, minimum, maximum and standard deviation) in Kavala Gulf, during the period 1997-1999 (Sylaios et al., 2005).

Parameter	Mean	Minimum	Maximum	Standard deviation
Temperature ( $^{\circ}\text{C}$ )	17.36	10.22	26.29	5.06
Salinity (psu)	33.67	27.32	35.59	1.20
D.O. ( $\text{mg l}^{-1}$ )	8.02	7.08	12.15	2.12
N- $\text{NO}_3$ ( $\text{mmol m}^{-3}$ )	2.95	n.d	32.48	4.00
N- $\text{NO}_2$ ( $\text{mmol m}^{-3}$ )	0.20	n.d	4.02	0.34
N- $\text{NH}_4$ ( $\text{mmol m}^{-3}$ )	1.53	n.d	31.01	3.84



P-PO <sub>4</sub> (mmol m <sup>-3</sup> )	0.80	n.d	17.95	1.76
Si-SiO <sub>2</sub> (mmol m <sup>-3</sup> )	5.50	n.d	56.09	5.92
SPM (gr m <sup>-3</sup> )	7.48	0.21	15.10	2.72

n.d – non detectable nutrient level

Reasonably low mean nitrite nitrogen levels are observed in Kavala Gulf (0.20 mmol m<sup>-3</sup>) with small variability in space and time. Higher nitrites appear at KSTW (4 mmol m<sup>-3</sup>).

Concentrations of dissolved inorganic phosphorus (DIP) appear quite variable, ascending from undetected levels (<0.05 mmol m<sup>-3</sup>) to 18 mmol m<sup>-3</sup> at Keramoti harbor. Consistency in high phosphate is shown at KSTW (10 mmol m<sup>-3</sup>), PFP (7 mmol m<sup>-3</sup>) and Eratino lagoon (11 mmol m<sup>-3</sup>). Seasonal phosphate variability shows in general low levels during the spring and summer period, due to phytoplankton growth and uptake, as compared to the higher winter values. There exists a strong relationship between precipitation and phosphate concentrations along the coastal zone of PFP and Karvali, probably due to leaching from the extended phosphogypsum deposit.

### Nutrient Fluxes and Transformations

The estimated annual amounts of nitrogen and phosphorus loadings are shown in Table 11-6 (Sylaios et al., 2005). Kavala Gulf appears to receive a relatively modest DIP loading of 125.5 tn per year and a fairly high DIN loading of 173 tn per year.

According to the phosphorus budget of Kavala Gulf, the combined effect of total surface runoff and anthropogenic inputs delivers 11 kmol DIP per day, residual outflow exports 1 kmol DIP per day, while the mixing term pushes outwards about 10 kmol DIP per day. Thus, in order to support the phosphorus mass balance, there must be a negative  $\Delta$ DIP-value, meaning that in Kavala Gulf dissolved inorganic phosphorus is being transformed to particulate phosphorus and is stored in the bottom sediments. This change of phase from dissolved inorganic phosphorus to particulate phosphorus is estimated to occur in Kavala Gulf at a rate 0.8 kmol DIP per day. Therefore the gulf is slightly autotrophic, i.e., the system is a net consumer of organic matter at a rate of 0.33 mmol C m<sup>-2</sup> per day through primary production.

The annual nitrogen budget shows an in flux of 33 kmol DN per day due to total surface runoff, while residual water transport exports 0.5 kmol DIN per day and the mixing exchange between the gulf and the open sea removes 58 kmol DIN per day. It occurs that a  $\Delta$ DIN-value of 25 kmol per day needs to be introduced into the system to achieve the nitrogen mass balance. Therefore, in Kavala Gulf the nitrogen fixation process exceeds denitrification.

**Table 11-6.** Estimated nutrient loadings and cycling within Kavala Gulf, based on the annual nutrient budget model.

Activity	Nitrogen	Phosphorus
Land-based Loadings (tn yr <sup>-1</sup> )		
KSTW <sup>a</sup>	110.7	24.8
PSTW <sup>a</sup>	6.3	1.4
Total Household	117.0	26.2
Total Livestock <sup>b</sup>	8.3	4
Total Agriculture <sup>c</sup>	20	1
Total Industry <sup>d</sup>	27.7	94.5
<b>TOTAL LOADINGS</b>	<b>173.0</b>	<b>125.5</b>

<sup>a</sup> Based on waste outflows and nitrogen and phosphorus concentrations supplied by the Manicipal Waste Water Treatment Authority of Kavala.

<sup>b</sup> Based on the number livestock capital of the drainage basin (cattle, horses, sheep, pigs and poultry) supplied by the National Statistical Service.

<sup>c</sup> Based on data concerning the fertilizer types, periods and amounts applied per crop (Sylaios and Koutroumanidis, 2002).

<sup>d</sup> Based on the amounts of ammonia nitrate and phosphoric acid produced by PFP.

Reduction of nutrient agricultural loadings by 50% has only minor effect in the nutrient balance of Kavala Gulf. Similarly, reduction by 50% of the livestock nutrient loadings results in a minor decrease in the total nitrogen and phosphorus entering Kavala Gulf by only 2.4% in DIN and 1.55% in DIP. Reduction by 50% of the household nutrient loadings results in a 33.8% and 10.4% decrease in total nitrogen and phosphorus nourished into Kavala Gulf, respectively. The system changes to slightly heterotrophic, producing organic matter through respiration at a rate of 0.14 mmol C m<sup>-2</sup> per day and particulate phosphorus is being dissolved and released to the water column at a rate of 0.001 mmol DIP m<sup>-2</sup> per day. Finally, reduction by 50% of the industrial nutrient loadings would result in an 8% and 37% decrease in total nitrogen and total phosphorus loadings. The system becomes strongly heterotrophic and denitrifying.

### Overall Nutrient Assessment

Point sources of nutrients from municipal wastewater plants (Kavala and Palio Sewage Treatment Works) and the phosphoric fertilizer plant (PFP), as well as non-point sources from phosphogypsum leaching and agricultural activities, appear responsible for the local increase in the concentration of dissolved inorganic nitrogen and phosphorus constituents. Kavala Sewage Treatment Work and Palio Sewage Treatment Work appeared the main sources of ammonia and phosphate concentrations. Lesser sources are due to agricultural activities, mostly in the eastern part of the Gulf, having a seasonal impact directly related to precipitation and surface runoff. The eastern part of the gulf appears as the main source of nitrogen and phosphorus, since there exist most point and non-point sources.

Nutrient reduction from KSTW and PSTW to minimize the point nutrient loading required to avoid the frequent eutrophication episodes at the coastal zone of Kavala Gulf, should employ practices as phosphorus sedimentation and denitrification through a system of nutrient basins. Nutrient losses by diffuse sources seem influenced by a large number of factors, as precipitation, soil characteristics, coastal watershed hydrology and land management.

### Particulate Trace Metals in Kavala Gulf

Nutrients and metal concentrations in Mediterranean coastal waters are largely influenced by external contributions. Kavala Gulf experiences the seasonal influence of nutrients and trace metals transport through the broad coastal circulation of BSW and to a lesser extent through Nestos River. Anthropogenic activities such as urban wastewater, navigation pollution at harbours, agricultural and aquaculture pollution, fertilizers, industry effluents, phosphogypsum disposal, and leakages at oil rigs appear as the main nutrient and metal sources in the area (Table 11-4).

Nutrient fluxes stimulate spring phytoplankton growth producing frequent eutrophication episodes in the water column of Kavala Gulf during the most recent years (Sylaios *et al.*, 2005), with the diatoms *Rhizosolenia hebetata* and *Nitzschia closterium*, and the flagellate *Prorocentrum adriaticum* being the dominant species (Friligos and Karydis, 1988). As most metals exhibit nutrient-like behavior in coastal water columns, their biogeochemical cycles are coupled to the growth, sinking, and remineralization of marine plankton, affecting the metal and organic matter enrichment in coastal sediments.

Trace metals in surface SPM of the Kavala Gulf showed the following spatiotemporal average  $\pm$  standard deviation concentration values (obtained from 144 values, i.e. 24 stations  $\times$  6 samplings during 2003 and 2004): for Cu  $37.1 \pm 18.8 \mu\text{g/g}$ , for Ni  $20.4 \pm 10.5 \mu\text{g/g}$ , for Cd  $4.1 \pm 3.2 \mu\text{g/g}$ , for Pb  $45.1 \pm 21.2 \mu\text{g/g}$ , for Cr  $62.3 \pm 38.6 \mu\text{g/g}$ , and for Zn  $95.2 \pm 23.6 \mu\text{g/g}$ . The corresponding bottom values were marginally lower: for Cu  $27.1 \pm 12.5 \mu\text{g/g}$ , for Ni  $18.5 \pm 7.1 \mu\text{g/g}$ , for Cd  $3.7 \pm 4.1 \mu\text{g/g}$ , for Pb  $41.6 \pm 19.0 \mu\text{g/g}$ , for Cr  $60.3 \pm 14.9 \mu\text{g/g}$ , and for Zn  $81.6 \pm 18.9 \mu\text{g/g}$ . Particulate arsenic and mercury were undetected in the Kavala Gulf throughout all surveys.

Cu, Ni, and Pb in surface SPM showed low mean values along the western coastal zone of the gulf, tending to increase towards the urban and industrial coastal area. Their levels diminished at the coastal lagoons zone and the offshore parts of the gulf, exhibiting local peaks at the harbors and marinas of the Kavala Gulf. Particulate Cd and Cr showed equally increased levels along the western touristic coastal zone and the industrial area stations, as compared to eastern stations. Increased levels for particulate lead and chromium were detected at the sites near PFP.

The concentrations of particulate trace elements at the bottom were almost similar to those at the surface in all metals, except for Cu. Similarly, the summer SPM values of Pb, Cr, Cu, Ni, and Zn were significantly different and approximately two to four times higher than the corresponding winter values. This is possibly attributed to the dissolved/particulate partitioning of trace metals, influenced by pH and salinity changes, particle concentration, particle size, and the nature of particles (Bourg, 1987). Indeed, in Kavala Gulf, the spring and summer reduction in salinity and pH was established by observations, as a result of BSW influence and the spring phytoplankton bloom. However, such pH reduction with reducing salinity could alter the kinetics of trace elements, favoring the desorption of metals from SPM towards the dissolved phase (Hatje et al., 2003), implying the reverse process.

The most appropriate mechanism to explain the elevated summer particulate metal levels recorded in Kavala Gulf seems to be the bloom-derived contribution to the SPM, resulting from the increased uptake of dissolved metals by plankton during algal blooms, being added in the water column as SPM during the resuspension of the bottom-deposited detritus (Luoma et al., 1998). Indeed, particulate metals such as Pb, Cu, and Zn show higher affinity for removal through bio-sorption (Volesky and Holan, 1995), corresponding well to the metals with the most significant summer-to-winter variability.

In general, particulate Cu, Ni, Pb, and Cr show local peaks along the industrial coastal zone. Overall, SPM metal concentrations follow the order (from higher to lower content):  $Zn > Cr > Pb > Cu \geq Ni > Cd$ . This order is marginally altered along the industrial coastal area, where:  $Zn > Cr \geq Pb > Cu \geq Ni > Cd$ . Trace metals in the SPM of Kavala Gulf show moderately low concentrations compared to other sampled areas (Table 9), with the exception of Cd, which appears considerably elevated.

#### **Trace Metals in the Sediments of Kavala Gulf**

The trace metal contents in the coastal sediments of the Kavala Gulf related to the zones of anthropogenic activities. The western touristic coast is characterized by generally lower trace metals levels of all elements, while sites near industrial activities showed higher values in Zn, Pb, and Cd. Mean Cu, Pb, and Cd showed overall low levels throughout the gulf (25.2  $\mu\text{g/g}$ , 52.6  $\mu\text{g/g}$  and 0.4  $\mu\text{g/g}$ , respectively), with medium to high values at the PFP site, with values of 154  $\mu\text{g/g}$ , 203  $\mu\text{g/g}$  and 2.1  $\mu\text{g/g}$ , respectively. Hg showed a similar pattern, with a local peak at PFP (1.1  $\mu\text{g/g}$ ). Zn levels were high at the industrial area (station 13; 1024  $\mu\text{g/g}$ ), but at normal levels in the remaining gulf (mean Zn: 141  $\mu\text{g/g}$ ), while increased Cr and Ni

mean values were found at the deeper stations ( $134 \pm 26 \mu\text{g/g}$  and  $42.9 \pm 4.2 \mu\text{g/g}$ , respectively). Arsenic distribution was uniform with very low values across the whole area.

Comparison of the trace metals concentration in the SPM and the bottom sediments shows almost similar levels in both compartments for Cu and Ni, higher levels in SPM for Cd, and higher contents in sediments for Pb, Cr, and Zn. There are several reasons for higher metal concentrations in SPM, which include biological cycling; the overall effect of adsorption/desorption processes; dissolution during settling; and diffusion and biological recycling at the sediment-water interface (Pohl et al., 1998). Redox processes and plankton vertical transport towards the sediments play an important role for the trace metals accumulation at the sea bottom. Moreover, it occurs that inter-metal correlations are dissimilar in the SPM and the sediments of Kavala Gulf. The Ni-Cr relationship at the surface SPM and the Pb-Cr at the bottom SPM possibly imply common metal sources for this compartment. The redistribution of metals in the sediments or across the sediment–water interface, together with factors concerning sampling errors and sampling imprecision, may be considered as important for the discrepancies in metal correlations in the sediment.

Table 11-7. Trace metal contents ( $\mu\text{g/g}$ ) and EF values for the sediments of Kavala Gulf and other Greek gulfs (after Sylaios et al., 2012).

Site		Cu	Ni	Cd	Pb	Cr	Zn	Reference
Kavala Gulf	Mean	25.1	22.3	0.4	52.8	80.8	139.8	Sylaios et al., 2012
	Range	0.8-154	0.8-50	0.03-2.	18.1-203	23.1-185.2	48-1,024	
	EF	4.6	3.3	3.5	1.5	2.3	1.7	
Alexandroupolis Gulf	Mean	43	39.4	0.4	60	77.3	115	Kanellopoulos et al., 2006
	Range	16-55.1	16-48.7	0.2-0.8	26-80.5	54.9-87.4	69.9-136	
	EF	2.2	1.1	6.0	16.2	1.2	2.0	
Thermaikos Gulf	Mean	24	157		32.7	250	87	Karageorgis et al., 2005
	Range	3-48	43-250		16.5-48.6	152-453	33-124	
	EF	1.3	1.5		1.3	3.7	1.4	
Mytilene Gulf	Mean	30		0.1	46	97.6	86	Aloupi & Angelidis, 2001
	Range	5.3-86		0.01-0.	20-93	40-154	13-230	

	EF	3.2			2.2		3.2	
Strymonikos Gulf	Mean	27.1	53.9		92.1	148.8	111.2	Stamatis et al., 200
	Range	5.3-51.2	9.1-74.5		23.4-130.5	29.2-213	24.3-159	
	EF	4.6	3.9		3.7	1.8	2.6	
Ierissos Gulf	Mean	75.4	70.6		65.5	195.1	452.9	Stamatis et al., 200
	Range	8.3-205.1	2.1-144.1		52.9-2,233	17.1-364.2	39.6-926.8	
	EF	7.0	8.2		8.6	2.4	4.8	
Piraeus hart – Elefsis bay	Mean	100	90	0.8	210	130	760	Voutsinou-Taliadou et al., 1989
	Range	20-230	70-120	0.1-2.5	30-400	60-390	60-1,680	
	EF	8.1	1.3	17.9	12.7	6.5	28.9	



Surface sediments may serve as an indicator of long-term anthropogenic influence in the coastal marine environment. In Kavala Gulf, the distribution of trace metals in sediments appears related to the coastal industrial activities (for Cd, Zn, Pb, and Hg), and to natural contamination (for Cr and Ni). Mean total trace metal contents in the sediments of Kavala Gulf decrease in the order: Zn > Cr > Pb > Cu ≥ Ni > Cd > As > Hg. Papastergios et al. (2011) studied the geochemistry of surface coastal soils along Kavala Gulf and they attributed the presence of As, Cu, Hg, Pb, and Zn to the production of fertilizers and Co, Ni, and Cr to the surrounding rocks of the studied area. Increased Pb and As values were associated with car emissions and combustion processes. In the marine sediments, this human non-point pollution influence gradually diminishes (Pb and As concentrations decrease), and the impact of point-pollution sources becomes more prominent.

The direct PFP wastewater seems contaminated with high phosphate, ammonia, and fluoride (Sylaios et al., 2005), together with increased levels in particulate Pb, Cr, and Cd, which accumulate at the nearby marine sediments. The exposed, weathered phosphogypsum stacks (6 stacks of 10 m high covering 0.54 km<sup>2</sup>), stored near the coast (min distance 30 m), appear responsible for the contamination of marine sediments, in addition to the above, in Zn, Cu, and Hg. Under the typical Mediterranean-type climate, with rainy winters and warm-dry summers, metals such as Cd, Zn, Pb, and Hg may become bioavailable and oxidizable (Pérez-López et al., 2007). Indeed, during the rainy periods, the pore water in the gypsum cake becomes oversaturated with highly acidic values (pH as low as 1.0). Such acidity dissolves most metals in the stack (bioavailable fraction), but it is rapidly neutralized as pore water enters sea water, causing extended metal precipitation and diminishing dissolved metals (Vicente-Martorell et al., 2009). During the dry and warm periods, the high porosity of these wastes favors the continuous atmospheric oxygen input (oxidizable fraction), to be leached with the first autumn rainfalls. This process is repeated every year, contaminating the nearby coastal sediments, due to the limited pollutant dispersion and the groundwater resources (Abed et al., 2008).

Windborne transport of phosphogypsum dust to the adjacent coastal sea during periods of strong N-NE winds is another possible mechanism, supporting the findings for widespread contamination of nearby surface soils with metals derived from fertilizer production. Overall, as suggested by all sediment assessment methods, trace metals accumulation in the sediments at the vicinity of PFP seems responsible for the moderately severe pollution in Pb and the severe pollution in Cu, Zn, Cd, and Hg.

Cr and Ni distribution seems to be related to natural enrichment, as these metals appear associated with finer-grained sediments and therefore appear enriched at deeper stations. This association is well-documented in that small particles, especially clay minerals, have a much higher surface area relative to their volume, compared to larger particles (Matthai and Birch, 2001). Therefore, the deeper stations of Kavala Gulf, with the highest content in clay and silt, are expected to have

the highest concentrations of nickel and chromium. Furthermore, material composition is also of importance (i.e. fine sediments tend to contain more chemically reactive substances such as clay minerals, organic matter, and Fe, Mn, and Al oxides and hydroxides).

### **ICZM Policies in East Macedonia – Thrace (with special reference to Kavala Gulf)**

The Kavala coastal zones face problems and issues that are neither separate nor different from those faced by other European regions. Coastal zones in Europe, in general, face a greater number of economic, social and ecological problems than other regions of the European Union. Greece has demonstrated on many occasions a particular interest in the Integrated Coastal Zone Management (ICZM), since this could ensure the sustainable development not only of the coastal zones themselves, but also of the entire country. It is clear that taking concrete measures in an integrated and sustainable way for the coastal zones in Greece is a matter of high national priority and not a simple action of local or regional importance.

The East Macedonia – Thrace Regional Authority conducted an Operational Plan for the Protection and the Sustainable development of the Coastal Zone (Transcoop, 2012). The Plan promoted the Public Consultation of local population and stakeholders, aiming to design more effectively its proposed interventions. Public consultation aimed towards: a) the promotion of public awareness of local society on the coastal zone management issues, b) the protection of the natural and cultural capital of the area, and c) the motivation of local stakeholders to participate actively in the design patterns of development of their area.

A SWOT analysis was performed to identify the potentials and drawbacks of the East Macedonia-Thrace coastal zone. Some key points are summarized in Table 11-8 below.

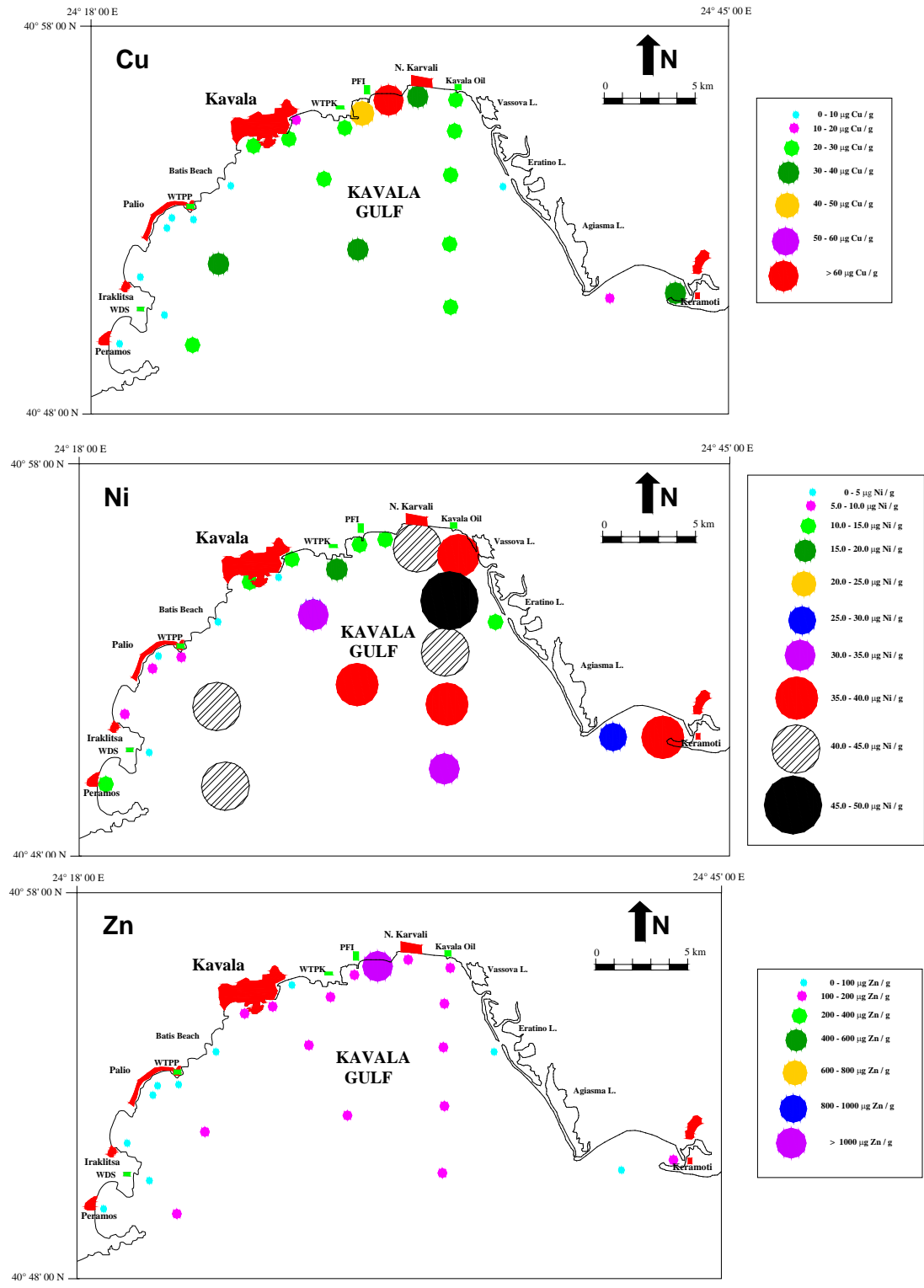


Figure 11-5. Distribution of trace metals in the sediments of Kavala Gulf

<b>Strengths</b>	<b>Weaknesses</b>
Geographical location as a cross-road of national and European transport and energy axes	Geographical isolation – distance from main Greek metropolitan centers and development axes
Satisfactory demographic evolution, population growth	Population shrinkage and over-aging at specific areas along the coastline
Remarkable natural coastal environment protected in most of its length by Natura 2000	Increased dependence of local economy from agriculture with low productivity and increased unemployment
Concentration of industrial, agricultural and fishery activities	Pollution and degradation of coastal environment locally
Attraction of internal and external tourism	Illegal coastal development and overfishing
Sufficient basic infrastructure for education and health	Insufficient infrastructure for waste disposal sites and water supply
<b>Opportunities</b>	<b>Threats</b>
Opportunities to explore geographical position and transportation axes to attract visitors and develop innovative activities	Vulnerable coastal zone in natural risks and threats (floods, oils spills, eutrophication incidents etc)
Aquaculture development to increases fish stocks, fishery production and fish processing industry	Impacts on the vulnerable coastal ecosystems from touristic development, illegal building and local pollution
Gradual transformation of the area into an energy nest (natural gas pipelines, deposits for liquidified gas and renewable energy resources)	Financial instability and crisis

Table 11-8: SWOT Analysis

The main policies addressed by the study, with special reference to Kavala Gulf are presented below.

- Policies to Promote Coastal Tourism

Bathing Waters in Greece are monitored according to the Directive 76/160 EEC, through the monitoring program of swimming water quality in all Greek shorelines (2,155 sampling points on annual basis). The revision of Directive of 1976 led to

issuing the new Directive 2006/7/EC concerning the management of bathing water quality. The new Directive covers the need for an integrated approach to water protection, in agreement with the general philosophy that the Framework Directive 2000/60/EC. This new approach includes, in addition to establishing specific targets for water quality, implementation of appropriate measures for direct management, thus enabling further improvements in water quality. The Greek legislation has been harmonized to Directive 2006/7/EC by the JMD 8600/416/E103/2009 (GG 356B'/26-2-2009) on the management of bathing water quality and annulment of Directive 76/160 / EEC. In particular, through the JMD 8600/416/E103/2009 measures, conditions, processes and procedures are instituted relating to monitoring and classification of bathing water quality, managing bathing water quality and providing public information on quality bathing water.

Sampling for bathing water quality focuses on two sets of parameters: a) Micro-biological parameters as *Escherichia coli* and *Intestinal enterococci*, and visually inspected parameters as tar residues, glasses, plastics etc. The clear conclusion of this long-lasting program is that the quality of bathing waters in Kavala Gulf is very good and further improving every year. The area receives each year about 12 blue flags (Figure 11-6), by the 'BLUE FLAGS' Program, an initiative of the international organization FEE (Foundation for Environmental Education), represented in Greece by the Hellenic Society for the Protection of Nature (HSPN). The Hellenic Society for the Protection of Nature cooperates with the MEECC and in particular makes use of officially published results of the monitoring Programme of SSW for the participation of coastal management stakeholders in the international volunteer program "BLUE FLAGS".

- Policies to Fight Coastal Erosion

Greece is suffering from a high rate of coastal erosion, as approximately 28.6 % of the Greek coastline is estimated to be affected by erosion (EC data, 2004), a fact that brings the country to the fourth highest rank among the 18 coastal EU Member States (after Poland, Cyprus, and Latvia). This high rate is due partly to the strong winds and waves of the Aegean Sea and partly to the fact that a very big part of the Greek coastline is sandy. In the Region of East Macedonia and Thrace, and Kavala Gulf in particular, coastal erosion as well as flooding and coastal inundation represent a serious threat for the coastline, the vulnerable coastal ecosystems and the coastal infrastructure. The Program BEACHMED-e, a Regional Framework Program, co-funded by Interreg IIIC, focused on the prevention from coastal erosion and the protection of coastline by defense works. The general objective of the project was the characterization and the improvement of technical and administrative instruments for a strategic management of the coastal defense, for a sustainable development of the Mediterranean coastal zones, developing the topics already dealt by the previous Project BEACHMED (Interreg IIIB - Medocc). The project defined methods to monitor coastal erosion, assessed the influence of wave climate on coastal erosion in relation to the various types of seabed, determined the methods to

explore sandy relict deposits for beach nourishment and identified the environmentally sensitive issues of such action, reviewed the socio-environmental issues related to erosion and examined the potentials of natural defense systems as coastal protection infrastructure.

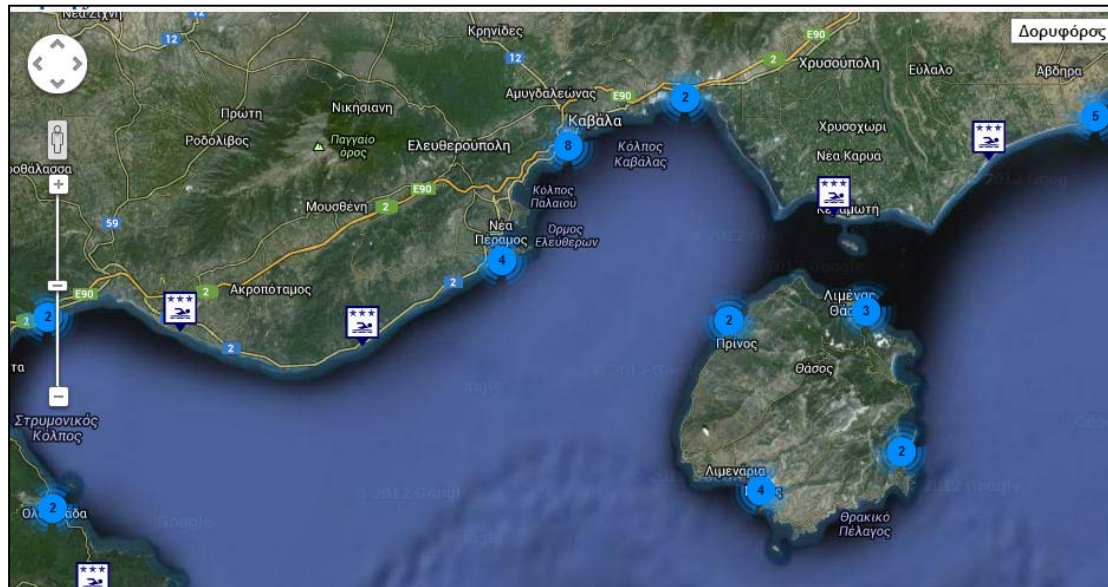


Figure 11-6. BLUE FLAGS in Kavala Gulf for year 2012, as awarded by HSPN.

The Program COASTANCE (Regional action strategies for coastal zone adaptation to climate change) proposed innovative techniques for long-term coastal protection Master Plans capitalizing on the Good Practices developed under several European projects (INTERREG IIIB & INTERREG IIIC-RFO). COASTANCE project was based on two main operational purposes:

**i. Capitalization of knowledge and resources already acquired in the field of coastal protection:**

- sustainable Technologies for exploiting sand stocks (behind river barrages, upstream harbour structures, geological sea bottom deposits, etc.) based on EuroSION project, Beachmed, Beachmed-e/GESA/RESAMME Subprojects;
- sustainable Technologies for coastal protection and adaptation (marine-climate survey, beach nourishments, soft structures, use relocation etc.) based on EuroSION project, Beachmed, Beachmed-e/NAUSICAA/MEDPLAN/ICZM-MED Subprojects, Plancoast, Cadseland projects; and
- Environmental Impact Assessments of the new technologies (dredging activities, nourishment work etc.) and Strategic Environmental Assessment on



coastal plans based on Beachmed, Beachmed-e/EUDREP/POSIDUNE Subprojects.

**ii. Mid to long term planning actions for climate change effects adaptation of coastal zones in line with the EU Directive 2007/60/EC:**

- development of Territorial Action Plans for adapting coastal zones to climate change, against erosion effects and submersion risk: Analysis of the erosion and submersion phenomena, Plans for coastal protection management, Guidance and Recommendations for the development of Coastal Protection Management Plans based on previous EU projects findings (eg. Safecoast, Comrisk and Messina);
- definition of Sediment Management Plans (SMPs) for both offshore and littoral deposits exploitation (location, characteristics, radius of competence/beaches to feed, exploitation technology, treatments needed);
- appropriate Environmental Impact Assessment Protocols in order to assure the right procedures in intervening along coastal zone.

The above technologies and action plans have already been tested and prepared for specific parts of the coastline of the East Macedonia – Thrace Region, including the most vulnerable in erosion parts of Kavala Gulf. Moreover, Kavala Municipality prepared the technical reports and the EIA studies for three coastal protection works, at Kalamitsa beach, Rapsani beach and Perigiali area. Such works involved the installation of a series of submerged breakwaters, to protect the coastline from the erosive impact of southern waves and swells.

○ Policies for Maritime Development

The Kavala Port Authority S.A. is responsible for the management of four ports along the Kavala Gulf coastline. These are: a) the central Kavala harbor, called as ‘old harbor’ located inside the city, b) the newly built Filippos II commercial harbor, located eastwards near Karvali, c) the harbor of Keramoti, transporting tourists to and from Thassos Island, and d) Peramos harbor and marina, located approximately 17 km to the west of Kavala.

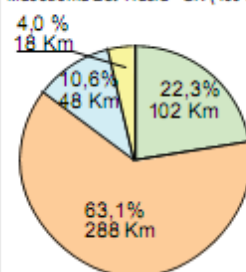
The Kavala Port Authority S.A. conducted in 2005 a General Master Plan for the spatial and urban planning of all coastal activities carried out in the four harbors. This Master Plan aimed towards the development of a modern and competitive harbor-managing Organization, providing cost-effective and modern services and products, inter-linked with the local urban web and enhancing regional and local growth and entrepreneurship through jobs creation.



MORPHO-SEDIMENTOLOGIC CHARACTERISTICS AND EROSION TRENDS OF EAST MACEDONIA AND THRACE COASTS (EUROSION 2004\* SOURCE)

Morpho-sedimentology of coasts		Macedonia Est-Tracia (GR)	
CODE	Description	LENGTH (m)	%
<b>Rocky coasts</b>			
A	Rocks and/or cliffs made of hard rocks (little subject to erosion) with eventual presence of a rock platform	15.370	3,4%
B	Conglomerates and/or cliffs (example: chalk) i.e. subject to erosion; presence of rock waste and sediments (sand or pebbles) on the strand	59.309	13,0%
AC	Mainly rocky, little erodible, with pocket beaches (<200 m long) not localised	26.972	5,9%
<b>Beaches</b>			
C	Small beaches (200 to 1000 m long) separated by rocky capes (<200 m long)	98.784	21,7%
D	Developed beaches (length of the beach > 1 km) with strands made of coarse sediments: gravels or		
E	Developed beaches (> 1 km long) with strands fine to coarse sand	168.956	37,1%
F	Coastlines made of soft non-cohesive sediments (barriers, spits, tombolos)		
K	Artificial beaches		
N	Very narrow and vegetated strands (pond or lake shore type)		
p	Soft strands with rocky "platforms" (rocky flat) on intertidal strands		
R	Soft strands with "beach rock" on intertidal strands		
S	Soft strands made of mine-waste sediments		
X	Soft strands of heterogeneous category grain size	19.933	4,4%
Z	Soft strands of unknown category grain size		
<b>Muddy coasts</b>			
G	Strands made of muddy sediments: "waddens" and intertidal marshes with "slikkes and schorres"	48.379	10,6%
M	Polders (reclaimed coastal areas). Only used in CCEr database		
<b>Artificial coasts</b>			
J	Harbour areas	18.229	4,0%
L	Coastal embankments for construction purposes (e.g. by emplacement of rocks earth, etc.)		
Y	Artificial shoreline or shoreline with longitudinal protection works (walks, dikes, quays, rocky strands) without aerated strands		
<b>Mouths (virtual coastal segments)</b>			
H	Estuary (virtual line)		
	<b>Coast length</b>	455.932	100%
	<b>Beaches length</b>	287.672	63,1%
	<b>Coast with absence of information</b>	12952.459	2,8%

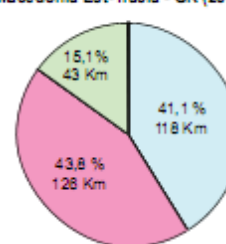
Morpho-sedimentology of coasts  
Macedonia Est-Tracia - GR (456 Km)



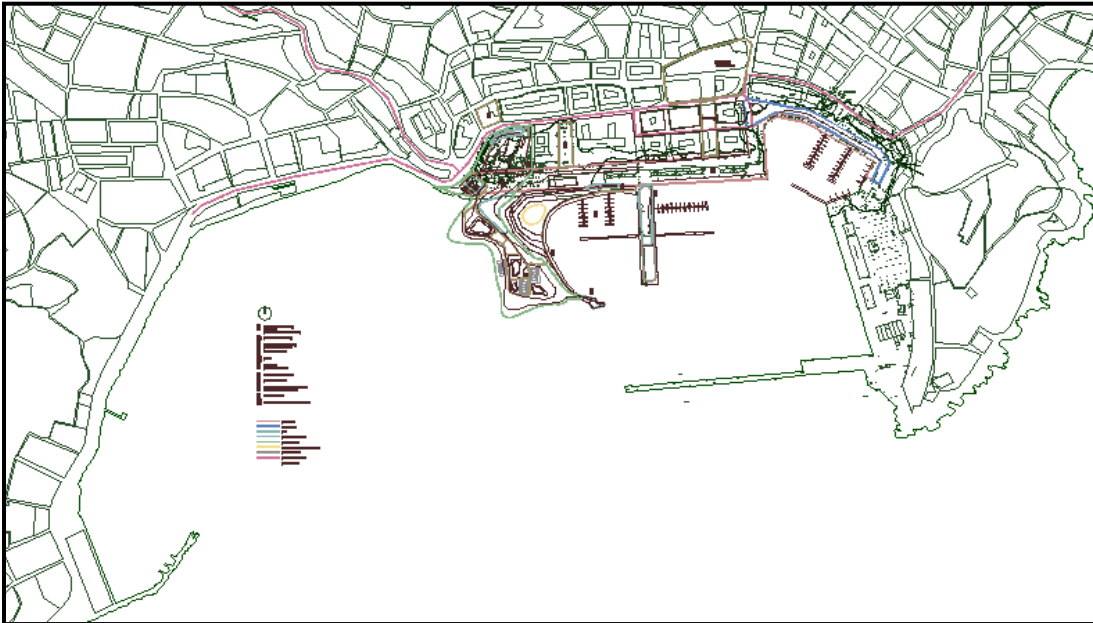
\*EuroSION is a Project commissioned by European Commission's Environment Directorate-General in 2002-2004 period

Evolutionary trend of beaches		Macedonia Est-Tracia (GR)	
CODE	Description	LENGTH (m)	%
<b>Absence of Information</b>			
0	Out of nomenclature		
1	No information on evolution		
<b>Stability</b>			
2	Stable: Evolution almost not perceptible at human scale	118.124	41,1%
3	Generally stable: small "occasional" variations around a stable position; evolutionary trend is uncertain		
<b>Erosion</b>			
4	Erosion probable but not documented	126.130	43,8%
50	Erosion confirmed (available data), localised on parts of the segment.		
51	Erosion confirmed (available data), generalised to almost the whole segment.		
<b>Aggradation</b>			
6	Aggradation probable but not documented	43.418	15,1%
70	Aggradation confirmed (available data), localised on parts of the segment.		
71	Aggradation confirmed (available data),		

Evolutionary trend of beaches  
Macedonia Est-Tracia - GR (287 Km)



One of the main problems requiring urgent action is the improvement in the protection of the central Kavala harbor (reinforcement and extension of the windward pier), since the strong southern winds affecting the area often produce unsecure navigation and anchoring conditions. At the western end of the harbor, the problem of the limited available land, due to the presence of athletic and leisure activities, could be solved by extensive land reclamation and the spatial re-planning of the area. A small marina could be developed following the environmental assessment study for land reclamation (Sylaios et al., 2009; Figure 11-7).



**Figure 11-7.** Central Kavala Port after the extension of the windward pier by 80 m in length and the land reclamation for the creation of a small marina at the outer part of the harbor (Sylaios et al., 2009).

Land uses were redesigned to accommodate cultural and leisure actions in line with port's main commercial activities. Traffic regulations were rescheduled to allow the smooth and easy access of passengers at the port, while a large passengers' lounge was renovated recently.

### **11.3. Legislative framework for the protection of coastal waters from land-based sources (urban and industrial wastes)**

#### **11.3.1. The European Union Framework**

The analytical legal framework for the control of wastewater treatment plants is illustrated in Table 1. The urban wastewater treatment is established by the Council Directive 91/271/EEU concerning the urban waste water treatment, amended by the Commission Directive 98/15/EC. The protection of the environment is the general objective of this directive, concerning the collection, treatment and discharge of urban waste water from residential settlements and services and the wastewater deriving from certain industrial sectors.

The Directive defines the deadlines by which member states should comply and develop collecting systems for urban wastewaters for urban agglomerations. The deadlines set define that

wastewater treatment should be achieved at least by end of 2005, for urban agglomerations with p.e. > 2,000, and for discharging into sensitive areas for agglomerations of p.e. > 10,000, at least by 1998. For urban agglomerations with population p.e. < 2,000 the same level of environmental protection should be ensured by individual collecting and treatment systems. Similar deadlines are also established for secondary treatment or an equivalent treatment level before discharge, e.g. by 31/12/2005 from agglomerations with p.e. between 2,000 and 10,000, providing the relevant requirements of Annex I.B of the Directive. Less stringent requirements are established for high mountain regions.

According to the Directive, Member States are asked to designate and review every 4 years, the list of sensitive and less sensitive areas, in accordance to the criteria established.

Urban wastewaters should be treated at least by secondary treatment for nutrients removal before discharging into sensitive areas (e.g., rivers, lakes, coastal areas) and their catchments. Primary treatment could be used for certain discharges in coastal waters under certain conditions. In exceptional cases, agreement of the EC is necessary; due to technical problems for certain discharges in coastal waters primary treatment could be used.

To ensure performance under all normal local climate conditions member states shall built, operate and maintain the WWTP's technically sound. The competent authorities should prior regulate or authorize the discharge of industrial waste water into collecting systems and urban waste water treatment plants.

The disposal of treated wastewater is subject to prior regulation and it shall be reused environmentally and technically sound, minimizing the adverse effects on the environment.

All regulations (authorization) should be reviewed and if necessary adapted at regular intervals. The Directive requires Member States to monitor and send this information about the quality of receiving waters, discharges from urban waste water treatment plants and the status of collecting systems and waste water treatment plants.

**Table 11-9. European community legal framework for the control of the wastewater treatment plants.**

Council Directive 91/271/EEU concerning the urban waste water treatment, amended by the Commission Directive 98/15/EC.
EU Water Framework Directive 2000/60/EC: A framework is established for the community action in the field of water policy.
Directive 86/278/EEC, concerning the protection of the environment and in particular of the soil, when sewage sludge is used in agriculture.
Directive 91/676/ EEC concerning the protection of the waters against pollution caused by nitrates from agricultural sources.
Directive 75/440/EK concerning the quality required of surface water intended for the abstraction of drinking water in the Member States. Amended in 2007

Directive 77/795/ EEC for the exchange of information on the quality of surface fresh water Amended in 2007
Directive 79/869/EEU concerning the methods of measurement and frequencies of sampling and analysis of surface water intended for the abstraction of drinking water. Amended in 2007
Directive 80/68/EEC on the protection of groundwater against pollution caused by certain dangerous substances. To be amended by the end of 2013
Directive 76/464/EEU concerning the water pollution by discharges of certain dangerous substances.
Directive 85/337/EEU on the assessment of the effects of certain public and private projects on the environment.

### 11.3.2. The Greek Legislative Framework

In Greece this Directive is integrated to the national legislation with the Joint Ministerial Decision Electronic Reference No 5673/400/1997 (Official Government Gazette 192B/14-3-1997), entitled: “Measures and regulations for the urban waste water treatment”. Its main goal is the protection of the environment from the adverse effects of the disposal of the untreated and the insufficiently-treated urban waste water and some industrial food branches waste water and their by-products.

