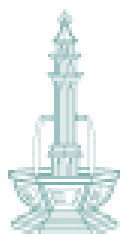


Alfred Toepfer Natural Heritage Scholarship 2015



ALFRED
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F.V.S.

“GROWING TOGETHER”

*Commonalities and differences between two Adriatic
Marine Protected Areas*

Dr. Roberto Piccirilli

rpiccirilli17@gmail.com



EUROPARC
F E D E R A T I O N

Alfred Toepfer Natural Heritage Scholarship 2015



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Commonalities and differences between two Adriatic Marine Protected Areas

Dr. Roberto Piccini



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I thank the **local communities and the fishermen Fazana (HR) and Pineto (IT)**, the tourists and all local authorities that responded to my questions and my curiosity.

SUMMARY

The rational management of the coastal and marine environment is essential to use its resources effectively, preserving them for future generations, in line with the principles of sustainable development.

One must unfortunately note that these resources are increasingly threatened by many human activities, often for lack of a management policy, both at central and local levels.

One of the strongest motivations that drives me to work with the sea and then with a Marine Park, refer to the substantial differences that bind a protected marine area and a terrestrial one. On land, hunting is a 'business only for sports and leisure', while fishing is a work still widespread and critical to a society that has not yet developed techniques for fish farming (which is difficult to use in the Italian Adriatic coasts, both for the geomorphology and for the presence of species such as shell fish "*Chamelea Gallina*", a commercial product typical of the Adriatic coast, which has a reproduction not suitable for breeding). Unfortunately, the measures that limit the work of people who would not have other alternative forms of livelihood, is an action very risky to take and disliked by the actors involved. For this reason, making decisions in the field of maritime and coastal environment is very difficult and involves risks. From 2014, the European Union renews its commitment with its states to sustainable development, to environmental protection and efficient use of its resources, providing effective means for young people working in these fields.

AUTHORS' CURRICULUM

I am Roberto Piccirilli;

I live in San Benedetto del Tronto, a small town on the Adriatic Sea in center of Italy.

I 'have a degree in Biotechnology and I am specializing in Reproductive Biotechnology at the University of Teramo playback.

I have a Master's degree in management and local development of parks and natural areas and marine protected area Tower of Cerrano guide.

My goal is to become a biological researcher and an expert of European call.

My hope is to use this opportunity and to be able to develop my knowledge on issues that are deeply felt by marine protected areas that is to be able to work in synergy with the actors of the fishing. Access a scholarship to visit a foreign Marine Park, he would give me the ability to have a wider knowledge management and sustainable local development, type of tourist use of the SIC and land management of its resources and its marine biodiversity, contrasts them with the different legal standards used in the Italian parks. In addition, the ability to keep open a bridge of communication between Marine Protected Areas in order to transmit information, best practices and to work in partnership for projects related to the management and conservation of the same habitat in common, the Adriatic Sea



PROJECT PROPOSAL

Increase knowledge on the management and development of two Adriatic marine protected areas; Marine Protect Area Tower of Cerrano(Italy) and Brijuni National Park (Croatia)and their relationship with the environment, humans “Local and tourist” and the efficient use of resources.

1. Preparatory action:

- Search on Features of Marine biodiversity of flora and fauna habitat in attachments (Habitat Directive) of the Marine Park of Brijuni and Torre del Cerrano.
- Research on Adriatic culture and fishing tradition.
- Visit the Marine Park of Brijuni and knowledge of the Operators.

2. Concrete action:

a) Report of the Park with man.

- Study on the relationship between stakeholders and the Marine Parks.

- Study of the relationship between the professional fishing and artisanal fisheries with the parks.
- b) Report of the park with the environment.
 - Monitoring and collection data on benthic communities In and out of the SCI and their conservation (Shellfish, Pinna Nobilis, Zoostera – Cymodocea and Caretta Caretta) and other habitat and species described in the Habitat Directive.
- c) Report socio-economic of Parks.
 - Monitoring the socio/economic and tourist use of the SCI.
 - Study of the brand of the parks as part of traceability of fish products.
 - Techniques used to study fish farming or livestock.
- d) Staff report.
 - Participation in events and workshop organized by the park.
- e) Report of Collaboration.
 - Data Collection On the issues and resources between the municipalities of the Marine Park of Brijuni and the Marine Park Tower of Cerrano
 - Development and/or participation in the drafting of projects of direct between two marine areas Adriatic.
- 3. Expected Results. • Demonstration of the effectiveness of protection measures in the SIC and the use Demonstration of Wealth of Biodiversity in SCI.
 - Demonstration of awareness and interest of the people living and working in SIC.
 - Demonstration of Cross-border cooperation and points in common between two marine parks in the Natura 2000 network.
- 4. Dissemination of Information (Final Report).
 - Dissemination of results of the Project to the people and the parties concerned. (Euro-parc, marine areas, University).

TRAVEL PLAN

From 11-07-2016 to 12-08-2016

Italy, Abruzzo Pineto (TE), Torre del Cerrano
Marine Protect Area SCI IT7120215; MPA
10A03794

Daily moving train from San Benedetto del
Tronto to Pineto in Torre del Cerrano MPA

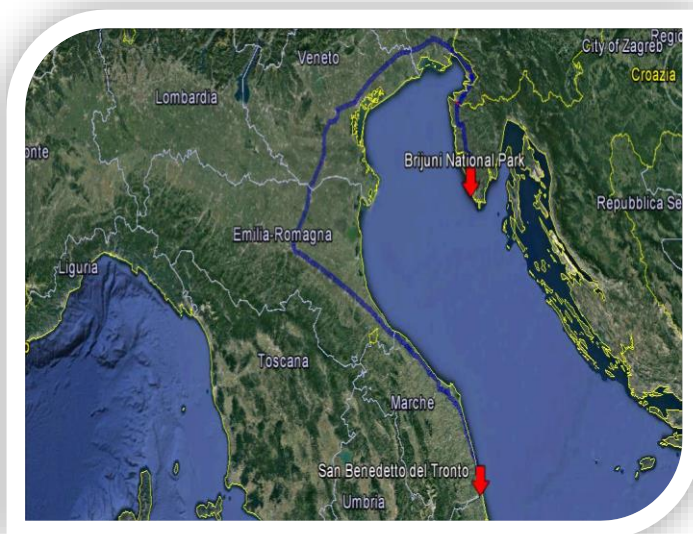
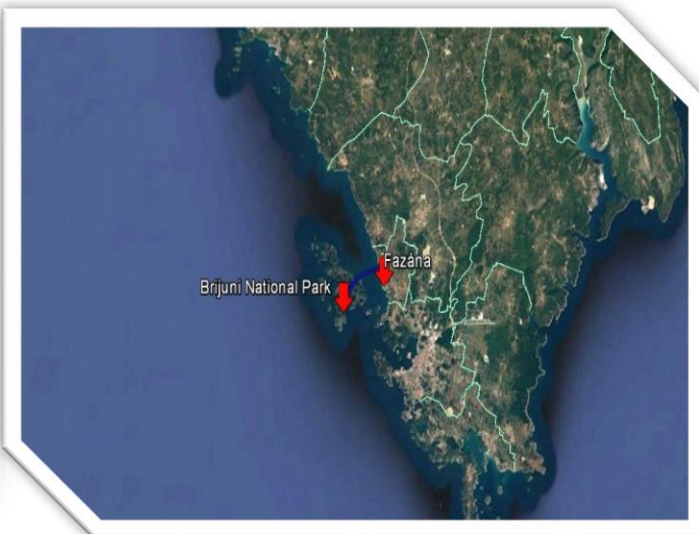


