

## MARINE PROTECTED AREAS IN SLOVENIA: HOW FAR ARE WE FROM THE 2012/2020 TARGET?

### MORSKA ZAVAROVANA OBMOČJA V SLOVENIJI: KAKO DALEČ SMO OD CILJA, NAČRTOVANEGA ZA 2012/2020?

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**Key words:** marine protected areas, network, 2012 target, Slovenia, coastal area, representativeness, management

**Ključne besede:** morska zavarovana območja, omrežje, cilj 2012, Slovenija, obalno območje, reprezentativnost, upravljanje

#### ABSTRACT

Slovenia, together with some 190 countries that have signed the Convention on Biological Diversity (CBD), has committed itself to a very specific target that reads: *“By 2012, a global network of comprehensive, representative and effectively managed national and regional protected area system is to be established in the marine area”*. At the 10<sup>th</sup> COP of the CBD, it was very clearly stated that at the global level this very ambitious target could not be met, and the target was somehow shifted to the year 2020. What about our local, Slovenian level - are we on the right path, are we meeting the target? In their paper, its authors present the state of art of Slovenian marine protected areas (MPAs) in terms of the representativeness and management efficiency and discuss the possible activities and measures needed to reach the 2012/2020 target at the national level.

#### POVZETEK

Slovenija se je skupaj s 190 državami podpisnicami Konvencije o biotski raznovrstnosti (KBR) zavezala, da bo izpolnila nadvse specifičen cilj, ki se glasi: *“Do leta 2012 mora biti v morskih območjih osnovano globalno omrežje obsežnega, reprezentativnega in učinkovito upravljanega sistema nacionalnih in regionalnih zavarovanih območij.”*

Toda na 10. konferenci držav podpisnic KBR je bilo zelo jasno poudarjeno, da na globalni ravni ta zelo ambiciozni cilj ne bo dosežen, in tako je bil nekako pomaknjen v leto 2020. Kaj pa mi, Slovenci? Ali smo na pravi poti, ali bomo dosegli zastavljeni cilj? V pričujočem članku avtorja predstavljata stanje slovenskih morskih zavarovanih območij (MPA-jev) glede na njihovo reprezentativnost in učinkovitost upravljanja ter razpravljata o morebitnih dejavnostih in ukrepih, potrebnih, da se uresničiti cilj za leto 2012 (2020) na državni ravni.

## 1. INTRODUCTION

As a result of the under representation of marine ecosystems in the global network of protected areas, the Parties to the CBD adopted the 2012/20 target for MPAs that invites countries to achieve, by 2012/2020, a global network of comprehensive, representative and

effectively managed national and regional protected area system. In this context, during their 14th ordinary meeting held in November 2005 in Portorož, Slovenia, the Contracting Parties to the Barcelona Convention invited the Regional Activity Centre for Specially Protected Areas (RAC/SPA) to elaborate a programme of work aimed at supporting the Mediterranean countries to achieve the CBD's 2012/2020 target by establishing a representative network of MPAs in the Mediterranean Sea. The Contracting Parties to the Barcelona Convention adopted the Regional Working Programme for the Coastal and Marine Protected Areas in the Mediterranean Sea including the High Seas (referred hereafter as Programme of Work) during their 16<sup>th</sup> regular meeting in Marrakech in November 2009.

The Working Programme recommends the adoption of a three-step hierarchical planning approach, which begins at the large scale and focuses in on ever-smaller scales. At the widest scale, that is the Mediterranean Basin, the baseline for designing an ecological network would be the identification of large-scale ecological units. The second step would be the identification of priority conservation areas within the ecological units. Priority conservation areas would represent the focal areas for the third and last step – the identification of individual MPAs, forming an ecological network within the priority conservation area. Individual MPAs should protect what is ecologically most important – focusing on habitats where a concentration of ecological processes results in a high diversity of species.