The catalogue of the sensitive areas was designated in 1999 (Joint Ministerial Decision Electronic Reference No 19661/1982/1999) (Official Government Gazette 1811B/29-9-1999), which was reviewed in 2002 (Joint Ministerial Decision Electronic Reference No 48392/939/3-2-2002 (Official Government Gazette 405B/3-4-2002). Table 11-10 summarizes the Greek National Legislation on the wastewater treatment and toxic waste disposal in coastal areas.

**Table 11-10. Greek Legislative Framework on the Urban Wastewater Treatment in coastal sensitive and non-sensitive areas.**

	European Communities	Greek legislative Framework
Urban waste-water treatment	Council Directive 91/271/EEU – Amendment by 98/15	Joint Ministerial Decision Electronic Reference No 5673/400/97 (Official Government Gazette 192B/97) on: “waste-water treatment”.
		Joint Ministerial Decision Electronic Reference No 19661/1982/1999 “Sensitive areas list” and Joint Ministerial Decision Electronic Reference No 48392/939/3-2-2002 on the “Sensitive areas catalogue”.

		Ministerial Decision 145116/2011 on "Treated waste water reuse".
--	--	--

Greece has completed urban collecting systems by >85% and by 95% in the wastewater treatment facilities of urban agglomerations with p.e. > 15,000. However, limited progress has been carried out for cities with p.e. between 2,000 and 15,000. For this reason an extension was given until 2015.

Presently, the National Database for the waste water treatment plants of all agglomerations in Greece is completed and in function (according to the Directive 91/271/EC in Greece).

Joint Ministerial Decision Electronic Reference 5673/400/97, "Measures and regulations for the urban wastewaters treatment". Integration to the national legislation of the Council Directive 91/271/EEU.

The Directive 91/271/EEU concerning the urban waste water treatment determines the management of the urban wastes. It was amended by the Directive 98/15/EC. The Directive was integrated to the Greek National Framework by the Joint Ministerial Decision Electronic Reference No 5673/400/1997 (Official Government Gazette 192B/14-3-1997) entitled "Measures and regulation for the urban waste water treatment".

The Sensitive areas list was defined in 1999 by the Joint Ministerial Decision Electronic Reference No 19661/1982/1999 (Official Government Gazette 1811B/29-9-1999), and it was updated in 2002 (Joint Ministerial Decision Electronic Reference No 48392/939/3-2-2002 (Official Government Gazette 405B/3-4-2002).

It can be generally said that the main purpose of this legal framework is the protection of the environment from the impacts of the disposal of the untreated and the insufficiently-treated urban and of some industrial wastes and their by-products, and also compels the continuous and complete control of the waste water treatment plants' function. Its main goals are:

1. to determine the necessary and proper authorities and describe their responsibilities and authorities in the field of wastewater treatment,
2. to determine and compel the construction and the function of urban collecting systems, in accordance to the regulation of Annex I(A), e.g. the volume and the characteristics of the wastes, prevention of the leaks, pollution of the water bodies caused by the overflow and the timetable of the realization as well. The deadlines for completing the collecting systems are shown in Table 11-11.
3. to determine the sensitive areas for wastewater discharge. Article 16 and especially Annex II defines the sensitive water bodies as a) all fresh-water bodies, as lakes, rivers, estuaries and coastal waters and the water bodies where the eutrophication exists or could appear, b) all lakes, rivers, estuaries and coastal waters with limited water renewal, and c) the surface potable water with high nitrate levels.

It also establishes the maximum permissible limits of the qualitative characteristics of the treated wastes to them (Article 16, Annex I). These are more stringent and include not only the removal of BOD<sub>5</sub>, COD and of the suspended solids, but also the removal of nitrogen and phosphorous nutrient as well. These wastewater treatment limits are given in Tables 11-12 and 11-13.

Deviations are allowed only for individual plants which will succeed in 75% output for the total phosphorus and total nitrogen.

The above are also valid for the disposal at the relevant sensitive areas catchments (first time reviewed in 1997). Furthermore, foresees the reexamination of the sensitive areas every 4 years (1997, 2001, 2005, 2009, 2013, 2017 etc).

**Table 11-11. Deadlines for completing collecting systems in urban conglomeration.**

	p.e. >15,000	10,000 < p.e. <15,000	2,000 < p.e. < 10,000
Collecting systems	31/12/2000 for all areas; 31/12/1998 for sensitive areas.	31/12/2005 for all areas; 31/12/1998 for sensitive areas.	31/12/2005 for all areas.

**Table 11-12. Wastewater treatment systems qualifications and limits for organic and TSS removal.**

Parameters	Concentration [mg/L]	Minimum percentage of reduction [%]
BOD <sub>5</sub>	25	70-90 40 for mountainous areas (over 1,500 m above sea level)
COD	125	75
Total suspended solids	35 35 (p.e. > 10,000) 60 (2,000 < p.e. < 10,000)	90 90 (p.e. > 10,000) 70 (2,000 < p.e. < 10,000)



**Table 11-13. Wastewater treatment systems qualifications and limits for nutrients removal.**

	p.e. > 100,000	10,000 < p.e. < 100,000
TP	1 mg/L (80% removal)	2 mg/L (80% removal)
TN	10 mg/L (70-80% removal)	15 mg/L (70-80% removal)

4. to determine the less sensitive areas for wastewater disposal. Article 16 of Annex II foresees the identification of the less sensitive areas for wastewater disposal in Greece. As less sensitive areas are considered the coastal areas in which their environment would not be adversely affected by the discharges, as a result of their morphology, hydrology or special hydraulic conditions prevailing in them. This definition considers that in such areas the phenomenon of coastal eutrophication and that of oxygen deficiency caused by the urban wastewater discharges has limited probability to appear.

The identification of the less sensitive areas allows the discharge of urban and industrial wastewaters treated in a less stringent manner, related to the requirements for discharge at sensible water bodies. It also divides the wastewater treatment plants in two categories: those serving urban conglomerations with p.e. between 2,000 and 10,000 and those serving medium to large cities with p.e. between 10,000 and 150,000.

In the less sensitive areas, wastewater discharges may receive only the primary treatment (Article 16, Annex I, Section D) aiming to reduce BOD<sub>5</sub> concentrations by 20% and the suspended solids levels by 50%, in conformity to the control regulation and procedures of Appendix I, Section D, which includes 24 hours samples depending on the fluxes from determined points. Table 11-14 summarizes the number of wastewater samples collected and analyzed per year for such systems.

**Table 11-14. Mandatory samples collection and analysis from WWTPs in less sensitive areas.**

p.e.	Minimum annual number of samples
2,000 – 9,999	during the 1 <sup>st</sup> year: 12 samples per year - if results comply with the provisions, then during the 2 <sup>nd</sup> year only 4 samples, otherwise 12 samples per year for each year of operation.
10,000 – 49,999	12 samples per year
>50,000	24 samples per year

Authorities must prove that this wastewater treatment does not adversely affect the environment. Authorities should review the list of the less sensitive areas every four years.



5. to establish the requirements for the discharge of urban WWTPs. Article 7 determines the deadlines and the requirements for wastewater discharge. So, urban and industrial wastewaters should be treated before their discharge. A secondary or equivalent treatment should take place, according the timetable seen in Table 11-15.

**Table 11-15. Deadlines for wastewater treatment requirements.**

	p.e. >15,000	10,000 < p.e. < 15,000	2,000 < p.e. < 10,000
Secondary Treatment	31/12/2000	31/12/2005	31/12/2005

Special provisions for deadlines prolongation could be considered only based on well justified technical reasons.

For the mountainous areas (over 1,500 m above sea level) this Law foresees less stringent conditions, only for the cases that the level of wastewater treatment does not adversely affect the environment. All the assignments should meet the requirements mentioned in Tables 11-12 and 11-13 (Article 16, Annex I, Section B).

It is also defined that until 31/12/2005 the discharge of urban wastewater would be allowed through sewerage systems only after appropriate treatment (Article 2 paragraph 9), namely allowing the receiving waters to meet the relevant quality provisions, in the following cases:

**Table 11-16. Requirements for wastewater treatment systems according to population and type of receptor**

	Agglomerations	
	p.e. < 2,000	p.e. < 10,000
Discharges to	Fresh-water bodies/estuaries	Coastal waters

6. to establish the requirements and measures for the direct discharge of industrial wastewater to water bodies. Article 9 refers only to the biodegradable industrial wastewater, which come from activities mentioned in the article 16, Annex III such as the milk processing, fruit and vegetable manufacturing, soft drinks manufacturing and bottling, potato processing, meat industry, breweries, production of alcohol and alcoholic beverages, manufacture of animal feed from plant products, manufacture of gelatine and of glue from hides, skin and bones, the malt-houses, and the fish-processing industry. The direct discharge is allowed until 31/12/2000, if the industry complies with the requirements:

a) Conditions and rules for each particular water body acting as a receiver of wastewater discharges, as specified by the local Prefectures according to national legislation M.D. 221/1965 “concerning the discharge of urban wastewater and industrial wastes” (amended by the L. 4042/2012) and taking under consideration requirements for sensitive and less sensitive water bodies receiving effluents.

b) Environmental terms based by an approved Environmental Impact Assessment Study (EIAs) (Article 4 of L. 1650/86 as amended by L. 3010/2002: Protection of the environment and harmonization with Directive 97/11/EC) and the final permission by the local competent authority.

To issue the final license for the operation of a WWTP, the project design and operational study, according the above pronounced environmental impact assessment legislation, should be evaluated and meet the regulation requirements referring to the discharges from plants for p.e. equal or greater than 4,000.

7. to determine measures and conditions for wastewater discharge and sewage sludge disposal from urban WWTPs.

7.1) Treated wastewater re-use.

According to European legislation treated wastewater and the produced sewage sludge should be reused whenever appropriate. In any case, disposal ways should minimize the detrimental consequences on the environment. Apart of the requirements of the Article 7, for the disposal to a water body are required:

a) The disposal’s conditions and rules for each particular receiver, as determined for each case from the local Prefectures according to national legislation Eiß 221/1965 “concerning the disposal of the waste water and the industrial wastes” (repealed by the law 4042/12) and taking under consideration its requirements for the sensitive and the less sensitive receivers (articles 5 and 6).

b) An approved Environmental Impact Assessment Study (EIAs) (Article 4 of Law 1650/86 as amended by Law 3010/2002, the Joint Ministerial Decision Electronic Reference No 69269/5387/1990) and the final permission from the local competent authority. The requirements for the sensitive and the less sensitive receivers (articles 5 and 6), should be considered for the disposal at fresh-water bodies and at rivers, estuaries and coastal waters for agglomerations with p.e. between 2,000 and 10,000 and in any other discharge case for agglomerations with p.e. higher than 10,000.

c) Wastewater disposal and re-use needs the corresponding licenses from the appropriate authorities, according to regulations and authorizations.

7.2) WWTPs waste sewage sludge disposal and reuse.

Waste sewage sludge produced from WWTPs should be reused at any time applicable. Waste sewage sludge disposal to the sea and to the surface waters is prohibited since 1998. The environmentally and technically sound reuse or disposal of sewage sludge is subject to general rules, registration or authorization. The requirements of specific inter-linked directives for re-use

should be respected, as Directive 86/278/EEC for agricultural wastes, Directive 89/429/EEC and 89/369/EEC for wastes incineration, and Directive 99/31/EC for landfill disposal. Waste sludge disposal and reuse needs the corresponding licenses from the appropriate authorities according to the regulations and authorizations, e.g., Environmental Impact Assessment study (EIAs) (article 4, paragraph 1 & 2 of Law 1650/86 as amended by Law 3010/2002).

8. Monitoring and control at receiving waters. Article 11 mentions the control procedures, according to Article 6 of L. 1650/86. They are divided in scheduled and unscheduled inspections conducted in order a) to establish compliance with the requirements and conditions of the licensed discharge of treated municipal wastewater, industrial wastewater and sludge in accordance with Articles 9 and 10 and in accordance to the general the requirements laid down in Annex I (Section B) of Article 16 of this decision, and b) to record the quantities and the composition of the sewage sludge with the methods referred to in Annex D of Article 16. The reference methods for monitoring and evaluation of the results are provided in Annex I, D.
9. Reporting. Article 12 refers to the requirements of the annual submission of informative and analytical reports by the local Prefectural Authority to the Ministry of Environment, with references to the number of licenses and revocations of these elements and the results of the scheduled and unscheduled inspections from receiving waters monitoring. The Ministry of Environment submits adequate reports and databases every two years to the European Union with information about the monitoring program implementation and situation reports on the disposal and re-use of treated urban wastewater and sewage sludge, the status of collecting systems, the efficiency of the treatment plants, the quality of receiving waters and the status of discharges from the food-processing industry to surface coastal waters.

### 11.3.3. Implementation of the Urban Wastewater Treatment Directive in Greece

#### Less sensitive areas

The characterization to less sensitive areas found Greece environmentally desirable. According to this decision wastewater treatment plants with p.e. > 10,000 are designed and constructed for normal and sensitive areas. For agglomerations with p.e. < 10,000 are not distinguished in normal and sensitive areas in terms of the required level of treatment, but in categories of receiving water: a) freshwater and estuaries and b) coastal waters. For the implementation of the directive in Greece as agglomerations have been taken traditional settlements to the administrative sense, except for some cases, especially large cities, where it was considered as a single agglomeration the entire municipality or the whole of some municipalities.

Based on the principles of the Directive, discharges from agglomerations with a p.e. > 150,000 and discharges from agglomerations with p.e.> 10,000 in sensitive areas are treated as a matter of priority. In Greece after reviewing of the sensitive areas list in 2002, there are now a total of 19 agglomerations with a population greater than 10,000 p.e. discharged into sensitive areas and 4 agglomerations > 150,000 p.e. discharged into normal areas.

The collection of sewage from the sewerage systems is the primary and indispensable step for planning and implementation of waste water treatment plants. The percentage of agglomerations with p.e. > 15,000 that provided with collecting systems in compliance with the directive varies for different years 2002-2009 from 70.8 to 91,0 respectively.

The Directive relates the construction period of the wastewater treatment plant with the treated water receiving region and the required degree of wastewater treatment. Starting point of deadline events is the year 1998, at which time agglomerations discharging into sensitive areas should be served by sewage treatment plants with tertiary treatment, i.e., secondary treatment including nutrients removal. Year 2000 is the deadline for the implementation of WWTPs for agglomerations with p.e. > 15,000 discharging into normal areas after secondary treatment. The population percentage of the agglomeration, including Athens, with p.e. > 10,000 and WWTP which discharge the treated wastewater into sensitive recipients and comply with the directive, ranges for the years 2002 to 2009 from 27.6 to 98.8%. The respectively percentage of agglomerations with p.e. > 15,000 discharging treated wastewater into normal recipients ranges for the years 2002 to 2009 from 85 to 96.3%.

### **Normal receiving areas**

From a total of 432 agglomerations that require WWTPs, 4 agglomerations (0.93% of the total), with p.e. > 150,000 required and provided WWTPs according to the Directive. 71 agglomerations (16.4%) with 150,000 > p.e. > 15,000 of which 67 (15.5%) have WWTPs, and 357 agglomerations (82.6%) with 15,000 > ICS > 2,000, of whom 106, 24.5%, have WWTPs.

### **Sensitive receiving areas.**

From a total of 56 agglomerations that require WWTPs, 2 agglomerations (3.57% of the total), with p.e. > 150,000 required and provided WWTPs according to the Directive. 17 agglomerations (30.4%) with 150,000 > p.e. > 10,000 of which 16 (28.6%) have WWTPs, and 37 agglomerations (60%) with 10,000 > p.e. > 2,000, of whom 10 (17.9%) have WWTPs.

6<sup>th</sup> Commission summary of the implementation of the urban waste water treatment directive, SEC(2011) 1561

According to the European Union's last report (7/12/2011) regarding the implementation of the Directive 91/271/EC and the progress of the member states in 2007 and 2008, the EU-15 Member states (including Greece) have maintained their high level of compliance, and the EU-12 Member states have improved their total compliance and showed considerable improvements in their achievements. The percentage of the Collecting systems' construction achieved the 99% of the total pollutant loads of the EU-15, and in Greece achieved the 87%. The secondary treatment didn't show great changes for the EU-15, because the 96% of the total pollutant load was already installed. Though it is mentioned that all of the wwtp do not adequately operate in order to achieve the required limits for 89% of EU-15 total produced load (550 million p.e.), the amount seems to satisfy the stated limits. In regions that are governed by more stringent operating requirements, the 89% of the pollutant load of the EU-15 is constructed and the 79% works satisfactorily.

## **11.4. LEGISLATIVE FRAMEWORK FOR THE PROTECTION OF THE COASTAL WATER – THE WATER FRAMEWORK DIRECTIVE 2000/60/EC**

### **11.4.1. The European Union Framework**

#### **The Water Framework Directive**

The European Commission has adopted water protection as one of the top priorities.

The water policy was initially fragmented in terms both of objectives and of means. European Institutions and Member States realized the need for a framework legislation to address problems in a coherent way and the Water Framework Directive (WFD) 2000/60 was adopted in 2000. The aim of WFD is to promote sustainable water use, to mitigate the effects of floods and droughts and to improve the status of aquatic ecosystems. Therefore the Member States are obliged to identify the European waters and their characteristics on the basis of individual river basin districts and to adopt management plans and programs of measures appropriate for each body of water.

The WFD incorporates and repeals the main parts of the water legislation. More specifically:

In 2007 the following legislation has been repealed:

Directives 75/440/EEC, 77/795/EEC, 79/869/EEC.

By the end of 2013 the following legislation will be repealed:

Directives 78/659/EEC, 79/923/EEC, 80/68/EEC, 76/464/EEC (Article 6 was deleted with effect from the year 2000), 82/176, 83/513, 84/156, 84/491, 86/280, 2006/11.

#### **The WFD:**

- applies to all waters: lakes, rivers, transitional waters (estuaries) and coastal waters (up to one nautical mile from land), ground waters;
- applies to all human impacts on waters;
- defines the environmental objective for surface waters as "good status", based on the biological, chemical and hydro-morphological elements;
- sets the obligation to achieve or maintain the objective of "good ecological status" as a rule by 2015, complemented by a 'non-deterioration' clause, i.e. no water is allowed to deteriorate in its status. Nevertheless, temporary deterioration of bodies of water is not in breach of the requirements of the WFD if it is the result of circumstances which are exceptional or could not reasonably have been foreseen and which are due to an accident, natural causes or *force majeure*.
- defines the river basins as the operational entity of water management, across administrative and political boundaries, with an obligation to coordinate and cooperate within shared river basins. A competent authority has been designated for each of the river basin districts. Water management is now based on the river basin, being the natural geographical and hydrological unit, instead of administrative or political boundaries.

Member States provide an analysis of the characteristics of each river basin district and a register of protected areas. For each river basin district, some of which will traverse national frontiers "a river basin management plan" was planned to be established by 2009 (not yet concluded for all member states) and then updated every six years. The river basin management plan:

- develops the operational measures step by step, from an environmental analysis of pressures and impacts, to upgrading the monitoring programmes, developing river basin management plans, together with the related programme of measures,

- provides for broad involvement of all interested parties, namely citizens, local communities, stakeholders and NGOs, in the implementation of the WFD, in particular as regards the river basin management plan,
- underpins environmental objectives by economic aspects, such as water pricing reflecting cost recovery, and economic analyses. From 2010 Member States must ensure that water pricing policies provide adequate incentives for users to use water resources efficiently and that the various users contribute to the recovery of the costs of water services, including those relating to the environment and to resources.
- obliges the Member States to introduce arrangements ensuring effective, proportionate and dissuasive penalties in the event of breaches of the provisions of the WFD,
- introduces a “Combined approach” of emission limit values and quality standards.

### **Classification of waters**

Waters are classified according to their type. Surface water bodies in a River Basin District are defined as rivers, lakes, ‘transitional waters’, coastal waters or artificial water bodies or heavily modified water bodies. The classification of each type of water body can be undertaken using one of two systems A or B:

- System A is based on classification according to broad eco-regions across Europe. Once a water body has been assigned to an eco-region under system A, it has to be further classified according to type based on altitude (high, mid or low), size (catchment area) and geology.
- System B imposes no requirement to refer to eco-regions. Obligatory requirements for classification include altitude, latitude, longitude, geology and size.

### **Characterization of the water bodies within each River Basin District**

The characterization of the water bodies within each River Basin District should include:

- a review of human activity on the status of surface and ground waters and
- an economic analysis of water use.

The water status of each water body within a River Basin District has to be judged against reference conditions for similar water bodies which are of ‘high status’, taking into account the classification scheme applied to these waters.

### **Monitoring the water status**

Member States run programmes for monitoring water status ‘in order to establish a coherent and comprehensive overview of water status’ in each River Basin District. Such monitoring includes volume and flow rates, as well as ecological and chemical parameters necessary to determine water status. Monitoring is required in order to determine the effectiveness of River Basin Management Plans and their periodic revision and to measure the compliance, such as in assessing whether good water status has been achieved. Member States put waters to be monitored in priority lists, such as:

- bodies at risk from point source pollution,
- bodies at risk from diffuse source pollution,
- bodies at risk from significant hydro-morphological pressure.



Among the relevant parameters, the biological ones must be monitored at all sites, while the others may first be subject to investigation and inventory prior to monitoring.

There is general requirement to monitor hydrology in all groundwater bodies and more specific requirements for those subject to abstraction and direct or indirect discharges. For pollution and water level information, the WFD only requires that monitoring is sufficient to detect trends.

A programme of monitoring for protected areas is also established within each River Basin District. Discharges to waters shall be controlled by one or more of the following means, as set out in other EU legislation including Directive 2008/1/EC, Directive 91/271/EEC and Directive 91/676/EEC :

- establishment of emission limits,
- emission controls based on best available techniques,
- use of best environmental practices for diffuse sources.

### **The River Basin Management Plan**

Within each River Basin Management Plan a programme of measures should be detailed, to ensure that environmental quality is maintained or, where waters are below 'good status', that quality improvements are made. Compulsory measures for all waters include:

- those necessary to implement other EU legislation for the protection of water, in particular the combined approach,
- those appropriate to take account of recovery costs for water use and achieve sustainable water use,
- those necessary for heavily modified water bodies,
- those necessary to safeguard water quality intended for drinking water abstraction,
- register of water abstractions, prior authorization for abstraction and impoundment,
- prior authorization, or registration based on general binding rules or all point source discharges liable to cause pollution,
- authorizations shall be periodically reconsidered,
- prohibition of direct discharges to groundwater subject to a series of provisions for specific exemptions and ensuring that all discharges are authorized,
- co-ordination for the whole of the river basin district, across administrative and political boundaries.

The river basin management plan is a detailed account of how the objectives set for the river basin, namely: ecological status, chemical status and quantitative status, as well as of how the protected area objectives are to be reached within the timescale required.

Each River Basin Management Plan must provide the following information for each district:

#### 1. Ecosystem information:

- Geographical and geological characteristics,
- Hydrological characteristics,
- Demographic information,



- Land-use and economic activity,
- Point sources of pollution,
- Diffuse sources of pollution,
- Water abstraction,
- Other anthropogenic influences,
- Identification of all water bodies used for abstraction,
- Register of protected areas,

2. *Economic information*: (values, prices, costs, including historical trends, investments and forecasts divided by households, industry and agriculture) for abstraction and distribution of water and collection and discharge of waste water.

3. Administrative Information:

- Details of monitoring regimes for ecological and chemical characteristics and for protected areas.
- The plan must also contain a series of *management objectives*. These include:
  - Measures to meet environmental quality standards for groundwater,
  - Monitoring, investigation and review of authorizations in all waters not classified as “good”,
  - Controls over abstraction, including a register of abstractors and ensuring that abstraction only amounts to a small proportion of available resources,
  - Requirement for prior authorization for all activities that have a potentially adverse impact of water status,
  - Prohibition on direct discharges to ground-waters.

4. *Public consultation*. Member States ensure the following:

- At least three years before a plan is to be in operation, a timetable and work programme for its production is to be made public,
- An interim overview of significant water management issues identified in the river basin is to be made public not less than two years before the plan is operational,
- Draft copies of the plan must be available at least one year before it is in operation and the public must be given six months to comment upon it,
- All background documents must be available on request.

#### **11.4.2. Emissions to Water**

According to the aims of the WFD the pollution of surface and ground water due to priority substances has to be reduced progressively.

#### **The Dangerous Substances Directive**

The rules for protection against and prevention of pollution resulting from the discharge of certain dangerous substances into the aquatic environment are laid down in Directive 2006/11 (to be repealed by the WFD in December 2013) and apply to inland surface water, coastal and territorial waters. The Directive sets standards for particular substances classified in two lists.

List I (Black List) includes substances selected on the basis of their toxicity, persistence and bioaccumulation, e.g. carcinogenic substances, cadmium compounds.

List II (Grey List) includes less dangerous substances such as zinc, lead compounds.

Member States are to take appropriate steps to eliminate pollution by List I substances and to reduce pollution by List II substances.

Discharges of both List I and List II substances are to be subject to prior authorization by a competent authority.

For controlling List I substances, Member States may choose between two regimes:

(1) The preferred regime entails limit values to emission standards, to be fixed uniformly throughout the EU in daughter Directives.

(2) The other regime entails emission standards set by reference to quality objectives, also to be fixed in daughter Directives. The adoption of this regime is conditional on the Member State proving to the Commission that the quality objectives are being met in accordance with the appropriate monitoring procedure. The emission standards are to be laid down mainly on the basis of toxicity, persistence and bioaccumulation taking into account the best technical means available, which is to take into account the economic availability of those means.

Member States are to draw up inventories of all discharges which may contain List I substances.

Programmes for the reduction of pollution are required for List II but not for List I substances. By 1991 only seventeen substances had been included in List I. All other potential List I substances remain List II substances. List I contains certain individual substances which belong to the following families and groups of substances:

- organohalogen compounds and substances which may form such compounds in the aquatic environment,
- organophosphorus compounds,
- organotin compounds,
- substances which have been proved to possess carcinogenic properties in or via the aquatic environment,
- mercury and its compounds,
- cadmium and its compounds,
- persistent mineral oils and hydrocarbons of petroleum origin,
- persistent synthetic substances which may float, remain in suspension or sink and which may interfere with any use of the waters.

List II contains substances belonging to the families and groups of substances in List I for which the emission limit values have not been determined, and certain individual substances and categories of substances belonging to the families and groups of substances listed below and which have a deleterious effect on the aquatic environment, which can, however, be confined to a

given area and which depends on the characteristics and location of the water into which such substances are discharged. These are:

- The following metalloids and metals and their compounds: Zinc, Copper, Nickel, Chromium, Lead, Selenium, Arsenic, Antimony, Molybdenum, Titanium, Tin, Barium, Beryllium, Boron, Uranium, Vanadium, Cobalt, Thallium, Tellurium, Silver,
- Biocides and their derivatives not appearing in List I,
- Substances which have a deleterious effect on the taste and/or smell of the products for human consumption derived from the aquatic environment and compounds liable to give rise to such substances in water,
- Toxic or persistent organic compounds of silicon, and substances which may give rise to such compounds in water, excluding those which are biologically harmless or are rapidly converted in water into harmless substances,
- Inorganic compounds of phosphorus and elemental phosphorus,
- Non-persistent mineral oils and hydrocarbons of petroleum origin,
- Cyanides,
- Fluorides,
- Substances which have an adverse effect on the oxygen balance, particularly: ammonia and nitrites.

#### **11.4.3. The Dangerous Substances ‘daughter’ Directives**

By the end of 1990 seven 'daughter' Directives had been agreed, relating to 17 substances. Together they include heavy metals and a large number of substances used as agricultural herbicides and pesticides. The first four Directives, relating to mercury (82/176), cadmium (83/513), and HCH (84/156, 84/491), were agreed separately, while the remaining three were developed within a common framework established by Directive 86/280 concerning certain dangerous substances. For each substance, limit values are specified for different types of processes or industrial sectors, and are to be met generally in two stages, normally three years apart. The limit values are expressed in two ways – in terms of concentration and in terms of quantity in relation to installed production capacity. The limit values in terms of quantity must be observed, while those given in terms of concentration should in principle not be exceeded. Limit values are to be reviewed every four years in the light of changes in scientific knowledge or improvements in pollution control technology. However, many of these limit values are now around 20 years old and have largely been overtaken by the need to control discharges in accordance with Best Available Techniques (BAT).

The environmental quality standards in the field of water policy are specified by Directive 2008/105, which covers forty one chemical substances. Among them, thirty three are characterized as priority substances and eight [cadmium, lead, mercury, nickel and compounds, benzene, polyaromatic hydrocarbons, DDT], are subjected to review for possible identification as priority substances. This Directive amends the Annex X (Priority substances) of the WFD, as well as the Annexes of Directives 82/176, 83/513, 84/156, 84/491, 86/280 which will be repealed from 2013.

#### 11.4.4. Water Quality Requirements

Groundwaters are protected under EU law through the WFD, with certain details set out in a specific daughter Directive on groundwater (2006/118). According to this Directive:

- ground-waters should achieve/maintain good chemical status and good quantitative status,
- deterioration of groundwater status is prohibited,
- waters used for abstraction of drinking water are specifically protected, and
- the management framework for groundwater protection is established.

Directive 2006/118 requires Member States to assess groundwater chemical status using specified groundwater quality standards, threshold values for specified pollutants, groups of pollutants and indicators of pollution. The WFD prohibits any direct discharges of pollutants into groundwater.

#### 11.4.5. Implementation of the WFD in Greece

**Law 3199/2003** followed by **PD 51/2007** and many Ministerial Decisions incorporates to the Hellenic legal order the WFD 2000/60/EC. The involvement of interested parties is ensured through their representation to the National and Regional Water Districts.

Recently:

- a) Law 3199/2003 modified by Law 4117/2013 article 5, GG 29/A/5.2.2013
- b) Joint Ministerial Decision 322/2013, GG 679/B/22.3.2013, refers to the organization and the responsibilities of the Special Secretary for Water Management

#### 11.4.6. Flood Risks Assessment and Management

Flood management is part of Europe's adaptation strategy for climate change. The Environment Ministers agreed in October 2004 that there was a need for *effective* European co-ordination on flood risk management. The Directive 2007/60 on the assessment and management of flood risks applies to inland water and to coastal waters across the whole territory of the EU. The aim of the Floods Directive is to reduce and manage the risks that floods pose to human health, the environment, culture heritage and economic activity. The Floods Directive requires Member States to prepare the following:

- **Preliminary flood risk assessment** to identify areas that are at potentially significant flood risk, by 2011
- **Flood hazard maps** showing the likelihood of flooding and **flood risk maps** assessing the impact, by 2013;
- **Flood risk management plans** including measures to decrease the likelihood or impact of flooding by 2015;
- 6 years updates taking into account the impact of climate change.

The Floods Directive will be carried out in coordination with the *WFD* to avoid *overlaps* in procedures and institutions and to ensure the achievement of *maximum synergies*. The European Countries are obliged:

- To implement construction measures lowering flood risks;
- Avoiding flood-prone areas;
- To limit flooding by restoring wetlands and flood plans and;
- To educate the public about what to do in the case of flooding.

## 11.5. European and National Legislative Framework on Coastal Erosion

### 11.5.1. INTRODUCTION

Coastal zones are among the most vulnerable areas to climate change and natural hazards. Risks include flooding, erosion, sea level rise as well as extreme weather events. These impacts are far reaching and are already changing the lives and livelihoods of coastal communities.

#### Coastal pressures in Greece

The plethora of human activities on coastal areas stresses the coastal environment in multiple and severe ways. Pressure over the Greek coastal areas, modifying the natural sediment balance and erosion trends, derives from:

**Urbanization and tourism:** increment of tourism, majority in islands, and high urbanization<sup>356</sup> of coastal zones together with related infrastructure.

**Agriculture, aquaculture, fisheries:** intensified production and catchments, illegal tactics, deforestation of coastal areas, destruction of *Posidonia Oceanica* meadows.

**Sea transportation:** harbors, marines, ports<sup>357</sup> are all constructions of hard engineering that need additional protective structures and activities (dredging, groins, breakwaters).

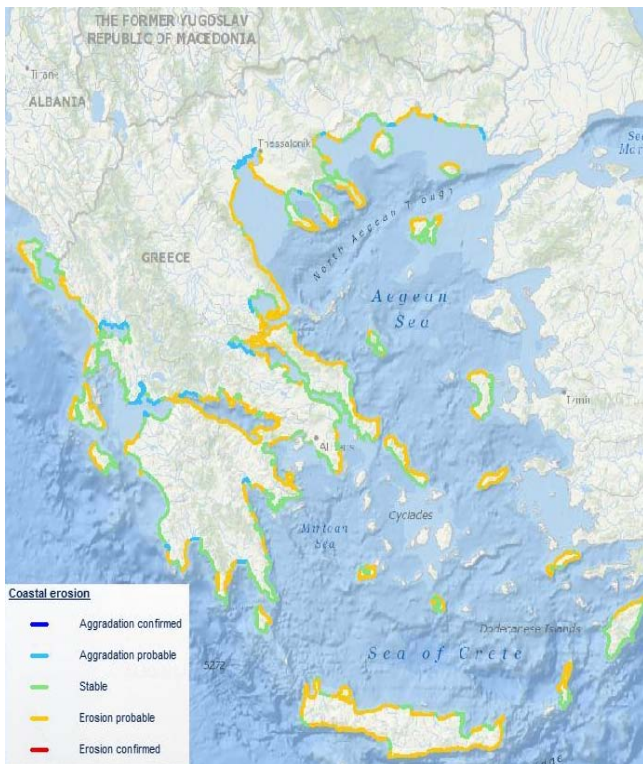
**Damming:** hydroelectric and irrigation dams reduce sediment supply from the hinterland.

The latest update on coastal erosion map (2005 data) appears in Figure 11-8.

<sup>356</sup> Terrestrial areas lying within 10 km from the coastline in Greece cover an area of 40.655km<sup>2</sup>, the greatest among European countries, according to Shoreline Management Guide, 2004.

<sup>357</sup> Commercial shipping transfers over 30 million passengers and 7 million vehicles per year, connecting the mainland with the islands, catering the needs of residents of islands and tourism, according to the Ministry of Shipping and Aegean .

Figure 11-8: Greek coastal erosion map



Source: <http://ec.europa.eu/maritimeaffairs/atlas/>

On “Development Strategy Guidelines on Areas of Political Responsibility of Ministry of Environment, Energy and Climate Change”, it is noted that Greece’s 16.500 km of coastline, which represents the 18.5% of European coasts, subside up to 28.6%. The lack of detailed data concerning socio-economic impacts or environmental effects of coastal erosion in Greece, according to the same source, underlines the State’s fragmental addressing of the phenomenon.

### 11.5.2. LEGISLATIVE FRAMEWORK CONCERNING COASTAL EROSION

The main European legislative framework concerning coastal zones and erosion is summarized in subsection 2.1. Greek legislation has complied with the following Directives forming an updated legal framework presented in subsection 2.2.

#### European legislative framework

Water protection and management:

**Directive 2000/60/EC**, amended by Directives 2455/2001/EC, 2008/32/EC and 2009/31/EC presents a number of objectives, concerning inland surface waters, groundwater, transition waters and coastal waters, such as preventing and reducing pollution, promoting sustainable water usage, environmental protection, improving aquatic ecosystems and mitigating the effects of floods and droughts.



Flood management and evaluation:

**Directive 2007/60/EC** aims to establish a common framework within the European Union for assessing and reducing the risk that floods pose to human health, the environment, property and economic activities. The Directive covers all types of floods, both along rivers and in coastal areas. There are also other risks, such as urban floods and sewer floods, which must also be taken into account.

Strategy for the marine environment:

**Directive 2008/56/EC** establishes common principles on the basis of which Member States have to draw up their own strategies, in cooperation with other Member States and third countries, to achieve a good ecological status in the marine waters for which they are responsible. These strategies aim to protect and restore Europe's marine ecosystems and to ensure the ecological sustainability of economic activities linked to the marine environment.

On Environmental Assessment:

Environmental Assessment is a key instrument of European Union environmental policy for assessing the effects of certain public and private projects, on the environment, that has been reflected by two directives:

- the Directive **85/337/EC** amended by 97/11/EC on the assessment of the effects of certain public and private projects on the environment (Environmental Impact Assessment), and
- the Directive **2001/42/EC** on the assessment of certain plans and programmes on the environment (Strategic Environmental Assessment)

Directive 85/337/EC requires with Article 2 that “Member States shall adopt all measures necessary to ensure that, before consent is given, projects likely to have significant effects on the environment by virtue, inter alia, of their nature, size or location are made subject to a requirement for development consent and an assessment with regard to their effects.” Article 8 then requires that “The results of consultations and information gathered pursuant to [the EIA procedure] must be taken into consideration in the development consent procedure”. The EIA Directive outlines which project categories shall be made subject to an EIA, which procedure shall be followed and the content of the assessment.

The purpose of Directive 2001/42/EC is to ensure that environmental consequences of certain plans and programs are identified and assessed during their preparation and before their adoption. Article 5 of this Directive requires that “*the adoption of environmental assessment procedures at the planning and programming level should benefit undertakings by providing a more consistent framework in which to operate by the inclusion of the relevant environmental information into decision-making. The inclusion of a wider set of factors in decision-making should contribute to more sustainable and effective solutions.*”

Actions concerning specific geographic regions:



### Communication from the Commission to the Council and the European Parliament

**2000/547**, on integrated coastal zone management: A strategy for Europe, refers to the challenge of managing the Coastal Zone. Among recorded problems lays “widespread coastal erosion, often exacerbated by inappropriate human infrastructure (including that intended for “coastal defense”) and development, too close to the shoreline; Engineering works in some port areas have contributed to accelerated erosion of the adjacent shoreline because the works did not adequately account for coastal dynamics and processes. Extraction of gas is another factor that can lead to coastal erosion”.

### Greek legislative framework

The pieces of legislative framework concerning coastal erosion are presented on this subsection in chronological order together with a brief commentary.

- **L.2344/1940 “Concerning foreshores and coasts”**, includes **Article 8** referring to coastal erosion as follows: “Coastal areas which due to soil constitution present coastal erosion, the construction of technical measures, onshore or offshore, is allowed and aims to deter the phenomenon. These projects should be undertaken in accordance with the provisions for public works. If the project is constructed after an individual owner’s request, to protect his property from coastal erosion, the relative costs borne by the latter. The project study is under license of the Ministry of Transport. All private infrastructure belong to the State and may be altered or demolished without indemnification to the owner for construction costs”.

Coastal erosion is being treated fragmentary, with no special provisions for the measures to be taken, the dynamic and the management of the broader area; an approach that prevailed for 61 years, as many as the Law’s years in effect.

- **L. 1650/1986 “On environmental protection”**, concerning coastal zone management, it presents a general framework of regulations. There were no specific provisions for coastal areas, but they were subject to the general terms and regulations. In order to protect the environment from human interventions, **Article 3** introduces a rough classification of human works and activities according to their anticipated environmental impact and **Articles 4 and 5** describe the procedure for the environmental impact assessment study needed.

This was the first legislative attempt towards prevention of environmental degradation emanating from human activities. The categorization and the procedure for the approval of environmental conditions and the environmental impact study for these activities (Articles 3, 4 and 5), were amended and replaced almost 15 years later by L. 3010/2002, followed by the Joint Ministerial Decision 1593/2332/2002.

- **L.2971/2001 “Foreshores, coastal areas and other provisions”**, includes **Article 12** referring to protective measures and accretion. This Article describes that if the competent Committee verifies the existence of coastal erosion impacts, it permits the construction of necessary technical works. If coastal erosion threatens private property, its owner may be licensed to construct the necessary protective structures by his own expenses, under an engineering supervision and the approval of the technical study from the Prefectural Technical Services, which will have control of the project as well.

Although a thorough coastal engineering study and an EIA are required by this legislative framework, the basic line of response to coastal erosion impacts and protective measures remains the same. The dynamic nature of coastal areas is not taken into account and no recommendations or specific toolkits for planning and protecting are given. The content of this article does not differ in almost anything from the wording and philosophy prevailing for coastal erosion protection in L.2344/1940. It undoubtedly lacks systemic approach and does not secure sustainable development.

- **L.3010/2002 “Harmonization of L.1650/1986 with Council Directives 97/11/EC and 96/61/EC, ...”** replaces Articles 3, 4 and 5 of L.1650/1986 regarding categories of works and projects, approval of environmental terms and content of environmental impact studies, by essentially improving description and the requested content for EIS.
- J.M.D. 1593/2332/2002, “Classification of Public Works in categories according to Article 3 of L.1650/1986 as it was amended by Article 1 of L.3010/2002 ...”, describes and categorizes works and activities thoroughly, including categories related to the coastal environment, such as marine, hydraulic and mining works and aquaculture. Works aiming to abridge coastal erosion effects are mentioned as “Works for the protection and configuration of coasts” and are segregated to a) works parallel to or on the seashore and b) offshore works.

Natura 2000 sites pose a factor for the categorization on hydraulic works only for irrigation and industrial drilling. This omission, among others, was detected and amended with L.4014/2011 followed by Ministerial Decision 1958/2012.

**L. 3199/2003 “Water protection and management”**, harmonizes the Greek environmental legislation with the Water Framework Directive (2000/60). An intensive monitoring program of water and ecological quality status is designed to classify all inland and marine ecosystems. Mitigation measures should be taken to protect or upgrade the status of each aquatic system.

The Regional Department of Water Management is responsible for the mitigation of effects of floods and droughts. Coastal erosion is a phenomenon that effects flooding impacts, hence actions related to coastal erosion management concern the Regional Authorities.

P.D. 51/2007, “Determination of measures and procedures for integrated water protection and management, in compliance with the provision of Directive 2000/60”, constitutes the substantial harmonization with the National institutional framework of Directive 2000/60. The implementation of this Decree aims to establish the required framework of measures and procedures in order to achieve complete protection and rational management of water resources (inland surface waters, transitional and coastal waters) of the country (Article 1).

- 
- J.M.D. 31822/1542/E103 (2010), “Assessment and management of flood risks in compliance with provisions of Directive 2007/60/EC ...”, provides with Article 4 the data required for the Preliminary Assessment. It is based upon “*available or easily deduced information*” including at least maps of basin drainage of rivers, description of historical flood events and assessment of potential impacts of future floods on humanity.

The J.M.D. makes no reference to flood risks associated with coastal erosion trends and statuses (eroding-stable-accreting) in coastal areas. Anticipation of potential losses in coastal areas and

future planning needs to be in compliance with the local and/or regional erosive trends as they are directly associated with flooding<sup>358</sup> impacts.

- L. 3983/2011 “National strategy towards protection and management of marine environment-Harmonization with Directive 2008/56/EC ...”, sets fundamentals for an organizational framework for marine environmental management, applying to all sea waters including coastal waters. Articles 8, 9 and 10 of Chapter B, describe the procedures for evaluation, determination of good environmental status and environmental goals, respectively, indicating the use of specific annexed tables for this purpose. Table 2/Annex III regarding “Pressures and Impacts” requests information, among others, about erosion (e.g. benthic impacts) and changes in siltation (e.g. induced by dredging, dredging sludge disposal).

L. 3893/2011 includes erosion, as an indication of environmental stage, referring specifically to benthic impacts deriving from commercial fishing, shipping and anchoring omitting coastal erosion. Dredging activities in Greece do not serve, yet, beach nourishment purposes and so dredging is only regarded as a factor of environmental degradation.