From 5-09-2016 to 19-09-2016

Croatia Fazàna (Pòla) Brijuni National Park.

Train from San Benedetto del Tronto to Trieste
via Bologna.

Bus from Trieste to Fazàna (Pòla) where I live. Daily moving ferry on the island of Brijuni Nat. Park



1. OVERVIEW OF THE ADRIATIC SEA

The Adriatic Sea basin has its own typical features, both at land and sea. Although part of the wider Mediterranean Sea basin, it is a semi-enclosed, narrow sea area solely connected to the rest of the Mediterranean through the Strait of Otranto, which is the narrowest part of the Adriatic Sea.



Illustration 1: The Adriatic Sea in Europe

The northern and north western coastlines are characterised by shallow waters and sandy beaches. The eastern part of the sea is deeper, rocky and contains many islands and islets. The deepest parts of the Adriatic are located in the south. The Adriatic Sea is bordered by six coastal states in total: Albania, Bosnia and Herzegovina, Croatia, Italy, Slovenia and Montenegro. The share each country has in the total Adriatic Sea coastline differs greatly. Croatia has by far the longest coastline of the six Adriatic countries.

Including more than 1 000 islands, the Croatian coastline amounts to almost 6 000 km, which is approximately 75% of the total length of the Adriatic coastline.

The Italian coastline accounts for 15% of the total Adriatic coastline length, while the remaining countries of the Adriatic are characterised by shorter coastlines.

Slovenia and Bosnia and Herzegovina have the shortest coastlines in the Adriatic Sea basin, respectively 47 and 23 km.

Apart from large differences in terms of coastline length, illustrates that there are considerable imbalances in terms of share in maritime activities as well presents the Adriatic Sea basin and its surrounding countries and summarises the coastline length of the Adriatic countries and the number and surface of islands and islets. (1)

1.1 ADRIATIC SEA USES AND ENVIRONMENTAL PRESSURES

The beauty of the Adriatic Sea makes the region an attractive place to live and work. Each year, more tourists spend a holiday in the region. In addition to the maritime transport and fishery activities, these activities make the Adriatic Sea basin a crowded area both on land and at sea. The crowdedness of the area is also likely to have an impact on the environment. For example, some of the most sensitive and precious habitats such as lagoons and river delta environments have been impacted by the marine activities in the region.

In this paragraph, an overview provided of the activities taking place in the Adriatic Sea and the activities that cause pressure on the marine environment.

THE TOURISM

The countries around the Adriatic Sea are important tourist destinations. As their importance as tourist destinations clearly depends on the Adriatic Sea basin itself, it is very important to maintain the

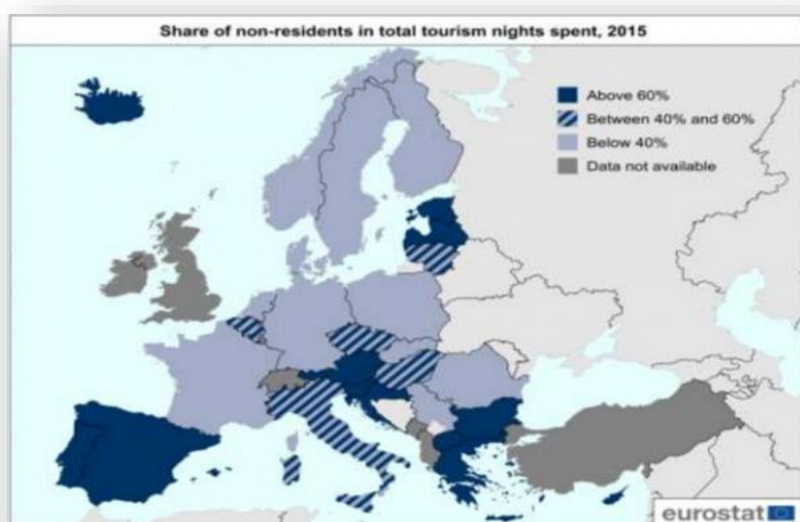


Illustration 2: Share Tourism 2015 eurostat

Adriatic Sea basin's status and undertake actions for the preservation of the region. The Veneto region received 14.1 million arrivals in 2008 with 60.6 million overnight stays. Seaside tourism accounted 3.7 million arrivals (25.8 million overnight stays) in 2007 (2).

In the Friuli Venezia Giulia region 2 million arrivals took place in 2008 (8.9 million overnight stays) and in Emilia-Romagna 8.8 million arrivals (38.3 million overnight stays) (3). 11 million tourists arrived in Croatia in 2009. Tourist overnight stays amounted to 56 million (4).

Regarding marine tourism, Croatia expects an increase of the number of nautical ports and coastal moorings from 21.020 in 2007 to 33.655 in 2015. 'Marine' tourists are mostly attracted to areas under different categories of protection as they are characterised by a high natural value and their biodiversity.

Particularly attractive are the national parks of Brijuni, Kornati, Krka and Mljet and the nature parks of Telascica and Lastovo islands, where as the largest number of tourists 'marine visits is realised in the national park of Kornati (5).

Intensive coastal tourism leads to pollution of the sea, especially when wastewater treatment plants lack the capacity to treat all wastewater and, as a result, discharge a certain (substantial) quantity directly into the sea. Coastal protection through beach nourishment instead of using protection barriers (due to unattractive sight) may have negative environmental effects as well. Although less significant, marine tourism, activities may also affect the environment. For instance, diving and recreational bathing can damage marine habitat.