The Slovenian story as far as MPAs are concerned started more than two decades ago, that is long before the above-mentioned Working Programme was adopted. However, the main idea was very much the same – conservation of specific (representative) habitats and habitat types of the Slovenian coastal area and contribution to the integrity of the marine and coastal ecosystem. The legal basis for the whole process lay in the former Law on Natural and Cultural Heritage, adopted in 1981 and replaced by the Nature Conservation Act in 1999.

## **2. MARINE AND COASTAL PROTECTED AREAS IN SLOVENIA – STATE OF THE ART**

### **2.1 FROM NATURAL HERITAGE PROTECTION TO NATURE CONSERVATION**

According to the provisions of the former Law on natural and cultural heritage, an exhaustive inventory of natural heritage sites along the Slovenian coastline was drafted in the mid eighties by Križan & Svetličič (1985). Most of the sites were included in the decrees, adopted some years later (in 1990 and 1991), by the municipalities of Piran, Izola and Koper. Following that, the Škocjan Inlet was proclaimed a Nature Reserve directly by state law in 1998. Following the provisions of the new Nature Conservation Act (NCA), adopted in 1999, the two decrees adopted by the Municipalities of Piran and Izola on the Landscape parks Sečovlje Salina and Strunjan, were replaced by governmental decrees. Beside more suitable conservation measures, the new decrees included provisions concerning management of the two protected areas.

The Nature Conservation Act defined a new perspective concerning nature conservation in Slovenia, which from 1999 includes the protection of valuable natural features, former

natural heritage sites (governmental decree “Uredba o določitvi in varstvu naravnih vrednot, Off. Bull. 111/04, 70/06, 58/09 in 93/10) as well as the conservation of biodiversity through the protection of endangered animal and plant species (governmental decrees “Uredba o zavarovanih prostoživečih rastlinskih vrstah and Uredba o zavarovanih prostoživečih živalskih vrstah, Off. Bull.46/2004) through ecologically important areas (governmental decree “Uredba o ekološko pomembnih območjih”, Off. Bull. 48/04 ) and following the Habitat Directive, especially through Natura 2000 sites (governmental decree” Uredba o posebnih varstvenih območjih, območjih Natura 2000, Off. Bull. 49/04, 110/04, 59/07 in 43/08).

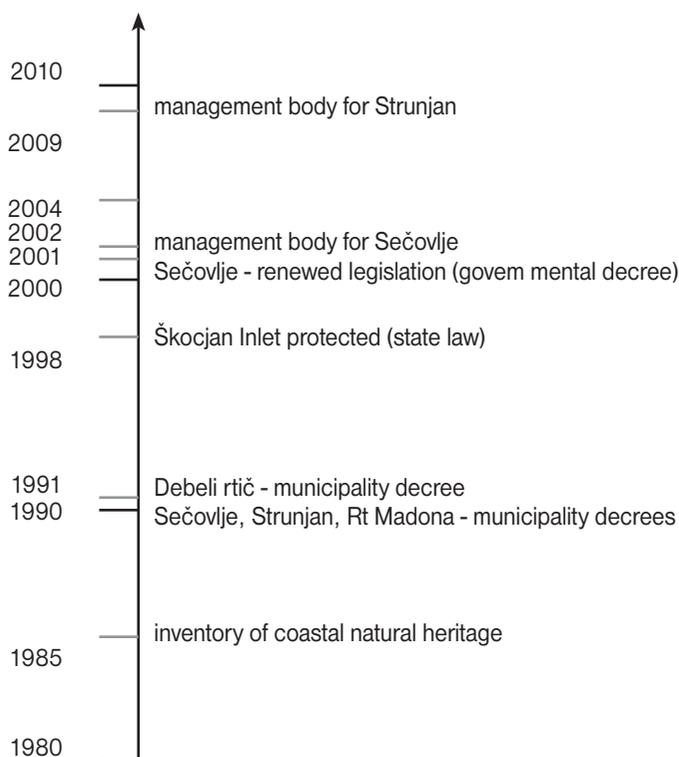


Figure 1: Slovenian coastal and marine PA's milestones

*Slika 1: Slovenski mejniki za obalna in morska zavarovana območja*

## 2.2 AREAS AND SITES OF CONSERVATION INTEREST ALONG THE SLOVENIAN COAST

With the term Areas of Conservation Interest we are encompassing not only marine and coastal protected areas but also other areas and sites, which according to the Nature Conservation Act are important in terms of protection of valuable natural features, or in terms of biodiversity conservation or both. They can thus be single valuable natural features, habitats of endangered species, ecologically important areas, Natura 2000 sites, or protected areas. They all benefit from a certain degree of legal protection and general conservation measures.