- **L. 4014/2011, “Environmental licensing of projects and activities, ...”**, issued on September 2011, simplifies, streamlines and reorganizes the legal framework of EIA procedures in Greece, reduces the number of projects requiring EIS and specifies the necessary data needed for projects with significant potential environmental impacts. It also introduces the procedure for environmental licensing of projects and activities within Natura 2000 network, requiring the submission and evaluation of “Special Ecological Assessment”.

Table 11-17: Categories of EIA studies and minimum requirements per category, according to L.4014/2011

<p><b>Category A1:</b> projects with very important potential environmental impacts which require specific EIS with a Special Ecological Assessment study as an Annex. These EIS are approved by the Ministry of Environment, Energy and Climate Change.</p>
<p><b>Category A2:</b> projects with significant potential environmental impacts, which require specific EIS with an Annexed Special Ecological Assessment. The EIS are approved by the Decentralized Administrations as the Regional Authorities.</p>
<p><b>Category B:</b> projects with local and less significant potential environmental impacts, which do not require an EIS but have to comply with standardized Prototyped Environmental Commitments. These Prototyped Environmental Commitments are issued by the Ministry of Environment, Energy and Climate Change for each category of projects. The authorities who issue the permits of operation of these projects and the Regional Authorities are responsible for issuing the environmental permits.</p>

**Requirements for Environmental Impact Assessment studies, according to L.4014/2011**

The minimum data required for the Environmental Impact Assessment studies are:

<sup>358</sup> During EUROSION program the “Guidance document for quick hazard assessment of coastal erosion and associated flooding” was prepared, embodying coastal characteristics and erosive trends to flood risk planning (May 2004).

- Permitted land uses in the project/activity area,
- Description of the project 's position, design and technical characteristics, main construction methods, nature and quantity of required construction material, anticipated types and quantities of pollutants and emissions during construction and operation and other possible environmental disturbance during construction and operation,
- Description and evaluation of the alternative solutions and presentation of the main reasons for selecting the proposed alternative, in terms of its environmental impacts,
- Description of environmental parameters that will potentially be subject to impacts from the developed project,
- Description, assessment and evaluation of potentially significant environmental impacts,
- Description of measures proposed for the reduction, remediation, prevention of environmental impacts of the project,
- Environmental management plan for environmental protection and environmental monitoring.
- A non-technical summary of the Environmental Impacts Assessment study.
- Annexed specialized studies.

#### **Requirements for the Special Ecological Assessment study, according to L.4014/2011**

For the “Special Ecological Assessment” a detailed description of the natural environment focusing on the protected areas (as Natura 2000 sites) and others, according to L.3037/2011 (harmonization with the European Directive on Biodiversity 2006/613/EU) is required together with the Environmental Impact Assessment. The study should describe all presently existing types of habitats, types of flora and fauna (according to Directive 2006/105/EU), types of birds (according to Directive 2009/147/EU) and quality data on the protection of these areas.

- Ministerial Decision 1958/2012, “Classification of public and private works and activities in categories and subcategories in accordance with ... L.4014/2011”, amends L. 4014/2011 by featuring updated and detailed lists of categories of works and activities. Works and activities aiming to protect from coastal erosion impacts are for the first time indicated accurately, as follows:
  - Works aiming to protect from coastal erosion, located offshore and at a distance from the coast, and
  - Works on the coast, parallel or perpendicular to it.

Beach landscaping and reformation, construction of artificial reefs for biodiversity enrichment purposes, and sand excavation for beach nourishment purposes, are all works that may serve to the protection of the coast from coastal erosion and are also included in these lists.

The categorization of these types of projects according to their anticipated environmental impact is given in Table 11-18. As there is no specific category, dredging for beach nourishment purposes falls within the general sand excavation projects.

Table 11-18: Project types and categories concerning coastal protection, according to the Ministerial Decision 1958/2012

Project Type	Category A1	Category A2	Category B
Marine works			
Coastal protection works in the sea and at a distance from the shore	Total beach length $\geq 500$ m or within Natura 2000 site	Total beach length $\leq 500$ m	
Coastal protection works on the beach, parallel or perpendicular to the shoreline	Total beach length $\geq 500$ m or within Natura 2000 site	Total beach length $\leq 500$ m	
Beach landscaping and remodeling	Total beach length $\geq 1,500$ m	Total beach length $\geq 200$ m and $< 1,500$ m	Total beach length $< 200$ m
Artificial reefs on the sea bottom with sole purpose of enriching marine biodiversity			All projects
Mining and related activities			
Sand excavations that do not fall into the category of aggregate quarries		All projects	

Despite it's certain improved list of works and categories, classification of coastal protection works is based upon the total length of intervention rather than the anticipated environmental impacts of each of the main categories of coastal defense structures. The dynamics of coastal system is a key factor for designing and projecting potential environmental impacts together with the method used. Rigid and non-rigid techniques<sup>359</sup> can potentially cause little to major environmental degradation, irrespectively of their length (in a rational scale of intervention). Rigid techniques are

<sup>359</sup> Coastal defence works according to U.S. Army Corps of Engineers (1984) are broadly categorized to rigid and non-rigid with the former involving the emplacement of seawalls, breakwaters, jetties and groins, and the latter beach nourishment and dune restoration actions (Leatherman 1996).

by definition intervening in an inadaptable way to the coastal environment, in contrast to the non-rigid ones. Hence, the classification of this kind of works and projects is not yet in a proper basis.

Recently (April 2013), the Council of the State ruled that Law 4014/2011 is unconstitutional in specific articles and in its whole. Consequently, the law will have to be abolished soon, and replaced by another piece of legislation.

### **Authorization and administration bodies**

During the enforcement period of Law 2344/1940, works aiming to protect from coastal erosion were implemented under the authorization and study approval of the Ministry of Transport, which also had the control on them.

In L. 2971/2001, although the protection from coastal erosion was not conceived in an integrated approach, the authorization and implementation procedures were altered in way that proves a better acknowledgment of coastal protection's significance. The procedure of authorization reads as follows:

- A Special Committee (ESAL) is responsible to approve all coastal public and private works. ESAL is composed by the Head of the Hellenic Public Real Estate Corporation (as president), a topographer or civil engineer from the same Corporation, the competent Harbor Master, the Regional Director of Urban Planning and the Regional Director of Spatial Planning and Environment. Coastal erosion impacts are ascertained by the Committee's opinion.
- In addition, when the coastal protection work is required by a private property owner, the approval is given by the direction of Prefectural (now Regional) Technical Services, which are also responsible for its monitoring.
- All suggested works have to be followed by a coastal engineering study, certified by the Directorate of Marine Works and the Ministry of Environment, and an Environmental Impact Assessment study.
- All suggested works are carried out with the permission of the Ministry of Finance, after the assent of the Hellenic Navy General Staff, the Ministry of Commercial Shipping, the Ministry of Culture and the mere opinion of the Architectural Control Committee.

Despite the multispectral representation, the participants lack coherence and knowledge in coastal erosion issues. Hence, the consultancy and authorization is driven principally by each Ministry's best interests.

### **Issues requiring further legislative coverage**

Concerning spatial planning and sustainable development of coastal areas and islands

A Special framework of Spatial Planning and Sustainable Development of Coastal Areas and Islands has not yet been enforced. The authorized Special frameworks for Spatial and Sustainable Planning (for Tourism, Industry, Renewable Energy Sources) refer to coastal areas, but without the framework for Coastal Areas and Islands, coastal zones cannot be fully defined and strategically developed.

### **Concerning dredging activities and beach nourishment**

Currently there is neither a specific legislation dealing with dredging activities, potentially supplying sand for beach nourishment purposes, nor directions for the implementation of beach nourishment



in Greek coasts. As tourism is considered an important factor for socioeconomic development, beach nourishment, as a non-rigid method, should gradually be incorporated into the legislative frameworks concerning beach protection from coastal erosion and Environmental Impact Assessment.

### **Concerning risk management**

The Ministry of Environment, Energy and Climate Change, on its “Development Strategy Guidelines on Areas of Political Responsibility of Ministry of Environment, Energy and Climate Change”, considers imperative to develop a National or Regional and local plans for the prevention and risk management of coastal erosion, as directly or indirectly linked to the effects of climate change. It is of highly importance that this plan incorporates erosive trends along the Greek coastlines. Such guidelines have already been published, as for example in “Guidance document for quick hazard assessment of coastal erosion and associated flooding” during EUROSION program.

### **Integrating local communities in coastal and marine protection**

Initiation of educational programs concerning the protection from erosion and environmental degradation of the coastal areas is of high importance; a need that is acknowledged by the Ministry of Environment, Energy and Climate Change on the “European economic area financial mechanism, 2009-2014, Program area: Integrated management of marine and inland water”, as well.

Coastal erosion results in risks to coastal settlements and activities, causing degradation to touristic services and setting properties and lives in danger. Supporting educational and training programs for fisheries management and aquaculture could contribute to addressing issues as the destructive fishing methods and techniques and the problem of overfishing, which disrupt the functioning of the marine environment.

Appropriate management of coastal areas is consistent with the systematic assessment of environmental impacts of projects, real time monitoring of coastal areas, careful planning, monitoring of the implementation of measures and rehabilitation of coastal areas with potentials in socioeconomic-tourist development. Coastal populations are the most important factors to be taken into account for the promotion of this program that would include seminars and training on the degradation of water resources and coastal erosion.

### **11.5.3. PROGRAMMES CONCERNING COASTAL EROSION**

The protection of coastal zones from coastal erosion is a theme discussed and studied in European Programs in which Greece has also participated, even though the implementation of strategies is a step not yet taken.

**EUROSION**, (2002-2004): With the aim to develop coastal erosion policy recommendations, the General Directorate for the Environment of the European Commission launched the project EUROSION. The main findings and recommendations of the pan-European EUrosion study are summarized in the brochure "Living with coastal erosion in Europe: Sediment and Space for Sustainability".



Greece's participation to the program was due to a case study reference.

**CADSEALAND**, Interreg III-B CADSES Programme (2000-2006): the project is the result of merging two different streams of activity on the problem of protecting coastal areas: work relating to the protection of specific areas and initiatives aimed at developing general standards for assessing the "state of the coast", its evolution and the causes of these changes.

Countries participating are Italy, Romania and Greece, the latter represented by the National and Technical University of Athens, the Management Authority of Lake Pamvotis, the Municipal Enterprise for water supply and sewage of Ioannina and the Municipality of Evrostini.

**Beachmed-e**, "Strategic management of beach protection for sustainable development of Mediterranean coastal zones" (2005-2008): The main objective of the project is to pinpoint and improve technical and administrative tools for a strategic management of the coastal defense, in order to achieve a sustainable development of the Mediterranean coastal zones, by developing the topics already dealt with by the previous BEACHMED project (Interreg IIIB - Medocc).

Countries participating are Italy, France, Spain and Greece, the latter represented by East Macedonia and Thrace Region and Crete Region.

**CONSCIENCE**, "Concepts and science for coastal erosion management" (2007-2010): the project was launched within the 6th framework for Research, Technology and Development of the European Union aiming to build on the EUrosion project and to operationalize key concepts and improve the sustainable management of coastal erosion.

Countries participating are The Netherlands, Spain, Romania, United Kingdom, Poland, and Croatia. Greece did not participate in this Program.

**COASTANCE "Regional action strategies for coastal zone adaptation to climate change"**, (2009-2012): the project components are Coastal risks, erosion and submersion, Territorial action plans for coastal protection management and Guidelines for Environmental Impacts Studies focused on coastal protection works and plans.

Countries participating are Italy, France, Spain, Cyprus, Croatia and Greece, the latter represented by the Region of Eastern Macedonia and Thrace as Lead Partner and Decentralized Administration of Crete.

**Phase B2, Component 5 Report<sup>360</sup> "Applicability of the Coastance EIA Guidelines in the current Greek legal framework"**

The Coastance guidelines can be incorporated as a tool for EIA studies in Greece for coastal protection works, according to the writers, and the suggested steps of methodology can be used for producing more specific data for EIA studies concerning Coastal protection works. The methodology steps are:

- Classification of coastal defense structures

---

<sup>360</sup> Available at [http://www.coastance.eu/index.php?option=com\\_docman&task=cat\\_view&gid=11&Itemid=2](http://www.coastance.eu/index.php?option=com_docman&task=cat_view&gid=11&Itemid=2)

- Classification of the physiographic categories of the habitats
- Association of the physiographic categories of the habitats to protected flora and fauna
- Association of coastal defense structures with potential impacts on habitat and species

These guidelines can be used as a first step for the Special Ecologic Assessment as required by **L. 4014/2011**. The Coastance methodology will produce a classification of habitats in physiographic categories, habitat types according to Directive 92/43/EEC, potential habitat use from fauna species, potential impacts of the works during operation and construction and potential effects.

This first step is considered to be useful in:

- Narrowing down the list of specific environmental data that have to be collected from scientific reports and in-situ investigations for the needs of the Special Ecological Assessment.
- Contributing to the final evaluation of the environmental impacts and the proposition of prevention measures.
- Providing useful information for the determination of the Environmental Management Plan and Environmental Monitoring due to determination of the potential habitat use from fauna species.

The Coastance EIA guidelines can “help Greek planners to focus on specific environmental aspects of the coastal projects, which are potentially the most important and search and provide more relevant and accurate environmental information about these aspects” and they can also “help Greek authorities to detect quickly which important environmental information is missing from EIS or which environmental impacts are not appropriately assessed in EIS concerning Coastal Works”.

The Greek Coastance team considers that the Coastance EIS methodology can be directly implemented within the Greek legal framework.

#### **11.5.4. CONCLUSIONS**

Coastal erosion protection in Greek legislative framework is still covered by fragmental Articles, a fact that underlines the problem instead of solving it. ICZM, beach nourishment and other soft techniques have not yet been a part of Greek methodology and action in response to coastal erosion impacts.

Local authorities sitting lack of knowledge, seem to prefer hard coastal structures in order to "protect" versus nourish (Foteinis et al., 2010). In certain cases, choices appear to be dictated by costs, hence the preference for concrete or rubble structures (Foteinis et al., 2010). The overall result is that coastal zone management is incoherent and the design of coastal structures is substandard.

The legislative framework concerning coastal erosion protection needs to be redefined and set upon updated European coastal strategies in conjunction with regional and local needs. The next

step should also concern regional and local authorities and their thorough information on sustainable coastal management. Additionally, financial and spatial development strategies should comply with integrated management of coastal areas along with its principles and policies, with a view at the minimization of conflicting interests.

## **11.6. The EU and Greek Legislative Framework on Coastal Flooding**

### **11.6.1. Introduction**

Flood could be generally described as the process during which, water is overflowing to land that is normally dry, while according to European Commission Flood Directive (EU-FD) 2007/60 (European Commission 2007) the following definition is given:

“‘Flood’ means the temporary covering by water of land not normally covered by water. This shall include floods from rivers, mountain torrents, Mediterranean ephemeral water courses, and floods from the sea in coastal areas, and may exclude floods from sewerage systems.”

Even from the official EU definition of flood it is obvious that floods are connected to coastal areas. According to NOAA, coastal flood is defined as the flooding of normally dry, low-lying coastal land, which is primarily caused by severe weather events along the coast, estuaries, and adjoining rivers. Coastal floods could be categorized into the following types:

- Coastal floods that have resulted from river, lake or dam flood, which have been caused by severe precipitation events.
- Coastal floods caused by storm surges.
- Coastal floods resulted from sea level rise.
- Coastal floods which are attributed to tsunami.

It can be easily understood that coastal floods can be developed by a wide variety of environmental factors, related both with the mainland and the sea, thus increasing the possibility of a coastal flood to happen. Coastal floods are considered to be some of the more frequent, costly, and deadly hazards by which coastal communities can be impacted. Jonkman and Vrijling (2008) state that even a single coastal flood event can result in up to 300,000 fatalities. Another critical point when referring to coastal floods is that coastal floods are interlinked with coastal erosion. Coastal erosion is increasing the risk for coastal floods, while coastal floods are contributing to coastal erosion. Bearing in mind all the above, the EU and Greek legislation concerning floods, the way they are connected to coastal zones and the corresponding critical points and gaps towards implementation of legislation are described above.

### **11.6.2. EU legislation for floods**

The necessity for the development of a legislative framework concerning flood risk management was reported at the “Communication on Flood risk management; Flood prevention, protection and mitigation” (European Commission 2004), after the dramatic floods observed in European territory at 2002 and 2004. According to this Communication report, a coordinated flood prevention, protection and mitigation action programme have to be developed and implemented by the

Member States and the Commission. The following points are identified in this Communication which are related to coastal areas:

- The high risk of flooding in coastal areas.
- The increasing risk for coastal floods because of increasing coastal erosion.
- The implementation of flood risk management plans, not only for rivers, but for coastal areas too.
- The fact that coastal flood risk management plans have to be developed within the same time frame with river basin management plans.
- Coastal floods should be included in flood risk maps when it is necessary.

The annex of the Communication on Flood Risk Management was the starting point for the development of a draft version for the flood risk management Directive, which was created at 2005 and opened to internet consultation with stakeholders and the public. The results of consultation procedure indicated several critical points, the most significant of which are the following:

- It is necessary to perform a preliminary risk assessment in order to identify areas that are not illustrating significant flood potential, which will be excluded from further flood risk assessment.
- EU-FD has to be implemented in coordination with the Water Framework Directive (EU Directive 2000/60).
- A unified, step-wise approach has to be implemented during flood risk assessment and management procedures.

After the consultation process, the proposal for the Directive on the assessment and management of flood risk was made by the EC on 18/01/2006 (European Commission 2006), while its final version was published in the Official European Union Journal on 06/11/2007 and entered into force on 26/11/2007. Except from WFD, there are several other legislative frameworks that are closely related to FD implementation (European Commission 2012) that are presented in Table 11-19.

The key features of EU-FD are clearly summarized by the European Commission (2012). The Flood Directive has to be applied to all kind of floods on the entire European region, in which coastal floods are also included. According to EU Flood Directive, the flood risk management has to be approached within an implementation framework that includes three steps.

Concerning the first step, a preliminary flood risk assessment has to be made by 2011 in order to identify areas of significant flood risk potential. The preliminary flood risk assessment has to be implemented not only for river basins, but also for the associated coastal zones. After the identification of river basins and coastal zones in which significant flood risk exists, flood hazard maps and flood risk maps have to be created by the year 2013. In terms of likelihood of flooding events to be observed, three different likelihood levels have to be taken into account: a) The medium likelihood maps, according to which events with a returning period of at least 100 years have to be considered, b) the low likelihood maps for which extreme events have to be considered and c) in case that it is necessary, floods with a high probability may also be included in flood mapping. Except from water depths that have to be indicated in those maps, other factors such as economic activity, environmental damage potential and number of inhabitants potentially at risk have to be indicated too.

**Table 11-19. Legislation related to Floods Directive implementation.**

Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 on the establishment of a framework for Community action in the field of water policy ( <b>Water Framework Directive</b> )
Council Regulation (EC) No 2012/2002 of 11 November 2002 establishing the European Union Solidarity Fund ( <b>EUSF</b> )
Council Decision 2001/792/EC, Euratom of 23 October 2001 establishing a Community mechanism to facilitate reinforced cooperation in civil protection assistance interventions ( <b>Civil Protection Mechanism</b> )
Commission action in the field of Disaster prevention
Council Directive 96/61/EC of 24 September 1996 concerning integrated pollution prevention and control ( <b>IPPC Directive</b> )
Council Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment ( <b>EIA Directive</b> )
Council Directive 96/82/EC of 9 December 1996 on the control of major accident hazards involving dangerous substances (SEVESO II) as extended by Directive 2003/105/EC
Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment (The SEA Directive)
Aarhus Convention and related Community legislation on public participation and the access to environmental information.

The third and final step towards the implementation of EU-FD is the development and configuration of flood risk management plans for the areas that are potentially at significant flood risk, which have to be prepared by the year 2015. These management plants should aim to the reduction of flood probability and its potential impacts, while there is a high degree of freedom for each Member State when determining the objectives and measures of the management plans because of the differences in the nature of flooding process. All phases of flood risk management plans have to be included in the corresponding plans, while they have to particularly focus on the following points:

- Prevention, according to which residential and industrial activities has to be avoided in order to prevent the corresponding hazards, while future development has to be appropriately adapted.
- Protection, which includes all the measures and actions taken to reduce the likelihood of floods and the corresponding impacts.
- Preparedness, which included all the information actions and instruction on how they should act during a flood event.

The necessity of integration between flood risk management and water resources management indicated in the above described Communication on Flood risk management was implemented in EU-FD, as the aforementioned steps have to be reviewed every 6 years, in a cycle that is coordinated and synchronized with the Water Framework Directive. The strategy of FD implementation is supported by the Working Group on Floods (WGF), the initial objectives of which are to: a) determine the reporting formats of the Member States and b) ensure the coordinated implementation of EU-FD with WFD and c) exchange flood risk management information.

Within the EU-FD, it is clear that coastal areas have to be included in all steps of implementation process, from the preliminary flood risk assessment to the development of flood risk management plans. Except from flood definition, there are several points in which coastal areas or coastal floods are specially mentioned within EU-FD:

- Introductory section, paragraph 10: It is clearly mentioned that coastal floods constitute one of the different type of floods observed in the European Community.
- Article 3(1b): When it is necessary, coastal areas could be assigned in a different management unit than the corresponding management unit assigned pursuant to Article 3(1) of the WFD.
- Article 4(2a): Coastal areas have to be included in the maps of river basin district at the appropriate scale during the preliminary flood risk assessment.
- Article 6(6): Flood hazard mapping have to be developed for three different levels of flood occurrence probability. When it is decided by a Member State that specific coastal areas indicate adequate protection level, only low probability flood hazard maps have to be constructed.
- Article 13(1): Coastal areas for which flood risk assessment, flood hazard and risk maps and flood risk management plans are already available and meet the EU-FD requirements, can be excluded from the preliminary flood risk assessment.

The current status of EU-FD implementation from Member States in terms of obligatory reporting, as indicated in Annex 2 of EU-FD, is informally presented by a scoreboard ([http://ec.europa.eu/environment/water/flood\\_risk/timetable.htm](http://ec.europa.eu/environment/water/flood_risk/timetable.htm)).

### 11.6.3. Greek legislation for floods

The EU-FD was integrated to the Greek legislation with the Joint Ministerial Decision Electronic Reference 31822/1542/E103/2010 (Official Government Gazette 1108B/21.07.2010) and is entitled: Assessment and management of flood risks, in compliance with the provisions of Directive 2007/60/EC of the European Parliament and the Council of 23 October 2007 "on the assessment and management of flood risks". The EU-FD integration into the Greek legislation is identical to EU-FD, except from flood definition in which floods resulted from the failure of large hydraulic constructions such as dams have been incorporated. This type of floods is not included in the corresponding definition of EU-FD. Also, the responsible authorities for the implementation of EU-FD in Greece are defined, which are the Special Secretariat for Water in collaboration with the Regional Water Authorities. More specifically, Regional Water Authorities are responsible to implement EU-FD in its Water Region under the supervision of Special Secretariat for Water.

### 11.6.4. Critical points and gaps in flood legislation implementation in relation to coastal areas.

#### EU Legislation

According to flood risk assessment process proposed in EU-FD, the consequences for several flood events have to be combined to the expected occurrence probabilities of these events. Three probabilities of flooding (low, medium and high) are mentioned in the Article 6(3) of the EU-FD, which have to be absolutely defined by Member States. According to WGF (2011), determining those three probabilities in general does not constitute a significant problem. However, when referring to coastal floods, this definition may turn to be difficult. The accurate assessment of the frequency of the events included in the process constitutes the basis for the efficient flood risk assessment. When dealing with coastal flood events, defining accurately the frequency requires very long historical time series of relative data, which in many cases are not available. This fact incorporates a high degree of uncertainty in coastal flood risk assessment process. Tsakiris et al. (2009) proposed the determination of certain exceedance probabilities in order to increase the convenience of flood risk mapping process, which correspond to 0.2-0.1 exceedance probability for the high probability scenario, while for the low and medium probability scenarios the corresponding values are 0.02-0.01 (return period 50-100 years) and 0.002-0.001 (return period 500-1000 years). Also the incorporation of some intermediate exceedance probabilities such as 0.04 is proposed by Tsakiris (2009).

Within the EU-FD text, it is clearly mentioned that sustainable land use practices have to be promoted during the flood risk management plans development (Article 4(3)). The necessity for integration or coordination between flood risk management plans and land use plans has been early identified, according to Santanto et al. (2013). This is very critical, especially for the coastal zone, in which the pressure on land use is continuously increasing because of the increasing social and economic development, with a subsequent increasing in the potential for flood damage. A lot of effort has been given the last decade by several research projects in order to identify land use change trends. Similarly to climate change, land use change trends in coastal areas, which are under severe pressure have to be identified and taken into account during EU-FD implementation. Also, Santanto et al. (2013) underline that it is very critical for potential users of flood maps, as land use planners, to be involved in the 2<sup>nd</sup> step of EU-FD implementation, which correspond to the development of flood risk maps. This fact is very important for the coastal zone because of the high pressures receiving that were mentioned above. The chance to have more efficient



implementation of EU-FD by including more intensively stakeholder participation is also mentioned by Heintz et al. (2012).

### **Greek Legislation**

According to EU-FD implementation scoreboard mentioned above, notification of EU-FD transposition (Art. 17, deadline 26.11.2009) and indication of the competent authorities /units of management (Art. 3, deadline notification 26.5.2010) have been submitted from Greek authorities, but the report concerning the preliminary Flood Risk Assessment (Art. 4&5, deadline reporting 22.3.2012) has not included all the required information and is indicated as partially fulfilled.

At 26/03/2012 the Greek Ministry of Environment, Energy & Climate Change announced the completion and submission of historical flood information and data for the EIONET database (<http://www.ypeka.gr/Default.aspx?tabid=389&sni%5B524%5D=1722&language=el-GR>). The first version of Preliminary Flood Risk Assessment (PFRA) report was published at 21/12/2012 and the revised version was published at 07/06/2013 (Special Water Secretariat 2013), in which some additions were made related to the PFRA in Greek Water Region 13. With a coastline length of about 16.300 km and more than 1.300 islands and taking into account that Greece is frequently affected by coastal floods events (Papathoma and Dominey-Howes 2003, Papathoma et al. 2003), it is expected that coastal floods should be specially investigated in the PFRA. In fact, only one coastal flood event is clearly mentioned in Greek PRFA report concerning the coastal area of Kalochori, located in Thermaikos Gulf, Central Macedonia.

Taking into account that Mediterranean region coastal flooding vulnerability is expected to be increased as a consequence of climate change (Nicholls and Hoozemans 1996), the incorporation of climate change in flood risk assessment is critical. Until now, one gap towards the implementation of EU-FD in Greece is that potential climate change effects have not been included in the PFRA, as nominated in the EU-FD, Article 4(2d). According to PRFA report (Specific Water Secretariat 2013), this is attributed to the fact that the available hydrometeorological data cannot support the incorporation of hydrological analysis and, thus PRFA was based on hydromorphological criteria, such as the determination of low slope areas (<2%) or areas situated in alluvial depositions. Stochastic hydrological analysis including extreme events scenarios will be applied in the next step of EU-FD implementation, which will incorporate climate change effects. Even with the application of hydromorphological criteria, some of the expected consequences of climate change, such as sea level rise, which are directly related to coastal zone could have been implemented in the Greek PRFA.

## 11.7. Common Fisheries Policy in the Mediterranean

The EU Common Fisheries Policy and its Implementation in the Mediterranean Sea, with special reference to Greece

### 11.7.1. THE FISHERIES POLICY OF THE EUROPEAN UNION

#### 1.1. Introduction

The Common Fisheries Policy was introduced in the European Union as a concept for the first time with the signing of the Treaty of Rome (March 25, 1957), when the European Economic Community was created by its first member states (Germany, France, Italy, Belgium, Luxembourg, Netherlands). In this Treaty, the Common Fisheries Policy was adopted for the first time with the inclusion of “Fish products” among the agricultural products mentioned by Article 38 of the Common Agriculture Policy (CAP). The objectives described in the Agreement were the following:

- To increase productivity, while promoting technological progress and ensuring the development of the member states, but also developing superior management of production.
- To ensure a superior standard of living for the agricultural community.
- To stabilize markets.
- To ensure the availability of products for consumers at reasonable prices.

Protection and management of fish stocks, of course, continued to belong to the responsibility of the member states and the agreements which were signed among them, as took place for the countries of the North Sea and the North Atlantic. It should be noted that until then the territorial waters of the five countries having a coastline extended only 3 miles out from the shore; thus, about 90% of the Community’s total fish production came from international waters.

The institution of the Common Fisheries Policy (CFP) took place in 1970. Its first regulations, 2141/70 and 2142/70, provided the concept of “equal access” to the territorial waters of the member states. The first limitations of “equal access” were introduced in 1972, with the entry into the EEC of the United Kingdom, Denmark and Ireland, countries with rich areas for fishing and large fishing fleets.

The first radical change in the management of fish stocks began in 1973 (applied in 1977) with the United Nations Convention on the Law of the Sea (UNCLOS), which expanded territorial fishing waters to 200 miles – except for the Mediterranean, the Baltic, and one fishing zone in the North Sea – while however forbidding the fleets of the United Kingdom, Germany, and France from fishing in areas belonging to other countries’ competency. The exceptions to “equal access” to fishing areas introduced include the prohibition of access to the coastal waters of member states at a distance of 12 miles from the shore.

In 1983, with Regulation 170/83, for the first time a twenty-year system was set up for the protection and sustainable management of fish stocks, which was to be re-examined ten years after. This Regulation was revised in 1992 by the new basic Regulation 3760/92 for fishing and

aquaculture, in which alternative technical measures were introduced for the purpose of reducing the effects of fishing on fish stocks. The measures introduced had the following objectives:

- To define zones where fishing activity would be limited or prohibited.
- To reduce the pace of exploitation of fish stocks.
- To set quantitative restrictions on catches.
- To limit the length of time for which fishing boats stay at sea.
- To limit the type and number of boats allowed to fish.
- To introduce technical measures regarding the fishing implements and methods in use.
- To set a minimum size or weight for fish whose catching is to be permitted.
- To establish motivations which will promote selectivity in terms of fishing methods.

The limiting of the proportion being exploited comes about through the management of fishing efforts, which, according to the Regulation, are defined by two elements: the strength of the fleet, expressed in capacity and KW, and its activity, expressed in fishing days in a particular fishing area. As a means for the adjustment of fishing efforts to the available fishing resources, the Multiyear Orientation Programs (MOP) are used to set limits in terms of fleet strength and fishing efforts, in order to reduce the problem of the Community's excessive fleet strength.

In addition, for the first time, aquaculture is encouraged as an alternative to fishing, with the long-term objective being the reduction of fishing efforts and the pressure on the sea's fish stocks. In 1992, aquaculture production in the European Union reached 20% of fisheries production.

The next reform of the Common Fisheries Policy started in 2002. Since the beginning of 1998, the European Commission had begun a procedure for the proposed changes. Initially, Community services sent about 350 questionnaires to interested entities of all the member states. Subsequently, in September 1998 public hearings with the representatives of the fishing sector in each country began. The discussions were concentrated on the necessary improvements for the Common Fisheries Policy to become more effective. Organizations of professional fishermen, non-governmental organizations of professional fishermen, non-governmental organizations involved with the maritime environment, consumers' associations, representatives of the scientific and academic world, state agencies, and other interested parties have been invited to participate. From then until the end of the year 2000, the report and proposals of the European Commission for the European Parliament were prepared, and in 2001 the official negotiations among the member states took place, and the final selection of the law was adopted in 2002.

Today, since 2011, we are in the phase of the next reform of the CFP. Vessels are still catching more fish than can be safely reproduced, thus exhausting individual fish stocks and threatening the marine ecosystem. Today too many stocks are overfished: 80% of Mediterranean stocks and 47% of Atlantic stocks. The fishing industry is experiencing smaller catches and facing an uncertain future. On 13 July 2011, the European Commission presented its proposals for the reform of the EU common fisheries policy (EC, 2011a; 2011b) and, on 2 December 2011, it proposed a new fund for the EU's maritime and fisheries policies for the period 2014-2020: the European maritime and fisheries fund (EMFF) (EC, 2011c). An amended proposal on EMFF was also presented on 22 April 2013 (EC, 2013). Moreover a new proposal for a regulation on the common organisation of the markets in fishery and aquaculture products was presented (EC, 2011d). After the agreement

reached between the Council of Ministers and the European Parliament on 18/6/2013, the new CFP will enter into force by 1 January 2014.

The main challenges of this new CFP are: dwindling fish stocks, diminishing catches, too many vessels chasing too few fish, continuous job losses and a lack of effective control and sanctions. To tackle these challenges new ideas were presented by the European Commission.

The first one is the “discard ban”, which proposes the gradual ban of all discards (unwanted catch that is thrown in the sea, mainly under sized fish or fish caught in excess of quota) of fishing boats till 2016 (pelagic species in 2014, demersal species like cod, hake and sole in 2015 and others in 2016). An effort to minimize unwanted catches was always under force (more selective gear, restricting access to juvenile aggregation areas, real time closures etc.), but this was never successful. Thus, the EC decided to propose the discard ban, in order to find new solutions or markets for such products (e.g. the undersized fish will be only sold for fish meal or pet food production in order to cover the landing costs). The discussions between the EC, the Council and the European Parliament deal mainly for the time line that the ban will be achieved (progressively between 2015 and 2019).

The second one is the requirement to attain management on Maximum Sustainable Yield (MSY) by 2015. This is a really optimistic goal, since in the 4th decade of the CFP, real policy changes should be reached. MSY is the largest catch that can be taken from a fish stock over an indefinite period without harming it. Managing stocks according to MSY, with multiannual plans, will mean going from fishing desperately on smaller fish stocks to fishing rationally on abundant ones. But in order to have this, EU fish stocks should be less fished. Today, after four decades of CFP, 75% of the EU fish stocks are overfished, compared to 25% on average worldwide. This overfishing damages fish stocks, leads to uncertain catches and makes the fishing industry financially vulnerable. The EU subscribed to the MSY objective almost thirty years ago in the 1982 UN Convention on the Law of the Seas. They then reiterated it in the 1995 UN Fish Stock Agreement, in 2002 in the Johannesburg Declaration and finally in 2010 in Nagoya. Important international partners, such as the United States and Australia, have already moved in this direction. After the agreement reached between the Council of Ministers and the European Parliament, where possible by 2015, and at the latest by 2020 all EU fish stocks will be managed at MSY.

Another issue that is promoted in the new CFP is the so called “regionalization” and stakeholder involvement. The idea is that rules should be adapted to the specificities of each fishery and sea area (this is the so called “region”, meaning a sea basin, e.g. Mediterranean). Regionalisation is described as an activity that can be built on existing co-operation among Member States (mainly however in the Baltic and the North Sea regions). While these co-operations are not formalised, they have developed into very effective co-operation mechanisms among Member States. In other sea basins however (e.g. Mediterranean) more work is needed to allow countries to work together.

The other big problem that the Commission wanted to tackle with is the problem of overcapacity. The EU has spent 2.73 billion € from 1994 until 2013 to scrap fishing vessels, but despite this massive spending, the EU fishing capacity is still increasing by about 3% every year. None of the past policies overcapacity (Multi Annual Guidance Programmes, entry exit ratios, capping the maximum fleet size, public scrapping schemes) have worked. In light of this the Commission proposes to draw upon the positive experience of a number of Member States (MS) with

Transferable Fishing Concessions (TFCs) like systems. TFCs are not property rights over marine resources, but only user rights to exploit them for a limited time. After the time is up the TFC has to fall back to the MS, who is free to allocate it again using the same allocation criteria or different ones. Selling, leasing or swapping of TFCs can only happen under strict conditions (e.g. only owners of registered and active vessels with the purpose to use them on a licensed and active vessel, should be able to buy TFCs) and of course countries should have to reserve quotas and TFCs for new fishermen who are looking to enter the fishery. However this system is only viable where quotas and TACs (Total Allowed Catch) are used, and not to regions that try to control fisheries through technical measures, like the Mediterranean. The issue of TFCs is still under negotiation, since it is difficult to find solutions and mechanisms in order to adopt this new system.

A final issue that the CFP should tackle is the social dimension of the CFP reform. By 2007 (last available complete figures), the total number of full time jobs in the EU fisheries sector (including catching, aquaculture, processing and ancillary services to the other segments) was close to 355,000. The catching segment accounted for 145,000 (46%), processing for 137,000 (34%) and aquaculture for 55,000 jobs (16%). The small scale coastal fleets (vessels under 12 meters with passive gears) represent around 40% of the employment in the catching sector and circa 80% of the EU fishing vessels. Compared with the whole of the EU economy, the EU fisheries sector represents less than 0.2% of total EU employment. However, in some Member States (e.g. Greece 1.5%), or regions (e.g. Galicia, Spain 3%), or coastal communities (e.g. Killybegs, Ireland 68%) the sector is an important source of jobs. Employment trends are negative, in line with the evolution of most primary sectors in the EU - since 2002 the employment declined by 31% in the catching segment and by 16% in aquaculture. Thus the new CFP should aim at reversing the decline in employment in the fisheries sector and ensuring the viability of coastal communities. The main tool in this respect is the new European Maritime and Fisheries Fund (EMFF). Compared to the old European Fisheries Fund (EFF), the EMFF brings about a fundamental change of approach to public funding to the fisheries sector, through a focus on collective actions and on the viability of coastal areas, rather than fleet subsidies benefitting mostly vessel owners. Therefore, the EMFF proposes to eliminate most of the current fleet measures and instead use this part of the funding for achieving economic viability of the fleets and aquaculture sector and for the promotion of the development and diversification of areas depending on fishing.

Furthermore some other issues are also included in the CFP reform:

*Fish stock recovery areas:* Under the new CFP the Union and the Member States shall attempt to establish protected areas on ground of their biological sensitivity, or of heavy concentrations of juvenile fish or in spawning grounds. This will be in addition to already existing protected areas.

*Developing sustainable aquaculture:* A better framework for aquaculture will contribute to increased production and supply of seafood in the EU, reduced dependence on imported fish and boosting of growth in coastal and rural areas. By 2014, Member States will draft national strategic plans to remove administrative and other barriers, while upholding environmental, social and economic standards for the farmed-fish industry.

*Improving scientific knowledge:* The CFP establishes the basic rules and obligations in order that Member States will be entrusted with collecting, maintaining and sharing data about fish stocks,

fleets and the impact of fishing at sea-basin level, so as to improve the advice to policy and management.

*New market policy:* The new market policy aims to strengthen the competitiveness of the EU industry, improve the transparency of the markets, and ensure a level playing field for all products marketed in the Union. The existing intervention regime will be simplified: producer organisations will be allowed to buy up fisheries products when prices fall under a certain level, and store the products for placing them on the market at a later stage. This system will foster market stability. Producer organisations will also play a greater role in collective management, monitoring and control. New marketing standards on labelling, quality and traceability will give consumers clearer information and help them support sustainable fisheries.

### **11.7.2. The Common Fisheries Policy in Areas outside the Mediterranean**

Regulation 170/83 introduced for the first time technical measures protecting fish stocks (they had been proposed since 1976) which, for the areas outside the Mediterranean, mainly include the Total Allowed Catch (TAC) and the setting of quotas. In addition, limits on certain fishing implements are introduced as technical measures, along with closed areas and periods of time for fishing. The objective of the quotas and the Total Allowed Catch was to maintain a stable proportion for the main catches in the member states. TACs are proposed by the Commission on the basis of scientific advice on the state of the stocks concerned and decided on by the Council of Fisheries Ministers. This proposal is based on scientific advice from the Scientific, Technical and Economic Committee (STECF), a group of independent scientists established to advise the Commission on all aspects of fisheries policy. The Commission's proposal also reflects substantial input from stakeholders, particularly through the Regional Advisory Councils (RACs), which allows the Commission to take the experience of the fishermen most directly concerned into account.

TACs are set annually for most stocks and every two years for deep sea species. For an increasing number of stocks, TACs are set in line with multi-annual plans. The TACs are shared between EU countries under a system known as 'relative stability' which keeps national quotas stable in relation to each other, even when the total quantity of fish that can be caught varies with the productivity of the fish stocks.

Today, the Council, following the European Commission's proposal, sets the TAC each year for a lot of the stocks of more than 103 fish species. However, 65% of these stocks are not fully assessed according to adequate scientific data and today fewer stocks can be classified according to "safe biological limits" than in 2003. The estimate for these stocks is based on indirect estimates and models. Scientific support is provided by the Advisory Committee for Fisheries Management (ACFM) of the International Council for the Exploration of the Seas (ICES), and also by other organizations, such as the North Atlantic Fisheries Organization (NAFO).

The last agreement of Fisheries Ministers on TACs for 2013 was reached on 19/12/2012. Although a compromise agreement was reached which aims at putting the majority of fish stocks at an exploitation rate in line with Maximum Sustainable yield by 2015, TACs for many fish stocks were still set higher than those proposed by the Commission. For many stocks the agreed reductions in TACs are not sufficient to ensure recovery or sustainable exploitation rates as recommended by scientific advice. For stocks which have a lack of scientific advice but show decreasing trends, the



Council decided on a 5% reduction, a much smaller reduction for many stocks than those proposed by the Commission or advised by scientists for precautionary purposes.

### 11.7.3. The Common Fisheries Policy in the Mediterranean

The fish production of the Mediterranean amounts to 20% of the weight and 35% of the value of the European Union's total production. The fishing situation in the Mediterranean presents many particularities, since on the one hand, the Mediterranean is a closed sea, and on the other, countries outside the European Union are also responsible for fish management. In addition, the topographic nature of the area, whose continental shelf is extremely narrow, causes most fish resources to be located close to the shore. Thus, fishing is mainly carried out in the coastal zone, which also has multiple uses, such as tourism, shipping, aquaculture, etc.

The Common Fisheries Policy is applied only in a fragmentary way in the Mediterranean. With its beginning in 1983, it could be perceived that the rules governing the North Sea and the Atlantic would be less appropriate in the southern seas of the European Union. The waters of the 4 Mediterranean member-states (Greece, Italy, France, and Spain) until recently were not included in the measures for the application of the CFP. Programs for the promotion and circulation of fish stocks were applied, as was funding for structural improvements, while, in contrast, programs for the maintenance and management of fishing resources and access to fishing areas were not well received. Nonetheless, many efforts for protection and management were not fruitful because fleets from third countries were fishing in the same area for the same resources, without limits, which gave fishermen from European countries a feeling of unfair treatment (for example, fishing boats from Turkey and Italy fish without limits in the international waters of the Aegean for the same stocks as their Greek colleagues) and intensified the pressure from their organizations for the lifting of prohibitive provisions or for fishing in international waters with any implements.

Regulation 1626/94 of the European Commission introduced certain technical measures, such as the minimum allowed mesh opening for hauled implements of boats from the member states, which was set at 40 mm (or 20 mm for each side of the opening), without being set for other implements such as drift nets, whose use is continuously increasing outside the E.U., the minimum length for species being unloaded, and the prohibition of the use of hauled fishing implements in the zone 3 nautical miles from the coast or within the zone determined by a depth equivalency of 50 meters (whichever of the two limits is closer to the shore). Unfortunately this outdated text, less than 2-pages long, was the only attempt of a European policy for fisheries management specific for the Mediterranean region and of course allowed for extensive derogations. The Mediterranean was then characterized by the lack of regional standards, lack of scientific knowledge of the fisheries and the fish stocks (which is much more complicated than the other regional fisheries) and lack of cooperation between countries.