THE FISHERIES

Beautiful sea and easily navigable, which penetrates deeply into the heart of Europe, the Adriatic has seen since ancient times arise on its important port calls shores and then in the Middle Ages and in modern times flourish some of the major ports of the time, as Venice, Dubrovnik, Trieste.

In the twentieth century, maritime activity has been added, as a coastal economic resource, tourism; so that today the Adriatic looks like a sea of densely populated coastlines, especially on the Italian shore, and dense city.

The physico-chemical conditions of the Adriatic waters (presence of oxygen due to underwater springs



Illustration 3: Example of fishing fleet with dredge turbocharger

and surface agitation of the winter winds, with salts at the hands of the rivers) determine a favourable environment for the development of fish: fishing thus represents a significant source economical for coastal countries, especially for

those eastern and especially the centres of the Dalmatian coast.

On fishing Italian coast, it is almost exclusively practiced by trawlers, which have now completely supplanted the old fishing boats. It is fished mainly *Sardines, Anchovies, Mackerel, Mullet and Squid*; in the fishing valleys of coastal lagoons you can find cultivation of *Eels, Mullet and Bream*.

In navies engaged in the fishery are centuries-old traditions, each with its own characteristics, as the different fishing activities have developed in relation to the natural environment, the wealth of wildlife and equipment used and methods of fishing. A classic example is the development of fishing in the valley; in these areas the regulation of water flow now sweet now salted, to facilitate the entry of

juveniles and the capture of adults to weirs, it has become one of the strengths of these fisheries. The lagoon fishing also has a long tradition, with a large variety of fishing gear.

Even for widely distributed resources such as *Sardines*, there was a different development of fisheries.

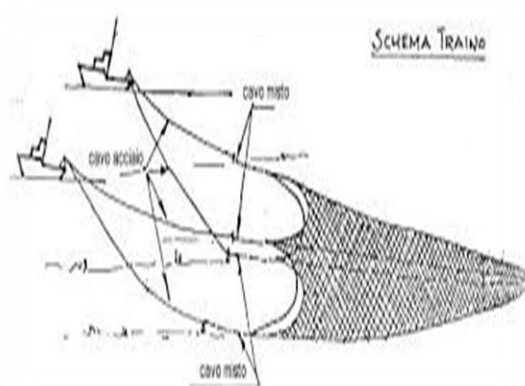


Illustration 4: Type of Trawl to fisheries

The menaide (resulting network used in 1800-1900 by thousands of anglers) was used with different modes.

In this historic fishing it was favoured those who could get crushed crabs to use as bait thrown on the network to attract sardines and catch them “ammagliare”. Fishing seiners with the lighting help to attract bluefish replaced the “menaidi” and, after 1960, began with couple fishing with **pelagic trawl**, which eliminated the last “menaidi” and “lampara” by throughout the northern Adriatic.

Today we continue to see this fishery modification process according to the available technologies. There has been a shift from trawling, particularly from a fishing that lasts 24, to forms of fishing less exhausting, such as fishing for clams with “**dredge turbocharger**” and fishing with gill nets and traps, which can take place near the coast of boats with one or two people on board.

In the Adriatic also continues the age-old process, which led to the development and decline of the fishing, fleets in operation, of its legislation and the performance of markets.



Illustration 5: Fleet of boats with dredge turbocharger

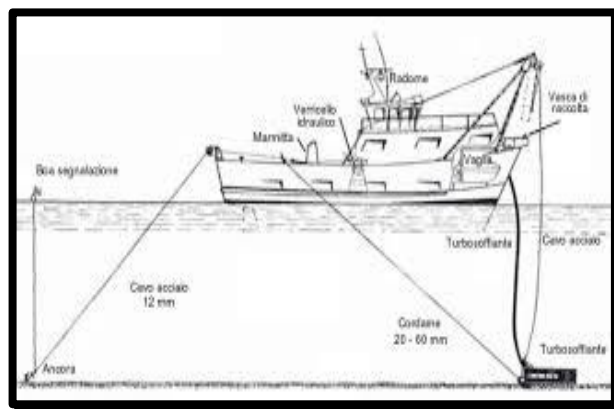


Illustration 6: Work of dredge turbocharger

If in the past the rules were few and general, the current legislation, particularly the European one, has made illegal (for the jersey, for the size of the catch, for fishing areas or the use of tools no longer allowed) many traditional forms of fishing in the Adriatic.

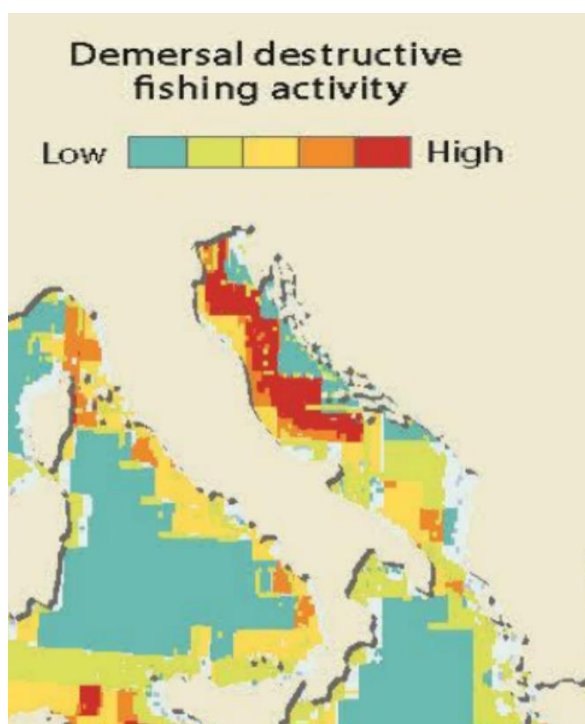


Illustration 7: Map of cumulative demersal fishing impact on the Adriatic Sea (Author: GRID-Arendal, <http://www.grida.no/>)

Benthic trawling is a source of considerable impact on the marine environment. Trawls fact destroy or wear away anything that gets in the seabed, fish, invertebrates, corals, algae, seagrass, etc. and leave a devastated environment where the original biotic communities can replant only after a long time. However, trawling provides the majority of the catch of demersal species.

Another serious problem of trawling is its non-selectivity, the train picks up everything, commercial and non-commercial species, adults and young people. The capture of specimens of species or no commercial interest is called **bycatch**, and may affect youth of valuable species, which may lead to a collapse of fish stocks, as well as numerous organisms inedible but the same important for the ecosystem.