It is, however, only in the case of protected areas that concrete conservation measures are included in the legal act, with which the single protected area is established.

The Slovenian coastal area is, in spite of its shortness, very rich in terms of biological and landscape diversity. Its natural characteristics comprise a great diversity of habitat types, animal and plant species and ecosystems scattered between the rocky shore and its flysch cliffs, the alluvial plains with wetlands, coastal lagoons and salt-pans and the shallow waters of the Slovenian sea.

### 2.2.1 Valuable natural features

In the Nature Conservation Act, valuable natural features (assets) are defined as rare, valuable or well-known natural phenomena, or any other valuable phenomena, components or parts of the living or non-living nature, nature area or part thereof, an ecosystem, natural or cultural landscape. In particular, they can be geological phenomena, minerals and fossils or mineral and fossil sites, surface and subsurface karst features, caves, gorges and other geomorphological phenomena, glaciers and glacial forms, springs, waterfalls, rapids, lakes, bogs, brooks and rivers, river banks, sea-shore, plant and animal species and exceptional specimens and habitats thereof, ecosystems, etc.

Most of the valuable natural features in the narrow coastal strip are on one hand linked to geomorphology and the great diversity of geomorphological phenomena of the flysch cliffs and, on the other hand, on endangered habitat types and habitats of endangered species. Both parks - Sečovlje and Strunjan (Fig. 2) - are among the areas where the density of valuable natural features is the greatest.



Figure 2: Valuable natural features inside Strunjan Natural Reserve

*Slika 2: Dragocena naravna dediščina v Naravnem rezervatu Strunjan*

## 2.2.2 Ecologically Important Areas and Natura 2000 sites

According to the Nature Conservation Act, Ecologically Important Areas are defined as areas of a habitat type, its part or large ecosystem units, which significantly contribute to biodiversity conservation. They represent the key areas in terms of biodiversity at the national level. The great diversity of coastal area is reflected in a number of Ecologically Important Areas: Zaliv Sv. Jerneja, Debeli rtič, Debeli rtič-Valdoltra, Sv. Nikolaj, Škocjanski zatok, Žusterna, Žusterna - Izola, Strunjanski klif, Strunjanske soline s Stjužo, Pacug - Fiesa, Strunjan - Pacug, Piranski klif, Rt Madona and Sečoveljske soline s Sečo and, last but not least, the Slovenian sea. They encompass habitats of endangered animal and plant species - birds in Škocjanski zatok or Sečoveljske soline or *Linum maritimum* in Sv. Nikolaj and endangered habitat types, as it is the case of the *Posidonia oceanic* meadow at Žusterna.

As it could be expected, most of the Ecologically Important Areas, mentioned above, turned out to be important not only at the national level but also for the conservation of European biodiversity. According to the Birds and Habitat Directives, almost all of them, the only exception being Zaliv sv. Jerneja, were declared in 2004 Special Areas of Conservation (SAC) or/and Specially Protected Areas (SPA). They encompass a wide range of marine and coastal habitat types and species (see Table 1); the list, however, is not complete yet. Data are being gathered in order to define in the near future SAC for two important marine species - the Bottlenose Dolphin and the Loggerhead Turtle.

## 2.2.3 Marine and coastal protected areas

To all the areas and sites, listed as Valuable Natural Features, Ecologically Important Areas or Natura 2000 sites, a certain degree of general protection and even management in the case of Natura 2000 sites should be granted in the process of physical planning, through environmental impact assessments, building permits, etc. However, when concrete issues are discussed numerous gaps occur in the general picture that prevent efficient protection. The advantage of protected areas lies in the fact that they have their own legal acts, which define conservation measures, management, monitoring and surveillance and thus leave less space to inconsistency and misinterpretation.