The next revision for the Mediterranean was the Council Regulation (EC) No 1967/2006, also known as the Mediterranean Fisheries Regulation. Since 2004 three more countries have joined the EU (Malta, Cyprus, Slovenia), rising the number of EU Mediterranean countries to 7. The Mediterranean Fisheries Regulation was adopted by the Council in December 2006, more than 3 years after it was first proposed by the Commission. This delay gives an idea of the opposition it faced from the industry and the concerned Member States. The obvious reason behind the opposition to the new Mediterranean Fisheries Regulation laid in the fears that the new fisheries



policy might alter the status quo in the region (WWF Mediterranean, 2010). The 1967/2006 included the Article 4 of the regulation, intended to protect sensitive habitats such as phanerogam beds and coralligenous and mäerl beds, thus not allowing seines over *Posidonia* beds, etc. Also had a legal deadline of two years for the designation of National Fishing Protected Areas (FPAs), which has been generally disregarded by the Mediterranean Member States. Moreover included technical measures affecting fishing gears and practices, which however were subject to permanent or transitional derogations permitted by the same text (some until 31<sup>st</sup> May 2010). Article 15 of the regulation included the minimum commercial size of marine organisms. However the full implementation of MLS is still a matter of concern for most national authorities. The concept of “management plan”, which was a key provision of the Regulation, was widely understood by the industry and even by fisheries authorities as the mechanism to obtain official derogations to the most important conservation measures of the Regulation, due to the number of derogations linked to it throughout the text. The only management plan that could be considered a “Community-level management plan in the Mediterranean” was that which corresponds to the transposition of the ICCAT recovery plan for bluefin tuna adopted initially in 2006 and subsequently amended in the following years. The ICCAT plan, initially tabled by the EC, has proven to be totally insufficient to recover the stock, which continues to decline to unprecedented low levels and is currently under high risk of collapse.

Today, after having three more Mediterranean countries in EU (Bulgaria and Romania in the Black Sea since 2007 and Croatia since 1<sup>st</sup> July 2013), thus 10, which is almost half out of the 21 Mediterranean countries and the 22 EU countries having a coastline, the importance of a sustainable management of the Mediterranean fisheries and collaboration with other marine region is much more important than in the past. Thus, in parallel with the proposal for a CFP reform, on August 2011 a new proposal for a Regulation amending Council Regulation 1967/2006 concerning management measures for the sustainable exploitation of fishery resources in the Mediterranean Sea, was issued. On June 2012 the European Parliament issued a report with comments of the Committee on Fisheries.

In the Mediterranean however, catches are still falling, the fish caught are getting smaller and some species are becoming rarer. Mediterranean fleets need to fish less and with less environmental impact, improve compliance with the rules, reinforce co-operation between fishermen and scientists and strengthen multilateral co-operation. However, in this context it is important for the credibility and effectiveness of the CFP that the rules agreed by the Council be applied correctly and in an equal manner across the EU and on EU vessels in international waters and obviously another important issue is the jurisdiction of waters. At present, the situation as regards declarations of Exclusive Economic Zones (EEZs) or Fisheries Protection Zones (FPZs) in the Mediterranean is very inconsistent. The EC considers that the declaration of FPZs could be an important contribution to improving fisheries management, given that about 95% of Community catches are taken within 50 miles of the coast. These FPZs would certainly facilitate control and contribute significantly to fighting against illegal, unreported and unregulated (IUU) fishing (Plater *et al*, 2011).

WWF points out also that the impact of not complying with the regulations has serious impact on species and habitats (WWF Mediterranean, 2010). Provisions in order to protect species and habitats, and the establishment of fisheries protected areas should be considered together under a precautionary spatial planning approach, particularly for bottom trawling and other towed nets. All

fisheries based on towed gears should undergo an Environmental Impact Assessment (EIA), which among other issues would assess the impact of the fishery on sensitive habitats. Trawlable grounds, geographically referred, would subsequently be designated based on positive EIAs outcomes, as the geographically referred trawlable grounds, or boxes, that were included in the Mediterranean Fisheries Regulation for the waters around Malta. This approach is preferable to the current approach, which is based on a non-enforced ban on trawling on certain habitats. The latter makes effective restriction dependent on the progress of mapping the sea bottom and –at most– lead to only a few Natura 2000 sites in the foreseeable future.

Moreover the scientific evaluations needed for the CFP and started since 2000, through a multiannual framework (EU Regulations 1543/2000, 1639/2001, 1581/2004, 199/2008 and the forthcoming 2014-2020) are valuable also for the Mediterranean, which hasn't yet the level of scientific knowledge of the fisheries, as other marine regions have. The data that are collected are on the fleets and their activities (number of vessels, gross tonnage, engine power, age of vessels, gear used, time spent at sea, fishing effort per category of vessel, per fishing technique and geographical area), on the main commercial fish stocks (through the monitoring of catches, landings and discards and through surveys in the sea) and their biology and on economic and social issues.

The start point of every rational management plan should be to stick to the best available scientific advice. Failing this basic requirement of the process will translate into the total failure in achieving the biological and ecosystem targets of the plans. Mediterranean fisheries urgently need a scientific body (e.g. GFCM-General Fisheries Commission for the Mediterranean) with the role of providing systematic and regular scientific information to support the development of management plans. Such a system, yet to be developed, has to deliver precautionary and ecosystem based long term management plans for every fishery in the Mediterranean.

#### **11.7.4. The Common Fisheries Policy in Greece**

Besides the technical measures, a basic axis of fisheries policy in Greece, according to the Multiyear Orientation Programs of its fishing fleet, was the reduction of the number of boats and their horsepower (that is, a reduction of capacity and power). Thus, the initial objective of MOP III (According to Regulation EC/3699/93) for all the member states was to reduce hauled implements by 20% and Atlantic fishing boats by 15%, and to maintain the existing number of boats which use fixed implements (shore fishing) and otter trawlers. In this way, without taking into account the yield of the various fishing areas and access to them, new and old fishing boats were retired indiscriminately, even boats in regions where fishing efforts and resources allowed for a further increase, instead of a decrease in the capacity of the fishing fleet. The application of the above measures required a more flexible system which would take into account the special characteristics of every fishing area and fleet.

Since the end of 1996, Greece managed to reduce the number of Atlantic fishing boats and to maintain the existing number of shore fishing boats and otter trawlers. However, after the adoption of the Regulation 1967/2006, Greece was still accused by WWF (2010) of not being in compliance with the regulation, since:

- Active fishing with towed nets (boat seines) has been taking place on non-mapped *Posidonia oceanica* without any particular derogation or authorization from the Commission. Mapping of *Posidonia oceanica* and corresponding ban on towed gears is only available for a small proportion of its actual distribution, which are the Natura 2000 areas. The distribution of coralligenous habitats and maërl beds is unknown.
- Implementation of the 40 mm square-meshed cod-end is in place at national level since 2008. However non compliance has been detected and fines have been imposed.
- A derogation allowing bottom trawlers to operate at 1 nm instead of 1.5 nm from the coast by articles 13.11 and 14 is in place.
- A management plan in order to get derogations regarding purse seining has been notified to the EC.

Finally another measure, such as the Minimum landing size (MLS) which is technical measure used to manage fisheries with the aim of allowing enough juveniles to survive and spawn, seems unsuitable. In a study of Stergiou *et al.* (2009) the practical and ecological efficiency of the MLSs set by European Union (Regulation 1967/2006) and Greek legislation for 13 fish species caught with five gears in the Ionian Sea was tested proving that the existing MLSs are ecologically inefficient for sustainable management, since the mean percentage of the immature individuals caught was very high, ranging from 55% for longliners to 92% for beach-seiners, indicating that the vast majority of the individuals caught did not have the chance to spawn even once.

#### **11.7.5. Problems & conflicts related with marine coastal fisheries in the Region of East Macedonia and Thrace**

The biggest ports in the EMT Region are the ports of Kavala and Alexandroupolis. These ports are located in an area which could be described as one of the richest fishing areas in the country. The extensive substratum, whose width in some areas reaches 30 nautical miles, the normal slope, and the existence of wide expanses with a flat and calm substrate offer a wide scope for fishing activity. Of the total expanse of the Thracian sea, 37% is shallower than 50 m, which is a percentage at least 10% greater than that of the rest of the country. Besides, 47% of the undersea expanse with a depth of 0-200 m is located within three miles of the shore.

The capacity of the area, reinforced by the presence of large rivers, creates a maritime food chain with a great variety of species and a large number of individuals at all food chain levels. The species of bivalve mollusks, crustaceans, and sea fish are especially favored.

There are different problems or conflicts created in the area, the most important are:

- *Conflict between small scale coastal fishing boats and the trawlers:* In three Mediterranean countries, France, Italy, and Greece, 89%, 77%, and 75% of fishing activity respectively focuses on the zone within 12 nautical miles of the coast. Considering that Greece's territorial waters are limited to 6 nautical miles (under a threat of war from the neighboring Turkey), it can be concluded that Greek fishing depends to a great extent on coastal resources. Thus in many cases, the narrowness of the continental shelf creates the conditions for the overconcentration of the fishing fleet in a limited zone, with all the consequences that this situation entails. The conflicts of interest among users of various

- implements (i.e. small scale coastal boats versus trawlers) are the main symptom of this limitation of space. However this continuous pressure on fish stocks also have negative results, since does not leave a margin for the application of management measures based on closed areas or an alternating or seasonal use of fishing areas (Kallianiotis et al., 2000).
- *Conflict between trawlers from Greece and Turkey*: Similar with the previous approach, only that in this case the conflict is in the international waters. Till some years ago, the Turkish trawlers were the only ones to fish in the Aegean international waters, while the Greek trawlers used a closed season from 1<sup>st</sup> June to 31<sup>st</sup> September. By 2008 some the Greek trawlers also found a way to fish in international waters, which of course will result in a deterioration of the situation of the fish stocks fished by those vessels.
  - *Enforcement of the legislation*: Since Greece has 16,000 km of coastline and hundreds of small or bigger ports; it is not easy to enforce a regulation with complex technical measures. This has serious impact not only to fish stocks, but also to other biological resources (e.g. Posidonia beds, etc).
  - *The relationship between sea fishing and sea mammals and other protected species*: With Directive 92/43/EEC (European Commission, 1992), the European Union obliges member-states to protect species living in the maritime environment, such as dolphins, seals, turtles, etc., which since they are at risk worldwide, have been made subject to a regime of absolute protection. These species, however, very often destroy fishing tools, mainly for shore fishermen. There is a need for the determining of compensation for damages caused by these species, on the one hand, for fishermen to be compensated, and on the other, for these species to be protected properly, since they are still attacked by disgruntled fishermen who have no other way to protect their implements and production.
  - *Marketing the catch of small scale fishing boats*: Even if small scale fishing boats are almost 95% of the Greek fleet and produce almost half of the catches, there is a serious problem in the existing network of marketing the catch, where the producer is immediately dependent on the representative/trader. The boats are not always financially sound enterprises, and often are burdened with loans and face regular and irregular expenses (fuel, nets, purchase of equipment, etc.). Usually, these expenses are financed by the trader himself, and the producer commits himself to providing his future production to him. Thus, many traders have acquired a determinant role in the market cycle and marketing conditions are no longer transparent or free, since the traders' demands, such as underpricing and declaring reduced output, are usually satisfied. Often, especially in areas where there access to the wharf is not easy, the fisherman cannot be present and supervise the auctioning off of his products; therefore, the sale is conducted by his representative, who is usually the wholesaler himself. Thus, the peculiarity that characterizes the fish market is found in the fact that the final price for the product is not devised by the producers themselves (the fishermen), but by the traders.
  - *Protection of the coastal zone*: The coastal zone is the most significant area for fishing, because it provides ideal areas for reproduction, hatching, and raising young fish (Price, 1996). Further, the particularities of the coastal environment favor many forms of life, thus promoting coastal zones as areas of high ecological importance. Any intervention at all, though, can easily affect these sensitive areas and alter them seriously. Thus, the natural resources that fishermen exploit are greatly affected by other human activities (pollution, illegal fishing, game fishing, etc.). Therefore, it is necessary to protect the coastal zone in

every way. For the protection of fish stocks located in the coastal zone, the following are necessary:

- The creation of protected zones where fishing will be prohibited (seasonally or permanently)
- The structuring of fishing activity in specific areas
- The construction of man-made reefs in specific selected areas, etc.

## 11.8. Coastal Environmental Indicators

### 11.8.1. About Coastal Environmental Indicators

#### What is an Indicator?

In the last decade, the development of indicators at the national, regional, local or field level, has become a commonly approach to meet the crucial need for assessment tools. Such tools are a prerequisite to the implementation of the concept of sustainability, and especially its environmental component (Hansen, 1996). Gras et al. (1989) defined an indicator as “*a variable which supplies information on other variables which are difficult to assess (...) and can be used as benchmark to make a decision*”. Such definition implies that the indicator is an informative function, which supplies simplified information about a complex system (e.g. an agrosystem), or an un-measurable criteria (e.g. biodiversity, sustainability).

Indicators offer information about a system, but their significance extends beyond the actual parameter values. For example, nitrogen levels in coastal waters may provide information on larger issues such as habitat suitability, sources of non-point pollution, and the effectiveness of pollution control regulations. An index, typically compiled from several indicators, is a way of presenting indicator data often as a single number or qualifying descriptor (i.e. good/fair/poor or high/medium/low).

#### Environmental Indicators

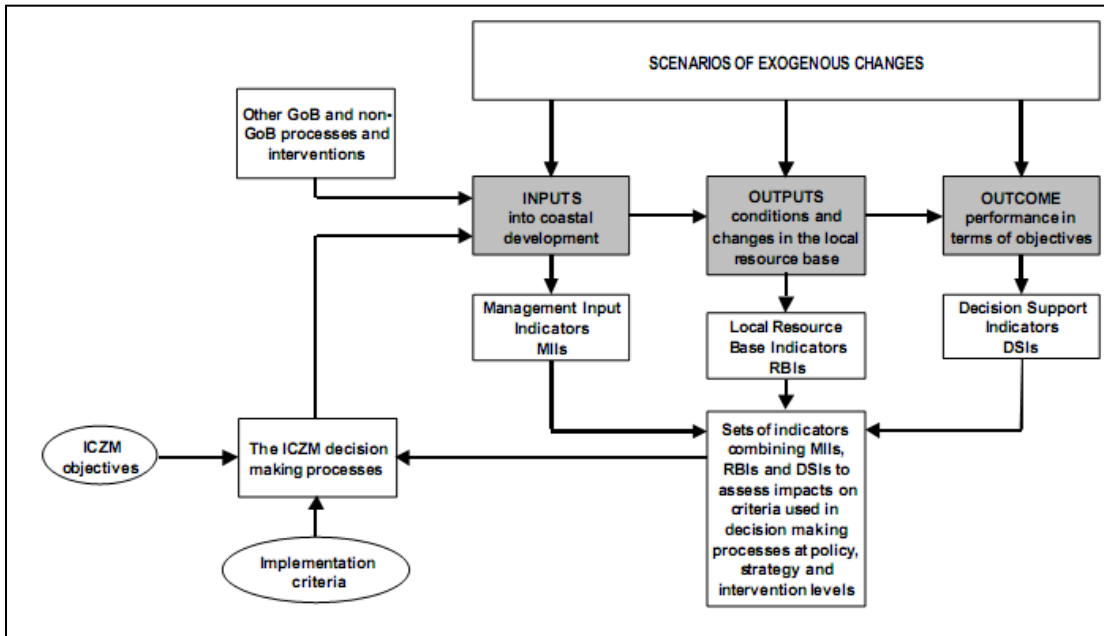
Environmental indicators are essential tools for tracking environmental progress, supporting policy evaluation and informing the public (OECD, 2004). Such indicators may (Dale & Beyeler, 2001): a) assess current conditions and establish environmental baselines, b) monitor trends in conditions relative to this baseline over time, c) diagnose causes of observed changes, d) forecast future changes in the environment, and e) identify appropriate actions for remediation or mitigation. Based on Butler et al. (2012), an effective environmental indicator should be: a) *representative*, i.e., reflecting the environmental status of ecosystem condition, b) *reactive*, i.e., acting as early-warning systems for detrimental changes in environmental conditions of the ecosystem, c) *responsive* to environmental change in a predictable way, and d) *easy to compile, analyze and interpret*, and understandable by the public and the policy-makers.

Many sources agree that the indicators included in a system should be few in number because application of too many indicators minimizes their usefulness, results in a lack of focus, and may actually become counter-productive. Equally ineffective is the use of indicators that are vague or largely introspective. In selecting a suite of criteria for determining the most useful set of indicators, the user should assess the purpose of their indicator effort to decide which criteria are most appropriate.

The OECD, with the support of its Member countries, has long been a pioneer in the field of environmental indicators. It has developed and published the first international sets of environmental indicators and uses them regularly in its country environmental performance reviews and other policy analysis work (OECD, 2004). Such core environmental indicators measure environmental progress, sub-divided into sub-sectors to help integrate environmental concerns into sectoral policies. Therefore, OECD’s key environmental indicators are divided into pollution issues, as climate change, ozone layer, air quality, waste generation and freshwater



quality, and natural resources and assets, as freshwater resources, forest resources, fishery resources, energy resources and biodiversity.



**Figure 11-9. Schematic representation of the use of coastal indicators in ICZM.**

### 11.8.2. The coastal zone environment indicator system – A Review

Environmental indicators of coastal zone have typically been developed within the Driver–Pressure–State–Impact–Response (DPSIR) framework at national level. The DPSIR framework was originally developed by the Organization for Economic Co-operation and Development (OECD 1993), later adapted to the coastal zone by Turner et al. (1998). This model has been adopted by the European Environment Agency and thus used as the analysis framework for the environmental state indicators. This causal model organizes ICZM into a more systematic evaluation cycle that couples environmental change and progress towards more sustainable forms of coastal development. However, the difficulties of this approach are more apparent whenever the spatial and temporal heterogeneity of the coast increases and complicates by the difficulty of combining indicators of the natural and socioeconomic subsystems in the assessment process.

In order to conceptualize an indicator system (IS), a reasonable first step is to determine which components adequately specify a comprehensive monitoring system. Sardá (2003) has referred to five environmental themes, as present core needs of the Catalan coast environmental condition: (1) coastal-marine natural protected areas; (2) coastal water quality; (3) economic and development areas zoning; (4) biodiversity loss reduction; and (5) commercial species regulation and monitoring. An information system of the Catalan coastal zone includes three main modules: coastal–marine biodiversity, general natural (biophysical) and socio-economic.



**Table 11-20. Selected land—to-sea pressure indicators of the Catalan coastal zone.**

Indicator	Pressure descriptor(s)	Impact factor
Industry	Nuclear plant/other <sup>a</sup>	1–1,000 m
Aquaculture	Surface/type/organism/intensity <sup>a</sup>	1,000 m
Coastal tourism	Beach length ≥100 m/high use/urban <sup>b</sup>	Beach length
Submarine waste outfalls	Diameter/long/category/status <sup>a</sup>	Outfall length
Ports	Type/surface class <sup>a</sup>	2,000 m
Coastal urban pressure (CUP)	Municipal urban surface/municipality coastal length <sup>a</sup>	Coastal length

<sup>a</sup> Generalitat de Catalunya<sup>b</sup> Ministerio de Medio Ambiente

The Coastal Wetlands Protection and Development Project (CWDP) in Vietnam established a Pressure-State-Response (PSR) framework to define potential indicators for environmental monitoring in coastal mangrove ecosystems. The indicators were categorized into four groupings: a) physical, b) ecological, c) biological and d) socio-economic indicators. The potential indicators were selected on the general basis that they had to be: simple to conduct, easy to replicate, provide reliable data sets and can be implemented for relative low cost.

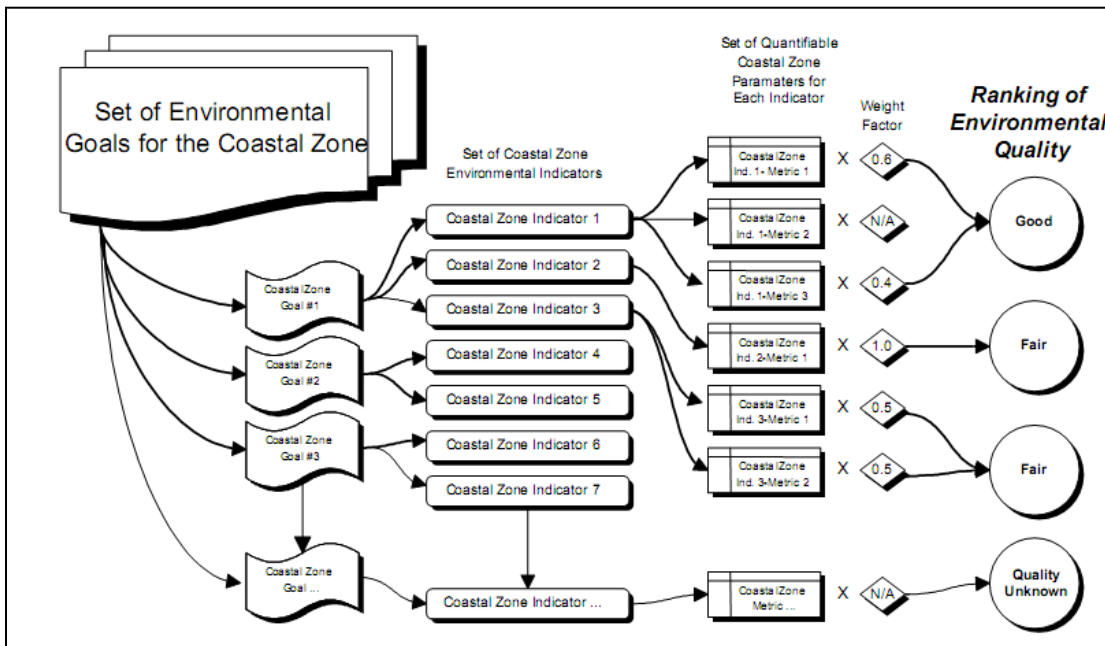
*Physical Indicators* included land mapping (using GIS technology), mapping a number of keys indices, i.e., forest-production, land cover ratio, forest type, forest age, etc. Erosion and accretion lines can be determined from satellite imagery and a general overview of the development of accretion and erosion zones interpreted from a time series (e.g. every 2-5 years).

*Ecological Indicators* consisted of water quality indicators, measured in mangrove and canal systems (dynamic environments) and in aquaculture ponds (more static environments). A number of environment indicators were suggested, as: salinity, temperature, pH, NH<sub>4</sub>, and turbidity.

*Biological Indicators* involved forest indicators as mangrove forest area, species composition, tree density, diameter growth (dbh), fruiting and propagule production, and leaf area index (index of tree canopy cover).

*Socio-economic Indicators* included mainly household indicators involving both the social aspects (health, nutrition and education) and economic aspects (income generation, income diversification and investment access).

In the U.S., the Delaware Department of Natural Resources and Environmental Control (DDNREC) issued in 1999 the Delaware Coastal Zone Environmental Indicators Report, as a collective input of several stakeholders from government agencies, non-governmental organizations, and the general public. The purpose of the Coastal Zone Environmental Goals and Indicators Project was to develop several tools to measure and monitor the health of the Coastal Zone. These tools include a set of *environmental goals* specific to the Delaware Coastal Zone and a set of prioritized *Environmental Indicators (EIs)* to assess and track progress toward the environmental goals.



**Figure 11-10. Schematic diagram of environmental goals and environmental indicators (after DDNREC, 1999).**

Environmental Goals included:

- To improve air quality, which directly or indirectly affects all forms of life within the Coastal Zone,
- To improve water quality, which directly or indirectly affects all forms of life within the Coastal Zone,
- To protect the mosaic of land cover in the coastal zone, including upland, wetland, shoreline, and aquatic areas, to ensure a healthy ecosystem,
- To ensure the protection of natural aesthetics in the Coastal Zone for public enjoyment, and
- To preserve and maintain healthy native animal and plant populations, or biodiversity, in the Coastal Zone.

On the other hand, the developed Coastal Environmental Indicators for each category were (DDNREC, 1999):

- *Air Quality Indicators:* Ambient Air Quality Indicator, Affected Populations Indicator, Accidental Releases Indicator, and Atmospheric Deposition Indicator.

- *Water Quality Indicators*: Benthic Community Indicator, Contaminants / Toxicity Indicator, Ambient Water Quality Indicator, Watershed Pollutant Load Indicator, Affected Populations Indicator, Accidental Releases Indicator, Non-point Source Nutrient Mass Balance Indicator.
- *Habitat/Land Cover Indicators*: Habitat Change Indicator, Wetland Inventory Indicator.
- *Living Resources Indicators*: Keystone Species Indicator, Biodiversity Indicator, Benthic Community Indicator.

In Bangladesh, the Program Development Office for the Integrated Coastal Zone Management Plan (PDO-ICZMP) issued in 2003 a report entitled: “Proposal for a Framework of Indicators for ICZM”. The framework structures the information that is needed for decision making processes in ICZM and would thus focus on the main objectives of ICZM that relate to: economic growth, socio-economic development and a sustainable environment. Three sets of indicators were considered:

- *Management Input Indicators* (MIIs), which represent changes in: the established institutional arrangements; the formulated policies and plans; or the direct interventions under implementation (e.g., characterized by the public expenditures for the development of coastal infrastructure);
- *Output or Resource Base Indicators* (RBIs), which characterize changes in the state of the local resource base consisting of natural, physical, human, social and financial resources; and
- *Outcome or Decision Support Indicators* (DSIs), measuring the “value” of changes in the resource base (outputs) in terms of policy objectives, such as literacy rates and poverty reduction, in general representing the objectives of sustainable development.

Under this approach, the PDO-ICZMP achieved to define:

- a set of indicators that would have the main function of characterizing the coastal zone and highlighting its special opportunities and vulnerabilities in relation to the remaining part of the country;
- a set of indicators to assess and map district level vulnerabilities in terms of income, food, water, health and safety insecurities;
- a set of livelihood or well being indicators that basically aims at the establishment of a consistent and comprehensive livelihood database and knowledge portal for the coastal zone; and
- a set of aggregated key indices for coastal development to support policy and strategy formulation, providing a few representative characterizations of the coastal zone development conditions.

The structure of the set of Management Input Indicators (MIIs) is given below:

Category	Component	Dimensions
Institutional Framework	Institutional and organizational structure	<ul style="list-style-type: none"> <li>○ Structure of organization responsible for ICZM and their mandates,</li> <li>○ Administrative boundaries,</li> <li>○ Capacities: financial personnel</li> <li>○ Linking mechanisms</li> </ul>

		harmonization and coordination.
	Laws and regulations	<ul style="list-style-type: none"> <li>○ Environment related act</li> <li>○ International treaties,</li> <li>○ Licenses.</li> </ul>
	Mechanisms for public participation	<ul style="list-style-type: none"> <li>○ Representation of people in formally elected bodies,</li> <li>○ Participation in the process of planning decision making, design implementation and control.</li> </ul>
Policies/strategies and plans	Policies (overall and sectoral)	<ul style="list-style-type: none"> <li>○ Objectives</li> <li>○ Implementation arrangements</li> <li>○ Reference to CZ</li> </ul>
	Strategies and plans (overall and sectoral)	<ul style="list-style-type: none"> <li>○ Objectives</li> <li>○ Targets</li> <li>○ Reference to CZ</li> </ul>
Direct interventions	Rural and urban Infrastructure	<ul style="list-style-type: none"> <li>○ Investments (in roads, electricity, communication, ports, flood and erosion protection, etc.)</li> <li>○ Current expenditures roads, electricity, communication, ports, flood and erosion protection, etc.)</li> </ul>
	Rural and urban social services	<ul style="list-style-type: none"> <li>○ Investments education, health, family planning, sanitation and water supply, etc.)</li> <li>○ Current expenditures education, health, family planning, sanitation and water supply, etc.)</li> <li>○ Awareness</li> </ul>
	Natural resources	<ul style="list-style-type: none"> <li>○ Monitoring and assessment</li> </ul>

	management (water,  land, fish, forest,  etc.)	<ul style="list-style-type: none"> <li>○ Control and enforcement</li> <li>○ Dissemination awareness</li> </ul>
--	---	--

The structure of the set of local Resource Base Indicators (RBIs) is given below:

Category	Component	Sub-Component	Dimensions
Natural Resources	Land	Agricultural Land	<ul style="list-style-type: none"> <li>○ Area</li> <li>○ Quality</li> </ul>
		Urban area/ industrial area	<ul style="list-style-type: none"> <li>○ Area</li> <li>○ Quality</li> </ul>
	Surface waters	<ul style="list-style-type: none"> <li>○ River</li> <li>○ Perennial Water body</li> <li>○ Floodplains</li> </ul>	<ul style="list-style-type: none"> <li>○ Area</li> <li>○ Water level</li> <li>○ Salinity</li> <li>○ Pollution</li> <li>○ Sediment quality</li> <li>○ Sediment quantity</li> <li>○ Connectivity</li> <li>○ Productivity</li> <li>○ Diversity</li> </ul>
	Groundwater	<ul style="list-style-type: none"> <li>○ Shallow aquifer</li> <li>○ Deep aquifer</li> </ul>	<ul style="list-style-type: none"> <li>○ Volume</li> <li>○ Quality</li> <li>○ Abstraction</li> </ul>
	Sea	<ul style="list-style-type: none"> <li>○ Estuary branches and coastal waters</li> <li>○ Deep sea</li> </ul>	<ul style="list-style-type: none"> <li>Area</li> <li>Water levels / flows</li> <li>Salinity</li> <li>Pollution</li> <li>Sediment quantity</li> <li>Sediment quality</li> <li>Productivity</li> </ul>

			Diversity
	Beaches		Area and elevation Erosion – accretion Soil conditions
	Forests	<ul style="list-style-type: none"> <li>○ Natural mangrove (Sundarban)</li> <li>○ Mangrove plantation</li> <li>○ Plain land forest</li> <li>○ Hill forest</li> </ul>	Area Productivity Diversity
	Climate	Air / Wind, Rainfall, Other (Humidity, Temperature, Sunshine, Evaporation)	Air quality, distribution and variation
	Fisheries and other aquatic resources		Productivity Diversity
Physical Resources	Physical Infrastructure	<ul style="list-style-type: none"> <li>○ Protection (e.g. from flood, cyclone)</li> <li>○ Agriculture sector (irrigation, drainage)</li> <li>○ Power sector (generation, distribution)</li> <li>○ Transport sector (for example, road, railway, airport, navigation routes)</li> <li>○ Communication sector (wired and wireless)</li> <li>○ Education sector (e.g. schools, colleges)</li> <li>○ Health sector (hospitals, health centers)</li> </ul>	Number of different infrastructure provisions Quality / capacity of these provisions
Human Resources	Demography		Size of the population Composition Distribution

			Migration
--	--	--	-----------

The structure of the set of Decision Support Indicators (DSIs) is given below:

Category	Component	Sub-Component	Dimensions
Economic Growth	Gross regional product		Annual GRP
	Employment		Employment rates Rural/urban distribution Fluctuations (seasonal) Disguised unemployment
Improvement in well-being	Income and expenditure		Levels Distribution (Gini)
	Poverty		Levels Distribution
Sustained natural environment	Estuarine dynamics		Drainage conditions Morphologic dynamics Fresh/salt water balance
	Health of ecosystems	Mangroves Marine Homestead gardens Wetlands	Habitat area Productivity Biodiversity endangered species Isolation

At Massaguaçu Beach in Brazil, Sousa et al. (2011) established a set of coastal environmental and urban indicators to evaluate the coastal risk to erosive processes, thereby providing information for the better management of natural resources and to subsidize regional planning. The used



parameters are shown in Table 11-21, and a qualitative system of classification was used, classifying parameters into low, moderate and high risk.

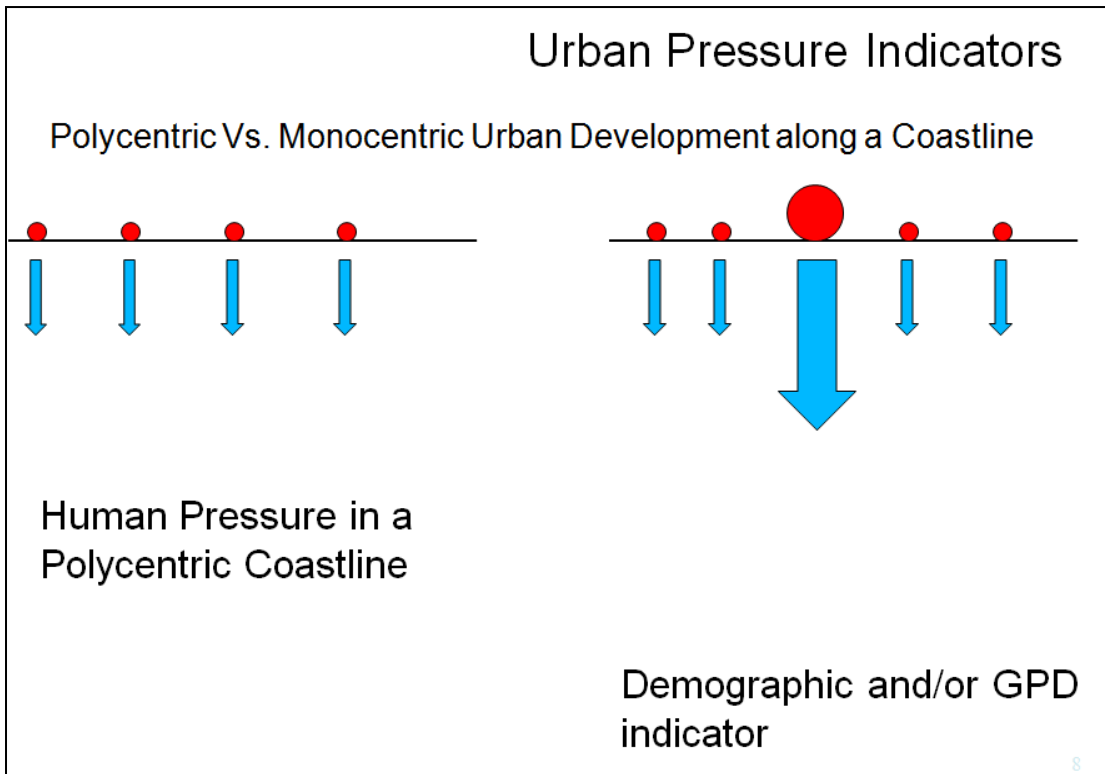
ESPON Program developed the concept of polycentric development in spatial planning and territorial development strategies, which presently plays a fundamental role in European regional policy through ESDP (European Spatial Planning Perspective). According to this, certain forms of spatial organization appear better structured than others, meaning that the polycentric distribution of people, activities and infrastructures is better than the monocentric.

Such approach could be used to express the human impact from urban activities along a coastline, thus classifying coastal areas into those of 'monocentric' and 'polycentric' nature. In monocentric coastlines, the impact of urban activities is significant but appears focused on a limited part of the coastal zone, while along polycentric coastlines this impact is balanced and well-distributed (Figure 11-11).

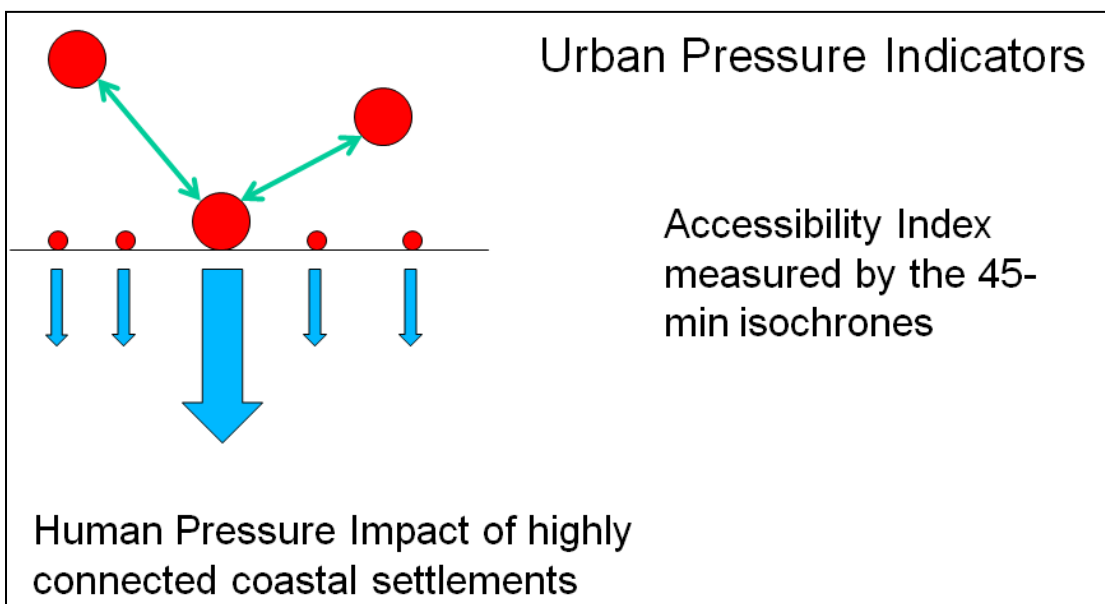
**Table 11-21. Environmental and urban indicators used to evaluate the coastal risk to erosive processes at Massaguaçu beach (after Sousa et al., 2011).**

Risk Indicators	Low Risk	Moderate Risk	High Risk
Beach profile	Good sand supply and extensive beach profile	Potential interruption of sediment supply and moderate to narrow beach profile	Narrow beach with sediment supply interrupted or compromised
Shoreline position	Progradation	Stable	Retrogradation
Dune field configuration	Presence of extensive and high dune field	Presence of sparse and short dunes	Absence of dunes
Offshore settings	Presence of natural barriers (islands, reefs or beach rocks)	Limited fetch (presence of sandy bars offshore)	Wide fetch with no natural obstacles minimizing wave energy
Presence of rivers and/or inlets	> 100m	Between 50 - 100m	< 50m
Terrain elevation	> 6 m	3 – 6 m	<3 m
Vegetation	Dense with mature Forest and no erosive evidences	Well established with grass and bushes	Little or no vegetation
Coastal engineering structures	Absence of coastal structures	Small or little significant structures	Presence of seawalls, groins, breakwaters, jetties, etc.
Occupation rate	< 30%	Between 30 – 70%	> 70%
Soil permeability	Permeable with little or no occupation	Moderate permeability due to occupation/urbanization	Permeability seriously affected with well developed urban settlement

Similarly, based on ESPON nomenclature, accessibility is the main 'product' of a transport system, expressing the ability to move something through space and the ability to transport (Black, 2003). Accessibility of a coastal zone appears closely related to mobility, economic development, social welfare and environmental impacts. Therefore, accessibility can be considered as a proxy of a set of related (economic, social, environmental) effects of transport infrastructure. Indeed, the accessibility index, as determined by the distance covered within 45 mins (45 mins isochrones), may be used as an indicator to classify coastlines into “highly”, “moderate” and “limited” accessible, thus explaining the human impact along the coastal zone (Figure 11-12).



**Figure 11-11.** Urban pressure indicators in terms of demographic and/or GDP ‘monocentric’ and ‘polycentric’ coastlines.



**Figure 11-12.** Urban pressure indicators in terms of accessibility index to express the degree of connectivity between coastal settlements.