Red tuna fishing with variable tranches over the years and by fishery system makes it impossible for any multi-annual programming on the part of anglers and makes it look like the result of fishing in a raffle.

Recently the increase in costs and markets open to competition of products from other areas have led to the reduction of the Italian Adriatic fleet and workers in the sector.

Therefore, navies, with large fishing boat that operated out of open sea areas, are greatly reduced.

Other navies who traditionally operated on a more diversified resources (in part also in the lagoon), there remain large fleets with high diversification of fishing techniques. (6)

1.2 THE MARINE PROTECT AREAS IN THE ADRIATIC SEA

Marine protected areas (MPA) are protected area of seas, oceans or large lakes. MPAs restrict human activity for a conservation purpose, typically to protect natural or cultural resources. (7)

Marine resources are protected by local, state, territorial, native, regional, or national authorities and differ substantially among nations. This variation includes different limitations on development, fishing practices, fishing seasons and catch limits, moorings and bans on removing or disrupting marine life.

In some situations, MPAs also provide revenue for countries, potentially equal to the income that they would have if they were to grant companies permissions to fish. (8)

Marine biodiversity in the Adriatic Sea is high, but at the same time, a considerable number of species (both vegetation and animals) endangered. In order to preserve biodiversity and maintain stocks of species, countries surrounding the Adriatic Sea have established marine protected areas. This section gives an overview of the MPAs in these countries. Shows in red the MPAs in Italy and Croatia along the Adriatic coast:



Illustration 8 Italian Adriatic Marine Protect Areas

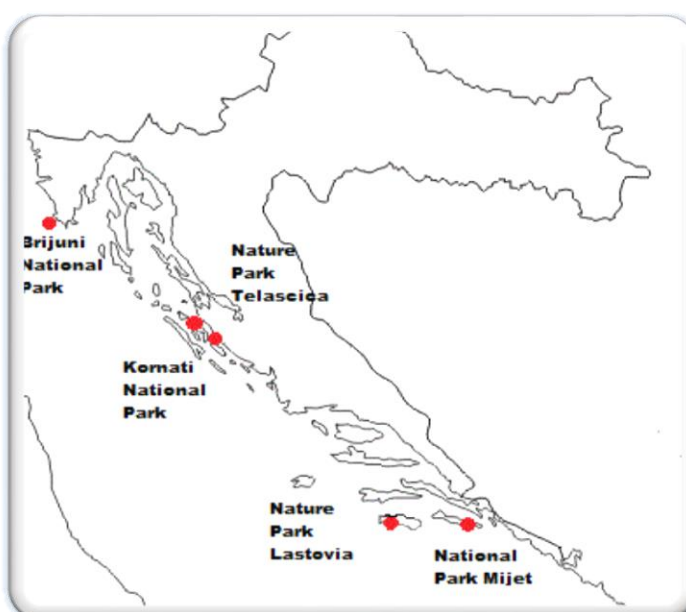


Illustration 9 Croatian Adriatic Marine Protect Areas

2. TORRE DEL CERRANO MARINE PROTECT AREA



**Area Marina
Protetta**



The area of the SCI IT7120215 **Torre del Cerrano** is also Marine Protected Area (MPA - 10A03794) established by Decree. Of 21 October 2009 (OJ n. 80 07-04-2010). The Protected Area surface divided into an:

Area B of the general reserve, a square of about one kilometer to the side in front ancient Cerrano Tower.

Area C of partial reserve of 14 square kilometers, which develops for the entire length of the sea front up to about 2 km from the coast.

Finally, a large **area D**, with minor forms of protection, of trapezoidal shape that extends for about 22 km square up to the limit of three miles, the sea zone where the submerged reefs are located Oasis fish restocking of the Province of Teramo, Abruzzo.

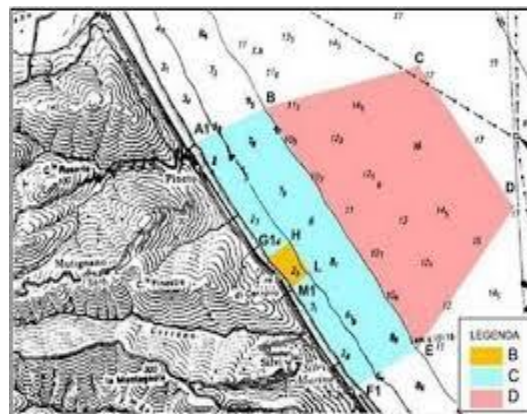


Illustration 10 Zonation of MPA

The "Torre del Cerrano Marine Protected Area, for its importance on the presence of **Sandbanks** beneath shallow marine waters (Ref. 1110) was immediately recognized as a Site of Community Importance immediately after the publication of the decree establishing. The approval of SIC "Torre del Cerrano Marine Protect Area" took place with the Abruzzo Region Council Resolution 738 of 27 September 2010. Thanks to the unique marine habitat, that includes low **Sandbanks** coverage of water, presence of **Cliffs** (Ref. 1170) with bioconstructions of *Sabellaria* and **Coastal Dunes** (Ref. 2120); the "Marine Protected Area Torre del Cerrano" is recognized as a Site of Community Importance. This proposed by the Region of Abruzzo and as such European Union by the Ministry of Environment and protection of Land and Sea. (www.torredelcerrano.it)

2.1 TORRE DEL CERRANO MPA HABITAT DIRECTIVE 92/43/CEE (ANNEX 1) (9)



- **1110: Sandbanks which are slightly covered by sea water all the time.**

Consist of **sandy sediments** that are permanently covered by shallow sea water, typically at depths of less than 20 m below chart datum (but sometimes including channels or other areas greater than 20 m deep). The habitat comprises distinct banks (i.e. elongated, rounded or irregular ‘mound’ shapes) which may arise from horizontal or sloping plains of sandy sediment. Where the areas of horizontal or sloping sandy habitat are closely associated with the banks. Cover of 50% of SCI Torre del Cerrano habitat.

- **1170: Reefs**

Reefs are rocky marine habitats or biological concretions that rise from the seabed. They are generally subtidal but may extend as an unbroken transition into the intertidal zone, where they are exposed to the air at low tide. **Reefs** are very variable in form and in the communities that they support. Two main types of reef can be recognised: those where animal and plant communities develop on rock or stable boulders and cobbles, and those where the animals themselves (biogenic reefs) create structure. Under the SCI (0, 02%) is presence of a submerged Roman ancient port of “Hatria” where we can find of bioconstruction of Sabellaria.