There are five coastal and marine protected areas along the Slovenian coast. Two nature parks - Sečovelje Salina Nature Park<sup>1</sup> and Strunjan Nature Park, which embrace two nature reserves - Stjuža and Strunjan<sup>2</sup>, two natural monuments - Debeli rtič<sup>3</sup> and Rt Madona<sup>4</sup> and, last but not least, the Škocjan Inlet Natural Reserve<sup>5</sup>.

<sup>1</sup> Piran Municipality decree in 1990, replaced by a governmental decree "Uredba o krajinskem parku Sečoveljske soline" in 2001

<sup>2</sup> Piran and Izola Municipalities decrees in 1990, replaced by a governmental decree "Uredba o krajinskem parku Strunjan" in 2004

<sup>3</sup> Koper municipality decree "Odlok o razglasitvi naravnega spomenika Debeli rtič" from 1991

<sup>4</sup> Piran Municipality decree "Odlok o razglasitvi posameznih naravnih spomenikov in spomenikov oblikovane narave v občini Piran" from 1990

<sup>5</sup> governmental law "Zakon o naravnem rezervatu Škocjanski zatok" from 1998

### 2.2.4 Habitat types

Cliffs and mudflats<sup>6</sup> are the most representative habitat types along the Slovenian coastline and have been appropriately included in the marine and coastal protected areas listed above. Within the Strunjan Nature Park and the Natural Monument Debeli rtič, we found the most representative cliffs on Slovenian coast. The only two lagoons (Stjuža - marine and Škocjan Inlet - brackish) are also within protected areas - Strunjan Nature Park and Škocjan Inlet Nature Reserve. The situation in terms of sandbanks, Spartina swards, Mediterranean salt meadows, posidonia beds and reefs is less satisfying. So far, no protected areas have been established for the conservation of these rare and endangered habitat types. Some proposals were tabled concerning the sandbank on the promontory Debeli rtič and the Spartina sward in the area of Sv. Jernej. Proposals for the establishment of protected areas should be elaborated at least for the Mediterranean salt meadow of Sv. Nikolaj and the posidonia meadow at Žusterna and conservation measures proposed for the reef between Fiesa and Strunjan, the large sandbank Brajde outside Piran. The current situation concerning habitat types is presented in Table 1.

Table 1: List of representative marine and coastal habitat types in Slovenia

*Tabela 1: Seznam reprezentativnih morskih in obalnih habitatnih tipov v Sloveniji*

Name and FFH code	Legal protection (112/2003)	Presence in pSACs	Presence in MPAs?	Conservation status
Vegetated sea cliffs of the Mediterranean coasts with endemic <i>Limonium ssp.</i> 1240	YES	YES	YES(Debeli rtič, Strunjan) NO (Valdoltra, Fiesa; Piran.....)	☺
Sandbanks which are slightly and permanently covered by seawater 1110	NO	Proposed	YES (Debeli rtič) / NO (Brajde)	☹
Sea grass meadows with <i>Cimodocea</i> not ffh	YES	-	YES	☺
Sea grass meadows with <i>Zoostera marina</i>	NO	YES (not sufficient)	NO	☹
Sea grass meadows with <i>Zoostera noltii</i>	NO	YES (not sufficient)	YES (NR Strunjan)	☹
Algal beds ( <i>Cystoseira</i> ) not ffh	YES	-	YES	☺
Spartina swards ( <i>Spartinion maritimae</i> ) 1320	YES	YES and NO	YES(Sečovlje Salt pans) NO (Sv. Jernej bay)	☹
Mediterranean salt meadows ( <i>Juncetalia maritimi</i> ) 1410	YES	YES	YES and NO (St. Nikolaj)	☹
Mudflats and sandflats not covered by seawater at low tide 1140	YES	YES	YES (majority)	☺
Salicornia and other annuals colonizing mud and sand 1310	YES	YES	YES	☺
Annual vegetation on drift lines 1210	NO	YES	YES	☺