# Abbreviations and Acronyms

AEMET – Spanish Meteorological Agency

AFM – Armed Forces of Malta

ALE – Administrative Law Enforcement Unit (Malta)

ALGA – Australian Local Government Association

BAT – Best available techniques

BOD – Biological oxygen demand

BSW – Black Sea Water

CADSEALAND – Land-Sea Interaction: Coastal State and Evolution in CADSES

CAMP – Coastal area management program

CAP – Common Agriculture Policy

CCAA – Autonomous Communities (Spain)

CCCA – Climate Change Committee for Adaptation (Malta)

CDTI – Centre for Industrial Technological Development (Spain)

CEDEX – Centre for Public Works Studies and Experimentation (Spain)

CEOE – Spanish Confederation of Business Organizations

CEPF – Critical Ecosystem Partnership Fund

CFP – Common Fisheries Policy

CMRC – Coastal and Marine Resources Centre

COASTANCE – Regional Common Action Strategy against Coastal Erosion and Climate Change Effects for Sustainable Coastal Planning in the Mediterranean Basin

COBSEA – Action Plan for the Protection and Development of the Marine Environment and Coastal Areas of the East Asian Seas Region

COD – Chemical oxygen demand

CONSCIENCE – Concepts and Science for Coastal Erosion Management

CORINE – Coordination of Information on the Environment

CPCE – Committee for the Protection of the Coastal Environment (Israel)

CPD – Civil Protection Department (Malta)

CPMR – Inter-Mediterranean Commission of the Conference of Peripheral Maritime Regions

CSIC – Higher Council of Scientific Research (Spain)

CUP – Coastal urban pressure

CWA – Coastal web atlas

CWPDP – Coastal Wetlands Protection and Development Project (Vietnam)

CZ – Coastal zone

CZM – Coastal zone management

DDNREC – Delaware Department of Natural Resources and Environmental Control

DG – Director General

DHKD – Society for the Protection of Nature in Turkey

DIN – Dissolved inorganic nitrogen  
 DIP – Dissolved inorganic phosphate  
 DO – Dissolved oxygen  
 DPSIR – Driver-pressure-state-impact-response  
 DSI – Decision support indicators  
 DUTH – Democritus University of Thrace (Greece)  
 DZ – Development Zone (Malta)  
 EAGIZC – Regional Strategy on Integrated Coastal Zone Management of Andalusia  
 EC – European Commission  
 ECASA – Ecosystem Approach for Sustainable Aquaculture  
 EDPA – Environment and Development Planning Act (Malta)  
 EEC – European Economic Community  
 EF – Enrichment factor  
 EFF – European Fisheries Fund  
 EIA – Environmental Impact Assessment  
 EIONET – European Environment Information and Observation Network  
 EIS – Environmental Impact Statement  
 EMFF – European Maritime and Fisheries Fund  
 EMT – Eastern Macedonia and Thrace  
 ENCORA – European Network on Coastal Research  
 ENPI CBCMED – European Neighborhood and Partnership Instrument Cross Border Cooperation in the Mediterranean  
 ENPLAN – Environmental Assessment of Plans and Programmes  
 EOT – National Tourism Organization (Greece)  
 EQS – Environmental quality standards  
 ERDF – European Regional Development Fund  
 EsA – Ecosystem Approach  
 ESAL – Committee for the Planning and Development of the Ports (Greece)  
 ESDP – European Spatial Planning Perspective  
 ESPON – European Observation Network for Territorial Development and Cohesion  
 ETV – Territorial Strategy of the Valencia Region  
 EU – European Union  
 EUCC – European Union Coastal Guide  
 EU-FD – European Union Flood Directive  
 EUROMED – Euro-Mediterranean Partnership  
 EUSF – European Union Solidarity Fund  
 EVGIZC – Strategy for Integrated Coastal Management of the Valencia Region  
 F4T – Fish for Tomorrow (Malta)  
 FAA - Flimkien għal Ambjent Aħjar (Together for a Better Environment)

FDMS – Framework Directive on Marine Strategy  
 FEE – Foundation for Environmental Education  
 FOI – Freedom of information  
 FOIA – Freedom of Information Act  
 FOICU – Freedom of Information Coordinating Unit (Malta)  
 FOPM – Fisheries Operational Programme for Malta  
 FYROM – Former Yugoslav Republic of Macedonia  
 GDP – Gross domestic product  
 GEF – Global Environment Facility  
 GHRC – Grand Harbour Regeneration Corporation (Malta)  
 GIGIS – Geographical Information Systems International Group  
 GIS – Geographic information system  
 GN – Government Notice  
 GPA – Global Programme of Action  
 GRP – Gross regional product  
 HCH – Hexachlorocyclohexane  
 HELCOM – The Helsinki Convention  
 HM – Heritage Malta  
 HPREC – Hellenic Public Real Estate Corporation  
 HSPN – Hellenic Society for the Protection of Nature  
 ICAG – Intergovernmental Coastal Advisory Group  
 ICAM – Integrated coastal area management  
 ICAN – International Coastal Atlas Network  
 ICARBM – Integrated Coastal Area and River Basin Management  
 ICoD – Euro-Mediterranean Centre on Insular Coastal Dynamics  
 ICZM – Integrated coastal zone management *a/so* Integrated coastal management strategy  
 IEO – Spanish Institute of Oceanography  
 IGN – National Geographic Institute (Spain)  
 ILA – Israel Land Administration  
 IMF – International Monetary Fund  
 INE – National Institute of Statistics (Spain)  
 INSPIRE – Infrastructure for Spatial Information in the European Community  
 IOI-MOC – International Ocean Institute – Malta Operational Centre  
 IPA – Israel Planning Authority  
 IPPC – Integrated pollution prevention and control  
 IR – Implementing Rules  
 IS – Indicator system  
 ISDP – Integrated Spatial Development Plan  
 ISDS – Iraklitsa Sewage Disposal Site

IUED - Israel Union for Environmental Defense  
 JMD – Joint Ministerial Decision  
 KSTW – Kavala Sewage Treatment Works  
 KW – Kilowatts  
 LC – Coastal Law (Spain)  
 LN – Legal Notice  
 M&E – Monitoring and evaluation  
 MAGRAMA – Ministry of Agriculture, Food and Environment (Spain)  
 MAP – Mediterranean Action Plan  
 MAREA – Maritime Strategy in the Principality of Asturias  
 MAREMED – Maritime Regions Cooperation for the Mediterranean  
 MCSD – Mediterranean Commission on Sustainable Development  
 ME – Malta Enterprise  
 MEDCOAST – Mediterranean Coastal Foundation  
 MEDITS – International Bottom Trawl Survey in the Mediterranean  
 MedPAN – Mediterranean Protected Areas Network  
 MedSeA – European Mediterranean Sea Acidification in a Changing Climate  
 MEECC – Ministry of Environment, Energy and Climate Change (Greece)  
 MEPA – Malta Environment and Planning Authority  
 METAP – Mediterranean Environmental Technical Assistance Programme  
 MHW – Mean high water  
 MII – Management input indicators  
 MIMCOL – Malta Investment Management Company Limited  
 MITC – Ministry for Infrastructure, Transport and Communication (Malta)  
 MLS – Minimum landing size  
 MoE – Ministry of the Environment  
 MOP – Meeting of the Parties  
 MOP – Multiyear Orientation Program  
 MPA – Marine Protected Area  
 MRA – Malta Resources Authority  
 MRRA – Ministry for Resources and Rural Affairs (Malta)  
 MS – Member State  
 MSP – Marine spatial plan  
 MSP/ICZM – Marine spatial plans and integrated coastal management strategies  
 MSY – Maximum Sustainable Yield  
 MTA – Malta Tourism Authority  
 MTCE – Ministry for Tourism, Culture and the Environment (Malta)  
 MTMC – Ministry of Transport, Maritime and Communication (Turkey)  
 MTPD – Maritime Terrestrial Public Domain



NCSD – National Commission for Sustainable Development (Malta)  
 NGO – Non-governmental organization  
 NM – Nautical mile  
 NOAA – National Oceanic and Atmospheric Administration  
 NOP - National Outline Plan  
 NPBC – National Planning and Building Council  
 NPK – Mixed fertilizers (nitrogen, phosphorus, potassium)  
 NSSD – National Strategy for Sustainable Development  
 NSO – National Statistics Office (Malta)  
 NUTS – Nomenclature of Units for Territorial Statistics  
 ODP – Oil desulfurization plan  
 ODZ – Outside Development Zone (Malta)  
 OECD – Organization for Economic Co-operation and Development  
 OPM – Office of the Prime Minister  
 PA – Planning authority  
 PAP – Priority Actions Programme  
 PAP/RAC - Priority Actions Programme/Regional Activity Centre  
 PATLICOVA – Territorial Action Plan of the Coast of Valencia Region  
 PCB – Polychlorinated biphenyl  
 PCEL – Protection of the Coastal Environment Law  
 PDO-ICZMP – Program Development Office for the Integrated Coastal Zone Management Plan  
 PDUSC – Master Plan of the Catalan Coastal System  
 PEE – Preliminary environmental evaluation  
 PEGASO – People for Ecosystem-based Governance in Assessing Sustainable Development of Ocean and Coast  
 PFP – Phosphoric fertilizer plant  
 PFRA – Preliminary Flood Risk Assessment  
 PMU – Project management unit  
 PPGIS – Public participation geographic information system  
 PSR – Pressure-state-response  
 PSTW – Palio Sewage Treatment Works  
 PTSL – Sectoral Territorial Plan for Protection and Coastal Planning of Basque Country  
 RAM – Ramblers Association of Malta  
 RBI – Resource base indicators  
 RCA – Rural Conservation Area (Malta)  
 REGIAL – Spanish Network of Integrated Coastal Zone Management  
 RO – Reverse osmosis  
 RSP – Red Sea Program  
 RTO – Reserved to Owner

SAC – Special Area of Conservation  
 SASEMAR – Safety and Rescue Society (Spain)  
 SDI – Spatial Data Infrastructure  
 SEA – Strategic Environmental Assessment  
 SHAPE – Shaping a Holistic Approach to Protect the Adriatic Environment  
 SL – Subsidiary legislation  
 SMP – Sediment Management Plan  
 SPA – Special Protection Area  
 SPAMI – Specially Protected Areas of Mediterranean Importance  
 SPED – Strategic Plan for the Environment and Development (Malta)  
 SPM – Suspended particulate matter  
 SPNI – Society for the Protection of Nature in Israel  
 SPP – Special Purpose Plan (Turkey)  
 STECF – Scientific, Technical and Economic Committee  
 SUSTAIN – Assessing Sustainability and Strengthening Operational Policy  
 SWOT – Strengths, weaknesses, opportunities and threats  
 TAC – Total Allowed Catch  
 TFC – Transferable Fishing Concessions  
 TM – Transport Malta  
 TPS – Temporary Provisions Schemes (Malta)  
 TSDU – Tourism and Sustainable Development Unit (Malta)  
 TUDAV – Turkish Marine Research Foundation  
 TUIK – Statistical Department of Turkey  
 UCA – Urban Conversation Area (Malta)  
 UfM – Union for the Mediterranean  
 UIF – Urban Improvement Fund (Malta)  
 UN – United Nations  
 UNCBD – United Nations Convention on Biological Diversity  
 UNCED – United Nations Conference on Environment and Development  
 UNCHE – United Nations Conference on the Human Environment  
 UNCLOS – United Nations Conference on the Law of the Sea  
 UNECE – United Nations Economic Commission for Europe  
 UNEP – United Nations Environment Programme  
 UNESCO – United Nations Educational, Scientific and Cultural Organization  
 WB – World Bank  
 WCMP – Water Catchment Management Plan (Malta)  
 WFD – Water Framework Directive  
 WIO – West Indian Ocean  
 WP – Work package

WSC – Water Services Corporation (Malta)

WWF – World Wildlife Fund

WWTP – Wastewater treatment plant

ZMT – Leibniz Center for Tropical Marine Ecology

# Bibliography

## Chapter 3

Deboudt, Dauvin, Lozachmeur. 2008. "Recent developments in coastal zone management in France: The transition towards integrated coastal zone management (1973-2007). *Ocean & Coastal Management* 51 212-228

Prem, Marko, 2010. "Implementation Issues of the ICZM Protocol and Mitigation Efforts." *Journal of Coastal Conservation*, 14:257-64.

Rochette, Julien & Raphael Bille. 2012. "ICZM Protocols to Regional Seas Conventions: What? Why? How?" *Marine Policy* 36 977-84.

Declaration of the United Nations Conference on the Human Environment (Stockholm Conference Declaration) 1972.

Council of Europe Resolution (73) 29 of 26 October 1973 on the Protection of Coastal Areas.

Recommendation of the Organization for Economic Co-operation and Development (OECD) on Principles concerning Coastal Management, 1976.

Integrated Littoral Development in the European Community, European Commission, 1978.

European Coastal Charter, 1982.

United Nations Convention on the Law of the Sea (UNCLOS), 1982.

Mediterranean Action Plan (MAP), 1975.

"Protection of the Oceans, All kinds of Seas, Including Enclosed and Semi-enclosed Seas and Coastal Areas and the Protection, Rational Use and Development of their Living Resources," Agenda 21, Ch. 17, 1992.

Decision IG 20/2, Adoption of the Action Plan for the implementation of the ICZM Protocol for the Mediterranean (2012-2019).

[Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean](#) (Barcelona Convention), 1995.

Protocol on Integrated Coastal Management to the Barcelona Convention (ICZM Protocol), 2008.

Action Plan for the Implementation of the ICZM Protocol for the Mediterranean 2012-2019.

European Council Resolution of 25 February 1992 on the Future Community Policy Concerning the European Coastal Zone (92/C 59/01).

European Council Resolution of 6 May 1994 on a Community Strategy for Integrated Coastal Zone Management (94/c 135/02).

Recommendation of the European Parliament and of the Council of 30 May 2002 Concerning the Implementation of Integrated Coastal Zone Management in Europe (2002/413/EC).

An Integrated Maritime Policy for the European Union, EU Communication, 2007.

Action Plan for the Protection of the Marine Environment and the Sustainable Development of the Coastal Areas of the Mediterranean (MAP Phase II), 1995.

United Nations Framework Convention on Climate Change, 1992.

Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive).

Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA), 1995.

Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Western Indian Ocean, 1985.

Barcelona Convention for the Protection of the Mediterranean Sea Against Pollution, 1976, [http://195.97.36.231/dbases/webdocs/BCP/BC76\\_Eng.pdf](http://195.97.36.231/dbases/webdocs/BCP/BC76_Eng.pdf).

Proposal for a Directive of the European Parliament and of the Council Establishing a Framework for Maritime Spatial Planning and Integrated Coastal Management, 12 March 2013, [http://ec.europa.eu/environment/iczm/pdf/ia\\_en.pdf](http://ec.europa.eu/environment/iczm/pdf/ia_en.pdf).

## Chapter 4

Beriatos E., (2007) "Seashore without the beach! "Nomosphysis, 2007, [www.nomosphysis.org.gr/Opinions](http://www.nomosphysis.org.gr/Opinions), 2007.

Code of Law, 1940: Law 2344/1944, 10/18 May 1940 (A 154), p.243-251.

Doris E.F., (1980): " Public Lands. Administration- Management- Disposal- Sale-Protection" Volume A, P.N. SAKKOULAS, p:41, 358-360, 140, 146, 236, 358,544.

Greek Technical Champion, (2005):"Reports TEE", Athens, 2005 [www.ota.tee.gr/content/TEE\\_KTIMATOLOGIO/axones\\_StratigikouKaiEpixirisiakouSxediasmou.pdf](http://www.ota.tee.gr/content/TEE_KTIMATOLOGIO/axones_StratigikouKaiEpixirisiakouSxediasmou.pdf).

Karageorgiou B., - Pehlivanoglou K., (2007) "Critical assessment on the new draft of Law for the seashore", Law and Environment, 2/2007 p. 192-207.

Kratsa, R. (2008): "Protecting seashores of Europe from uncontrolled tourism" Sea industry, sea services and coastal areas contribute up to 40% to gross national product (GNP) of the European Union, while seashores and islands offer unique opportunities as regards research, environment, biodiversity, innovation and alternative tourism". Nomosphysis, 2008, [www.nomosphysis.org.gr/Opinions](http://www.nomosphysis.org.gr/Opinions).

Papapetropoulos A., (2004) "Legal aspects of building in the seashore according to L. 2971/2001", Law and Environment, 2/2004 p. 177-183.

SEPOX (Greek Organization of Urban and Regional Planners), (2007). February 2007, [www.sepox.gr](http://www.sepox.gr)

Stamatiou, E. (2003): "Courses of legislation concerning seashores – Spatial development – Provisions, overlooking and consequences concerning the coastal area" Aeixoros, 2003, 9 (22): 513-536.

Tatsis L., (2007): "Regional Planning, Environment and Development. Historical Evolution, Problems and Prospects" Nomospysis 2007 [www.nomospysis.org.gr/Articles](http://www.nomospysis.org.gr/Articles).

The Greek Ombudsman (2000-2002): "Annual Report" \_\_\_\_\_.

## Chapter 5

Agrant, N., Yahel, R. (2012). Nature Preservation in the Mediterranean (Hebrew).

Alfasi, Nurit (2009). "Can Planning Protect the Public Interest? The Challenge of Coastal Planning in Israel", Geography Research Forum, Vol. 29, 2009: 83-102.

Bein, Edelman and Cohen, Prime Minister's Office and the MoE(2010). The Collapse of the Coastal Cliff in Israel (Hebrew).

Brechaya, MoE, Present and Future Issues in Managing Israel's Coasts.

EIA Prevention of Sea Pollution from Land-Based Sources Regulations (Prevention of Sea Pollution Levy), 2011(Hebrew).

Freedom of Information Law, 1998 (Hebrew).

Gabay, Shoshanna, MoE, Coastal Zone Management in Israel, UNEP-MAP CAMP-Israel, 1999, [http://www.sviva.gov.il/English/env\\_topics/marineandcoastalenvironment/Documents/CoastalZoneManagementInIsrael-Report-Sept1999.pdf](http://www.sviva.gov.il/English/env_topics/marineandcoastalenvironment/Documents/CoastalZoneManagementInIsrael-Report-Sept1999.pdf).

Government Decision 1954, July 11, 2010, Palmachim beach (Hebrew).

Government Decision 4776, June 17, 2012 - Feasibility Study for the Construction of Artificial Islands for Infrastructure Clusters (Hebrew).

Government Decision 4776, June 17, 2012 - Feasibility Study for the Construction of Artificial Islands for Infrastructure Clusters (Hebrew).

Government Decisions 1620, May 24, 2010; 3097, May 3, 2011 Collapse of the coastal cliff (Hebrew).

IPA, NOP no 35, Construction, Development and Conservation, 2005 (Hebrew).

IPA, NOP no. 12/1 for Hotels-Tourism, 2010 (Hebrew).

IPA, NOP no. 13: Israel's Mediterranean Coast, Jerusalem: The Ministry of Interior, 1983 (Hebrew).

IPA, NOP no. 13B: Marinas and ports, Jerusalem: the Ministry of the Interior (Hebrew).

IPA, NOP no. 8, Nature Reserves and National Parks, and Landscape Reserves, 1981(Hebrew).

IPA, NOP no.13C: Resource Management of the Mediterranean Coastline for Tourism and Recreation, Jerusalem: the Ministry of the Interior (Hebrew).

Israel Coastal Waters Policy Paper, 1999 (Hebrew).

Israel State Comptroller Report, 2013 (Hebrew).

Kaplan, Motti (2011). National Outline Plan for Forests and Afforestation, NOP 22, Policy Document (Hebrew). [www.synigoros.gr/](http://www.synigoros.gr/)

Local Authorities Law (Environmental Enforcement - Authorities of Inspectors), 2008 (Hebrew).

Planning and Building Law, 1965 (Hebrew).

Portman, Michele, et al., (2012). Progress in ICZM: a Handbook for Scholars and Practitioners, SECOA (Solutions for Environmental Contrasts in Coastal Areas) <http://www.projectsecoa.eu/>.

Prevention of Sea Pollution (Dumping of Waste) Law, 1984 (Hebrew).

Prevention of Sea Pollution from Land-Based Sources Law,1988 (Hebrew).

Prohibition of Driving on the Coast Law, 1997 (Hebrew).

Protection of the Coastal Environment Law, 2004 (Hebrew).

[Public Access to Environmental Information](#), Regulations, 2009 (Hebrew).

Regulations, Planning and Building Regulations (Environmental Impact Statements), 2003 (Hebrew).

Representation of Environmental Public Bodies Law (Legislative Amendments), 2002 (Hebrew).

SPNI (2003, 2006). Reports on the State of Israel's Coasts, (Hebrew).

Streams and Springs Authorities Order (imposing stream authorities' functions on drainage authorities), 2003 (Hebrew).

Talitman, D., Tal, A. and Brenner, S. (2003). "The Devil is in the Details: Increasing International Law's Influence on Domestic Environmental Performance--The Case of Israel and the Mediterranean Sea." N.Y.U. Environmental Law Journal 11: 414-478.

The Bathing Places Law, 1964 (Hebrew).



The Fishing Ordinance, 1937 (Hebrew).

The Petroleum Law, 1952 (Hebrew).

Weinthal and Parag (2003). Two Steps Forward, One Step Backward: Societal Capacity and Israel's Implementation of the Barcelona Convention and the Mediterranean Action Plan, [Global Environmental Politics](#) February 2003, Vol. 3, No. 1, Pages 51-71.

## Chapter 6

Prof. Francesco Lo Piccolo, lecture to Mare Nostrum Kickoff Conference, March 2013.

## Chapter 7

Administration of Lands Act, 2002. Cap. 448 of the Laws of Malta.

AFM catch Italian trawler fishing in Maltese waters. Times of Malta, 26 January 2010. Retrieved from:

Appeal Decision Notice PAB 50/05 RT, Appeal No. PA 0963/03, 9 January 2008. Retrieved from: <http://www.mepa.org.mt/pdfreport?PrintoutType=ADCN&AppealRef=PAB/00050/05>

Appeal No. 36/11 CF, MEPA Case No. PA 4381/99, 8 November 2012. Retrieved from: <http://www.mepa.org.mt/pdfreport?PrintoutType=ADCN&AppealRef=PAB/00036/11>

Appeal No. PAB 293/99 KA, MEPA Case No. PA 5258/98, 3 November 2000. Retrieved from: <http://www.mepa.org.mt/pdfreport?PrintoutType=ADCN&AppealRef=PAB/00293/99>

Appointment of Competent Authority (Commissioner of Land Ordinance) Regulations, 2004. SL 169.02 of the Laws of Malta, Art. 2.

Authority for Transport in Malta Act, 2010, Cap. 499 of the Laws of Malta.

Big fishing zone is of little benefit to Maltese fishermen. Times of Malta, 8 July 2009. Retrieved from <http://www.timesofmalta.com/articles/view/20090708/local/big-fishing-zone-is-of-little-benefit-to-maltese-fishermen.264120>

Borchardt, K-D, 2010. *The ABC of European Law*. European Union. Publications Office of the European Union, Luxembourg.

Borg, M., 2010. *The potential and limitations of land and sea use planning to manage coastal and marine resources*. OURCOAST, the European portal for ICZM, ICZM database, Malta. Retrieved from: <http://ec.europa.eu/ourcoast/index.cfm?menuID=8&articleID=303>

Building Regulation Act, 2011. Cap. 513 of the Laws of Malta.

Calleja, C., 2013. *Giving a brief history of overdevelopment*. Times of Malta, 10 May 2013. Retrieved from: <http://www.timesofmalta.com/articles/view/20130510/local/Giving-a-brief-history-of-overdevelopment.469087>

Caruana, 1998 in Government of Malta, 2002. *Malta National Report*. Submitted by the Government of Malta to the World Summit on Sustainable Development. August 2002, p. 62.

Cassar, M., 2003. *A project for the integrated management of protected coastal areas in Malta*. Journal of Coastal Conservation, Volume 9, p. 79.

Churchill, R. and D. Owen, 2010. *The EC Common Fisheries Policy*. Oxford EC Law Library, Oxford University Press, p. 63.

Code of Police Laws, 1854. Cap. 10 of the Laws of Malta.

Commissioner of Land Ordinance, 1962. Cap. 169 of the Laws of Malta, Art. 2.

Conservation zone protects local fishermen. Times of Malta, 10 July 2009. Retrieved from <http://www.timesofmalta.com/articles/view/20090710/letters/conservation-zone-protects-local-fishermen.264398>

Continental Shelf Act, 1966. Cap. 194 of the Laws of Malta.

Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, 1998, Aarhus, Denmark.

Cordina, J., 2012. Oil on the Horizon? The Malta Independent, 28 August 2012. Retrieved from: <http://www.independent.com.mt/articles/2012-08-28/news/oil-on-the-horizon-315161>

Council Regulation (EC) 1967/2006, concerning management measures for the sustainable exploitation of fishery resources in the Mediterranean Sea, Art. 3.

Court fines two Spanish captains €28,000 for illegal fishing. Times of Malta, 20 November 2008. Retrieved from: <http://www.timesofmalta.com/articles/view/20081120/local/court-fines-two-spanish-captains-euro-28-000-for-illegal-fishing.233821>

Crimes against the Environment Act, 2012. Cap. 522 of the Laws of Malta.

Cultural Heritage Act, 2002. Cap. 445 of the Laws of Malta.

Debono, J., 2013. *Government evasive on calls for impact studies on land reclamation*. Malta Today, 24 April 2013. Retrieved from: <http://www.maltatoday.com.mt/en/newsdetails/news/national/Government-evasive-on-calls-for-impact-studies-on-land-reclamation-20130424>

Description of Development Planning Control on the website of MEPA. Retrieved from: <http://www.mepa.org.mt/topics-planning>

Description of Enforcement on the website of MEPA. Retrieved from: <http://www.mepa.org.mt/permitting-enforcement-intro>

Description of Environmental Permitting on the website of MEPA. Retrieved from: <http://www.mepa.org.mt/environmentalpermitting>

Description of Law Enforcement and Public Safety in Malta on the website of the Government of Malta. Retrieved from: <https://gov.mt/en/Services-And-Information/Business-Areas/Law%20Enforcement/Pages/Law-Enforcement-and-Public-Safety.aspx>

Description of public hearing on the website of MEPA. Retrieved from: <http://www.mepa.org.mt/permitting-ea-eiapublic>

Description of Referenda in Malta: The Questions and the Voters' Responses. Retrieved from: <http://www.maltadata.com/ref-votes.htm>

Description of the Aarhus Convention. Retrieved from: <http://ec.europa.eu/environment/aarhus>

Description of the Administrative Law Enforcement unit on the website of the Malta Police Force. Retrieved from: <http://www.police.gov.mt/en-us/ale.aspx>

Description of the Gaia Foundation. Retrieved from: <http://www.projectgaia.org>

Description of the history of the Malta Police Force on the website of the Ministry of Home Affairs and National Security. Retrieved from: <https://mhas.gov.mt/en/MHAS-Departments/Malta-Police-Force/Pages/History-of-the-Malta-Police.aspx>

Description of The Maltese Fisheries Management Zone (FMZ) on the website of the University of Malta. Retrieved from: [http://www.um.edu.mt/science/biology/staff/profpatrickschembri/empafish/malta\\_fisheries\\_mgt\\_zone](http://www.um.edu.mt/science/biology/staff/profpatrickschembri/empafish/malta_fisheries_mgt_zone)

Description of the MEPA board on the website of MEPA. Retrieved from: <http://www.mepa.org.mt/mepa-board>

Description of the Ministries of the Government of Malta. Retrieved from: <http://gov.mt/en/Government/Government%20of%20Malta/Ministries%20and%20Entities/Pages/Ministries-and-Entities.aspx>

Description of the natural parks management by Nature Trust Malta. Retrieved from: <http://www.naturetrustmalta.org/what-we-do/natural-parks>

Description of the nature reserves managed by BirdLife Malta. Retrieved from: <http://www.birdlifemalta.org/Content/Naturereserves/1132/#.UYpxFKI4dr9>

Description of the organisation of the Malta Environment and Planning Authority on the website of MEPA. Retrieved from: <http://www.mepa.org.mt/organisation>

Description of the Regional Activity Centres under the UNEP Mediterranean Action Plan. Retrieved from: <http://www.unepmap.org/index.php?module=content2&catid=001017004>

Description of the Rural Development and Aquaculture Department on the website of the MRRA. Retrieved from <http://www.mrra.gov.mt/page.aspx?id=161>

Description of the Strategic Plan for the Environment and Development on the website of MEPA. Retrieved from: <http://www.mepa.org.mt/sped>

Description of the Structure Plan on the website of MEPA. Retrieved from: <http://www.mepa.org.mt/lpg-structureplan>

Description of Threats to Habitats on the website of MEPA. Retrieved from: <http://www.mepa.org.mt/biodiversity-habitats-threats>

Description of Water Public Consultation on the website of MEPA. Retrieved from: <http://www.mepa.org.mt/topic-waterpc>

Development Notification Order, 2007. SL 504.80 of the Laws of Malta, Art. 3.

Directive 2000/60/EC of the European Parliament and of the Council, establishing a framework for Community action in the field of water policy, Art. 14.

Directive 2001/42/EC of the European Parliament and of the Council on the assessment of the effects of certain plans and programmes on the environment.

Directive 2011/92/EU of the European Parliament and of the Council, on the assessment of the effects of certain public and private projects on the environment.

Disposal of Government Land Act, 1977. Cap. 268 of the Laws of Malta.

Dockyard and Shipbuilding Yard (Restructuring) Act, 2003. Cap. 466 of the Laws of Malta.

Drag net fishermen gather in Grand Harbour, plan protest. Times of Malta, 12 December 2012. <http://www.timesofmalta.com/articles/view/20121212/local/drag-net-fishermen-gather-in-grand-harbour-plan-protest.449303>

Ecclesiastical Courts (Constitution and Jurisdiction) Law, 1828. Cap. 1 of the Laws of Malta.

Enforcement of Sea Fishing Conventions Order, 2011. SL 425.08 of the Laws of Malta.

Engaging with the Public - The Art of Participation. MEPA Newsletter, Outlook 11, Article 8. Retrieved from: <http://www.mepa.org.mt/outlook11-article8>

Environment and Development Planning Act, 2010. Cap. 504 of the Laws of Malta.

European Commission Maritime Affairs, 2011, *Exploring the potential of maritime spatial planning in the Mediterranean Sea. Country report Malta*. Retrieved May 14, 2013 from the website of the European Commission Maritime Affairs, p.1: [http://ec.europa.eu/maritimeaffairs/documentation/studies/documents/malta\\_01\\_en.pdf](http://ec.europa.eu/maritimeaffairs/documentation/studies/documents/malta_01_en.pdf)

European e-Justice Portal, 2012. *Law – Member State Law – Malta*. Retrieved May 14, 2013 from the website of the European e-Justice Portal: [https://e-justice.europa.eu/content\\_member\\_state\\_law-6-mt-en.do?member=1](https://e-justice.europa.eu/content_member_state_law-6-mt-en.do?member=1)

FAA Tree Group thanks Authorities for Saving Senglea's Trees but worries for Paola's. News section on the website of FAA. Retrieved from: <http://faa.org.mt/faa-tree-group-thanks-authorities-for-saving-sengleas-trees-but-worries-for-paolas>

Fertile Soil (Preservation) Act, 1973. Cap. 236 of the Laws of Malta.

Fish and Farming Regulation and Control, 2008. *Fisheries Operational Programme for Malta 2007 – 2013*. Ministry for Resources and Rural Affairs, Government of Malta, October 2008.

Fisheries Conservation and Management Act, 2001. Cap. 425 of the Laws of Malta.

Fishing Waters (Designation) and Extended Maritime Jurisdiction Act, 2005. Cap. 479 of the Laws of Malta.

Flora, Fauna and Natural Habitats Protection Regulations, 2006. SL 504.73 of the Laws of Malta.

Four New Marine Protected Areas. MEPA Newsletter, Outlook 5, Article 2. Retrieved from: <http://www.mepa.org.mt/outlook5-article2>

Freedom of Access to Information on the Environment, 2005. SL 504.65 of the Laws of Malta.

Freedom of Information Act, 2008. Cap. 496 of the Laws of Malta.

Frequently Asked Questions about the Freedom of Information Act. Retrieved from: <http://foi.gov.mt/faqs>

Government of Malta, 2002. *Malta National Report*. Submitted by the Government of Malta to the World Summit on Sustainable Development. August 2002.

Government of Malta, 2013. The Judiciary in Malta. Retrieved May 14, 2013 from the website of the Government of Malta: <https://gov.mt/en/Services-And-Information/Business-Areas/Justice/Pages/Judiciary-in-Malta.aspx>

Government reacts as Muscat 'confirms' Armier boathouses agreement. Times of Malta. 7 March 2013. Retrieved from <http://www.timesofmalta.com/articles/view/20130307/local/muscat-confirms-agreement-with-armier-boathouses-company.460617>

Greater transparency and public participation. MEPA Media Releases - News Details, 23 June 2009. Retrieved from: <http://www.mepa.org.mt/news-details?id=355>

Housing Act, 1949. Cap. 125 of the Laws of Malta.

Housing Authority Act, 1976. Cap. 261 of the Laws of Malta.

Illegal boathouses will not get electricity, tribunal rules. Times of Malta, 18 February 2013. Retrieved from <http://www.timesofmalta.com/articles/view/20130218/local/Illegal-boathouses-will-not-get-electricity-tribunal-rules.458110>

Italian admits illegal fishing after plea agreement. Times of Malta, 6 July 2009. Retrieved from: <http://www.timesofmalta.com/articles/view/20090706/local/fish.263921>

Justice Services, 2013. *Legal Publications*. Retrieved May 14, 2013 from the website of the Government of Malta: <http://justiceservices.gov.mt/LegalPublications.aspx?pageid=25>

Land (Compulsory Eviction) Act, 1972. Cap. 228 of the Laws of Malta, Art. 3(1).

Land Acquisition (Public Purposes) Ordinance, 1935. Cap. 88 of the Laws of Malta.

Land Reclamation: Civil Society being ignored. Press release by Alternattiva Demokratika (AD; the Green Party), 19 April 2013. Retrieved from: <http://www.alternattiva.org/land-reclamation-civil-society-being-ignored>

Land Registration Act, 1982. Cap. 296 of the Laws of Malta.

List of Historical Trees having an Antiquarian Importance Order, 1933. SL 445.02 of the Laws of Malta, Art. 2.

Local Councils Act, 1993. Cap. 363 of the Laws of Malta, Art. 33(1).

Malta Film Commission Act, 2005. Cap. 478 of the Laws of Malta.

Malta Freeports Act, 1990. Cap. 334 of the Laws of Malta.

Malta Resources Authority Act, 2000. Cap. 423 of the Laws of Malta.

Malta Travel and Tourism Services Act, 1999. Cap. 409 of the Laws of Malta, Art. 5(1).

Marine Policy Framework Regulations, 2011. SL 504.107 of the Laws of Malta.

Marine Pollution (Prevention and Control) Act, 1977. Cap. 271 of the Laws of Malta.

Measures to improve consultation of proposed development. MEPA Newsletter, Outlook 6, Article 10, September 2010. Retrieved from: <http://www.mepa.org.mt/outlook6- article10>

MEPA & MRA, 2011. *Water Catchment Management Plan for the Maltese Islands*. Malta Environment and Planning Authority & Malta Resources Authority. March 2011.

Mepa turns down Portomaso extension with chairman's casting vote. Times of Malta. 26 April 2012. Retrieved from <http://www.timesofmalta.com/articles/view/20120426/local/portomaso.417191>

MEPA, 2007a. *Local Plans Interpretation Document*. Malta Environment and Planning Authority, May 2007.

MEPA, 2007b. *An Overview of the State of Marine Spatial Planning in the Mediterranean Countries*. Malta Report. Malta Environment and Planning Authority, May 2007.

MEPA, 2007c. *Grand Harbour Local Plan Review*. Malta Environment and Planning Authority, April 2007, p.6.

MEPA, 2010. *The Environment Report 2008. Sub-Report 6. Coastal and Marine Environment*. Malta Environment and Planning Authority, March 2010.

MEPA, 2011. *Report on the Implementation of the Recommendation of the European Parliament and of the Council concerning the implementation of Integrated Coastal Zone Management in Europe (2002/413/EC) Malta*. Malta Environment and Planning Authority, March 2011.

MEPA, 2012a. *The Environment Report. Indicators 2010-2011*. Malta Environment and Planning Authority, in partnership with the National Statistics Office. June 2012, p. 15

MEPA, 2012b. *Document to establish the Strategic Objectives: Public Consultation Draft*. Strategic Plan for the Environment and Development, Malta Environment and Planning Authority, February 2012.

MEPA, 2012c. *Height Limitation Adjustment Policy for Hotels in Tourism Areas*. Malta Environment and Planning Authority, 16 November 2012.

MRRA, 2012a. *The National Energy Policy for the Maltese Islands*. Ministry for Resources and Rural Affairs, Government of Malta.

MRRA, 2012b. *National Climate Change Adaptation Strategy*. Ministry for Resources and Rural Affairs, Government of Malta, May 2012.

MRRA, 2012c. *Rural Development Programme for Malta 2007 – 2013*. Ministry for Resources and Rural Affairs, Government of Malta, June 2012.

MTCE, 2012a. *National Environment Policy*. Ministry for Tourism, Culture and the Environment, February 2012.

MTCE, 2012b. *Tourism Policy for the Maltese Islands 2012-2016*. Ministry for Tourism, Culture and the Environment.

NAO, 2011. *Safeguarding Malta's Groundwater. Performance Audit*. National Audit Office, p. 19.

Natura 2000 Public Viewer. Retrieved from: <http://natura2000.eea.europa.eu>

NCSD, 2006. *A Sustainable Development Strategy for the Maltese Islands 2007 – 2016*. National Commission for Sustainable Development, December 2006.

New Strategic Plan to Replace 1990 Structure Plan. MEPA Media Releases - News Details. Retrieved from: <http://www.mepa.org.mt/news-details?id=772>

NGO calls for Safeguards on Development. Times of Malta, 11 May 2013. Retrieved from: <http://www.timesofmalta.com/articles/view/20130511/local/NGO-calls-for-safeguards-on-development.469210>



NGOs and local councils given free access to plans of on-line development applications. MEPA Media Releases. 19 July 2008. Retrieved from: <https://www.mepa.org.mt/news-details?id=213>

NGOs issue warning over planning abuse. Times of Malta, 14 April 2013. Retrieved from: <http://www.timesofmalta.com/articles/view/20130414/local/NGOs-issue-warning-over-planning-abuse.465529>

NGOs issue warning over planning abuse. Times of Malta, 14 April 2013. Retrieved from: <http://www.timesofmalta.com/articles/view/20130414/local/NGOs-issue-warning-over-planning-abuse.465529>

No commitment by government over Armier shantytown. Campaign to reclaim illegally-occupied public land. Times of Malta. 15 October 2008. Retrieved from: <http://www.timesofmalta.com/articles/view/20081015/local/no-commitment-by-government-over-armier-shantytown.228946>

No fast track for Smart City. Times of Malta, 5 February 2013. Retrieved from: <http://www.timesofmalta.com/articles/view/20130205/local/no-fast-track-for-smartcity.456252>

Oil Pollution (Liability and Compensation) Act, 1999. Cap. 412 of the Laws of Malta, Art. 7(1).

PAP/RAC, 2011 in SHAPE, 2013. *Establishment of coastal setback. An explanatory report on Article 8-2 of ICZM Protocol. Issues to be Considered*. SHAPE: Shaping an Holistic Approach to Protect the Adriatic Environment: between the coast and sea, p. 9.

Parliamentary Secretary for Tourism, the Environment and Culture, 2010. *A Solid Waste Management Strategy for the Maltese Islands*. First Update. Ministry for Tourism, Culture and the Environment, Government of Malta, December 2010.

Petroleum (Production) Act, 1958. Cap. 156 of the Laws of Malta.

Petroleum (Production) Regulations, 2001. SL 156.01 of the Laws of Malta, Art. 3.

Pickaver, A.H., 2010. *From a sectoral to an integrated management approach*. OURCOAST, the European portal for ICZM, ICZM database, Malta. Retrieved from: <http://ec.europa.eu/ourcoast/index.cfm?menuID=8&articleID=32>

Planning Authority, 1996. PA Circular 2/96. Retrieved from: <http://www.mepa.org.mt/file.aspx?f=3840>

Planning Authority, 2002a. *Coastal Strategy Topic Paper*. Planning Authority, February 2002.

Planning Services Division, 1990a. *Structure Plan for the Maltese Islands. Report of Survey, Volume 1*. Works Department, Ministry for Development of Infrastructure, Government of Malta. Floriana, Malta, p. 230.

Planning Services Division, 1990b. *Structure Plan for the Maltese Islands*. Works Department, Ministry for Development of Infrastructure, Government of Malta. Floriana, Malta.

Planning Services Division, 1990c. *Malta Structure Plan, Report of Survey, Vol. 1, Aviation & Coastal Environment Figures*. Works Department, Ministry for Development of Infrastructure, Government of Malta. Floriana, Malta, appendix 1.1.

Plans and Programmes (Public Participation) Regulations, 2006. SL 504.69 of the Laws of Malta.

Policy changed to allow hotels in tourism zones build an extra two floors. Times of Malta, 23 May 2013. Retrieved from: <http://www.timesofmalta.com/articles/view/20130523/local/hotels.470896>

Portomaso extension is treachery, say objectors: Public anger as case officer recommends approval for 46 new apartments. Times of Malta. 22 April 2012. Retrieved from <http://www.timesofmalta.com/articles/view/20120422/local/Portomaso-extension-is-treachery-say-objectors.416477>

Portomaso project will destroy protected ecological zone. Times of Malta. 18 March 2012. Retrieved from <http://www.timesofmalta.com/articles/view/20120318/letters/Portomaso-project-will-destroy-protected-ecological-zone.411596>

Ports and Shipping Act, 1991. Cap. 352 of the Laws of Malta, Art. 3.

Proposed Height Limitation Adjustment Policy by MEPA. Gozo News, 29 December 2012. Retrieved from: <http://gozonews.com/26808/proposed-height-limitation-adjustment-policy-by-mepa/>

Red letter day for SmartCity as first block is inaugurated. Times of Malta, 10 October 2010. Retrieved from: <http://www.timesofmalta.com/articles/view/20101010/local/smart-city.330767>

Reversion of Certain Lands Act, 2001. Cap. 432 of the Laws of Malta.

Sand (Preservation) Act, 1949. Cap. 127 of the Laws of Malta.

SHAPE, 2013. *Establishment of coastal setback. An explanatory report on Article 8-2 of ICZM Protocol. Issues to be Considered*. SHAPE: Shaping an Holistic Approach to Protect the Adriatic Environment: between the coast and sea.

Ship-Source Pollution Regulations, 2008. SL 226.01 of the Laws of Malta, Art. 3.

Sors, J.C., 2001. *Public Participation in Local Agenda 21: A Review of Traditional and Innovative Tools*. Fondazione Eni Enrico Mattei, January 2001, p. 4.

Special Development Area Act, 1956. Cap. 149 of the Laws of Malta.

Stirling Aquaculture, 2012. *An Aquaculture Strategy for Malta. Final Draft Report*. Institute for Aquaculture, University of Stirling. Preparatory study and recommendations prepared for the Ministry of Resource and Rural Affairs, Government of Malta, March 2012.

Strategic Environmental Assessment Regulations, 2010. SL 504.102 of the Laws of Malta.

Sustainable Development Act, 2012. Cap. 521 of the Laws of Malta.

Territorial Waters and Contiguous Zone Act, 1971. Cap. 226 of the Laws of Malta.

Three protected birds fall victim to illegal hunting. Malta Today, 1 October 2010. Retrieved from: <http://www.maltatoday.com.mt/en/newsdetails/news/national/Three-protected-birds-fall-victim-to-illegal-hunting>

Times of Malta. Various articles: <http://www.timesofmalta.com/articles/view/20100126/local/afm-catch-italian-trawler-fishing-in-maltese-waters.291336>

Transfer of Rights and Liabilities of the Commissioner of Land Order, 1992. SL 169.01 of the Laws of Malta.

Transport Enforcement Officers Regulations, 2008. SL 499.51 of the Laws of Malta.

UNCBD, 1992. *Convention on Biological Diversity*. UN Convention on Biological Diversity, United Nations.

UNCLOS, 1992. *The United Nations Convention on the Law of the Sea: A Historical Perspective*. United Nations Convention on the Law of the Sea, Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, United Nations.

UNEP, 1992. *Agenda 21. The United Nations Programme of Action from Rio*. United Nations Environment Programme, United Nations.

UNEP/MAP, 2003. *MAP CAMP Project Malta: Final Integrated Project Document and Selected Thematic Documents*. MAP Technical Reports Series No. 138, Vol. I & II. UNEP/MAP, Athens, Greece, p. 1.

UNEP/MAP, 2005. *Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean and its Protocols*. UNEP/MAP, Athens, Greece.

UNEP/MAP/PAP, 2005. *Coastal Area Management in Malta*. Priority Actions Programme, Regional Activity Centre, Mediterranean Action Plan (MAP), UNEP. Split, Croatia.

UNEP-BP/RAC, 1989. *Futures for the Mediterranean Basin. The Blue Plan*. Grenon, M. & M. Batisse (eds.), Oxford University Press, p. 143

Urban Waste Water Treatment Regulations, 2004. SL 504.40 of the Laws of Malta, Art. 2.

Voluntary Organisations Act, 2007. Cap. 492 of the Laws of Malta.

Water Services Corporation Act, 1991. Cap. 355 of the Laws of Malta.

What action? What policies? Times of Malta, 28 August 2002. Retrieved from: <http://www.timesofmalta.com/articles/view/20020828/local/what-action-what-policies.168256>

Xuereb, M., 2013. *Local Plans to be revised by end 2014*. Times of Malta, 02 April 2013. Retrieved from: <http://www.timesofmalta.com/articles/view/20130402/local/Local-plans-to-be-revised-by-end-2014.463828>

## Chapter 8

Agencia Estatal de Evaluación de las Políticas Públicas y la Calidad de los Servicios (AEVAL) (2012). EVALUACIÓN DE LA GESTIÓN Y FUNCIONAMIENTO DE LAS DEMARCACIONES DE COSTAS PARA LA PROTECCIÓN DEL DPMT, EN LA PERSPECTIVA DE SU ADECUACIÓN TANTO A LA DMA COMO A LA DMEM. Ministerio de Hacienda y Administraciones Públicas.

Arenas Granados, Pedro (2008). GESTIÓN DEL LITORAL Y POLÍTICA PÚBLICA EN ESPAÑA: UN DIAGNÓSTICO. Universidad de Cádiz.

Barragán Muñoz, Juan Manuel (2010). LA GESTIÓN DE LOS ESPACIOS Y RECURSOS COSTEROS EN ESPAÑA: POLÍTICA E INSTITUCIONES DE UNA LEGISLATURA (2004-2008). Estudios Geográficos Vol. LXXI, 268, pp. 39-65.

Burriel de Orueta, Eugenio L. (2009). LA PLANIFICACIÓN TERRITORIAL EN LA COMUNIDAD VALENCIANA. Departamento de Geografía. Universidad de Valencia.

Dirección General de Costas (2004) PRINCIPALES LÍNEAS DE REORIENTACIÓN DE LA POLÍTICA DE COSTAS DEL MINISTERIO DE MEDIO AMBIENTE. Ministerio de Medio Ambiente

Dirección General de Costas (2005). ESTADO Y EVOLUCIÓN DEL MEDIO AMBIENTE. (Capítulo: Política de Costas, pp. 225-249). Ministerio de Medio ambiente.