- **2120: Mobile Dunes *Ammophila Arenaria***

Encompasses most of the vegetation of **unstable dunes** where there is active sand movement. Under these conditions, sand-binding marram *Ammophila arenaria* is always a prominent feature of the vegetation and is usually dominant. This is a dynamic vegetation type maintained only by change. It can occur on both accreting and eroding dunes, but will rapidly change and disappear if stability is imposed. It rarely occurs in isolation because of its dynamic nature and because it is successional related to other dune habitats. The habitat type excludes the low, embryonic dunes where occasional exposure to saltwater flooding constrains the growth of marram and where plants of the strandline mingle with salt-tolerant, sand-binding grasses. This is also the important breeding habitat of the bird *Charadrius Alexandrinus* and sea turtle *Caretta*

2.2 TORRE DEL CERRANO MPA SPECIES HABITAT DIRECTIVE 92/43/CEE (ANNEX 2 AND 4) AND BIRD DIRECTIVE 2009/147/CEE (10)



- Sea Turtles "*Caretta Caretta*"

The **loggerhead sea turtle** *Caretta Caretta*; (Linnaeus 1758), or **loggerhead**, is distributed throughout the world. It is a marine reptile, belonging to the family Cheloniidae. This species is present in the Adriatic and exploits the sandy shores to breed.

- Sea mammals "*Tursiops Truncatus*"

The **bottlenose dolphin**, *Tursiops Truncatus* (Montagu 1821), is a cetacean odontocete, marine mammal belonging to the family Delphinidae. First recognized as a unique species of the genus *Tursiops* currently makes it distinguishable from the species *T. aduncus* and *T. australis*, (LeDuc et al., 1999; Charlton Robb et al., 2011) you can spot him along the coasts of Torre del Cerrano MPA.



- Fishs "*Alosa Fallax*"

There "**Cheppia**", scientifically known as *Alosa Fallax* (Lacepede, 1803), is a fish anadromous of the family clupeidae. This species lives at sea but goes up the rivers to spawn.

- Birds "*Charadius Alexandrinus*"

The species animal symbol of the environment dune is definitely the "**Fratino**", *Charadrius Alexandrinus* (Linnaeus, 1758), a small bird belonging to the family of Charadriidae to risk of extinction for the depletion of its habitat. This bird lays eggs under the sand.



2.3 REPORT OF TORRE DEL CERRANO MPA WITH THE STAKEHOLDERS

Stakeholders are those members of the public that the SCI decided to involve directly at different stages of development and implementation of management plan of MPA because it considered relevant in view of achieving the desired objective

Every person, whether a public or private entity, is characterized by its projection in the social context through its own degree of social responsibility, which is linked to the perception of the impact of the activity stakeholders.

	THEME		STAKEHOLDERS
	HABITAT	SPECIES	SPECIFIC STAKEHOLDERS
Sea Zone	SANDBANKS - 1110	Caretta caretta Tursiope Alosa fallax	Artisanal fishing Amatorial sportive fishing Diving Environmental guides
	REEF – 1170	Caretta caretta Tursiope Alosa fallax	Diportist Diving Environmental guides
Transition Zone	DUNE – 2110	(Caretta caretta) Charadrius Alexandrinus	Bathers Hoteliers with bathing concessions Environmental guides

Table 11: Specific stakeholders that is particularly interested in specific issues (in the table related to the issues of Habitat and Species). (11) They invited by MPA to participate at various workshops.

The strategic objective of the SCI Torre del Cerrano is therefore to put the stakeholders in a position to understand the processes at work in the development and subsequent implementation of the Management Plan of the SCI 'Torre del Cerrano' and at the same time to involve them at various levels. More specifically, the aim is to incorporate the views of various stakeholders on the topics chosen and implemented information, communication (and reporting) to be taken in the management plan.



Illustration 12: a) Workshop on the river contract (12.07-2016) Constructed wetlands and breeding habitat of Alosa Fallax b) Inter-adriatic Workshop (16-07-2016): Environment impact of fisheries, pollution, and the protection biodiversity

2.4 REPORT OF TORRE DEL CERRANO MPA WITH THE PROFESSIONAL FISHING

The fishing tools used by today's anglers, can alter and modify the seabed and destroy habitat.

One of the instruments is not granted in the MPA is the fishing with bottom trawls or dredge turbo-charger:

Fishing with bottom trawls may alter the sedimentary layers of the base and then pull the fine sediments muddying the waters. At the same time, trawls can remove benthic organisms that do not the “refuge” of fish targeted species. Also with this tool would be captured even accidentally species which do not have commercial value, may have an important ecological function. In opposite, the small artisanal fisheries it is allowed only to residents (*Blue arrows*). Further not granted (vietata) in the AMP tool is the hydraulic dredge tur-bocharger “(Red arrows)” for clam *Chamelea Gallina* fishing “Species than lives in habitat Sand-banks” with high economic value.