<sup>6</sup> Natura 2000 codes: 1240, 1140, 1310 and 1210

Name and FFH code	Legal protection (112/2003)	Presence in MPAs?	Presence in MPAs?	Conservation status
Posidonia beds ( <i>Posidonium oceanicae</i> )* 1120	YES	YES	NO	☹
Reefs 1170	NO	NO	NO	☹☹
Coastal lagoons* 1150	YES	YES	YES 100%	☺☺

### 2.2.5 Species

The protection of species is often one of the main goals of protected areas. Some of the rare and endangered species present in the Slovenian coastal area are shown in Table 2, together with their presence within single coastal and marine protected areas. The situation looks fairly good; however, when we focus on marine areas, it is clear that due to their limited size they alone cannot guarantee good conservation status of the listed species in the long term. Besides, we can see that there are no protected areas, designated for the protection of some important species. The only meadow of *Posidonia oceanica* is not legally protected and there are no areas and/or conservation measures concerning the Loggerhead Turtle, the Bottlenose Dolphin or the two bird species listed in Table 2, the European Shag and the Mediterranean Shearwater. While it would be fairly easy to establish a protected area for the posidonia meadow, it is much more difficult to do the same for the four highly mobile species – in terms of gathering exact data and determine the area as well as in terms of defining proper conservation measures.

Table 2: List of rare and endangered coastal and marine species in Slovenia

Tabela 2: Seznam redkih in ogroženih obalnih in morskih vrst v Sloveniji

Name	Protected by decree 46/04	Bern convention	Barcelona convention	Present in M&CPA	Satisfactory state
<i>Pholas dactylus</i>	YES	Appendix II	Annex II	YES	☺
<i>Pinna nobilis</i>	YES		Annex II	YES	☺
<i>Lithophaga lithophaga</i>	YES	Appendix II	Annex II	YES	☺
<i>Zostera marina</i>	NO	Appendix I	Annex II	NO	☹
<i>Zostera noltii</i>	NO		Annex II	YES	☹
<i>Cymodocea nodosa</i>	NO	Appendix I	Annex II	YES	☺
<i>Posidonia oceanica</i>	YES	Appendix I	Annex II	NO	☹
<i>Caretta caretta</i>	YES	Appendix II	Annex II	NO	☹
<i>Tursiops truncatus</i>	YES	Appendix II	Annex II	NO	☹
<i>Phalacrocorax aristotelis desmarestii</i>	YES	Appendix II	Annex II	NO	☹
<i>Puffinus yelkouan</i>	YES	Appendix II	Annex II	NO	☹

### **3. MARINE AND COASTAL PROTECTED AREAS IN SLOVENIA - COMPREHENSIVE, REPRESENTATIVE AND EFFECTIVELY MANAGED?**

#### **3.1 COMPREHENSIVE AND REPRESENTATIVE?**

Having in mind the 2012/2020 goal, that is a global network of comprehensive, representative and effectively managed national and regional protected area system, and considering the state of art of the areas and sites of conservation interest along the Slovenian coast, one could argue that Slovenia is well on the way to achieve its goal. The vast majority of rare and endangered habitat types and species of the coastal area are present in areas and sites that bear different nature conservation statuses – valuable natural features, ecologically important areas, Natura 2000 sites, protected areas. This is especially true for habitat types and species of the coastal wetlands, estuaries and cliffs. We could say that the list of areas is comprehensive (“*so large in scope or content as to include much*”) and that most of the typical but also rare and endangered habitat types and species are represented in these areas. However, if we focus only on protected areas, i.e. areas with concrete conservation measures clearly defined in the legal acts on the establishment of a single protected area, we find that the situation is less satisfying. The list of coastal protected areas is neither comprehensive nor representative since it does not include some of the key areas in terms of the conservation of the Slovenian coastal biodiversity, specifically Zaliv sv. Jerneja with its *Spartina* swards or the Mediterranean salt meadow of sv. Nikolaj.