Dirección General de Costas (2005). HACIA UNA GESTIÓN SOSTENIBLE DEL LITORAL ESPAÑOL. Ministerio de Medio ambiente.

Dirección General de Costas (2006) GESTIÓN INTEGRADA DE LAS ZONAS COSTERAS EN ESPAÑA. Ministerio de Medio Ambiente.

Dirección General de Costas (2006) INSTRUCCIONES TÉCNICAS PARA LA REALIZACIÓN DEL DESLINDE DEL DPMT. Ministerio de Medio Ambiente.

Dirección General de Costas (2007) ESTRATEGIA PARA LA SOSTENIBILIDAD DE LA COSTA. Ministerio de Medio Ambiente.

Dirección General de Costas (2008) DIRECTRICES PARA EL TRATAMIENTO DEL BORDE COSTERO. Ministerio de Medio Ambiente.

Dirección General de Costas (2008) DIRECTRICES SOBRE ACTUACIONES EN PLAYAS. Ministerio de Medio Ambiente.

Doménech, Juan L. et al. (2009) GESTIÓN INTEGRADA DE ZONAS COSTERAS. AENOR.

Ecologistas en Acción (2007). INFRACCIONES DE LA LEY DE COSTAS. Ecologistas en Acción.

Farinós Dasí, Joaquín; Cortés Tovar, M<sup>a</sup> Carmen (2010). PLANIFICACIÓN Y GOBERNANZA DEL ESPACIO LITORAL VALENCIANO. TODAVÍA LEJOS DE UNA VERDADERA GIZC. CUADERNOS DE GEOGRAFÍA, Núm. 88, pp.121-150. Universitat de València.

García Pérez, Marta (2009). REFLEXIONES SOBRE LA LEY DE COSTAS. Universidad de A Coruña.

García Sanabria, J., García Onetti, J., Barragán Muñoz, J.M. (2011). LAS COMUNIDADES AUTÓNOMAS Y LA GESTIÓN INTEGRADA DE LAS ÁREAS LITORALES DE ESPAÑA. MATERIALES PARA UN DEBATE SOBRE GOBERNANZA. Proyecto REGIAL. Universidad de Cádiz.

Greenpeace (2012). DESTRUCCIÓN A TODA COSTA. Greenpeace.

Losada, M. A. (2010) BORRADOR ANTEPROYECTO DE LEY DE PROTECCIÓN Y USO SOSTENIBLE DEL LITORAL Y DE MODIFICACIÓN DE LA LEY 22/1988 DE COSTAS. ANÁLISIS Y COMENTARIOS. Dinámica Ambiental. Universidad de Granada.

Pérez González, Lidia (2003). EL DIAGNÓSTICO ACTUAL DE LA COSTA VALENCIANA A TRAVÉS DEL ANÁLISIS DE SUS PRINCIPALES COMPONENTES MEDIOAMBIENTALES. NECESIDAD DE NUEVAS LÍNEAS ESTRATÉGICAS PARA UNA PLANIFICACIÓN SOSTENIBLE DE ESTE TRAMO LITORAL. Demarcación de Costas en Valencia. Dirección General de Costas. Ministerio de Medio Ambiente.

## Chapter 9

BABACAN TEKINBAS Belma, Yargı Kararlarında Planlama, TMMOB SPO, Ankara, 2008

OZHAN Erdal, the Presentation in the National Workshop: Latest Developments in the Coastal Zone Management in Turkey, Marmaris, 2013

PAP/RAC: Coastal Area Management in Turkey, Priority Actions Programme Regional Activity Centre, Split, 2005

[www.dsi.gov.tr](http://www.dsi.gov.tr) (Official Website of the State Water Affairs)

[www.ekonomi.gov.tr](http://www.ekonomi.gov.tr) (Official Website of the Ministry of Economy)

[www.marenostrumproject.eu](http://www.marenostrumproject.eu)

[www.mfa.gov.tr](http://www.mfa.gov.tr) (Official Website of the Ministry of Foreign Affairs)

[www.tuik.gov.tr](http://www.tuik.gov.tr) (Official Website of the State Statistical Institute)

## Chapter 10

<http://www.pegasoproject.eu/>

<http://inspire.jrc.ec.europa.eu/>

<http://www.coastance.eu>

[http://www.eeas.europa.eu/euromed/index\\_en.htm](http://www.eeas.europa.eu/euromed/index_en.htm)

<http://www.enpicbcmmed.eu/>

<http://www.maremed.eu/>

<http://www.csc.noaa.gov/about/>

<http://www.thecoastalsociety.org/>

<http://www.shape-ipaproject.eu/>

<http://www.vliz.be/projects/encora/>

<http://ec.europa.eu/ourcoast/>

<http://www.worldbank.org/projects/P097985/integrated-coastal-zone-management?lang=en>

<http://www.ramoge.org/fr/default.aspx>

<http://www.coastalguide.org/>

[http://www.eucc.nl/en/izcm\\_progress\\_indicator\\_set/index.htm](http://www.eucc.nl/en/izcm_progress_indicator_set/index.htm)

<http://www.baltseaplan.eu/>

<http://helcom.fi/about-us/convention-and-commitments/helsinki-convention>

<http://www2010.eucc-d.de/baltcoast/>

<http://www.eu-hermes.net/about.html>

<http://www.medpan.org/>

<http://www.cinfai.it/cadsealand/project.htm>

<http://medsea-project.eu/>

[http://ec.europa.eu/research/horizon2020/index\\_en.cfm](http://ec.europa.eu/research/horizon2020/index_en.cfm)

<http://www.cobsea.org/>

<http://www.cobsea.org/documents/COBSEA%20Spatial%20Planning%20Regional%20Resource%20Document.pdf>

<http://ican.science.oregonstate.edu/>

<http://corepoint.ucc.ie/>

<http://www.gisig.it/eco-imagine/>

<http://www.sustain-eu.net>

<http://www.spicosa.eu/>

<http://www.interreg4c.eu/>

<http://www.environment.gov.au/coasts/publications/framework/pubs/framework.pdf>

## Chapter 11.1

Abdalla, R.R., Zaghloul, F.A., Haasan, Y.A., Moustafa, H.M., 1995. Some water quality characteristics of El-Dekhaila Harbour, Alexandria, Egypt. *Bulletin of the National Institute of Oceanography and Fisheries, Egypt*, 21, 85–102.

Alpan, H., 2011. Comparing the utility of image algebra operations for characterizing landscape changes: The case of the Mediterranean coast. *Journal of Environmental Management* 92, 2961–2971.

Batiste, M., de Grissac, J.A., 2003. A Global Representative System of Marine Protected Areas, Marine Region 3: Mediterranean. COASTS & OCEANS National Representative System of MPAs.

Ben Rais Lasram, F., Guilhaumon, F., Albouy, C., Somot, S., Thuiller, W., Mouillot, D., 2010. The Mediterranean Sea as a 'cul-de-sac' for endemic fishes facing climate change. *Global Change Biology* 16, 3233–3245.

Bertrand, J.A., Gil De Sola, L., Papacostantinou, C., Relini, G., Souplet, A., 2002. The general specifications of the Medits survey. *Scientia Marina* 66, 9–17.

Bianchi, C.N., Morri, C., 2000. Marine biodiversity of the Mediterranean Sea: situation, problems and prospects for future research. *Marine Pollution Bulletin* 40(5), 367–376.

Boero, F., 2009. Threats and challenges to the marine environment in the Mediterranean Sea. *Varstvo Narave* 22, 13–24.

Caddy, J.F., 1999. Fisheries management in the twenty-first century: will new paradigms apply? *Reviews in Fish Biology and Fisheries* 9, 1–43.

CEPF - Critical Ecosystem Partnership Fund, 2010. Ecosystem Profile Mediterranean Basin Biodiversity Hotspot. Conservation International, Washington D.C.

Coll, M., Piroddi, C., Steenbeek, J., Kaschner, K., Ben Rais Lasram, F., et al., 2010. The Biodiversity of the Mediterranean Sea: Estimates, Patterns, and Threats. *PLoS ONE* 5(8), e11842. doi:10.1371/journal.pone.0011842

Colloca, F., Cardinale, M., Maynou, F., Giannoulaki, M., Scarcella, G., Jenko, K., Bellido, J.M., Fiorentino, F., 2013. Rebuilding Mediterranean fisheries: a new paradigm for ecological sustainability. *Fish and Fisheries* 14, 89–109.

Colloca, F., Crespi, V., Cerasi, S., Coppola, S.R., 2004. Structure and evolution of artisanal fishery in a southern Italy coastal area (central Mediterranean). *Fisheries Research* 69, 359–369.



- Crispi, G., Crise, A., Solidoro, C., 2002. Coupled Mediterranean ecomodel of the phosphorus and nitrogen cycles. *Journal of Marine Systems* 33– 34, 497– 521.
- Danovaro, R., 2003. Pollution threats in the Mediterranean Sea: An overview. *Chemistry and Ecology* 19(1), 15-32.
- Danovaro, R., Company, B.J., Corinaldesi, C., D’Onghia, G., Galil, B.S., et al., 2010. Deep-Sea biodiversity in the Mediterranean Sea: The known, the unknown, and the unknowable. *PLoS ONE* 5(8), p. 11832, doi:10.1371/journal.pone.0011832.
- EEA - European Environmental Agency, 2006. Priority issues in the Mediterranean environment, ISBN 92-9167-812-0, 88 p.
- Galil, B.S., 2000. A sea under siege – Alien species in the Mediterranean. *Biological Invasions* 2(2), 177-186.
- Galil, B.S., 2007. Loss or gain? Invasive aliens and biodiversity in the Mediterranean Sea. *Marine Pollution Bulletin* 55, 314–322.
- Galgani, F., Fleet, D., Van Franeker, J., Katsanevakis, S., Maes, T., Mouat, J., Oosterbaan, L., Poitou, I., Hanke, G., Thompson, R., Amato, E., Birkun, A., Janssen, C., 2010. Marine Strategy Framework Directive, Task Group 10 Report, Marine litter. Office of Official Publications of the European Communities, Luxembourg. <http://www.ices.dk/projects/MSFD/TG10final.pdf>.
- Hopkins, T.S., 1985. Physics of the sea. In: Margaleff, R. (ed.) *Western Mediterranean*. Pergamon Press, Oxford, 100-125.
- Horden, P., Purcell, N., 2000. *The Corrupting Sea. A Study on Mediterranean History*. Blackwell, Oxford.
- Jeftic, L., et al., 1990. State of the marine environment in the Mediterranean Region. UNEP Regional Seas Reports and Studies No 132, MAP Technical Reports Series No 28, Athens, p. 168.
- Jeftic, L., Keckes, S., Pernetta, J.C., 1996. *Climatic change and the Mediterranean*, Vol. 2, Edward Arnold.
- Jeftic, L., Milliman, J.D., Sestini, G., 1992. *Climatic change and the Mediterranean*, Vol. 1. Edward Arnold.
- Karydis, M., Hatzichristofas, 2003. Coastal eutrophication in the Mediterranean marine environment: A short review. *Proceedings of the 8<sup>th</sup> International Conference on Environmental Science and Technology*, Lemnos Island, Greece, 8-10/9/2003.
- Lefevre, D., Minas, H.J., Minas, M., Robinson, C., Williams, P.J., Le, B., Woodward, E.M.S., 1997. Review of gross community production, primary production, net community production and dark community respiration in the Gulf of Lions. *Deep-Sea Research Part II* 44 (3–4), 801–832.

- Lejeusne, C., Chevaldonne, P., Pergent-Martini, C., Boudouresque, C.F., Thierry, P., 2010. Climate change effects on a miniature ocean: the highly diverse, highly impacted Mediterranean Sea. *Trends in Ecology & Evolution* 25(4), 250-260.
- Lotze, H.K., Lenihan, H.S., Bourque, B.J., Bradbury, R.H., Cooke, R.G., et al., 2006. Depletion, degradation, and recovery potential of estuaries and coastal seas. *Science* 312, 1806–1809
- Markandya, A., Arnold, S., Cassinelli, M., Taylor, T., 2008. Protecting coastal zones in the Mediterranean: an economic and regulatory analysis. *Journal of Coastal Conservation* 12, 145–159.
- Martin, J.-M., Milliman, J.D., 1997. EROS 2000 (European River Ocean System). The western Mediterranean: an introduction. *Deep-Sea Research II* 44, 521–529.
- Meinesz, A., Lefevre, J.R., Astier, J.M., 1991. Impact of coastal development on the infralittoral zone along the Southeastern Mediterranean shore of continental France. *Marine Pollution Bulletin* 23, 343-347.
- Menard, H.W., Smith, S.M., 1966. Hypsometry of ocean basin provinces. *Journal of Geophysical Research* 71, 4305.
- Molinero, J.C., Buecher, E., Lucic, D., Malej, A., Miloslavic, M., 2009. Climate and Mediterranean Jellyfish: Assessing the effect of temperature regimes on jellyfish outbreak dynamics. *Annales - Ser Hist Nat* 19, 1–8.
- Mora, C., Myers, R.A., Coll, M. et al., 2009. Management effectiveness of the world's marine fisheries. *PLoS Biology* 7, e1000131.
- Myers, N., Mittermeier, R.A., Mittermeier, C.G., da Fonseca, G.A.B., Kent, J., 2000. Biodiversity hotspots for conservation priorities. *Nature* 403, 853-858.
- Nixon, S., 1990. Marine eutrophication: a growing international problem. *Ambio* 19, 101.
- Özhan, E., 2002. Coastal erosion management in the Mediterranean: An overview. Priority Actions Program, Regional Activity Centre, Ankara/Split, May 2002.
- Plan Bleu, 2005. A Sustainable Future for the Mediterranean. The Blue Plan's Environment and Development Outlook, edited by G. Benoit & A. Comeau. London: Earthscan. Chapter on "Coastal Areas", pp. 303-356. [www.planbleu.org](http://www.planbleu.org)
- Sanò, M., Marchand, M., Medina, R., 2010. Coastal setbacks for the Mediterranean: a challenge for ICZM. *Journal of Coastal Conservation* 14, 295-301.
- Scientific, Technical and Economic Committee for Fisheries (STECF) (2010). 35th Plenary Meeting Report (eds. J. Casey and H. Dörner). Publications Office of the European Union 2010. EUR, Scientific and Technical Research series, ISSN 1831-9424 ISBN 978-92-79-18740-7, 226 pp.

- Solic, M., Krstulovic, N., Marasovic, I., Baranovic, A., Pucher-Petkovic, T., Vucetic, T., 1997. Analysis of time series of planktonic communities in the Adriatic Sea, distinguishing between natural and man-induced changes. *Oceanologica Acta* 20, 131–143.
- Stobart, B., Warwick, R., González, C., et al., 2009. Long-term and spillover effects of a marine protected area on an exploited fish community. *Marine Ecology Progress Series* 384, 47–60.
- Tolosa, I., Readman, J.W., Fowler, S.W., Villeneuve, J.P., Dachs, J., Bayona, J.M., Albaigés, J. 1997. PCBs in the western Mediterranean. Temporal trends and mass balance assessment. *Deep-Sea Research II* 44, 907–928.
- Turley, C.M., 1999. The changing Mediterranean Sea — a sensitive ecosystem? *Progress in Oceanography* 44, 387–400.
- UNEP – United Nations Environmental Program, 2010. The Mediterranean Sea biodiversity: State of the ecosystems, pressures, impacts and future priorities. Mediterranean Action Plan, Regional Activity Center for Specially Protected Areas, RAC-SPA, Tunis, 102 p.
- UNEP - United Nations Environmental Program, 2012. State of the Mediterranean Marine and Coastal Environment. Mediterranean Action Plan – Barcelona Convention, Athens, 2012, 96 p.
- UNEP/MAP, 2003. Riverine transport of water, sediments and pollutants to the Mediterranean Sea. MAP Technical Reports Series No 141, pp. 111.
- Voulgaridou, P., Stergiou, K.I., 2003. Trends in various biological parameters of the European sardine, *Sardina pilchardus* (Walbaum, 1792), in the Eastern Mediterranean Sea. *Scientia Marina* 67 (Suppl 1), 269–280.
- Würtz, M., 2010. Mediterranean Pelagic Habitat: Oceanographic and Biological Processes, An Overview. Gland, Switzerland and Malaga, Spain: IUCN, 90 p.
- Yébanez, A., Alfaro, P., Delgado, J., Estévez, A., Soria, J.M., 2002. Sea cliffs resulting from late Miocene extensional tectonics: the Serra Gelada case study (Betic Cordillera, Spain). *Geomorphology* 42, 197 – 211.
- Zenetos, A., Siokou-Frangou, I., Gotsis-Skretas, O., Groom, S., 2002. Seas around Europe: the Mediterranean Sea: blue oxygen-rich, nutrient-poor waters. Europe's biodiversity: biogeographical regions and seas. European Environment Agency: Copenhagen, Denmark. 22pp.
- 11.2**
- Abed, A. M., Sadaqah, R., Al Kuisi, M., 2008. Uranium and potentially toxic metals during the mining, beneficiation, and processing of phosphorite and their effects on ground water in Jordan. *Mine Water Environment* 27, 171–182.
- Aloupi, M., Angelidis, M.O., 2001. Geochemistry of natural and anthropogenic metals in the coastal sediments of the Island of Lesvos, Aegean Sea. *Environmental Pollution* 113, 211–219.

- Conispoliatis, N., Lykousis, V., 1986. Mineralogy of the surficial sediments of Kavala Bay, northern Aegean Sea. *Estuarine, Coastal & Shelf Science* 23(5), 739–749.
- Christoforidis, A., Stamatis, N., 2009. Heavy metal contamination in street dust and roadside soil along the major national road in Kavala's region, Greece. *Geoderma* 151, 257–263.
- EPA, 1998. Potential Uses of Phosphogypsum and Associated Risks: Background Information Document, Environmental Protection Agency Tech. Rep. 402-R92-002.
- Kanellopoulos, T. D., Angelidis, M. O., Karageorgis, A. P., Kaberi, H., Kapsimalis, V., Anagnostou, C., 2006. Geochemical composition of the uppermost prodelta sediments of the Evros River, northeastern Aegean Sea. *Journal of Marine Systems* 63, 63–78.
- Mariopoulos, I., 1982. *The Climate of Greece*. Greek National Printing Office, Athens.
- Matthai, C., Birch, G., 2001. Detection of anthropogenic Cu, Pb and Zn in the continental shelf sediments off Sydney, Australia – a new approach using normalisation with cobalt. *Marine Pollution Bulletin* 42, 1055–1063.
- Papazacharias, A., Kevrekidis, T., Koukouras, A., 1997. Macrobenthic assemblages of the soft substratum in the infralittoral and circalittoral zone of the gulf of Kavala (North Aegean Sea). 5<sup>th</sup> Conf. in Ocean. and Fish., Kavala, Greece, Vol. 1: 283–286.
- Papastergios, G., Filippidis, A., Fernandez-Turiel, J.-L., Gimeno, D., and Sikalidis, C. 2011. Surface soil geochemistry for environmental assessment in Kavala area, Northern Greece. *Water, Air and Soil Pollution* 216, 141–152.
- Pérez-López, R., Alvarez-Valero, A.M., Nieto, J.M., 2007. Changes in mobility of toxic elements during the production of phosphoric acid in the fertilizer industry of Huelva (SW Spain) and environmental impact of phosphogypsum wastes. *Journal of Hazardous Material* 148, 745–750.
- Perissoratis, C., Moorby, S. A., Papavasiliou, C., Cronan, D. S., Angelopoulos, I., Sakellariadou, F., Mitropoulos, D. 1987. The geology and geochemistry of the surficial sediments off Thraki, northern Greece. *Marine Geology* 74 (3–4), 209–224.
- Pohl, C., Hennings, U., Petersohn, I., Siegel, H., 1998. Trace metal budget, transport, modification and sink in the transition area between the Oder and Peene Rivers and the southern Pomeranian Bight. *Marine Pollution Bulletin* 36(8), 598-616.
- Rutherford, P.M., Dudas, M.J., Samek, R.A., 1994. Environmental impacts of phosphogypsum. *Science of the Total Environment* 99, 1–38.
- Skoulikidis, N. T., Bertahas, I., Koussouris, T. 1998. The environmental state of freshwater resources in Greece (rivers and lakes). *Environmental Geology* 36 (1–2), 1–17.
- Skoulikidis, N. 2009. The environmental state of rivers in the Balkans - A review within the DPSIR framework. *Science of the Total Environment* 407, 2501–2516.

Stamatis, N., Ioannidou, D., Christoforidis, A., Koutrakis, E., 2002. Sediment pollution by heavy metals in the Strymonikos and Ierissos Gulfs, North Aegean Sea, Greece. *Environmental Monitoring & Assessment* 80, 33-49.

Sylaios, G., Theocharis, V., 2002. Hydrology and nutrient enrichment at two coastal lagoon systems in northern Greece. *Water Resources Management* 16, 171–196.

Sylaios, G., Stamatis, N., Kallianiotis, A., Vidoris, P., 2005. Monitoring water quality and assessment of land-based nutrient loadings and cycling in Kavala Gulf. *Water Resources Management* 19, 713–735.

Sylaios, G., Anastasiou S., Tsihrintzis, V.A., 2012a. Restoration of a seashore eroded due to dam operation through beach nourishment. *Ecology and Hydrobiology* 12(2), 123-135.

Sylaios, G., Kamidis, N., Stamatis, N., 2012b. Assessment of trace metals contamination in the suspended matter and sediments of a semi-enclosed Mediterranean Gulf. *Soil and Sediments Contamination: An International Journal* 21(6), 673-700.

Theocharis, V., Sylaios, G., Stamatis, N., 2000. Water quality variability at coastal lagoons in Northern Greece. *Fresenius Environmental Bulletin* 9, 30–35.

Vicente-Martorell, J.J., Galindo-Riano, M.D., García-Vargas, M., Granado-Castro, M.D., 2009. Bioavailability of heavy metals monitoring water, sediments and fish species from a polluted estuary. *Journal of Hazardous Material* 162, 823–836.

Voutsinou-Taliadouri, F., Satsmadjis, J., Iatridis, B., 1989. Impact of Athens sewage and industrial discharge on the metal content of sediments from Piraeus harbour and Eleusis bay. *Revue Internationale d' Océanographie Médicale* 93–94, 31–45.

### 11.3

Commission Directive 98/15/EC of 27 February 1998 amending Council Directive 91/271/EEC with respect to certain requirements established in Annex I thereof, *Official Journal L* 67/29, 7-3-1998, p. 40-41.

Council Decision of 12 December 1977 establishing a common procedure for the exchange of information on the quality of surface fresh water in the Community, *Official Journal L* 334, 24-12-1977, p. 29.

Council Directive 75/440/EEC of 16 June 1975 concerning the quality required of surface water intended for the abstraction of drinking water in the Member States, *Official Journal L* 194, 25.7.1975, p. 26–31.

Council Directive 76/464/EEC of 4 May 1976 on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community, *Official Journal L* 129, 18-05-1976, p. 0023 – 0029.

Council Directive 79/869/EEC of 9 October 1979 concerning the methods of measurement and frequencies of sampling and analysis of surface water intended for the abstraction of drinking water in the Member States, Official Journal L 271, 29-10-1979, p. 44–53.

Council Directive 80/68/EEC of 17 December 1979 on the protection of groundwater against pollution caused by certain dangerous substances, Official Journal L 20, 26-1-1980, p. 43–48.

Council Directive 86/278/EEC of 12 June 1986 on the protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture, Official Journal L 181, 4-7-1986, p. 6–12.

Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment, Official Journal L. 135, 30-5-1991, p. 40–52.

Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources, Official Journal L 375, 31.12.1991, p. 1–8.

Council Directive of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment, Official Journal NO. L 175, 05/07/1985, p. 0040 – 0048.

Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, Official Journal L 327, 22-12-2000, p. 1–73.

Joint Ministerial Decision Electronic Reference No 19661/1982/1999) (Official Government Gazette 1811B/29-9-1999)

Joint Ministerial Decision Electronic Reference No 48392/939/3-2-2002 (Official Government Gazette 405B/3-4-2002)

Joint Ministerial Decision Electronic Reference No 5673/400/1997 (Official Government Gazette 192B/14-3-1997).

#### 11.4

European Environmental Agency, [www.eea.europa.eu](http://www.eea.europa.eu), <http://www.eea.europa.eu/themes/water>

European Union, water policy and legislation:

[http://europa.eu/legislation\\_summaries/environment/water\\_protection\\_management/index\\_en.htm](http://europa.eu/legislation_summaries/environment/water_protection_management/index_en.htm)

Water Information System for Europe (WISE): <http://water.europa.eu>

DG ENV webpages: <http://ec.europa.eu/environment/water>

WFD - Circa webpage:

[http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework\\_directive&vm=detailed&sb=Title](http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework_directive&vm=detailed&sb=Title)

European Commission's water Blueprint webpage 2012:

[http://ec.europa.eu/environment/water/blueprint/index\\_en.htm](http://ec.europa.eu/environment/water/blueprint/index_en.htm)

Marc Pallemmaerts editor, (2008), Sourcebook on EU Environmental Law, Prepared by Institute for European Environmental Policy for the EPE Banks: The Council of Europe Bank (CEB), Paris, the European Bank for Reconstruction and Development, London, the European Investment Bank, Luxembourg, the Nordic Environment Finance Corporation, Helsinki, the Nordic Investment Bank, Helsinki.

A. Kallia-Antoniou (2009), Public Administration, Environment and Culture: The Greek experience in the European Union, Lecture notes, Hellenic School of Public Administration, Athens. [www.kallialaw.gr](http://www.kallialaw.gr)

A. Kallia-Antoniou (2008), The EU Marine Strategy Directive, International Conference for the protection of planet earth, Trabzon. [www.intensynergy.org](http://www.intensynergy.org)

A. Kallia-Antoniou, (2007), EU Environmental Legislation, Lecture notes, Bahcesehir University, Istanbul. [www.bahcesehir.edu.tr](http://www.bahcesehir.edu.tr)

European Commission guidance documents:

European Commission, (2003), Common implementation strategy for the water framework directive (2000/60/EC), Transitional and coastal waters-Typology, Reference conditions and classification systems, Guidance Document No 5, Luxembourg: Office for official publications of the European Communities, pp.116,  
[http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework\\_directive/guidance\\_documents&vm=detailed&sb=Title](http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework_directive/guidance_documents&vm=detailed&sb=Title).

European Commission, (2003), Common implementation strategy for the water framework directive (2000/60/EC), Identification and Designation of Heavily Modified and Artificial Water Bodies, Guidance Document No 4, Luxembourg: Office for official publications of the European Communities, pp.14.  
[http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework\\_directive/guidance\\_documents&vm=detailed&sb=Title](http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework_directive/guidance_documents&vm=detailed&sb=Title)

European Commission (2006), Common Implementation Strategy for the Water Framework Directive. Exemptions to the environmental objectives under the Water Framework Directive allowed for new modifications or new sustainable development activities (WFD Article 4.7), policy paper.  
[http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework\\_directive/thematic\\_documents/environmental\\_objectives&vm=detailed&sb=Title](http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework_directive/thematic_documents/environmental_objectives&vm=detailed&sb=Title)

European Commission (2006), WFD and Hydro-morphological pressures: Focus on hydropower, navigation and flood defence activities Recommendations for better policy integration, Policy Paper, 44pp.  
[http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework\\_directive/thematic\\_documents/hydromorphology&vm=detailed&sb=Title](http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework_directive/thematic_documents/hydromorphology&vm=detailed&sb=Title)

European Commission (2006), WFD and Hydro-morphological pressures, Good practice in managing the ecological impacts of hydropower schemes; flood protection works; and works designed to facilitate navigation under the Water Framework Directive, 68 pp.



**11.5**

“Development Strategy Guidelines on Areas of Political Responsibility of Ministry of Environment, Energy and Climate Change”, (March 2013), available in Greek at <http://www.ypeka.gr>

“European economic area financial mechanism, 2009-2014, Program area: Integrated management of marine and inland water”, available in Greek at <http://www.ypeka.gr>

Foteinis, S., Papadopoulos, C., Koutsogiannaki, I., Synolakis, C., 2010, *Coastal erosion and accretion rates in Greece*, EGU General Assembly 2010, 2-7 May, Vienna, Austria, p.7499

Leatherman, S.P. 1996. Shoreline stabilization approaches in response to sea level rise: U.S. experience and implications for Pacific Island and Asian Nations. *Water, Air and Soil Pollution* 92, 149-157

Synolakis, C.E., Kalligeris, N., Foteinis, S., Voukouvalas, E., 2008, *The Plight of the Beaches of Crete, Solutions to Coastal Disasters*, 2008, Conference Proceedings ASCE, pp. 495-506

U.S. Army Corps of Engineers 1984. *Shore Protection Manual*. U.S. Army Corps of Engineers, Vicksburg, Mississippi

<http://ec.europa.eu/maritimeaffairs/atlas/>

<http://www.beachmed.it/>

<http://www.cinfai.it/cadsealand/>

<http://www.coastance.eu/>

[http://www.coastance.eu/index.php?option=com\\_docman&task=cat\\_view&gid=11&Itemid=2](http://www.coastance.eu/index.php?option=com_docman&task=cat_view&gid=11&Itemid=2)

<http://www.conscience-eu.net/>

<http://www.euroSION.org/>

<http://www.yen.gr/wide/home.html>

**11.6**

European Commission (2004) Communication to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions – Flood risk management, Flood prevention and mitigation. COM/2004/472/final.

European Commission (2006) Proposal for a Directive of the European Parliament and of the Council on the assessment and management of floods. COM/2006/15/final.

European Commission (2007) Directive 2007/60 of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks. Official Journal of the European Communities, L.288. 6/11/2007, p. 27.

European Commission (2012) Implementing of the Floods Directive.

[http://ec.europa.eu/environment/water/flood\\_risk/implem.htm](http://ec.europa.eu/environment/water/flood_risk/implem.htm) (Accessed 12 July 2013).

Heintz MD, Hagemeyer-Klose M, Wagner K (2012) Towards a Risk Governance Culture in Flood Policy—Findings from the Implementation of the “Floods Directive” in Germany. *Water* 4: 135-156; doi:10.3390/w4010135.

Jonkman SN, Vrijling J K (2008) Loss of life due to floods. *Journal of Flood Risk Management*, 1(1): 43-56.

Nicholls RJ, Hoozemans FMJ (1996) The Mediterranean: vulnerability to coastal implications of climate change. [in special issue: Sustainable Development at the Regional Level: The Mediterranean] *Ocean & Coastal Management*, 31, (2-3), 105-132. (doi:10.1016/S0964-5691(96)00037-3).

Papathoma M, Dominey-Howes D (2003) Tsunami vulnerability assessment and its implications for coastal hazard analysis and disaster management planning, Gulf of Corinth, Greece. *Natural Hazards and Earth System Sciences* 3: 733–747.

Papathoma M, Dominey-Howes D, Zong Y, Smith D (2003) Assessing tsunami vulnerability, an example from Herakleio, Crete. *Natural Hazards and Earth System Sciences* 3: 377–389.

Santato, S., Bender, S. & Schaller, M. (2013): The European Floods Directive and Opportunities offered by Land Use Planning. CSC Report 12, Climate Service Center, Germany.

Specific Water Secretariat (2013) Preliminary Flood Risk Assessment in Greece according to the EC Directive 2007/50 and pursuant to the Joint Ministerial Decision Electronic Reference 31822/1542/E103/2010. Greek Ministry of Environment, Energy & Climate Change.

<http://www.ypeka.gr/LinkClick.aspx?fileticket=T4DDG1hqQMY%3D&tabid=252&language=el-GR> (accessed 31 July 2013)

Working Group on Floods (WGF) (2011) Resource document on flood risk management, economics and decision making support. European Commission, Working Group F of the Common Implementation Strategy for the Water Framework Directive.

## 11.7

European Commission, 2011a. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions Reform of the Common Fisheries Policy. COM/2011/0417 final, Brussels 13.7.2011.

European Commission, 2011b. Proposal for a Regulation of the European Parliament and of the Council on the Common Fisheries Policy. COM/2011/0425 final - 2011/0195 (COD), Brussels 13.7.2011.

European Commission, 2011c. Proposal for a Regulation of the European Parliament and of the Council on the European Maritime and Fisheries Fund [repealing Council Regulation (EC) No 1198/2006 and Council Regulation (EC) No 861/2006 and Council Regulation No XXX/2011 on integrated maritime policy. COM/2011/0804 final - 2011/0380 (COD), Brussels 2.12.2011.

European Commission, 2011d. Proposal for a Regulation of the European Parliament and of the Council on the common organisation of the markets in fishery and aquaculture products. COM(2011) 416 final, 2011/0194 (COD), Brussels, 13.7.2011.

European Commission, 2013. Amended proposal for a Regulation of the European Parliament and of the Council on the European Maritime and Fisheries Fund [repealing Council Regulation (EC) No 1198/2006 and Council Regulation (EC) No 861/2006 and Council Regulation No XXX/2011 on integrated maritime policy]. COM(2013) 245 final, 2011/0380 (COD), Brussels, 22.4.2013.

Kallianiotis A., Koutrakis E. & Kokkinakis A., 2000. Fisheries in the Kavala Prefecture. The current situation, tendencies and impacts on the prefecture's coastal areas. TERRA Coastal Zone Management Project: "Preparing an Integrated Management Plan for the Coastal Zone of the Kavala Prefecture". Development Agency of the Prefectural Administration of Kavala. 31 pp.

Plater A.J., Rice J.C., Glegg G., Hansson S., Koutrakis M., Marasovic I., Marshall C., Norman T., Oguz T., Peckett F., Rees S., Rickards L., Rodwell L., Tudor D. and Vrgoc N., 2011. Review of Existing International Approach to Fisheries Management: The Role of Science in Underpinning the Ecosystem Approach and Marine Spatial Planning. In: Kidd S, Plater A and Frid C (eds). The Ecosystem Approach to Marine Planning and Management. London, Earthscan, p.p. 131-204. ISBN 978-1-84971-182-1.

Price A.R.G., 1996. Integrated coastal area management: An introduction and relevance to fisheries governance. 12th Annual Meeting of European Fisheries Advisers, Kavala, Greece, 5-6 September 1996.

Stergiou K.I., Moutopoulos D.K., G. Armenis, 2009. Perish legally and ecologically: the ineffectiveness of the minimum landing sizes in the Mediterranean Sea. *Fisheries Management and Ecology*, 16, 368–375.

WWF Mediterranean, 2010. Review of the Implementation of Council Regulation (EC) No 1967/2006 ("Mediterranean Fisheries Regulation").

## 11.8

Black. W.R., 2003. *Transportation: A Geographical Analysis*. The Guilford Press. New York.

Butler, S.J., Freckleton, R.P., Renwick, A.R., Norris, K., 2012. An objective, niche-based approach to indicator species selection. *Methods in Ecology and Evolution* 3, 317–326.

Dale, V.H., Beyeler, S.C., 2001. Challenges in the development and use of ecological indicators. *Ecological Indicators* 1, 3–10.

DDNREC, Delaware Department of Natural Resources and Environmental Control, 1999. *Environmental Goals and Indicators for Delaware's Coastal Zone. Recommendations of the Environmental Indicators Technical Advisory Committee*, Dover, Delaware, 138 p.

Gras, R., Benoit, M., Demontaines, J.P., Duru, M., Lafarge, M., Langlet, A., Osty, P.L., 1989. *Le Fait Technique en Agronomie. Activité Agricole, Concepts et Méthodes d' Etude*. Institut National de la Recherche Agronomique, L' Hamarttan, Paris, France.

Hansen, J.W., 1996. Is agricultural sustainability a useful concept? *Agricultural Systems* 50, 117–143.

Sardá, R., 2003. Caracterització del litoral Català i l'impacte de las activitats per a una gestió integral, Síntesi general i recomanacions d'actuació, Technical report, Departament de Medi Ambient i Habitatge, Generalitat de Catalunya, Barcelona, Spain.

Turner, R.K., Lorenzoni, I., Beaumont, N., Bateman, I.J., Langford, I.H., McDonald, A.L., 1998. Coastal management for sustainable development: analyzing environmental and socio-economic changes on the UK coast. *The Geographical Journal* 3, 164.

OECD, 1993. OECD core set of indicators for environmental performance reviews, Organization for Economic Co-operation and Development, Paris.

OECD, 2004. OECD Key Environmental Indicators. OECD Environment Directorate, Paris, France, 38 p.

Sousa, P.H.G.O., Siegle, E., Tessler, M.G., 2011. Environmental and Anthropogenic Indicators for Coastal Risk Assessment at Massaguaçu Beach (SP) Brazil. *Journal of Coastal Research* SI 64, 319-323.

# **APPEDIX A**

## **Subsidiary legislation in Malta**

<b>Regulation / Order</b>	<b>Notice Legal publication</b>	<b>Subsidiary legislation Legislation</b>
<b>Abandonment, Dumping and Disposal of Waste in Streets and Public Places or Areas Regulations</b>  <i>Amended by LN 426 of 2007 and LN 283 of 2011</i>	LN 344 of 2005	SL 504.67
<b>Assessment and Management of Environment Noise Regulations</b>  <i>Amended by LN 426 of 2007</i>	LN 193 of 2004	SL 504.63
<b>Assessment and Management of Flood Risks Regulations</b>  <i>Amended by LN 477 of 2011</i>	LN 264 of 2010	SL 423.41
Bathing of Animal Regulations (Repealed by LN 125 of 2008)  <i>Amended by LN 90 of 1975, LN 45 of 1977 and LN 2 of 1993</i>	LN 31 of 1960	SL 10.26
<b>Berthing Regulations</b>  <i>Amended by LN 33 of 1986 and LN 51 of 1986; and Acts XVII of 1991 and XV of 2009</i>	LN 117 of 1975	SL 10.30
<b>Bunkering (Authorisation) Regulations</b>  <i>Amended by LN 184 of 2012</i>	LN 270 of 2010	SL 423.42
<b>Commercial Vessels Regulations</b>  <i>Amended by LN 425 of 2007, Act XV of 2009 and LN 426 of 2012</i>	LN 284 of 2002	SL 499.23
<b>Regulation / Order</b>	<b>Notice Legal publication</b>	<b>Subsidiary legislation Legislation</b>
<b>Conifer Trees (Preservation) Regulations</b>	GN 328 of 1949	SL 10.22
<b>Conservation of Wild Birds Regulations</b>  <i>Amended by LN 39 of 2007, LN 280 of 2007, LN 426 of 2007, LN 30 of 2009, LN 283 of 2010, LN 82 of 2011, LN 421 of 2011, LN 267 of 2012 and LN 426 of 2012</i>	LN 79 of 2006	SL 504.71

<b>Convention on Biological Diversity (Incorporation) Regulations</b>	<b>LN 160 of 2002</b>	<b>SL 504.50</b>
<b>Dangerous Cargo Ships and Boats Regulations</b>	<b>LN 1 of 1996</b>	<b>SL 499.12</b>
<i>Amended by LN 13 of 1996, LN 152 of 1997, LN 75 of 2002, LN 264 of 2004, LN 425 of 2007, LN 507 of 2010, LN 450 of 2011, LN 331 of 2012, and Act XV of 2009</i>		
<b>Declaration of Port (Ras Hanzir) Order</b>	<b>LN 14 of 1998</b>	<b>SL 499.13</b>
<i>Amended by Act XV of 2009</i>		
<b>Deposit of Waste and Rubble (Fees) Regulations</b>	<b>LN 128 of 1997</b>	<b>SL 504.12</b>
<i>Amended by LN 206 of 1997, LN 190 of 1999, LN 405 of 2007, LN 426 of 2007, LN 382 of 2009, LN 279 of 2010 and LN 203 of 2011</i>		
<b>Development Control Commission (Number of Divisions) Order</b>	<b>LN 85 of 2002</b>	<b>SL 504.49</b>
<b>Development Notification Order</b>	<b>LN 115 of 2007</b>	<b>SL 504.80</b>
<i>Amended by LN 226 of 2010, LN 494 of 2010, LN 317 of 2011, LN 457 of 2011, and LN 305 of 2012</i>		
<b>Development Permission (Method of Application) Regulations</b>	<b>LN 133 of 1992</b>	<b>SL 504.03</b>
<i>Amended by LN 18 of 1993</i>		

<b>Regulation / Order</b>	<b>Notice</b> <i>Legal publication</i>	<b>Subsidiary legislation</b> <i>Legislation</i>
<b>Development Planning (Application of Development Order in cases of Illegal Development carried out prior to 1st January, 1993) Regulations</b>	<b>LN 21 of 2002</b>	<b>SL 504.44</b>
<b>Development Planning (Clamping and Removal of Objects used for Illegal Development) Regulations</b>	<b>LN 26 of 2002</b>	<b>SL 504.47</b>
<i>Amended by LN 342 of 2002 and LN 425 of 2007</i>		
<b>Development Planning (Development Order) (Designation of New Development) Regulations</b>	<b>LN 264 of 2001</b>	<b>SL 504.32</b>
<b>Development Planning (Fee for Certificate) Regulations</b>	<b>LN 23 of 2002</b>	<b>SL 504.45</b>



*Amended by LN 425 of 2007*

**Development Planning (Fees) Regulations** LN 356 of 2010 SL 504.98

*Amended by LN 48 of 2011, LN 58 of 2011, LN 268 of 2012 and LN 126 of 2013*

**Development Planning (Official Manual) Regulations** LN 24 of 2002 SL 504.46

**Development Planning (Planning Obligation) Regulations** LN 347 of 2009 SL 504.90

**Development Planning (Planning Obligations) Regulations** LN 28 of 2002 SL 504.48

**Development Planning (Procedure for Applications and their Determination) Regulations** LN 514 of 2010 SL 504.103

*Amended by LN 116 of 2012*

**Development Planning (Procedure for Minor Modifications to Subsidiary Plans) Regulations** LN 71 of 2007 SL 504.76

<b>Regulation / Order</b>	<b>Notice <i>Legal publication</i></b>	<b>Subsidiary legislation <i>Legislation</i></b>
<b>Development Planning (Procedure for Reconsideration) Regulations</b>	LN 266 of 2001	SL 504.33
<b>Development Planning (Use Classes) Order</b>	LN 53 of 1994	SL 504.09
<i>Amended by LN 70 of 2000 and LN 59 of 2004</i>		
<b>Development (Removal of Danger) Order</b>	LN 258 of 2002	SL 504.56
<b>Environment and Planning Commission (Types of Applications) Regulations</b>	LN 5 of 2012	SL 504.104
<b>Environmental Impact Assessment Regulations</b>	LN 114 of 2007	SL 504.79
Environmental Impact Assessment Regulations (Repealed by LN 114 of 2007)	LN 204 of 2001	
<b>Environmental Management Construction Site Regulations</b>	LN 295 of 2007	SL 504.83
<i>Amended by LN 358 of 2007, LN 371 of 2007, LN 426 of 2007, LN 426 of 2012, and Act XV of 2009</i>		
<b>Environment Protection (Preventive and Remedial Measures) Regulations</b>	LN 1 of 1994	SL 504.08

*Amended by LN 426 of 2007*

**Establishment of the Majjstral, Nature and History Park Regulations** LN 251 of 2007 SL 504.82

*Amended by LN 224 of 2009*

Fishery Regulations (Replaced by SL 425.01) GN 206 of 1934 SL 10.12

*Amended by LN 48 of 1962, LN 19 of 1964, LN 80 of 1978, LN 58 of 1979,  
LN 154 of 1993 and GN 148 of 1935*