ATTIVITÀ consentite			
ATTIVITÀ	Zona B - Riserva Generale	Zona C - Riserva Parziale	Zona D - di Protezione
Soccorso e servizio	Consentiti	Consentiti	Consentiti
Ricerca scientifica	Se Autorizzata	Se Autorizzata	Consentita
Panchi all'aperto	Vietati	Vietati	Vietati
Balneazione	Consentita	Consentita	Consentita
Snorkeling	Consentito	Consentito	Consentito
Immersioni individuali (con autorespiratore)	Se Autorizzate	Se Autorizzate	Consentite
Visite guidate subacquee	Solo tramite i locali centri d'immersione autoriz. da Co.Ges. AMP	Solo tramite i locali centri d'immersione autorizzati	Consentite
Navigazione a Remi	Consentita	Consentita	Consentita
Navigazione a Vela	Consentita	Consentita	Consentita
Sci nautico e sport simili	Vietati	Vietati	Vietati
Moto d'acqua e simili	Vietati	Vietati	Vietati
Accesso navi da diporto (>24mt)	Vietato	Consentito solo a unità e compatibili in linea con all. IV e VI della MARPOL 73/78	Consentito
Accesso imbarcazioni da diporto a motore (>10-24 mt)	Consentito solo a unità eco-compatibili dotate di casse raccolta e in linea con la Direttiva 2003/84/CE	Consentito solo a unità eco-compatibili dotate di casse raccolta e in linea con la Direttiva 2003/84/CE	Consentito
Accesso natanti da diporto a motore (lunghezza <10mt)	Consentito	Consentito	Consentito
Navigazione a motore navi da diporto (>24mt)	Vietata	Consentita a velocità max di 5 nodi entro 300 m dalla costa e 10 nodi tra 300 e 600 m dalla costa, sempre in assetto dislocante	Consentita
Navigazione a motore imbarcazioni da diporto (>10-24mt)	Consentita a velocità max di 5 nodi entro 300 m dalla costa e 10 nodi tra 300 e 600 m dalla costa, sempre in assetto dislocante	Consentita a velocità max di 5 nodi entro 300 m dalla costa e 10 nodi tra 300 e 600 m dalla costa, sempre in assetto dislocante	Consentita
Navigazione a motore Natanti da diporto (lunghezza <10mt)	Consentita a velocità max di 5 nodi entro 300 m dalla costa e 10 nodi tra 300 e 600 m dalla costa, sempre in assetto dislocante	Consentita a velocità max di 5 nodi entro 300 m dalla costa e 10 nodi tra 300 e 600 m dalla costa, sempre in assetto dislocante	Consentita
Visite guidate-transporto collettivo	Se autoriz. velocità max di 5 nodi entro 300 m dalla costa e 10 nodi tra 300 e 600 m dalla costa, sempre in assetto dislocante	Se autoriz. velocità max di 5 nodi entro 300 m dalla costa e 10 nodi tra 300 e 600 m dalla costa, sempre in assetto dislocante	Consentite
Ormeaggio (a qavellio, punto fisso, ecc)	Consentito ai natanti e alle imbarcazioni da diporto, in appositi campi boe individuali	Consentito in appositi campi boe individuali	Consentito
Ancoreaggio	Vietato	Consentito	Consentito
Piccola pesca artigianale (definita da D.M. 14/09/1999)	Consentita solo a imprese e soci residenti nei Comuni di Pineto e Sili al 2010	Consentita solo a imprese e soci residenti nei Comuni di Pineto e Sili al 2010	Consentita solo a imprese e soci residenti nei Comuni di Pineto e Sili al 2010
Pesca a circuizione (cianciale, lampara)	Vietata	Vietata	Vietata
Pesca a strascico	Vietata	Vietata	Vietata
Pesca con turbosoffianti	Vietata	Vietata	Vietata
Pesca subacquea	Vietata	Vietata	Vietata
Pesca sportiva subacquea	Vietata	Vietata	Vietata
Pesca sportiva per residenti Pineto e Sili	Vietata	Consentita	Consentita
Pesca sportiva per non residenti	Vietata	Vietata	Consentita
Pescaturismo e Ittiturismo	Consentita solo a imprese e soci residenti nei Comuni di Pineto e Sili al 2010	Consentita solo a imprese e soci residenti nei Comuni di Pineto e Sili al 2010	Consentita
Ripopolamento attivo	Vietato	Vietato	Vietato
Acquacoltura	Vietata	Vietata	Vietata
Concessioni demaniali marittime	Adottate o rinnovate dagli enti competenti d'intesa con il Co.Ges. AMP	Adottate o rinnovate dagli enti competenti col parere del Co.Ges. AMP	Secondo le normative vigenti

Illustration 13: Acceptable activity in different zones of the MPA



Illustration 14 a) Transect of different bathymetry to monitoring benthos sandbanks using “Adriatic Clam” in and out of Torre del Cerrano MPA.

b) Image of economic bivalve species *Chamelea Gallina*

Alfred Toepfer Natural Heritage Scholarship 2015

One of the biggest problem of this MPA is just being able to have a dialogue with some actors fishery that they say appears to have been cheated out of part of the area for their work.

Increasingly poor fishing and a salary more and more miserable also affect all this. There are many requests for these anglers to the state asking Italian incentives, but in my opinion and for monitoring studies, in and out of SCI Torre del Cerrano MPA it is the fishing effort in particular with dredge turbo-charger has created a different adaptation of species *Chamelea Gallina* (Adriatic Clam)

THE MONITORING ACTIVITY OF THE SCI TORRE DEL CERRANO MPA

ABUNDANCE OF CHAMELEA GALLINA

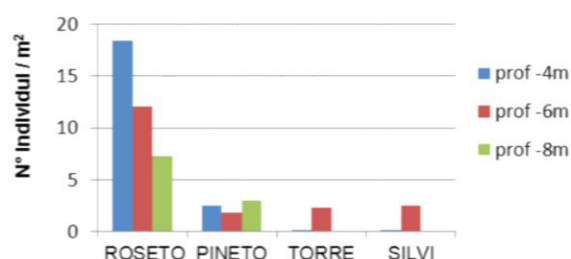


Illustration 15 Date of Abundance of *Chamelea Gallina* in different bathymetry. N° of individual to singol draw and different transects coast. (Torre is MPA)

These data show that outside the confines of the SCI, where the fishing effort is active, “Roseto, Pineto and Silvi” the clams are many more (Ill.15) but smaller (Ill.16), while inside the MPA “Torre” clams are less but bigger.

This testifies, with the implementation of genetic data, inside and outside the MPA shows a different intra-species biodiversity. (12)

In response to decades of effort we believe that the clams have evolved a strategy to avoid being captured already matured to 22-23 mm, (the minimum fishing size is 25 mm, which is considered mature size) because the larger species are continuously fished, and reproducing much more and quickly those of smaller size. The problem of poor fishing with the current size of the regulation that Italy in the European community a redefinition of the size of clams for fishing and even to make the fishing near the coast. In opposite, the MPA in this period has a very important role in preserving the biodiversity of one species and of entire habitat, kipping a good state of SCI conservation. Fishing with dredge turbocharger is a practice still used before the establishment of the MPA.