The situation is even less satisfying when we look at the marine environment. It is true that the entire Slovenian sea is defined as an ecologically important area; however, according to the current legislation, human pressures and activities in ecologically important areas are not supposed to be assessed in terms of nature conservation. Besides, there are only three protected areas with a marine component, and two of them are of very limited size. Consequently, there are almost no conservation measures that could be applied to the majority of sea grass meadows (including *posidonia* and eelgrass), algal beds with *Cystoseira* species and reefs with stony coral or to the open waters habitat types and species like the Bottlenose Dolphin or the Loggerhead Turtle. So in spite of the fact that Slovenian marine protected areas represent approximately 10% of the total length of the coastline, it can be easily seen that there is in fact no national comprehensive and representative system or network and that important habitat types and species have been left aside.

#### **3.2 EFFECTIVELY MANAGED?**

Most of the marine and coastal protected areas along the Slovenian coast were established in the early 90's, and according to the provisions of the former Law on Natural and Cultural Heritage no management was foreseen. So the two nature parks - Sečovelje and Strunjan as well as the two natural monuments – Debeli rtič and Rt Madona, were not managed suitably or, to be more precise, were not managed at all. The only exception at that time was the Škocjan Inlet Nature Reserve, for which the legal act on the establishment of the protected area included also provisions on its management.

Based on the general mandate of the Institute of the Republic of Slovenia for Nature Conservation, and before that of the Regional Institute for Natural and Cultural Heritage Protection, some management activities were carried out. Beside the regular activities for raising public awareness, buoys that mark the outer limit of the protected areas were put in place, explicative panels and leaflets were produced and some studies on species and habitat types carried out. Due to the scarce financial and personnel resources, the activities were carried out sporadically, depending more on available resources and less on systematically planned activities or management plans.

In the last decade, however, the situation concerning management improved radically in the two nature parks. The Sečovlje saltpans have been managed by a salt-producing company since 2003. Their activities are focused on the reconstruction of the saltpans' infrastructure and on water management in terms of salt production and habitat types and species conservation, on education and awareness raising activities, on monitoring the visitors' impact, monitoring of bird species, on the threats of possible future development of the area, and on a sustainable long-term strategy of the protected area. A public Institute with the sole purpose to manage the Strunjan Nature Park was established in 2008 and became operative in 2009. The managing team is currently working on the management plan, dealing with the usual problems concerning surveillance, monitoring etc. and seeking financial and personnel resources through project proposals. As stated above, the Škocjan Inlet Nature Reserve has been managed already since 1999, and despite many problems associated with the fact that it is located in an intensively urbanized area, with the city of Koper, the port, shopping, trade and business centers and the railway and highway at its borders, the protected area is well managed and is successfully achieving its goals in terms of nature conservation and public awareness raising. Indeed, in the near future the legal act on the establishment is supposed to be upgraded, the protected area slightly enlarged and a visitor center built.

The situation concerning management is completely opposite and unsatisfying on the seaward side of the coast, in the protected areas of Debeli rtič and Rt Madona, but also in the areas that should be but are not protected areas as yet - the posidonia meadow in Žusterna, the Mediterranean salt meadow at sv. Nikolaj, as well as the reefs between Fiesa and Strunjan. There are no concrete management activities and consequently very scarce possibilities to assure the achievement of the goals of the protected areas and a good conservation status for the habitat types and species therein in the long-term.

The protected area "Natural Monument Debeli rtič" was established in 1991, primarily for its exceptional natural features in terms of geology and geomorphology, and not for biodiversity conservation. The area of St. Jernej bay on the northern side of Debeli rtič that contains rare and endangered habitat types, such as *Spartina* swards and mudflats, would have to be included in a new, enlarged protected area, together with the cliff and coastal sea in the SE direction towards Ankaran. The same goes for the sandbank, covered by sea water, in front of the promontory, which has already been proposed as pSCI. The legal act establishing the protected area should be renewed and upgraded with provisions on extension, on species and habitat types conservation as well as with provisions regarding its management.