<b>Regulation / Order</b>	<b>Notice Legal publication</b>	<b>Subsidiary legislation Legislation</b>
<b>Fishery Regulations</b>	<b>GN 206 of 1934</b>	<b>SL 425.01</b>
<i>Amended by LN 48 of 1962, LN 19 of 1964, LN 80 of 1978, LN 58 of 1979, LN 154 of 1993 and GN 148 of 1935</i>		
<b>Fishing Vessels Regulations</b>	<b>LN 407 of 2004</b>	<b>SL 425.07</b>
<i>Amended by LN 426 of 200, LN 313 of 2008, Act XV of 2009 and LN 426 of 2012</i>		
<b>Flora, Fauna and Natural Habitats Protection Regulations</b>	<b>LN 311 of 2006</b>	<b>SL 504.73</b>
<i>Amended by LN 426 of 2007, LN 162 of 2009 and LN 94 of 2010</i>		
<b>Holiday Premises Regulations</b>	<b>LN 131 of 2002</b>	<b>SL 409.11</b>
<i>Amended by LN 86 of 2005</i>		
<b>Industrial Emissions (Framework) Regulations</b>	<b>LN 9 of 2013</b>	<b>SL 504.116</b>
<b>Industrial Emissions (Integrated Pollution Prevention and Control) Regulations</b>	<b>LN 10 of 2013</b>	<b>SL 504.54</b>
<b>Industrial Emissions (Large Combustion Plants) Regulations</b>	<b>LN 11 of 2013</b>	<b>SL 504.93A</b>
<b>Large Combustion Plants Regulations</b>	<b>LN 172 of 2010</b>	<b>SL 504.93</b>
<b>Limit Values and Quality Objectives for Discharges of Certain Dangerous Substances into the Aquatic Environment Regulations</b>	<b>LN 227 of 2001</b>	<b>SL 504.29</b>

*Amended by LN 426 of 2007 and LN 24 of 2011*

**List of Historical Trees having an Antiquarian Importance Order**

**GN 269 of 1933**

**SL 445.02**

<b>Regulation / Order</b>	<b>Notice Legal publication</b>	<b>Subsidiary legislation Legislation</b>
<b>Management of Bathing Water Quality Regulations</b> <i>Amended by LN 237 of 2011</i>	<b>LN 125 of 2008</b>	<b>SL 465.09</b>
<b>Marine Mammals Protection Regulations</b> <i>Amended by LN 426 of 2007</i>	<b>LN 203 of 2003</b>	<b>SL 504.61</b>
<b>Marine Policy Framework Regulations</b> <b>Marine Vegetation Licence Regulations</b> <i>Amended by LN 426 of 2007</i>	<b>LN 73 of 2011</b> <b>LN 66 of 1997</b>	<b>SL 504.107</b> <b>SL 425.06</b>
Mechanically Driven Boats (Passengers and Cargo) Regulations (Revoked by LN 284 of 2002) <i>Amended by GN 398 and 626 of 1957; LN 116 of 1975 and LN 110 of 1989; and Act XLIX of 1981, Act XIII of 1983 and Act XVII of 1991</i>	<b>GN 704 of 1955</b>	<b>SL 10.23</b>
<b>Mooring of Small Ships and Boats Regulations</b> <i>Amended by LN 25 of 2007 and Act XV of 2009</i>	<b>LN 69 of 1993</b>	<b>SL 499.11</b>
<b>Mooring Services Regulations</b> <b>Petroleum (Production) Regulations</b> <i>Amended by LN 410 of 2007</i>	<b>LN 253 of 2012</b> <b>LN 320 of 2001</b>	<b>SL 499.03</b> <b>SL 156.01</b>
<b>Planning Appeals (Fees) Regulations</b>  <i>Amended by LN 169 of 1995, LN 25 of 2002 and LN 425 of 2007</i>	<b>LN 7 of 1993</b>	<b>SL 504.04</b>
<b>Planning Appeals Board and the Environment and Planning Review Tribunal (Transitory Provisions) Regulations</b>	<b>LN 27 of 2011</b>	<b>SL 504.106</b>
<b>Regulation / Order</b>	<b>Notice Legal publication</b>	<b>Subsidiary legislation Legislation</b>
<b>Port Reception Facilities for Ship-generated Wastes and Cargo Residues Regulations</b> <i>Amended by LN 290 of 2006, LN 425 of 2007, LN 332 of 2012, and Act XV of 2009</i>	<b>LN 278 of 2004</b>	<b>SL 499.30</b>

<b>Ports Regulations</b>	<b>LN 43 of 1966</b>	<b>SL 499.01</b>
<i>Amended by LN 75 of 1968, LN 7 of 1969, LN 23 of 1969, LN 33 of 1971, LN 13 of 1972, LN 28 of 1973, LN 45 of 1974, LN 53 of 1974, LN 17 of 1975, LN 35 of 1975, LN 126 of 1975, LN 145 of 1975, LN 18 of 1976, LN 24 of 1976, LN 15 of 1978, LN 98 of 1978, LN 38 of 1981, LN 11 of 1988, LN 63 of 1988, LN 99 of 1991, Act XVII of 1991, LN 3 of 1998, LN 252 of 2002, LN 26 of 2004, LN 493 of 2004, LN 425 of 2007, Act XV of 2009, and LN 505 of 2010, LN 330 of 2012</i>		
<b>Ports (Handling of Baggage) Regulations</b>	<b>LN 144 of 2006</b>	<b>SL 499.42</b>
<i>Amended by LN 425 of 2007 and Act XV of 2009</i>		
<b>Ports Security Regulations</b>	<b>LN 484 of 2004</b>	<b>SL 499.35</b>
<i>Amended by LN 425 of 2007, LN 3 of 2008, Act XV of 2009 and LN 329 of 2012</i>		
Protection of Birds Regulations (Revoked by LN 68 of 1980)	GN 7 of 1937	SL 10.15
<i>Amended by GN 100 of 1937, GN 150 of 1944, GN 358 of 1945, GN 505 of 1955 and GN 124 of 1958</i>		
<b>Protection of Groundwater against Pollution and Deterioration Regulations</b>	<b>LN 108 of 2009</b>	<b>SL 423.36</b>
<b>Protection of Waters against Pollution caused by Nitrates from Agricultural</b>	<b>LN 343 of 2001</b>	<b>SL 504.43</b>
<b>Sources Regulations</b>		
<i>Amended by LN 233 of 2004, LN 426 of 2007 and LN 78 of 2013</i>		
<b>Regulation / Order</b>	<b>Notice Legal publication</b>	<b>Subsidiary legislation Legislation</b>
<b>Quality of Bathing Water Regulations</b>	<b>LN 380 of 2003</b>	
<b>Quality of Fresh Waters Supporting Fish Life (Protection and Improvement) Regulations</b>	<b>LN 342 of 2001</b>	<b>SL 504.42</b>
<i>Amended by LN 426 of 2007</i>		
<b>Quality required of Shellfish Waters Regulations</b>	<b>LN 341 of 2001</b>	<b>SL 504.41</b>
<i>Amended by LN 426 of 2007</i>		
<b>Recreational Diving Services Regulations</b>	<b>LN 359 of 2012</b>	<b>SL 409.13</b>
<b>Rubble Walls and Rural Structures (Conservation and Maintenance) Regulations</b>	<b>LN 160 of 1997</b>	<b>SL 504.13</b>
<i>Amended by LN 169 of 2004 and LN 426 of 2007</i>		
<b>Ship-Source Pollution Regulations</b>	<b>LN 130 of 2008</b>	<b>SL 226.01</b>
<i>Amended by LN 112 of 2011</i>		
<b>Small Ships Regulations</b>	<b>LN 183 of 2008</b>	<b>SL 499.52</b>
<i>Amended by LN 250 of 2009, Act XV of 2009 and LN 57 of 2010</i>		

<b>Strategic Environmental Assessment Regulations</b>	<b>LN 497 of 2010</b>	<b>SL 504.102</b>
Strategic Environmental Assessment Regulations (Repealed by LN 497 of 2010)	LN 418 of 2005	
<b>Temporary Suspension of Hunting at Sea Notice</b>	<b>LN 53 of 2006</b>	<b>SL 504.68</b>
<b>Tourism Accommodation Establishments Regulations</b>	<b>LN 351 of 2012</b>	<b>SL 409.04</b>

<b>Regulation / Order</b>	<b>Notice Legal publication</b>	<b>Subsidiary legislation Legislation</b>
<b>Transfer of Rights and Liabilities of the Commissioner of Land Order</b>	<b>LN 73 of 1992</b>	<b>SL 169.01</b>
<i>Amended by LN 67 of 1993, LN 138 of 1998, LN 109 of 1993, LN 16 of 1994, LN 77 of 1994, LN 137 of 1994, LN 33 of 1996, LN 136 of 1997, LN 17 of 1998, LN 269 of 1998, LN 81 of 1999, LN 113 of 1999, LN 206 of 1999, LN 239 of 2001, LN 8 of 2002, LN 189 of 2002, LN 106 of 2003, LN 147 of 2003, LN 17 of 2004, LN 18 of 2004, LN 136 of 2004, LN 229 of 2004, LN 361 of 2004, LN 441 of 2004, LN 2 of 2005, LN 21 of 2006, LN 222 of 2006, LN 107 of 2007, LN 101 of 2008, LN 135 of 2009, LN 87 of 2010, LN 191 of 2010, LN 333 of 2010, LN 450 of 2010, LN 477 of 2010, LN 221 of 2011, LN 425 of 2011, LN 453 of 2011, LN 11 of 2012, LN 12 of 2012, LN 13 of 2012, LN 40 of 2012, LN 69 of 2012, LN 114 of 2012, LN 252 of 2012, LN 328 of 2012, LN 358 of 2012, LN 59 of 2013, LN 60 of 2013, LN 87 of 2013, LN 88 of 2013 and LN 89 of 2013</i>		
<b>Trees and Woodlands Protection Regulations</b>	<b>LN 200 of 2011</b>	<b>SL 504.16</b>
<b>Urban Waste Water Treatment Regulations</b>	<b>LN 120 of 2005</b>	<b>SL 504.40</b>
<b>Waste Regulations</b>	<b>LN 184 of 2011</b>	<b>SL 504.37</b>
<i>Amended by LN 441 of 2011 and LN 384 of 2012</i>		
<b>Water Policy Framework Regulations</b>	<b>LN 194 of 2004</b>	<b>SL 423.20</b>
<i>Amended by LN 426 of 2007, LN 24 of 2011 and LN 115 of 2012</i>		
<b>Water Supply and Sewerage Services Regulations</b>	<b>LN 525 of 2004</b>	<b>SL 423.23</b>
<i>Amended by LN 426 of 2007, LN 337 of 2009, LN 31 of 2010, LN 38 of 2010, and LN 184 of 2012</i>		
<b>Water Taxi Services</b>	<b>LN 71 of 2009</b>	<b>SL 499.55</b>
<i>Amended by Act XV of 2009</i>		
<b>Yachting Centres Regulations</b>	<b>LN 103 of 2011</b>	<b>SL 499.10</b>

# **APPEDIX B**

## **Other Relevant Legislation in Malta**

## 1. International legislation and agreements

### UNCLOS; Law of the Sea:<sup>361</sup>

- Aims to regulate practically all marine activities in any marine area
- Puts an obligation on States to protect and preserve the marine environment
- Provisions for semi-enclosed seas, such as the Mediterranean, call for the co-ordination between bordering States on management, conservation and exploitation of living resources; implementation of rights and duties with respect to protection and preservation of the marine environment; scientific research and related policies.

### UNCBD; Convention on Biological Diversity:<sup>362</sup>

- National strategies, plans or programmes for the conservation and sustainable use of biological diversity
- Program of action known as the Jakarta Mandate on Marine and Coastal Biodiversity: identifies Integrated Coastal Area Management (ICAM) as the most suitable framework for addressing human impacts on marine and coastal biological diversity

### Agenda 21:<sup>363</sup>

- Adopted at the UN 1992 Conference on Environment & Development, to implement the objectives of sustainable development
- Chapter 17 deals specifically with Protection of the Oceans, Seas, Coastal Areas and the Protection, Rational Use and Development of their Living Resources: ICAM is seen as the key tool to achieve such objectives

### Barcelona Convention:<sup>364</sup>

- In 1975: Mediterranean Action Plan adopted
- In 1976: Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean
- In 2008: Protocol on Integrated Coastal Zone Management (ICZM) adopted, which lays down the obligations to “establish a common framework for the integrated management of the Mediterranean coastal zone and take the necessary measures to strengthen regional co-operation for this purpose” and to “establish in coastal zones, as from the highest winter waterline, a zone where construction is not allowed. Taking into account, *inter alia*, the areas directly and negatively affected by climate change and natural risks, this zone may not be less than 100 meters in width”.<sup>364</sup>
- At the regional level, the Mediterranean Action Plan (MAP) addresses the environmental challenges faced by the Mediterranean Sea. The MAP led to the adoption of the UN Barcelona Convention, to which Malta is party. The 1976

<sup>361</sup> UNCLOS, 1992. *The United Nations Convention on the Law of the Sea: A Historical Perspective*. United Nations Convention on the Law of the Sea, Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, United Nations.

<sup>362</sup> UNCBD, 1992. *Convention on Biological Diversity*. UN Convention on Biological Diversity, United Nations.

<sup>363</sup> UNEP, 1992. *Agenda 21. The United Nations Programme of Action from Rio*. United Nations Environment Programme, United Nations.

<sup>364</sup> UNEP/MAP, 2005. *Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean and its Protocols*. UNEP/MAP, Athens, Greece.



- Convention is implemented via seven protocols, of which the seventh, which was adopted in January 2008, addresses integrated coastal zone management.<sup>365</sup>
- In 1993, the contracting parties to the Barcelona Convention approved funds for the implementation of a Coastal Area Management Program (CAMP) in Malta, under the MAP. CAMP-Malta was initiated in February 2000 with the aim to introduce and apply the principles, methodologies and practices of sustainable coastal management in Malta, particularly in the North West area.<sup>366</sup>

Six Regional Activity Centres under the Mediterranean Action Plan implement the MAP Activities, each within their own sphere of influence. Amongst the Regional Activity Centres are the Plan Bleu, responsible for a systemic approach to environment and development issues in the Mediterranean and observation, evaluation and monitoring of the state of the environment, and the Priority Actions Programme (PAP), responsible for integrated coastal area management and the implementation of CAMP activities.<sup>367</sup>

**And also:** UN Framework Convention on Climate Change, UNESCO Convention Concerning the Protection of World Cultural and Natural Heritage, Ramsar Convention on Wetlands, EU Marine Strategy Framework Directive, EU Water Framework Directive, EU Habitat Directive, EU Bathing Water Quality Directive, EU Birds Directive, EU Urban Waste Water Directive, EU Integrated Pollution Prevention and Control Directive, EU Sewage Sludge Directive, EU EIA & SEA Directive, EU Aarhus Convention, SEVESO III Directive, the European Landscape Convention, International Convention on Civil Liability for Oil Pollution Damage, International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage

## 2. National legislation

Besides the *Environment and Development Planning Act* described above, there are other national legislations relevant to coastal zone management. A short description of the relevant primary and subsidiary legislation is presented here according to theme and within each theme by year, in order to see the development in legislation over time.

### Land, Soil and Sand

The first national legislation dealing with land was the *Land Acquisition (Public Purposes) Ordinance*, which regulates the acquisition of land for public purposes (1935, Cap. 88). Land is defined as any building, tree or anything fixed in the land and any portion of the shore.<sup>368</sup> It is stated that the Competent Authority, the Commissioner of Land, may acquire any land required for any public purpose, either by purchasing it, by public tenure, or by possessing and using it for a stated time.<sup>369</sup> By virtue of the *Commissioner of Land Ordinance* (1962, Cap. 169), rights and

<sup>365</sup> MEPA, 2010. The Environment Report 2008. Sub-Report 6. Coastal and Marine Environment. Malta Environment and Planning Authority, March 2010.

<sup>366</sup> Planning Authority, 2002a. *Coastal Strategy Topic Paper*. Planning Authority, February 2002.

<sup>367</sup> Description of the Regional Activity Centres under the UNEP Mediterranean Action Plan. Retrieved from: <http://www.unepmap.org/index.php?module=content2&catid=001017004>

<sup>368</sup> Land Acquisition (Public Purposes) Ordinance, 1935. Cap. 88 of the Laws of Malta, Art. 2.

<sup>369</sup> Land Acquisition (Public Purposes) Ordinance, 1935. Cap. 88 of the Laws of Malta, Art. 5.

liabilities related to immovable property belonging to or administered by the Government were transferred to the Commissioner of Land.<sup>370</sup> Subsidiary legislation SL 169.01 (1992), the *Transfer of Rights and Liabilities of the Commissioner of Land Order*, transferred some rights and liabilities from the Commissioner of Land to Malta Industrial Parks Limited<sup>371</sup> and some back to the Commissioner of Land.<sup>372</sup> The *Appointment of Competent Authority (Commissioner of Land Ordinance) Regulations* (2004, SL 169.02) vests the authority of Commissioner of Land completely in Malta Industrial Parks Limited.<sup>373</sup>

Provisions on the preservation of sand and soil are found in two separate laws. The *Sand (Preservation) Act* (1949, Cap. 127) makes provision for the preservation of sand and prohibits the removal of sand from any beach, sea-shore, or from any public or private land or place, without a permit, and then only if this is done in accordance with the conditions laid down in the permit.<sup>374</sup> The Minister responsible for Public Works can make, amend, repeal or re-enact regulations.<sup>375</sup> The *Fertile Soil (Preservation) Act* (1973, Cap. 236) provides for the preservation of fertile soil. In the case of development on fertile soil, the person carrying out the development has to remove, at his or her own expense, all the fertile soil existing on the site over which the building is going to extend.<sup>376</sup> The Minister for Agriculture has the power to make regulations to carry into effect the provisions of this Act.<sup>377</sup>

The powers that the Competent Authorities have with regards to property rights and the ownership of land are laid down in several laws. The *Land (Compulsory Eviction) Act* (1972, Cap. 228) makes provision for the compulsory eviction from land and tenements owned or administered by Government. The Commissioner of Land may order the compulsory eviction of any person from any land if it is occupied by such person without any title, without encroachment terms or where the time-period specified in a contract conferring title has lapsed.<sup>378</sup> The *Disposal of Government Land Act* (1977, Cap. 268) regulates the grant on any title of immovable property belonging to or administered by the Government. The Act contains some provisions relevant to property rights and land in the coastal zone:

- “Servitudes and other similar rights may be created on government land whenever such rights are required for the proper use of any other land by any other person, and it would not be the case that such right is given on encroachment terms. In any other case such rights may and shall be given on encroachment terms”,<sup>379</sup>

---

<sup>370</sup> Commissioner of Land Ordinance, 1962. Cap. 169 of the Laws of Malta, Art. 2.

<sup>371</sup> Transfer of Rights and Liabilities of the Commissioner of Land Order, 1992. SL 169.01 of the Laws of Malta, Art. 3.

<sup>372</sup> Transfer of Rights and Liabilities of the Commissioner of Land Order, 1992. SL 169.01 of the Laws of Malta, Art. 4.

<sup>373</sup> Appointment of Competent Authority (Commissioner of Land Ordinance) Regulations, 2004. SL 169.02 of the Laws of Malta, Art. 2.

<sup>374</sup> Sand (Preservation) Act, 1949. Cap. 127 of the Laws of Malta, Art. 3(1).

<sup>375</sup> Sand (Preservation) Act, 1949. Cap. 127 of the Laws of Malta, Art. 4.

<sup>376</sup> Fertile Soil (Preservation) Act, 1973. Cap. 236 of the Laws of Malta, Art. 4.

<sup>377</sup> Fertile Soil (Preservation) Act, 1973. Cap. 236 of the Laws of Malta, Art. 8(1).

<sup>378</sup> Land (Compulsory Eviction) Act, 1972. Cap. 228 of the Laws of Malta, Art. 3(1).

<sup>379</sup> Disposal of Government Land Act, 1977. Cap. 268 of the Laws of Malta, Interpretation 7.

- “Encroachment terms are also allowed as regards to stretches of shore land as beach concessions”,<sup>380</sup> and
- “Government land situated on the sea shore on which a room or any other building has been built or which is being used for the siting of a caravan thereon may be transferred by title of lease for not more than ten years at a rent fixed, and shall revert back to the Government on the expiration of the lease”.<sup>381</sup>

Some additional laws related to land registration and administration are the following. The *Land Registration Act* (1982, Cap. 296) establishes a Land Registry to regulate the registration of title to land.<sup>382</sup> The *Reversion of Certain Lands Act* (2001, Cap. 432) makes provision for the restitution of land expropriated by virtue of the Building Development Areas Act.<sup>383</sup> The *Administration of Lands Act* (2002, Cap. 448) provides for all lands belonging to foundations and administration to be administered by the Government.<sup>384</sup>

### **Housing, Building and Development**

The *Housing Act* (1949, Cap. 125) is the first legal provision to secure living accommodation for all, and for ensuring a fair distribution of living accommodation and for the requisitioning of buildings.<sup>385</sup> The Housing Authority was established by means of the *Housing Authority Act* (1976, Cap. 261), which provides for the establishment and determination of functions of the Housing Authority, relating to housing, residential and commercial accommodation and other facilities and amenities.<sup>386,387</sup> The Housing Authority is responsible for the development, promotion and financing of the development and administration of housing estates and other residential and commercial accommodation and related facilities and amenities, the promotion of home ownership and the improvement of housing conditions in Malta. The Authority may acquire, hold, purchase, administer or dispose of any property both movable and immovable; develop any land for residential and commercial purposes; construct any property for residential or commercial purposes; provide schemes related to housing; administer, carry out structural repairs of residential and commercial accommodation; develop and embellish areas surrounding properties owned or administered by it, including public areas, gardens, recreational facilities and open spaces; carry out urban regeneration and landscaping; and carry out evictions and other law enforcement related to property owned or administered by it.<sup>388</sup>

The *Special Development Area Act* (1956, Cap. 149) provides the Government with the possibility of public acquisition of areas earmarked for development for a public purpose other than of town planning. The Minister responsible for public works can declare these Special Development

---

<sup>380</sup> Disposal of Government Land Act, 1977. Cap. 268 of the Laws of Malta, Interpretation 8.

<sup>381</sup> Disposal of Government Land Act, 1977. Cap. 268 of the Laws of Malta, Interpretation 12.

<sup>382</sup> Land Registration Act, 1982. Cap. 296 of the Laws of Malta.

<sup>383</sup> Reversion of Certain Lands Act, 2001. Cap. 432 of the Laws of Malta.

<sup>384</sup> Administration of Lands Act, 2002. Cap. 448 of the Laws of Malta.

<sup>385</sup> Housing Act, 1949. Cap. 125 of the Laws of Malta.

<sup>386</sup> Housing Authority Act, 1976. Cap. 261 of the Laws of Malta, Art. 3(1).

<sup>387</sup> Housing Authority Act, 1976. Cap. 261 of the Laws of Malta, Art. 4(1).

<sup>388</sup> Housing Authority Act, 1976. Cap. 261 of the Laws of Malta, Art. 4(2).

Areas.<sup>389</sup> It is not allowed to construct any building, increase the height of any existing building or do other work in these Special Development Areas and upon doing so the person will receive a notice to remove the same within ten days. In the event of the notice not being complied with, the works will be ordered to be removed at the expense of the person by whom the same was done without any compensation to that person.<sup>390</sup>

The *Building Regulation Act* (2011, Cap. 513) contains regulations related to the construction of buildings and other matters. The responsible authority is the Building Regulation Board.<sup>391</sup> The minister can, in consultation with the Board, make regulations in connection with any matter relating to building regulations.<sup>392</sup>

## Transport

The *Authority for Transport in Malta Act* (2010, Cap. 499) establishes the Authority for Transport in Malta, a recent body that combines the former Malta Transport Authority, Malta Maritime Authority and the Civil Aviation Department.<sup>393</sup> The Authority for Transport in Malta (Transport Malta; TM) is responsible for functions relating to transport by air, rail, road or sea, within ports and inland waters, and related to merchant shipping. The Government is responsible for determining Malta's policies and objectives in the transport sector.<sup>394</sup> The Authority's aims are to ensure that strategies, policies and activities are in accordance with the aims and objectives of national economic planning and national directives, and to give primary consideration to the impact of transport on the environment. The Government aims, through the Authority, to develop integrated transport policies; develop a sustainable public transport system; and promote Malta's maritime and civil aviation facilities, amongst others.<sup>395</sup> The Authority is in charge of granting licences, permits and other forms of authorisation related to transport matters. With respect to coastal zone management, some relevant functions of the Authority entail: to prohibit, control, and otherwise regulate the use by any person of any transport facility, including ports; to erect and maintain lighthouses, or other aids in any land, building, wharf, pier, or the shore or bed of the sea; to regulate transport by sea; and to exercise overall control for the preservation of good order in the territorial and internal waters of Malta, in any port and in the land and sea.<sup>396,397</sup>

There are several examples of subsidiary legislation to the Authority for Transport in Malta Act relevant to coastal zone management, such as:

- SL 499.01 Ports Regulations
- SL 499.03 Mooring Services Regulations

---

<sup>389</sup> Special Development Area Act, 1956. Cap. 149 of the Laws of Malta, Art. 3(1).

<sup>390</sup> Special Development Area Act, 1956. Cap. 149 of the Laws of Malta, Art. 7.

<sup>391</sup> Building Regulation Act, 2011. Cap. 513 of the Laws of Malta, Art. 3(1).

<sup>392</sup> Building Regulation Act, 2011. Cap. 513 of the Laws of Malta, Art. 6(1).

<sup>393</sup> Authority for Transport in Malta Act, 2010, Cap. 499 of the Laws of Malta, Art. 5(1).

<sup>394</sup> Authority for Transport in Malta Act, 2010, Cap. 499 of the Laws of Malta, Art. 4(1).

<sup>395</sup> Authority for Transport in Malta Act, 2010, Cap. 499 of the Laws of Malta, Art. 4(2).

<sup>396</sup> Authority for Transport in Malta Act, 2010, Cap. 499 of the Laws of Malta, Art. 6(6).

<sup>397</sup> Authority for Transport in Malta Act, 2010, Cap. 499 of the Laws of Malta, Art. 8.

- SL 499.10 Yachting Centres Regulations
- SL 499.11 Mooring of Small Ships and Boats Regulations
- SL 499.12 Dangerous Cargo Ships and Boats Regulations
- SL 499.13 Declaration of Port (Ras Hanzir) Order
- SL 499.30 Port Reception Facilities for Ship-generated Wastes and Cargo Residues Regulations
- SL 499.35 Ports Security Regulations
- SL 499.42 Ports (Handling of Baggage) Regulations
- SL 499.55 Small Ships Regulations
- SL 499.55 Water Taxi Services

### **Tourism and Cultural Heritage**

The *Malta Travel and Tourism Services Act* (1999, Cap. 409) makes provision for the promotion of tourism, for the regulation of tourism services and operations, and for the establishment of a responsible authority. The Malta Tourism Authority (MTA) is responsible for the promotion of Malta as a tourist destination; advising the Government on tourism operations, the planning and development of the tourism industry and the infrastructure supporting it; and the issuing, monitoring and controlling of the licensing and standards provided by tourism operations.<sup>398</sup>

There are several examples of subsidiary legislation to the Malta Travel and Tourism Services Act relevant to coastal zone management, such as:

- SL 409.04 Tourism Accommodation Establishments Regulations
- SL 409.11 Holiday Premises Regulations
- SL 409.13 Recreational Diving Services Regulations

The *Cultural Heritage Act* (2002, Cap. 445) provides for the conservation and management of cultural heritage, the establishment of a Superintendence of Cultural Heritage and the establishment of an operating Agency. Cultural heritage is understood as objects of artistic, architectural, historical, archaeological, ethnographic, paleontological and geological importance, and includes sites and deposits, landscapes and groups of buildings.<sup>399</sup> The Act vests in the State, together with every citizen and person present in Malta, the duty to protect cultural heritage, and the right to benefit from it. The duty to protect also includes the duty to encourage the sustainable use and maintenance of the cultural heritage resource, in accordance with the principles of integrated conservation.<sup>400</sup> It is stated in the Act that the protection, promotion and accessibility of the cultural heritage shall be given very high priority in deciding public policy in all fields of activities.<sup>401</sup> The Superintendence of Cultural Heritage, under the responsibility and management of the Superintendent of Cultural Heritage, is required to ensure the protection and accessibility of cultural heritage. The Superintendence is in charge of research in cultural heritage, control of cultural property, documentation and archiving of information, and excavations and explorations.

<sup>398</sup> Malta Travel and Tourism Services Act, 1999. Cap. 409 of the Laws of Malta, Art. 5(1).

<sup>399</sup> Cultural Heritage Act, 2002. Cap. 445 of the Laws of Malta, Art. 2.

<sup>400</sup> Cultural Heritage Act, 2002. Cap. 445 of the Laws of Malta, Art. 4.

<sup>401</sup> Cultural Heritage Act, 2002. Cap. 445 of the Laws of Malta, Art. 6.

Furthermore, they are responsible for the promotion of policies, standards and practices in the conservation and presentation of artefacts, collections, museums, buildings, monuments and sites. The Superintendence of Cultural Heritage has the obligation to advise and coordinate with the Planning Authority (MEPA) about safeguarding cultural heritage when considering applications for development permits related to objects, sites, buildings or landscapes that form part of cultural heritage. Archaeological or paleontological excavations or explorations on land, in the territorial waters or in the contiguous zone of Malta require permission from the Superintendent.<sup>402</sup>

The operating agency Heritage Malta (HM) is responsible for protecting cultural heritage, as well as for making it accessible to the public. The Agency is required to coordinate with the Malta Tourism Authority (MTA), the Planning Authority (MEPA) and other pertinent bodies with regards to measures to protect and make accessible objects, sites and buildings that form part of the cultural heritage, through any necessary conservation, maintenance, restoration, exhibition and promotion.<sup>403</sup> The Minister is responsible for the preparation of a policy document outlining the National Strategy for Cultural Heritage. For the preparation of this document the Minister shall consult with the Superintendence of Cultural Heritage, Heritage Malta, and other relevant agencies.<sup>404</sup> Where any development or other work is being carried out in respect of any cultural property in contravention of any of the provisions of this Act, or any person holding a licence to carry out archaeological excavations under this Act does not conform to any condition attached to such licence, the Superintendent may serve a suspension notice on them.<sup>405</sup> Under the Culture Heritage Act, a *List of Historical Trees having an Antiquarian Importance Order* (1933, SL 445.02) has been published, which makes provision for the protection of certain trees.<sup>406</sup>

## Industry

The *Malta Freeports Act* (1990, Cap. 334) provides for the establishment of a Freeport system in Malta and for the regulation of its operation.<sup>407</sup>

The *Ports and Shipping Act* (1991, Cap. 352) provides for the establishment of ports on the Maltese Islands and makes provisions for the registration and licensing of boats and ships and the use thereof within Malta's territorial waters. The Minister responsible for transport has the authority to declare any site a port, yachting centre, or approach to a port or yachting centre.<sup>408</sup>

The *Dockyard and Shipbuilding Yard (Restructuring) Act* (2003, Cap. 466) makes provisions for the restructuring of Malta Drydocks and the Marsa Shipbuilding Yard and provides guidance on the dockyard lease and transfer of Government land to any of the transferee companies.<sup>409</sup>

---

<sup>402</sup> Cultural Heritage Act, 2002. Cap. 445 of the Laws of Malta, Art. 7.

<sup>403</sup> Cultural Heritage Act, 2002. Cap. 445 of the Laws of Malta, Art. 8.

<sup>404</sup> Cultural Heritage Act, 2002. Cap. 445 of the Laws of Malta, Art. 12.

<sup>405</sup> Cultural Heritage Act, 2002. Cap. 445 of the Laws of Malta, Art. 46.

<sup>406</sup> List of Historical Trees having an Antiquarian Importance Order, 1933. SL 445.02 of the Laws of Malta, Art. 2.

<sup>407</sup> Malta Freeports Act, 1990. Cap. 334 of the Laws of Malta.

<sup>408</sup> Ports and Shipping Act, 1991. Cap. 352 of the Laws of Malta, Art. 3.

<sup>409</sup> Dockyard and Shipbuilding Yard (Restructuring) Act, 2003. Cap. 466 of the Laws of Malta.



The *Malta Film Commission Act* (2005, Cap. 478) makes provision for the promotion, development and support of the audiovisual industry, including the film servicing industry, in Malta. The Act establishes the Malta Film Commission to act as an advisory body to the Minister.<sup>410</sup> The Film Commissioner may acquire, sell, manage, dispose of or lease land, plant, machinery and equipment, and other property, and may develop and carry out works on land.<sup>411</sup>

### Natural Resources

The *Petroleum (Production) Act* (1958, Cap. 156) vests in the Government of Malta the property in petroleum and natural gas within Malta and makes provisions with respect to the searching, boring for and getting of petroleum and natural gas. The right of searching and boring for and getting petroleum and natural gas is subject to a licence granted under the provisions of this Act.<sup>412</sup> The Prime Minister may make regulations for regulating the exploration, prospecting and mining for petroleum in Malta.<sup>413</sup> The *Petroleum (Production) Regulations* (2001, SL 156.01) make provisions for the application for licences for petroleum production and exploration.<sup>414</sup>

The *Water Services Corporation Act* (1991, Cap. 355) provides for the establishment of the Water Services Corporation and its responsibility for the acquisition, transformation, manufacture, distribution and sale of potable and non-potable water, and the treatment, disposal or re-use of sewage and waste water, and re-use of storm water run-off.<sup>415, 416</sup> Furthermore, the Corporation is responsible for research and development in water desalination and polishing, sewage treatment disposal and re-use, water resources management and water catchment management.<sup>417</sup> The Corporation is not liable for any nuisance or damage caused by flooding arising from the action of naturally occurring storms, groundwater or the action of the sea.<sup>418</sup>

The *Malta Resources Authority Act* (2000, Cap. 423) provides for the establishment of the Malta Resources Authority responsible for water, energy and mineral resources. The Authority is responsible for, amongst others, the regulation and monitoring of all practices, operations and activities relating to energy, water and mineral resources; for granting licences, permits or other authorisation for the carrying out of any operation or activity relating to energy, water and mineral resources; for the establishment of measures for the protection of the environment and the promotion of efficient use of resources; and for advising the Minister on policy related to these matters.<sup>419</sup> In relation to water, the Authority will secure the conservation of water resources and the sources of water supply; secure the treatment, storage, disposal, use or re-use of sewage,

---

<sup>410</sup> Malta Film Commission Act, 2005. Cap. 478 of the Laws of Malta, Art. 3(1).

<sup>411</sup> Malta Film Commission Act, 2005. Cap. 478 of the Laws of Malta, Art. 6(3).

<sup>412</sup> Petroleum (Production) Act, 1958. Cap. 156 of the Laws of Malta, Art. 3.

<sup>413</sup> Petroleum (Production) Act, 1958. Cap. 156 of the Laws of Malta, Art. 5(1).

<sup>414</sup> Petroleum (Production) Regulations, 2001. SL 156.01 of the Laws of Malta, Art. 3.

<sup>415</sup> Water Services Corporation Act, 1991. Cap. 355 of the Laws of Malta, Art. 3(1).

<sup>416</sup> Water Services Corporation Act, 1991. Cap. 355 of the Laws of Malta, Art. 3(2).

<sup>417</sup> Water Services Corporation Act, 1991. Cap. 355 of the Laws of Malta, Art. 3(3).

<sup>418</sup> Water Services Corporation Act, 1991. Cap. 355 of the Laws of Malta, Art. 21(3).

<sup>419</sup> Malta Resources Authority Act, 2000. Cap. 423 of the Laws of Malta, Art. 4(1).



waste water, sludge and storm water run-off; secure and regulate the provision of adequate systems of public sewers; ensure the safe discharge, reception, treatment, re-use and disposal of trade effluent; ensure the proper and fit disposal of waste water sewage; and maximise the use of storm water run-off.<sup>420</sup>

There are several examples of subsidiary legislation to the Malta Resources Authority Act relevant to coastal zone management, such as:

- SL 423.20 Water Policy Framework Regulations
- SL 423.23 Water Supply and Sewerage Services Regulations
- SL 423.36 Protection of Groundwater against Pollution and Deterioration Regulations
- SL 423.41 Assessment and Management of Flood Risks Regulations
- SL 423.42 Bunkering (Authorisation) Regulations

### Marine environment

The *Continental Shelf Act* (1966, Cap. 194) defines Malta's continental shelf and vests any rights exercisable by Malta with respect to the continental shelf and its natural resources in the Government of Malta. It also contains regulations related to oil discharges or oil spills: "if any oil is discharged or escapes into any part of the sea the owner of the pipeline or, as the case may be, the person carrying on the operations shall be guilty of an offence".<sup>421</sup> Furthermore, it states that for the deposition or maintenance of submarine cables or pipelines under the high seas a licence, granted by the Prime Minister, is required.<sup>422</sup>

The *Territorial Waters and Contiguous Zone Act* (1971, Cap. 226) makes provisions for the territorial waters and the contiguous zone of Malta. The Act states that the territorial waters of Malta shall be all parts of the open sea within twelve nautical miles of the coast of Malta measured from low-water mark, and that the contiguous zone shall extend to twenty-four nautical miles from the same baselines.<sup>423,424</sup> For the purposes of the Fisheries Conservation and Management Act and of any other law relating to fishing, the territorial water of Malta shall extend to twenty-five nautical miles from the same baselines.<sup>425</sup> The Prime Minister can make regulations to control the passage of ships through Malta's territorial waters, and make provisions for matters such as: the designation or establishment of sea lanes and traffic separation schemes; the conservation of the living resources of the sea; and the preservation of the environment and the prevention, reduction and control of pollution thereof.<sup>426</sup> The *Ship-Source Pollution Regulations* (2008, SL 226.01) transposes the regulations of EU Directive 2005/35/EC on ship-source pollution and the introduction of penalties for infringements.<sup>427</sup>

<sup>420</sup> Malta Resources Authority Act, 2000. Cap. 423 of the Laws of Malta, Art. 4(2).

<sup>421</sup> Continental Shelf Act, 1966. Cap. 194 of the Laws of Malta, Art. 7(1).

<sup>422</sup> Continental Shelf Act, 1966. Cap. 194 of the Laws of Malta, Art. 8(1).

<sup>423</sup> Territorial Waters and Contiguous Zone Act, 1971. Cap. 226 of the Laws of Malta, Art. 3(1).

<sup>424</sup> Territorial Waters and Contiguous Zone Act, 1971. Cap. 226 of the Laws of Malta, Art. 4(2).

<sup>425</sup> Territorial Waters and Contiguous Zone Act, 1971. Cap. 226 of the Laws of Malta, Art. 3(2).

<sup>426</sup> Territorial Waters and Contiguous Zone Act, 1971. Cap. 226 of the Laws of Malta, Art. 7(1).

<sup>427</sup> Ship-Source Pollution Regulations, 2008. SL 226.01 of the Laws of Malta, Art. 3.

The *Marine Pollution (Prevention and Control) Act* (1977, Cap. 271) is aimed at the prevention and control of the pollution of the sea and to give effect to the provisions of international and regional conventions and protocols relating to the protection of the marine environment. The act states that anyone who discharges any oil, pollutant, or mixture containing oil or pollutant into the territorial waters of Malta shall be guilty of an offence.<sup>428</sup> It is possible to obtain a licence for dumping at sea, but in determining whether or not to grant the licence, the Minister shall have regard to any Convention on dumping in the sea to which Malta is a party and to the need to protect the marine environment and the living resources which it supports.<sup>429,430</sup> The Minister can charge public officers with ensuring compliance with this Act and with the terms and conditions of any licence granted, and may also make regulations, rules or orders, or give directions to enforce the provisions of this Act.<sup>431</sup>

The *Oil Pollution (Liability and Compensation) Act* (1999, Cap. 412) provides for Malta's accession to the Protocol of 1992 amending the International Convention on Civil Liability for Oil Pollution Damage (1969 Liability Convention) and the Protocol of 1992 amending the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (1971 Fund Convention), and for the implementation of the provisions of these Protocols. The Minister responsible for Shipping may make regulations, rules or orders, or give instructions, as are necessary for carrying into effect of the provisions of the Liability Convention or the Fund Convention.<sup>432</sup>

The *Fisheries Conservation and Management Act* (2001, Cap. 425) makes provision for the regulation, conservation and management of the fisheries of Malta. The fishing waters of Malta comprise the internal waters; the territorial waters and any other marine waters over which sovereign rights for the purpose of exploring and exploiting, conserving and managing the living resources therein are claimed by proclamation, law or convention, in Malta.<sup>433</sup> The Act establishes a Fisheries Board, which advises the Minister with regards to legislation and restricting or prohibiting measures for the fishing industry.<sup>434</sup> Permits are required for fishing within the fishing waters of Malta, as well as for installing or operating an aquaculture establishment. An aquaculture permit gives the permit holder exclusive rights to harvest the products of the aquaculture establishment within the area on land or sea, as specified in the permit.<sup>435</sup>

There are several examples of subsidiary legislation to the Fisheries Conservation and Management Act relevant to coastal zone management, such as:

- SL 425.01 Fishery Regulations

---

<sup>428</sup> Marine Pollution (Prevention and Control) Act, 1977. Cap. 271 of the Laws of Malta, Art. 4(1).

<sup>429</sup> Marine Pollution (Prevention and Control) Act, 1977. Cap. 271 of the Laws of Malta, Art. 21(1).

<sup>430</sup> Marine Pollution (Prevention and Control) Act, 1977. Cap. 271 of the Laws of Malta, Art. 22(1).

<sup>431</sup> Marine Pollution (Prevention and Control) Act, 1977. Cap. 271 of the Laws of Malta, Art. 23(1).

<sup>432</sup> Oil Pollution (Liability and Compensation) Act, 1999. Cap. 412 of the Laws of Malta, Art. 7(1).

<sup>433</sup> Fisheries Conservation and Management Act, 2001. Cap. 425 of the Laws of Malta, Art. 3.

<sup>434</sup> Fisheries Conservation and Management Act, 2001. Cap. 425 of the Laws of Malta, Art. 5.

<sup>435</sup> Fisheries Conservation and Management Act, 2001. Cap. 425 of the Laws of Malta, Art. 27(2).

- SL 425.06 Marine Vegetation Licence Regulations
- SL 425.07 Fishing Vessels Regulations

The *Fishing Waters (Designation) and Extended Maritime Jurisdiction Act* (2005, Cap. 479) makes special provision for the designation of fishing waters and the extension of maritime jurisdiction. The Prime Minister may by Order claim sovereign rights for Malta over marine water beyond the limits laid down in the Territorial Waters and Contiguous Zone Act, for the purpose of exploring and exploiting, conserving and managing the living and, or non-living natural resources therein.<sup>436</sup> Furthermore, the Prime Minister can, by Order, provide for the exercise of jurisdiction beyond the territorial waters of Malta with regards to the establishment and use of artificial islands, installations and structures; marine scientific research; and the protection and preservation of the maritime environment.<sup>437</sup>

### Code of Police Laws

The Malta Police Force is one of the oldest police forces in Europe and dates back to the early 19<sup>th</sup> century.<sup>438</sup> The *Code of Police Laws* (1854, Cap. 10) were set up halfway the same century in order to provide the legal basis for the operation of the Police Force. Section XX on Territorial waters, Harbours and Wharves and section XXVI on General Provisions, contain provisions covering unlawful activities in and around the coastal zone:

- “Anyone who discharges oil, pollutant, or mixture containing oil or pollutant into the territorial waters, harbours or internal waters of Malta shall be guilty of an offence”;<sup>439</sup>
- “When in offence of throwing or dumping rubbish, refuse, litter or liquid sufficient to lead to defacement of any place in the open air or of the coastal waters, an offender shall be liable, on conviction, to a fine”;<sup>440</sup>
- “To allow any animal to approach any part of the seashore where any person is bathing, unless such a place is expressly set apart for animals”;<sup>441</sup>
- “To hold any regatta, any public entertainment, or show fireworks, or discharge a firearm in the harbour, without a licence from the Commissioner of Police, after consent of the Authority for Transport”;<sup>442</sup> and
- “No person shall leave in any harbour or wharf anything which may cause injury to public health or nuisance”.<sup>443</sup>

---

<sup>436</sup> Fishing Waters (Designation) and Extended Maritime Jurisdiction Act, 2005. Cap. 479 of the Laws of Malta, Art. 2(1).