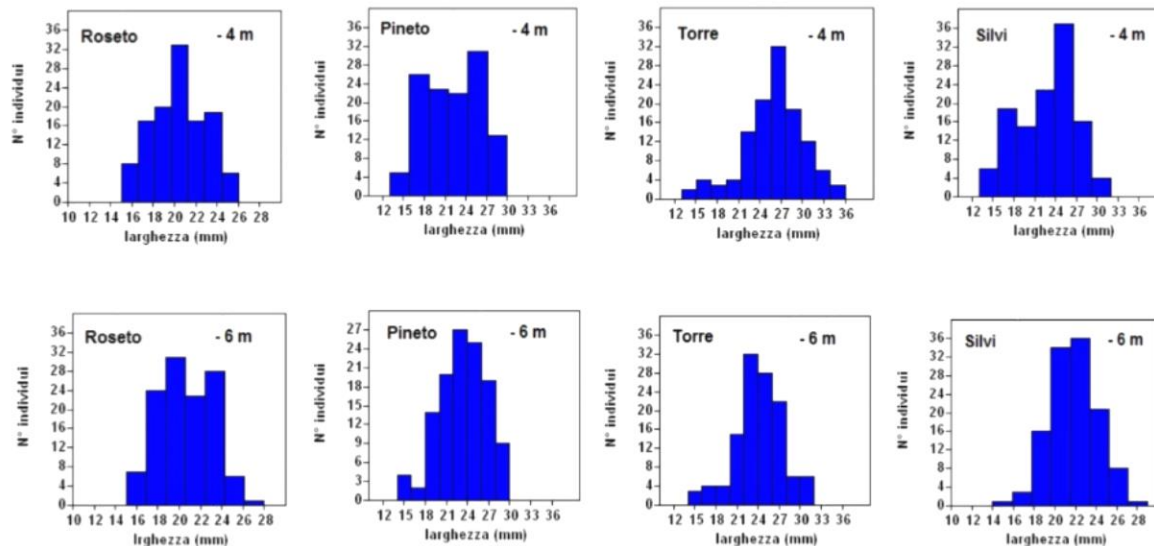


Illustration 16: Date of Size of *Chamelea Gallina* in different transects and different bathymetry.

I think the effect of this trawling over time has demolished many species now protected as *Poseidonia Oceanica*, *Zoostera Marina*, *Cimodocea Nodosa* and *Pinna nobilis*, but we have no data at present.

THE ACTIVITY OF CETACEAN STUDY CENTRE

Professional fishing despite being prohibited within the SCI area of the MPA remains a problem as the outside influences on the preservation of other species such as the sea turtle *Caretta* and all *cetaceans*. The man seriously threatens the turtles, as they are susceptible to many human activities, including

tourism, with consequent human settlement in the spawning areas, and overfishing. It estimated that each year about 150 thousand turtles end up caught in fishing gear in the Mediterranean and that of these over 40,000 die.

While the reproductive activity is generally concentrated in some important sites, which makes it theoretically possible to the protection of these areas, the impact of fishing on sea persons constitutes a very serious problem that poses a serious challenge to those who work for the conservation of sea turtle.

The **Cetacean Study Centre** (office in Pescara) is to support the institutions and the Entities regarding interventions, as a MPA on live beached, always delicate and complex operations. The staff of the CSC, through experience gained in the field and in a controlled environment, is able to intervene and coordinate recovery operations of an animal in distress taking into account aspects such as logistical difficulties, the needs of the species involved, and causes of stranding. (13)

Performed activities of CSC

- Interventions of live turtles and cetaceans
- Releases.
- Interventions of dead turtles and cetaceans.
- Training activity.
- Recovery Center

Illustration 18: Specimen of *Caretta Caretta* during the reintroduction



Illustration 17: Geographic information system strandings *Caretta Caretta* using GeoCetus (19)



2.5 REPORT OF TORRE DEL CERRANO MPA WITH THE TOURIST

THE EUROPEAN CHARTER FOR SUSTAINABLE TOURISM

The **European Charter for Sustainable Tourism** is a practical management tool that enables protected areas to constantly improve the sustainable development and management of tourism taking into account the needs of the environment, local communities and tourism businesses.

The Charter is not a common label or eco-label but a process-oriented methodology planning of sustainable tourism that can be used and applied by all types of protected areas.

The objectives underlying the European Charter for Sustainable Tourism in Protected Areas we consecrated in the Principles of Sustainable Tourism Charter.

Therefore, the MPA activities pursue the objectives of sustainable tourism, despite the excessive human settlement of coasts and maintenance work that the bathing establishments engaged during the



Illustration 19: High antropization coastal zone in Adriatic Sea during the summer, Pineto (IT)

summer months. The MPA outside its borders has managed to interactions of different hoteliers in order not to use heavy machinery to clean beaches. Most of the beaches goes often is not aware of the ecological significance of the dune and the space in which settles the beached material. The amount of beached debris constitutes an obstacle to the enjoyment of the beaches, you must find suitable ways to combine leisure activities with the environment. It is not conceivable reduce in authentic beaches esplanades lifeless and monotonous for tens of kilometers. As for the birds must be remembered that nest here Fratino “Kentish plover” *Charadrius Alexandrinus* rare migratory bird that frequents the beach from April to late September and returns each spring to lay their own eggs

The main threats made:

- The Human disturbance during the nesting on the beaches
- Predation of eggs and chicks by rats, dogs, cats, crows and gray herring gull.



Illustration 20: *Charadrius Alexandrinus* eggs in a sand

3. BRIJUNI NATIONAL PARK



BRIJUNI

Nacionalni park
National park



The **Brijuni National Park** consists of 14 islands, islets and cliffs along the west coast, near the town of Pula. Today the boundaries of the national park include the islands, the sea that surrounds it and the seabed, so that the total area of 33.95 km². The park takes its name from the two largest islands in the archipelago, Brijuni major and minor.

The protected area Zoning is one of the basic tools to use planning and space management in order to manage the protected area to preserve biological diversity, geological and overall landscaping.

The park is divided into three zones and several sub-areas. Each zone defines the permitted or prohibited type of activity. The zoning is the result of the reflections and knowledge with the objective of maintaining the processes of natural habitats and their components. In the strict protection zone (1 a, b, c), it is forbidden any kind of extraction of natural resources. It is not allowed in space operations (except in exceptional cases), nor any modification of the space.

It is exceptionally allowed the intervention for the removal of invasive non-indigenous, repairing damage caused during accidents remaining in compliance with the provisions of the law on nature protection.

1) Strict Protection Zone (Green)

They are divided into three sub-zones, with zone 1b actually surrounding the entire area 1c:

1a - In this zone they are allowed monitoring and scientific research.

1b - In this area, the mainland is not permitted any activity other than research, from monitoring or from touring with an experienced guide. Navigation is regulated and limited. It is legal to pass service craft, the police, the inspection for fishing etc.

1c - The whole area is located within the area 1b. This area is described by the Regional Plan with the use of nautical charts. This area is covered by the same rules of the 1b area but with different regulations on navigation and the intended use because of the residential area that includes.