#### 4. CONCLUSIONS

Going back to the question in the title of the present paper and the 2012/2020 target of a network of representative and efficiently managed marine protected areas, we can conclude that the goal of a network of comprehensive, representative and effectively managed national marine protected area system in the Slovenian sea is still out of reach. In spite of the fact that an important part of the typical marine and coastal habitat types are included in the existing protected areas, there are important elements of marine and coastal biodiversity that are still without protection and thus without suitable conservation measures. The percentage of the Slovenian sea covered by protected areas speaks for itself - 0.4%. Unfortunately it is in line with the numbers related to the Gulf of Trieste and to the Northern Adriatic, as well as to the whole Adriatic - whatever the area, the percentage does not exceed 0.5% (Turk et Odorico 2009).

According to the existing knowledge on the state of marine and coastal species and habitat types in the Slovenian sea, protection or suitable conservation measures should be granted at least for the following areas: the broader area of Debeli rtič, the salt meadows of sv. Nikolaj, the posidonia meadow in Žusterna, the stony coral reefs in front of Cape Ronsek in Strunjan and the reef between Fiesa and Strunjan, the dead mat of posidonia outside the Bay of Piran. The last could be included in a broader area of open waters outside Piran, Strunjan and Izola, devoted to the conservation of the Bottlenose Dolphin and the Loggerhead Turtle and possibly to the endangered chondrichthyan species.

The second set of the activities, needed in the pursuit of the 2012/2020 target at the Slovenian national level, would have to tackle the management of the existing (and future) protected areas. The current situation could be defined as satisfactory as far as it concerns the terrestrial parts of the coastal protected areas, while it is completely unsatisfactory in the marine areas. There is no management at all in the two natural monuments of Debeli rtič and Rt Madona, while the management activities in Strunjan Nature Reserve are still at their very beginning. Due to the fact that the absence of management of the existing protected areas is coupled with the "development orientated" governance of the coastal area, there is a strong possibility of a further loss of marine coastal biodiversity. A major effort would be needed in the near future in order to define appropriate administrative, financial and technical solutions for the management of marine protected areas.

Beside the need for new, properly managed marine protected areas that would, together with the existing ones, encompass the great majority of the typical marine and coastal habitat types as well as habitats of rare and endangered species, there is a third field of activities or strategies that are equally crucial for the achievement of the 2012/2020 goal. The reduction of negative impacts of human activities, including the reclamation of degraded parts of the coastline, the sustainable use of resources and the integrated coastal zone management are not necessarily directly linked to the protected areas, but they do, however, play an important role in halting marine biodiversity loss. They will have to be tackled in parallel at two levels, through sectorial long-term strategies and through physical planning or, better, through the newly developed maritime spatial planning process.

## 5. SUMMARY

The first coastal and marine protected areas in Slovenia, two nature parks - *Sečovlje salina* and *Strunjan*, and two natural monuments - *Rt Madona* and *Debeli rtič*, were established in 1990 and 1991, respectively, by the three coastal municipalities. All these areas were designated on the basis of a systematic inventory of the natural heritage in the Slovenian coastal area, carried out in the 1980s (Križan & Svetličič 1985). According to the natural heritage conservation concept, endorsed by the former Law on Natural and Cultural Heritage, which focused mainly on outstanding natural features, the study focused greatly on geomorphology, considering primarily the coastline and the underwater geological and geomorphological features, as well as on the known habitats of rare and endangered species and habitat types.

In spite of several gaps in terms of available data and the "natural heritage" approach, an important part of coastal and marine habitat types was included in the established protected areas. There was, however, an important deficiency (and it still is) in terms of some specific coastal and marine habitat types, especially reefs and sandbanks, as well as in terms of the open sea that hosts both, specific habitat types and endangered species like the Bottlenose Dolphin and the Loggerhead Turtle. The network of comprehensive, representative and effectively managed national marine protected area system in the Slovenian sea is thus still out of reach. A number of activities would still have to be implemented, both in terms of identification and establishment of new protected areas as well as in terms of a more efficient management of the existing ones.

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