<sup>437</sup> Fishing Waters (Designation) and Extended Maritime Jurisdiction Act, 2005. Cap. 479 of the Laws of Malta, Art. 2(2).

<sup>438</sup> Description of the history of the Malta Police Force on the website of the Ministry of Home Affairs and National Security. Retrieved from: <https://mhas.gov.mt/en/MHAS-Departments/Malta-Police-Force/Pages/History-of-the-Malta-Police.aspx>

<sup>439</sup> Code of Police Laws, 1854. Cap. 10 of the Laws of Malta, Art. 228.

<sup>440</sup> Code of Police Laws, 1854. Cap. 10 of the Laws of Malta, Art. 319(2)(c).

<sup>441</sup> Code of Police Laws, 1854. Cap. 10 of the Laws of Malta, Art. 225(1).

<sup>442</sup> Code of Police Laws, 1854. Cap. 10 of the Laws of Malta, Art. 226.

<sup>443</sup> Code of Police Laws, 1854. Cap. 10 of the Laws of Malta, Art. 227.

There are several examples of subsidiary legislation to the Code of Police Laws relevant to coastal zone management, such as:

- SL 10.12 Fishery Regulations
- SL 10.15 Protection of Birds Regulations
- SL 10.22 Conifer Trees (Preservation) Regulations
- SL 10.23 Mechanically Driven Boats (Passengers and Cargo) Regulations
- SL 10.26 Bathing of Animal Regulations
- SL 10.30 Berthing Regulations

### **The Local Councils Act**

The *Local Councils Act* (1993, Cap. 363) makes provisions for the setting up of Local Councils. The Act states that every locality shall have a Council; a statutory local government authority, in charge of, amongst others: providing for the upkeep of streets and public gardens; provide for the collection of refuse; make recommendations to any competent authority for or in relation to any planning or building scheme; promote social policy initiatives; and protect the natural and urban environment of the locality and take all necessary measures to ensure the more efficient use of energy, good waste management and climate change initiatives.<sup>444</sup>

---

<sup>444</sup> Local Councils Act, 1993. Cap. 363 of the Laws of Malta, Art. 33(1).

# **APPENDIX C**

## **Overview of Maltese institutions within the scope of coastal zone management**

Overview of Maltese institutions (incoming government; 2013) within the scope of coastal zone management

Name	Main relevant responsibilities and activities	Law granting power	Policies and plans	Website
Government and ministries				
Government of Malta	Responsibilities: <ul style="list-style-type: none"> <li>○ Exploration and exploitation of the continental shelf</li> <li>○ Protect the environment</li> <li>○ Property in petroleum</li> </ul>	Art. 3(1), Continental Shelf Act (1966);  Art. 3 and 4, Environment and Development Planning Act (2010)  Art. 3, Petroleum (Production) Act (1958)		<a href="http://www.gov.mt">http://www.gov.mt</a>

Name	Main relevant responsibilities and activities	Law granting power	Policies and plans	Website
Office of the Prime Minister	<p>Responsibilities:</p> <ul style="list-style-type: none"> <li>○ Strategic Policy Coordination;</li> <li>○ Coordination of Planning, Policy and Priorities</li> <li>○ Sustainable Development Strategy</li> <li>○ Marine Policy Framework</li> <li>○ Passage of ships through Malta's territorial waters</li> </ul> <p>Entities:</p> <ul style="list-style-type: none"> <li>○ Malta Environment and Planning Authority</li> <li>○ Lands Department</li> <li>○ Centre for Development, Research and Training</li> <li>○ SEA Focal Point</li> </ul>	<p>Art. 4, Sustainable Development Act (2012)</p> <p>Art. 7, Territorial Waters and Contiguous Zone Act (1971)</p> <p>Art. 2, Marine Policy Framework Regulations (2011)</p>		<p><a href="http://www.opm.gov.mt">www.opm.gov.mt</a></p>



Name	Main relevant responsibilities and activities	Law granting power	Policies and plans	Website
Ministry for Tourism	<p>Responsibilities:</p> <ul style="list-style-type: none"> <li>○ Tourism</li> <li>○ Tourism Studies</li> <li>○ Cultural Heritage</li> <li>○ Restoration</li> <li>○ External Transport</li> <li>○ Airport</li> <li>○ Valletta 2018</li> <li>○ Local Government</li> </ul> <p>Entities:</p> <ul style="list-style-type: none"> <li>○ Malta Tourism Authority</li> <li>○ Heritage Malta</li> <li>○ Superintendence of Cultural Heritage</li> </ul>			
Ministry for European Affairs and Implementation of the Electoral Manifesto	<p>Responsibilities:</p> <ul style="list-style-type: none"> <li>○ Relations with the EU</li> <li>○ EU Internal Coordination</li> <li>○ EU Funds and Programmes</li> </ul>			

Name	Main relevant responsibilities and activities	Law granting power	Policies and plans	Website
Ministry for Sustainable Development , the Environment and Climate Change	<p>Responsibilities:</p> <ul style="list-style-type: none"> <li>○ Climate Change Policy</li> <li>○ Environmental Policy</li> <li>○ Waste Management Strategy</li> <li>○ National Parks, Afforestation, and the Countryside</li> <li>○ Rural Development</li> <li>○ Agriculture &amp; Horticulture</li> <li>○ Fisheries &amp; Aquaculture</li> </ul> <p>Entities:</p> <ul style="list-style-type: none"> <li>○ WasteServ Malta Ltd</li> <li>○ Strategic Environmental Assessment Audit Team</li> <li>○ Majjistral Park Management Board</li> <li>○ Integrated Pollution Prevention and Control Committee</li> </ul>	Art. 8(1), Fertile Soil (Preservation) Act (1973)		<a href="http://msdec.gov.mt">http://msdec.gov.mt</a>

Name	Main relevant responsibilities and activities	Law granting power	Policies and plans	Website
Ministry for Transport and Infrastructure	<p>Responsibilities:</p> <ul style="list-style-type: none"> <li>○ Construction and Maintenance</li> <li>○ Coordination of Major Government Projects</li> <li>○ Internal Transport</li> <li>○ Roads</li> <li>○ Coordination of Road Building</li> <li>○ Maintenance and Landscaping</li> <li>○ Oil Exploration</li> </ul> <p>Entities:</p> <ul style="list-style-type: none"> <li>○ Transport Malta</li> </ul>	<p>Art. 6(1), Building Regulations Act, 2011</p> <p>Art. 7(1), Oil Pollution (Liability and Compensation) Act (1999)</p> <p>Art. 4, Sand (Preservation) Act (1949)</p>		
Ministry for Energy and the Conservation of Water	<p>Responsibilities:</p> <ul style="list-style-type: none"> <li>○ Energy Policy</li> <li>○ Water Policy</li> <li>○ Development of Alternative Energy Sources</li> </ul> <p>Entities:</p> <ul style="list-style-type: none"> <li>○ Malta Resources Authority</li> <li>○ Enemalta Corporation</li> <li>○ Water Services Corporation</li> </ul>			<a href="http://mewc.gov.mt">http://mewc.gov.mt</a>

Name	Main relevant responsibilities and activities	Law granting power	Policies and plans	Website
Ministry for Health	Responsibilities: <ul style="list-style-type: none"> <li>○ Health Services</li> <li>○ Occupational Health and Safety</li> <li>○ Health Services Regulations and Standards</li> </ul>			<a href="http://sahha.gov.mt">http://sahha.gov.mt</a>
Ministry for the Economy, Investment and Small Business	Responsibilities: <ul style="list-style-type: none"> <li>○ Industry</li> <li>○ Government Investments</li> <li>○ Ports</li> <li>○ Maritime Affairs</li> <li>○ External trade &amp; Trade services</li> </ul> Entities: <ul style="list-style-type: none"> <li>○ Malta Enterprise</li> <li>○ MIMCOL</li> <li>○ Malta Freeport Cooperation</li> <li>○ Government Property Department</li> <li>○ Privatisation Unit</li> </ul>			<a href="http://www.meib.gov.mt">http://www.meib.gov.mt</a>
Ministry for Finance	Responsibilities: <ul style="list-style-type: none"> <li>○ Economic Policy</li> <li>○ Contracts</li> <li>○ Customs and Excise</li> </ul>			<a href="http://mfin.gov.mt">http://mfin.gov.mt</a>

Name	Main relevant responsibilities and activities	Law granting power	Policies and plans	Website
Ministry for Foreign Affairs	Responsibilities: <ul style="list-style-type: none"> <li>○ Relations with Foreign and Commonwealth Countries</li> <li>○ Relations with International Organisations and Institutions</li> <li>○ International Economic Relations</li> </ul>			<a href="http://www.foreign.gov.mt">http://www.foreign.gov.mt</a>
Ministry for Social Dialogue, Consumer Affairs and Civil Liberties	Responsibilities: <ul style="list-style-type: none"> <li>○ Social dialogue</li> <li>○ Civil liberties</li> <li>○ Equality</li> <li>○ Non-governmental and Voluntary organisations</li> <li>○ Industrial and employment relations</li> <li>○ Competition and consumer affairs</li> </ul> Entities: <ul style="list-style-type: none"> <li>○ Malta Council for the Voluntary Sector</li> <li>○ Malta EU Steering and Action Committee</li> <li>○ Malta Council for Economic and Social Development</li> </ul>			<a href="https://mfcc.cms.gov.mt">https://mfcc.cms.gov.mt</a>

Name	Main relevant responsibilities and activities	Law granting power	Policies and plans	Website
Ministry for Family and Social Solidarity	Responsibilities: <ul style="list-style-type: none"><li>○ Social Housing</li><li>○ Social Policy</li></ul> Entities: <ul style="list-style-type: none"><li>○ Malta Housing Authority</li></ul>			<a href="http://mfss.gov.mt">http://mfss.gov.mt</a>

Name	Main relevant responsibilities and activities	Law granting power	Policies and plans	Website
Ministry for Education and Employment	<p>Responsibilities:</p> <ul style="list-style-type: none"><li>○ Education</li><li>○ Employment and Training</li><li>○ Research and Innovation</li><li>○ Science and Technology Policy</li></ul> <p>Entities:</p> <ul style="list-style-type: none"><li>○ Employment and Training Corporation</li></ul>			<a href="https://www.education.gov.mt">https://www.education.gov.mt</a>



Name	Main relevant responsibilities and activities	Law granting power	Policies and plans	Website
Public authorities				
Malta Resources Authority	<p>Sectors:</p> <ul style="list-style-type: none"> <li>○ Water</li> <li>○ Energy</li> <li>○ Mineral resources</li> </ul> <p>Responsibilities:</p> <ul style="list-style-type: none"> <li>○ Regulation of water and energy utilities</li> <li>○ Regulation of industrial enterprises exploiting resources (e.g. oil, stone)</li> <li>○ Regulation of groundwater abstraction</li> <li>○ Regulation of retailers, operators and tradesmen in the regulated sectors</li> </ul>	<p>Art. 3(1), Malta Resources Authority Act (2000);</p> <p>Designated authority to be consulted in SEA process, Art. 7(3), Strategic Environmental Assessment Regulations, 2010).</p>	<p>Water Catchment Management Plan for the Maltese Islands (with MEPA, 2011)</p>	<p><a href="http://www.mra.org.mt">www.mra.org.mt</a></p>

Name	Main relevant responsibilities and activities	Law granting power	Policies and plans	Website
Malta Environment & Planning Authority (MEPA)	<p>Responsibilities:</p> <ul style="list-style-type: none"> <li>○ Strategic plans</li> <li>○ Local plans</li> <li>○ Development permits</li> <li>○ Environmental Impact Assessments</li> <li>○ National focal point for a number of international environment conventions and agreements, including the Aarhus Convention</li> </ul> <p>Boards and committees:</p> <ul style="list-style-type: none"> <li>○ MEPA board</li> <li>○ Environment and Planning Commissions</li> <li>○ Heritage Advisory Committee</li> <li>○ Environment and Planning Review Tribunal</li> <li>○ IPPC Committee</li> <li>○ Biosafety Coordinating Committee</li> <li>○ Urban Improvement Fund (UIF) Committee</li> <li>○ Users Committee</li> </ul>	<p>Art. 6(1), Environment and Development Planning Act (2010);</p> <p>Art. 3(1), Environmental Impact Assessment Regulations (2007);</p> <p>Art. 4, Flora, Fauna and Natural Habitats Protection Regulations (2006)</p> <p>Designated authority to be consulted in SEA process, Art. 7(3), Strategic Environmental Assessment Regulations, 2010).</p>	<p>Structure Plan (1992); Coastal Strategy Topic Paper (2002); Water Catchment Management Plan for the Maltese Islands (with MRA, 2011); Local Plans</p>	<p><a href="http://www.mepa.org.mt">www.mepa.org.mt</a></p>

Name	Main relevant responsibilities and activities	Law granting power	Policies and plans	Website
National Commission for Sustainable Development (NCSD)	<p>NCSD was set up in 2002 by the Government in terms of the Environment Protection Act to prepare a National Strategy for Sustainable Development (2006).</p> <p>Responsibilities:</p> <ul style="list-style-type: none"> <li>○ Advocate national sustainable development across all sectors</li> <li>○ Review progress in the achievement of sustainable development</li> <li>○ Build consensus on action needed to achieve further progress</li> </ul>		<p>A Sustainable Development Strategy for the Maltese Islands</p> <p>2007-2016</p>	<p><a href="http://www.mepa.org.mt/sustainabledevelopment">http://www.mepa.org.mt/sustainabledevelopment</a></p>
SEA Focal Point	<p>The SEA Focal Point is the Competent Authority for the Strategic Environmental Assessment.</p>	<p>Art. 4(1), Strategic Environmental Assessment Regulations (2010)</p>		<p><a href="http://www.sea.gov.mt">www.sea.gov.mt</a></p>

Name	Main relevant responsibilities and activities	Law granting power	Policies and plans	Website
Tourism and Sustainable Development Unit (TSDU)	Responsibilities: <ul style="list-style-type: none"> <li>○ EU affairs relating to tourism, environment and sustainable development</li> <li>○ Policy development in these areas</li> <li>○ Offer guidance to the Malta Tourism Authority in EU related matters</li> <li>○ EU co-financed scheme for sustainable tourism projects</li> <li>○ Focal point for the EU LIFE environment programme</li> </ul>		Tourism Policy for the Maltese Islands 2012-2016 (2012); National Environment Policy (2012)	<a href="http://tourism.gov.mt">http://tourism.gov.mt</a>
Superintendence of Cultural Heritage	Responsibilities: <ul style="list-style-type: none"> <li>○ Protect and make accessible Malta's cultural heritage</li> <li>○ Research in cultural heritage</li> <li>○ Control of cultural property</li> <li>○ Documentation and archiving of information</li> <li>○ Excavations and explorations</li> <li>○ Promotion of policies, standards and practices in the conservation and presentation of cultural heritage</li> </ul>	Art. 7(1), Cultural Heritage Act (2002)		<a href="http://www.culturalheritage.gov.mt">www.culturalheritage.gov.mt</a>

Name	Main relevant responsibilities and activities	Law granting power	Policies and plans	Website
Malta Tourism Authority	Responsibilities: <ul style="list-style-type: none"> <li>○ Creating and fostering relationships in the tourism industry</li> <li>○ Regulation and motivating the tourism industry</li> <li>○ Strengthen the industry's human resources</li> <li>○ Ensuring high standards and quality of the Islands' tourism product</li> <li>○ Foster relations with local and international media</li> </ul>	Art. 3(1), Malta Travel and Tourism Service Act (1999)	Tourism Policy for the Maltese Islands 2012-2016	<a href="http://www.mta.com.mt">www.mta.com.mt</a>
Fish and Farming Regulation and Control	Responsibilities: <ul style="list-style-type: none"> <li>○ Regulation, surveillance and control of fisheries and veterinary matters</li> <li>○ Guarantee the wholesomeness of food of animal origin</li> <li>○ Safeguard the state of health and welfare of animals</li> <li>○ Regulate fisheries and aquaculture to ensure sustainability</li> </ul>	Art. 5, Fisheries Conservation and Management Act (2001)		<a href="http://vafd.gov.mt">http://vafd.gov.mt</a>

Name	Main relevant responsibilities and activities	Law granting power	Policies and plans	Website
Heritage Malta	<p>The national agency for museums, conservation practice and cultural heritage.</p> <p>Responsibilities:</p> <ul style="list-style-type: none"> <li>○ Management of museums, sites and their collections</li> <li>○ National agency responsible for conservation through the Malta Centre for Restoration</li> </ul>	Art. 8(1), Cultural Heritage Act (2002)	HM 2011 Annual Report (2011)	<a href="http://www.heritagemalta.org">www.heritagemalta.org</a>
Transport Malta	<p>Responsibilities:</p> <ul style="list-style-type: none"> <li>○ Aviation</li> <li>○ Land Transport</li> <li>○ Ports &amp; Marinas</li> <li>○ Roads &amp; Infrastructure</li> <li>○ Ship &amp; superyacht registration</li> <li>○ Transport strategies</li> </ul>	Art. 5(1), Authority for Transport in Malta Act (2009)		<a href="http://www.transport.gov.mt">www.transport.gov.mt</a>

Name	Main relevant responsibilities and activities	Law granting power	Policies and plans	Website
Government Property Department	<p>Responsibilities:</p> <ul style="list-style-type: none"> <li>○ Promote the effective and profitable use of government owned immovable property</li> </ul> <p>Entities:</p> <ul style="list-style-type: none"> <li>○ Commissioner of Land</li> <li>○ Land Directorate</li> </ul>	<p>Art. 5, Land Acquisition (Public Purposes) Ordinance (1935);</p> <p>Art. 3(1), Land (Compulsory Eviction) Act (1972);</p> <p>Art. 3(1), Land Registration Act (1982)</p>		<a href="http://www.gpd.gov.mt">http://www.gpd.gov.mt</a>
Malta Housing Authority	<p>Responsibilities:</p> <ul style="list-style-type: none"> <li>○ Develop, promote and finance the development of housing estates and other residential and commercial accommodation and related facilities</li> <li>○ Administer housing estates and other residential and commercial accommodation and related facilities</li> <li>○ Promote and finance home ownership</li> <li>○ Improve housing conditions in Malta</li> </ul>	<p>Art. 3(1), Housing Authority Act (1976)</p>		<a href="http://www.housingauthority.com.mt">www.housingauthority.com.mt</a>



Name	Main relevant responsibilities and activities	Law granting power	Policies and plans	Website
Malta Film Commission	Responsibilities: <ul style="list-style-type: none"> <li>○ Advising the Minister responsible for the film sector on policies pertaining to the promotion, development and support of the audiovisual and film servicing industry</li> </ul>	Art. 3(1), Malta Film Commission Act (2005)		<a href="http://www.mfc.com.mt">http://www.mfc.com.mt</a>
Civil Protection Department (CPD)	Responsibilities: <ul style="list-style-type: none"> <li>○ Safeguard human lives, property and the environment</li> </ul>	Art. 3, Civil Protection Act (1999)		<a href="https://gov.mt/en/Services-And-Information/Business-Areas/Law%20Enforcement/Pages/Civil-Protection-Department.aspx">https://gov.mt/en/Services-And-Information/Business-Areas/Law%20Enforcement/Pages/Civil-Protection-Department.aspx</a>

Name	Main relevant responsibilities and activities	Law granting power	Policies and plans	Website
Occupational Health and Safety Authority	Responsibilities: <ul style="list-style-type: none"> <li>○ Collaborate with persons, employers, workers, constituted bodies, and international organisations, in order to gather feedback on policies, generate commitment and obtain consensus to ensure healthier and safer workplaces in Malta</li> </ul>		Occupational Health and Safety Authority Act (2000)	<a href="http://www.ohsa.org.mt">http://www.ohsa.org.mt</a>
Local Council Association	Responsibilities: <ul style="list-style-type: none"> <li>○ Representing all the Local Councils to protect and promote their common interests</li> <li>○ Represent all Local Councils in Malta and overseas, and on international associations of local government authorities</li> <li>○ Offering consultancy services and trainings</li> </ul>	Art. 37(3), Local Councils Act (1993)		<a href="http://www.lca.org.mt">www.lca.org.mt</a>

Name	Main relevant responsibilities and activities	Law granting power	Policies and plans	Website
Freedom of Information Co-ordinating Unit (FOICU)	Responsibilities: <ul style="list-style-type: none"> <li>○ Implement the FOI (Freedom of Information) Act.</li> <li>○ Act as a core support group for the FOI Officers</li> <li>○ Co-ordinate the implementation of the Act through Principal FOI Officers to provide general direction and guidelines</li> <li>○ Maintain a service-wide IT system</li> <li>○ Carry out training as necessary</li> <li>○ Chair the FOI Forum and the FOI Network</li> </ul>			<a href="http://foi.gov.mt">http://foi.gov.mt</a>
Malta Council for the Voluntary Sector	Responsibilities: <ul style="list-style-type: none"> <li>○ Supporting the development of a more effective and efficient voluntary and community sector in Malta</li> <li>○ Offering support and capacity building services, including information, advice and training</li> </ul>	Art. 35, Voluntary Organisations Act (2007)		<a href="http://volontarjat.com">http://volontarjat.com</a>

Name	Main relevant responsibilities and activities	Law granting power	Policies and plans	Website
Armed Forces of Malta (AFM)	<p>Responsibilities:</p> <ul style="list-style-type: none"> <li>○ Enforcement of regulations regarding maritime transport and zoning regulations within bays and territorial waters</li> <li>○ Coastal Patrols Border Security</li> <li>○ Control of fishing activities in the fisheries conservation zone</li> <li>○ Enforcement of Acts and Regulations administered by other Government Agencies</li> <li>○ Detection of illegalities around the coastal waters</li> <li>○ Search and Rescue</li> <li>○ Control of Immigration</li> <li>○ Detection of pollution incidents such as oil pollution</li> </ul>	Territorial Waters and Contiguous Zone Act (1971)		<a href="http://www.afm.gov.mt">http://www.afm.gov.mt</a>
Police Department	<p>Responsibilities:</p> <ul style="list-style-type: none"> <li>● Control of illegal activities on the land side of the coast</li> <li>● Control of hunting laws, including at sea</li> </ul> <p>Entities:</p> <ul style="list-style-type: none"> <li>○ Administrative Law Enforcement (ALE)</li> </ul>	Code of Police Laws (1854)		<a href="http://www.mpa.org.mt/">http://www.mpa.org.mt/</a>

Name	Main relevant responsibilities and activities	Law granting power	Policies and plans	Website
Public-private partnerships				
Malta Enterprise / Malta Industrial Parks Ltd.	<p>Malta Enterprise (ME) is the national development agency responsible for promoting and facilitating international investment in the Maltese Islands by offering investors excellent business opportunities and tailored services.</p> <p>Responsibilities (together with Malta Industrial Parks Ltd):</p> <ul style="list-style-type: none"> <li>○ Administration and maintenance of various industrial estates and the factories located within</li> </ul>			<a href="http://www.maltaenterprise.com/en">www.maltaenterprise.com/en</a>
Grand Harbour Regeneration Corporation	<p>Responsibilities:</p> <ul style="list-style-type: none"> <li>○ Formulate and co-ordinate strategies and projects for the regeneration and development of the Grand Harbour</li> <li>○ Actively promote the implementation of the selected projects</li> </ul>			<a href="http://ghrc.gov.mt">http://ghrc.gov.mt</a>

Name	Main relevant responsibilities and activities	Law granting power	Policies and plans	Website
Water Services Corporation (WSC)	Responsibilities: <ul style="list-style-type: none"> <li>○ Produce and distribute potable water in the Maltese Islands</li> <li>○ Taking care of the complete water cycle, from production in the reverse osmosis plants and abstraction from groundwater to safe disposal of waste water</li> </ul>	Art. 3, Water Services Corporation Act (1991)		<a href="http://www.wsc.com.mt">http://www.wsc.com.mt</a>
EneMalta	Responsibilities: <ul style="list-style-type: none"> <li>○ Providing and distributing energy</li> <li>○ Importing and distributing petroleum products</li> <li>○ Generating and distributing electricity</li> </ul>			<a href="http://www.enemalta.com.mt">www.enemalta.com.mt</a>
MIMCOL (Malta Investment Management Company Ltd.)	Following the setting up of the Grand Harbour Regeneration Corporation (GHRC) in August 2007, MIMCOL was entrusted to take the role of the company's executive arm, particularly to assist in the various areas of planning and implementation of projects identified by GHRC. In the last five years term MIMCOL has been monitoring all of GHRC's long term projects for the Marsamxett/ Grand Harbour and their immediate environs.			<a href="http://mimcol.com.mt">http://mimcol.com.mt</a>

Name	Main relevant responsibilities and activities	Law granting power	Policies and plans	Website
Environmental Landscaping Consortium (ELC)	Responsibilities: <ul style="list-style-type: none"> <li>○ Landscaping and general maintenance of public areas and gardens in Malta</li> <li>○ Wied Incita Tree and Plant Nursery</li> </ul>			<a href="http://elcmalta.com">http://elcmalta.com</a>
Malta Hotel and Restaurant Association	Activities: <ul style="list-style-type: none"> <li>○ Representing interests of hotel &amp; restaurant business</li> <li>○ Uniting people who own a hotel or restaurant</li> <li>○ Promote and safeguard the interests of the hotel and catering industries</li> </ul>			<a href="http://www.mhra.org.mt">http://www.mhra.org.mt</a>
Private sector				
Palumbo Shipyards	Operates Dock 2 until Dock 8, located along the coastline of Isla, Bormla and Paola (Kordin).			<a href="http://www.palumbo.it">http://www.palumbo.it</a>
Malta Developers Association	A central organization for real estate developers to the relevant state authorities and to customers through initiatives and activities.			<a href="http://mda.com.mt">http://mda.com.mt</a>



Name	Main relevant responsibilities and activities	Law granting power	Policies and plans	Website
Malta Freeport Corporation	Activities: <ul style="list-style-type: none"> <li>○ Operating a container terminal, by Malta Freeport Terminals</li> <li>○ Operating an oil terminal, by Oiltanking Malta</li> <li>○ Operating a logistics base for offshore oil &amp; gas industry, by Medserv</li> <li>○ Warehousing, operated by a number of different tenants</li> </ul>			Error! Hyperlink reference not valid.
Research institutes				
Euro-Mediterranean Centre on Insular Coastal Dynamics (ICoD)	The Euro-Mediterranean Centre on Insular Coastal Dynamics (ICoD) forms part of a network of specialised Centres pertaining to the EUR-OPA Major Hazards Agreement of the Council of Europe. EUR-OPA is a platform for co-operation between European and Southern Mediterranean countries in the field of major natural and technological disasters. Part of the Institute of Earth Systems, University of Malta.			<a href="http://www.um.edu.mt">www.um.edu u.mt</a>

Name	Main relevant responsibilities and activities	Law granting power	Policies and plans	Website
International Ocean Institute (IOI-MOC)	Activities: <ul style="list-style-type: none"> <li>○ Promoting education, training and research to enhance the peaceful uses of ocean space and its resources</li> <li>○ Management and regulation of ocean space and resources</li> <li>○ Protection and conservation of the marine environment</li> </ul>			<a href="http://www.copemalta.net/ioimoc">http://www.copemalta.net/ioimoc</a>
Civil society				
The Gaia Foundation	NGO working on environmental issues. Manages two ICZM projects, one at Ghajn Tuffieha beach on Malta, and one at Ramla l-Hamra beach on Gozo. Set up and runs a tree nursery with endemic species.			<a href="http://www.projectgaia.org">http://www.projectgaia.org</a>
FAA	NGO working on environmental issues, land use planning and cultural heritage.			<a href="http://faa.org.mt">http://faa.org.mt</a>
Din L-Art Helwa	NGO working on the protection of cultural heritage			<a href="http://dinlarthelwa.org">http://dinlarthelwa.org</a>

Name	Main relevant responsibilities and activities	Law granting power	Policies and plans	Website
Malta Business Bureau	A non-profit organisation acting as the EU-business advisory office for the Malta Chamber of Commerce, Enterprise and Industry, and the Malta Hotels and Restaurants Association.			<a href="http://www.mbb.org.mt">www.mbb.org.mt</a>
Fondazzjoni Wirt Artna	NGO working on the protection of military heritage.			<a href="http://www.wirtartna.org">http://www.wirtartna.org</a>
BirdLife Malta	NGO working on the the protection of birds and natural habitats in Malta. Manages three nature reserves on the island: Is-Simar and Ghadira Nature Reserve, where wetland ecosystems have been restored, and Foresta 2000, an afforestation project.			<a href="http://www.birdlifemalta.org">http://www.birdlifemalta.org</a>
Nature Trust	NGO working on nature conservation and environmental education. Manages different nature parks: Wied Għollieqa Nature Reserve, Xrobb L-Għagin Nature Park, Marsaxlokk Nature Reserve, Pembroke Natura 2000, and Majjistral Park.			<a href="http://www.naturetrustmalta.org">http://www.naturetrustmalta.org</a>
Friends of the Earth Malta	NGO promoting sustainable development.			<a href="http://www.foemalta.org">http://www.foemalta.org</a>

Name	Main relevant responsibilities and activities	Law granting power	Policies and plans	Website
Ramblers Association of Malta (RAM)	NGO to promote walking in the countryside and campaigns for public footpaths and access to the countryside.			<a href="http://www.ramblersmalta.org">http://www.ramblersmalta.org</a>
Malta Water Association	NGO promoting water conservation and management.			<a href="http://www.maltawater.org">http://www.maltawater.org</a>
Fish for Tomorrow (F4T)	NGO project promoting sustainable fisheries.			<a href="https://www.facebook.com/fish4tomorrow">https://www.facebook.com/fish4tomorrow</a>

# **APPENDIX D**

## **Structure Plan Policies - Malta**

The following excerpts have been taken from the **Structure Plan for the Maltese Islands:**<sup>i</sup>

- **POLICY SET 11:** No form of **urban development** will be permitted outside existing and committed built-up areas, and primary development areas as designated in the Structure Plan even where roads and public utilities are available. Permitted forms of non urban development outside such areas are restricted to the categories referred to in Paragraph 7.6 (p.38).
- **POLICY SET 12:** Notwithstanding the policy against any form of urbanization outside areas designated for urban uses in the Structure Plan, **the Planning Authority will consider applications for permission to develop which ostensibly infringe Policy SET 11.** In any such case the onus will be on the applicant to present evidence as to why the policy should be infringed, giving reasons why from a planning point of view such proposed use cannot be located in areas designated for development. The Planning Authority will additionally require the applicant to submit at his own expense a full Environmental Impact Assessment of a form and content satisfactory to the Authority. This policy is not a means of evading policy SET 11 or any other policy. An Environmental Impact Assessment which adequately demonstrates acceptable impacts will not be a reason for the granting of a development permit if the proposed use can be located in an area intended for its development under the Structure Plan or any subsequent approved Planning Authority document (p.38).
- **POLICY BEN 5:** Applications for development permits outside urban areas will be judged against the policies and design guidelines of the Local Plans for Rural Conservation Areas, and in the interim period, to Structure Plan policies and the guidelines contained in the Explanatory Memorandum (p.41).
- **POLICY HOU 1:** In accordance with Policy SET 1, the development and redevelopment of residential uses in existing built-up areas will be encouraged with a view to increasing the housing stock in such locations, but within the priority constraints set out in Policy SET 7 (p.47).
- **POLICY HOU 2:** Within Urban Conservation Areas as designated under Policy UCO 1 the main consideration will be the overall retention of existing housing numbers, reoccupation of vacant and underutilised dwellings, conversions to residential use and suitable ancilliary facilities, and the enhancement of their environmental context in accordance with Policy SET 6 (p.47).
- **POLICY HOU 3:** The Local Plans to be prepared for all built-up areas will include specific policies for the development and redevelopment of residential property and will include mandatory rules and advisory guidelines concerning densities, building heights, design, and parking and other standards appropriate to particular localities. Until these Plans have been completed and adopted, Structure Plan policies and guidelines will be applicable. Whilst the practice of land banking for later development is prudent and acceptable, it shall be discouraged in areas which are ripe for development (See paragraph 17.8, item 5) (p.47).
- **POLICY HOU 4:** In Temporary Provisions areas the provision of housing will be in accordance with the Local Plans for such areas when these have been completed and adopted. Development control policies BEN 1,2, and 3 and, during the interim period, BEN 4, will apply (p.48).

- **POLICY IND 5:** The Planning Authority will prepare a Subject Plan aimed at establishing the potential for the longer term relocation of heavy port/industrial uses from Grand Harbour to the Marsaxlokk Bay area. In the interim period, no new industrial uses will be permitted in the vicinity of Grand Harbour (p.61).
- **POLICY IND 15:** A local plan shall be prepared for Marsaxlokk Bay and the surrounding area. The plan will be based on studies of the long term requirements of all industrial activities related to deep water port uses, including security aspects, safety, and environmental impacts. Major gas installations liable to explosion shall be located away from urban areas, including the removal of existing installations. To assist the early preparation of the local plan, oil companies shall supply particulars of their requirements, including especially requirements in the event that oil is discovered in commercial quantities. The efficient use of the deepwater port potential at Marsaxlokk Bay, and the visual quality of new development shall be particular features of the local plan and development permits (p.64).
- **POLICY IND 16:** Government will ensure that permissions for offshore operations will include measures for the safety of navigation, safeguards for the natural environment, and satisfactory abandonment measures (p.64).
- **POLICY AHF 1:** Major improvements in agriculture, horticulture, and fisheries will be encouraged, so that (p.65):
  - The sector assists the overall economy of the country through reduced imports and increased exports
  - Better quality products are available to domestic consumers
  - The countryside land resource is used efficiently and does not become derelict
  - Food supplies are safeguarded in the event of natural, accidental, or deliberate calamities
  - The countryside is safeguarded for the benefit of future generations
- **POLICY AHF 15:** Marine based aquaculture units will be encouraged so as to make best use of land and sea resources. Production units will be located well away from the coast to avoid any significant visual impact. Detailed planning criteria and permit conditions will be developed to ensure suitable safeguards (p.67).
- **POLICY AHF 16:** Large land based aquaculture units will be restricted to industrial estates and former quarries, and multi storey structures used where feasible. Small units will be permitted on farms in conformity with Policy AHF 5. All offsite water supply and discharge pipes will be underground, and the reuse of water, other than seawater, is mandatory. Detailed planning criteria and permit conditions will be developed to ensure suitable safeguards (p.68).
- **POLICY MIN 5:** There will be a presumption against surface mineral working in or near areas of acknowledged interest for ecology, archaeology, and in areas of high quality agricultural land. The extraction of significant amounts of Blue Clay will not be permitted (p.71).
- **POLICY TOU 5:** The Planning Authority will give favourable consideration to the development of tourist accommodation replacing shanty and illegal development between Vendome Battery and White Tower on the northern coastline of the Marfa peninsula (p. 78).
- **POLICY TOU 13:** In conjunction with the appropriate agencies the Planning Authority will prepare a Subject Plan including Environmental Impact Assessments to determine the



advisability and feasibility of various types of harbours, moorings, and facilities for yachts and other boats. Each potential location shall be studied and planned comprehensively, including land related development and conservation (p.81).

- **POLICY TOU 15:** The Planning Authority in co-operation with the Secretariat for the Environment and other relevant bodies will define a **comprehensive policy for the coastal zone**. This policy should aim at enabling Government to (p.82):
  - Assess the different components of the coastal zone considered as a unique ecosystem
  - Identify permissible uses, development criteria, and standards
  - Promote and enforce policies
  - Include the coastal zone as an area requiring mandatory Environmental Impact Assessment procedures
- **POLICY PTR 5:** The Planning Authority will ensure the provision of transport interchanges between different modes of transport (car, bus, mini bus, taxi, passenger ferry, vehicle ferry, aircraft, rapid transit system, foot) where appropriate (p.91).
- **POLICY IIT 1:** Ferry services between Gozo and the Inner Harbour will be made more frequent and generally improved, including the introduction of fast services. Studies will be undertaken into the advantages and disadvantages of allowing competitive ferry services between mainland Malta and Gozo (p.94).
- **POLICY IIT 2:** Suitable ferry terminal facilities for passengers and freight will be provided in the Inner Harbour area (p.94).
- **POLICY RCO 10:** In identifying and designating **Areas of Ecological Importance** in Local Plans, one or more of the following habitat types must be present (p.107):
  - Permanent springs
  - Saline marshlands
  - Sand dunes
  - Forest remnants
  - Semi natural woodland
  - Natural freshwater pools and transitional coastal wetlands
  - Deep natural caves
  - Coastal cliffs
  - Representative examples of typical Maltese habitats such as garigue, maquis, valley sides, watercourses, and gently sloping rocky coasts.
- **POLICY RCO 16:** No form of permanent construction will be allowed in sandy coastal areas and existing constructions will be removed wherever practicable. The removal of sand from sandy beaches is prohibited, and the extension and creation of sandy beaches for recreational use will be encouraged. Sandy beaches include shallow inshore seabeds. All beach and seabed enhancement will be the subject of Environment Impact Analyses (p.109).
- **POLICY RCO 17:** Overnight camping on sandy beaches, and any camping on sand dunes will be prohibited, and access of vehicles to sandy beaches and dune areas will be prevented (p.109).
- **POLICY RCO 18:** Without prejudice to any other policy or regulation protecting dune areas, the Planning Authority will actively prevent the removal of sand binding vegetation from such areas (p.109).

- **POLICY RCO 19:** The Planning Authority will carry out surveys in order to identify sites where the habitat and/or landscape has degraded. Such surveys will be reviewed every two years (p.109).
- **POLICY RCO 20:** Positive action will be taken to rehabilitate identified areas of degraded habitat and landscape, and proposals from Government agencies and non governmental bodies for rehabilitation schemes for these areas, provided that such schemes do not conflict with other policies and/or regulations concerning these areas, will be supported subject to scrutiny and approval by competent experts (p.109).
- **POLICY RCO 21:** There is a general presumption against development in areas prone to erosion (p.110).
- **POLICY RCO 22:** Positive action will be taken to prevent further loss of sandy beaches, sand dunes, coastal clay slopes, soil, and cliff edges (p.110).
- **POLICY RCO 23:** Developments connected with the construction of coastal defences, the enlargement of existing beaches, and the creation of new ones will only be allowed following a scientific study by competent persons of their short term and long term environmental, social, and economic impact, and provided that it is clearly demonstrated that there is a real need for such development and that the benefits outweigh any negative impacts (p.110).
- **POLICY RCO 24:** Existing regulations concerning excavation and transport of sand and soil will continue (p.110).
- **POLICY ARC 4:** As a matter of priority, the Planning Authority will designate Hagar Qim/Mnajdra and Ggantija as Areas of Archaeological Importance and will collaborate with other agencies to develop them as National Parks (p.114).
- **POLICY MCO 1:** The following general vicinities are designated as candidates for the status of Marine Conservation Areas. Following further analysis, these and other possible areas will be categorised and given protection accorded to defined categories (p.115):
  - Dwejra, Gozo
  - Qbajjar, Gozo
  - Ramla Bay, Gozo
  - Mgarr ix-Xini Bay, Gozo
  - Comino Island
  - Filfla Island
  - Cirkewwa
  - St. Paul's Islands, Mistra Bay
  - Qawra Point
  - St. George's Bay vicinity, Paceville
  - Outer Marsamxett Harbour
  - St. Thomas Bay to Delimara Point
  - Blue Grotto to Ghar Lapsi
  - South of Fomm Ir-Rih Bay to Ras il-Wahx.
- **POLICY MCO 2:** The Planning Authority will, as far as possible, include marine archaeological sites and structures within the boundaries of Marine Conservation Areas. Access to archaeological sites and wrecks will be strictly regulated (.116).
- **POLICY MCO 3:** A **Maritime Geographic Information System** will be established, designed to integrate data related to coastal zone management and Maltese territorial waters (p.116).

- **POLICY MCO 4:** The Planning Authority, in conjunction with the Secretariat for Environment, will conduct an underwater survey of infra-littoral ecosystems for the Maltese Islands (p.117).
- **POLICY MCO 5:** The Planning Authority will establish a national system of Marine Conservation Areas within the shortest possible time but only after full consultation with interested Government institutions, environment groups, maritime resources users groups, and the general public (p.117).
- **POLICY MCO 6:** It will be the policy of the Planning Authority to site, as much as possible, **Marine Conservation Areas contiguous with land based Conservation Areas**. This will guarantee the protection of the marine zone from any land activities likely to pose threats to the marine environment and vice versa (p.117).
- **POLICY MCO 7:** The system of Marine Conservation Areas will include representative areas of all existing marine and coastal ecosystems as outlined in the infra-littoral habitat survey (p.117).
- **POLICY MCO 8:** Candidate sites for Marine Conservation Areas which exhibit a wide variety of ecosystems and habitats over a relatively small area will be accorded preference during the selection process. This will ensure greater ecological stability in the protected area and offer greater scope for a wide variety of activities (p.117).
- **POLICY MCO 9:** All categories of Marine Conservation Area will conform to international categories (p.117).
- **POLICY MCO 10:** The Planning Authority will establish a priority list of all Marine Conservation Areas, and rank sites by importance (p.118).
- **POLICY MCO 11:** The traditional rights of fishermen to utilise resources is recognised. Wherever jobs may be threatened, fishermen will be given first option for suitable jobs and services related to site protection (p.118).
- **POLICY MCO 12:** Marine Conservation Areas that benefit other nations or worldwide interests will be designated, as for example where migrating species pass through or breed in a particular coastal area (p.118).
- **POLICY MCO 13:** A management authority for Marine Conservation Areas will be established, and detailed management plans prepared and followed (p.118).
- **POLICY CZM 1:** A professionally staffed and adequately resourced **coastal zone management unit** will be established as a matter of high priority (p.118).
- **POLICY CZM 2:** A **Subject Plan will be prepared for coastal zone management**, to include both conservation of this important resource, and improved facilities for its enjoyment by the public (p.118).

**POLICY CZM 3: Public access around the coastline** immediately adjacent to the sea or at the top of cliffs (including in bays, harbours, and creeks) will be secured. This will include taking shorelands into public ownership, Government acquisition of illegal developments and encroachments, and suitable construction works. In the few cases where this is not practical (for example where security considerations are paramount), nearby detours will be established. **All the coastline will be brought into public ownership within a specified period** (p.118).

---

<sup>i</sup> Planning Services Division, 1990b. *Structure Plan for the Maltese Islands*. Works Department, Ministry for Development of Infrastructure, Government of Malta. Floriana, Malta.