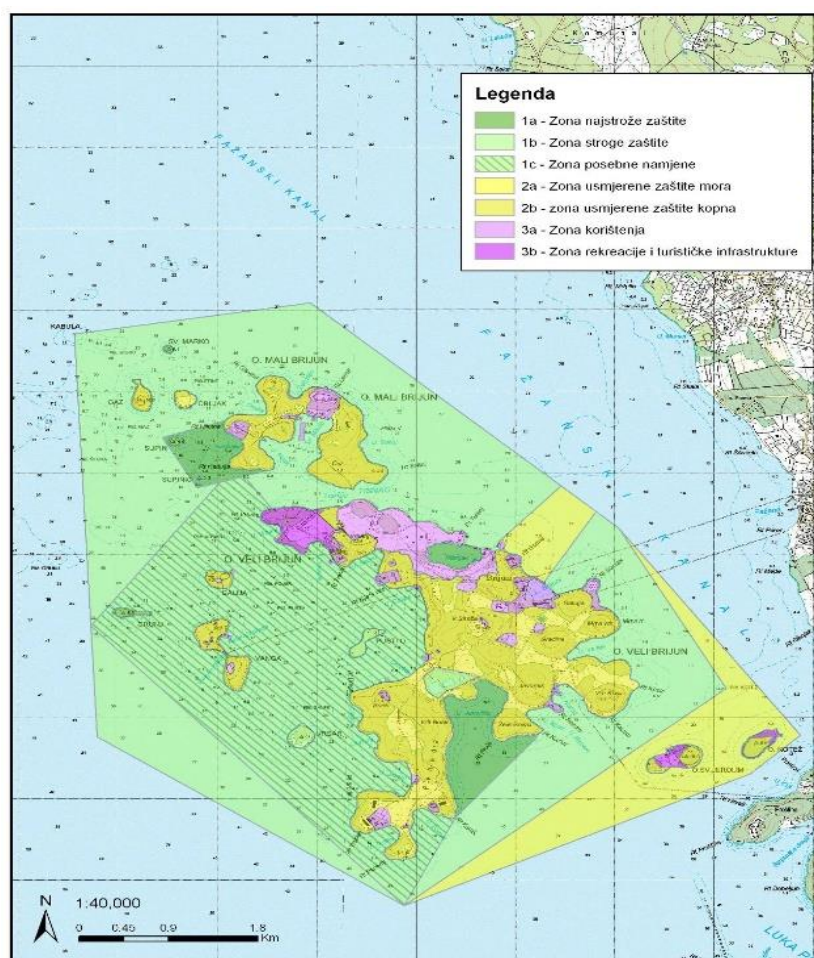


Illustration 21 Zonation of Brijuni National Park

2) Direct Protection Zone (Yellow)

This area includes areas of great importance for the conservation of natural and cultural values of the park. The goal of the management of this area is:

- The conservation of the natural processes and habitats (terrestrial, freshwater and marine) and their components,
- The preservation of the anthropic landscape and cultural heritage of the area.

The protection zone at sea is defined as a special area where recreational fishing is permitted.

The fishing here is regulated by a special decision of the head of the institution and permitted by license purchased. Anchoring is permitted only for small boats. Ships to pass through without stopping is permitted. Is allowed apnea, and other forms of recreational sports that are harmless to marine organisms and protected areas. This area is made solely to allow navigation and anchoring of ships from the port of Fazana to Brioni major port. Except for anchoring, here will affect all of the area 1b rules.

3) Areas to Use (Violet)

The used area covers areas of lower values for storage and / or areas that traditionally have a certain level of use.

The goal of the management of this area is the sustainable use of space, in accordance with the conservation objectives of biological diversity and landscape areas.

On Brijuni you use the land area covered with buildings, ports, docks, power-intensive areas, agricultural land, golf course and other sports facilities, swimming pools and the like.

This zone is a sort of compromise between the use and protection of the area, but its use is in accordance with the principles of sustainable development, without compromising the objectives of the protected area and affect the conservation objectives defined in the management plan. (14)



Illustration 22: Island Gaz Symbol of Brijuni N.P.
(2b Zone)



Illustration 23: Port of Major Brijuni Island



Illustration 24: Museum of Major Brijuni



Illustration 25: Hotel and Harbor of Major Brijuni Island

3.1 BRIJUNI NATIONAL PARK HABITAT DIRECTIVE 92/43/CEE (ANNEX 1)

- **1120: *Poseidonia Beds* (*Poseidonion Oceanicae*)**

Beds of *Posidonia oceanica* (Linnaeus) are characteristic of the infralittoral zone of the Mediterranean (depth: ranging from a few dozen centimetres to 30 - 40 metres). On hard or soft substrate, these beds constitute one of the main climax communities. They can withstand relatively large variations in temperature and water movement, but are sensitive to desalination, generally requiring a salinity of between 36 and 39‰.



- **1170 Reef**

Reefs can be either biogenic concretions or of geogenic origin. They are hard compact substrata on solid and soft bottoms, which arise from the sea floor in the sublittoral and littoral zone. **Reefs** may support a zonation of benthic communities of algae and animal species as well as concretions and corallogenic concretions.

- **8330 Submerged or partially submerged sea caves**

Caves situated under the sea or opened to it, at least at high tide, including **partially submerged sea caves**. Their bottom and sides harbour communities of marine invertebrates and algae.



Many other protected Habitats insist on the entire island of Brijuni being entirely a National Park. In this context they are taken into account only coastal habitats and those related to the sea.

3.2 BRIJUNI NATIONAL PARK SPECIES HABITAT DIRECTIVE 92/43/CEE (ANNEX 2 AND 4)

- **Sea Turtles: *Caretta Caretta***

First species in common with the Torre del Cerrano MPA. The **loggerhead turtle** *Caretta caretta* (Linnaeus, 1758) is the most common sea turtle in the Mediterranean Sea. The species is highly endangered throughout the Mediterranean basin and is now almost extinct.



- **Clam: *Pinna Nobilis***



The **pen shell** *Pinna nobilis* (Linnaeus 1758) (also known as the fan mussel) is an endemic bivalve of the Mediterranean Sea. Threatened by human activities, it has been listed as an endangered and protected species. The ecological role of this species is of importance because it filters and retains large amounts of organic matter from suspended detritus contributing to water clarity. In addition, as a hard substrate in the soft-bottom seafloor, it provides a surface that can be colonized by other (floral and faunal) benthic species.

- **Clam: *Litophaga Litophaga***

The **Date Mussel** *Litophaga lithophaga* Linnaeus 1758) is a bivalve mollusk of the family Mytilidae. It settles into limestone rocks or shells larger corrodendole by the acid secretions secreted by special glands. Its growth is very slow, and to reach the 5 cm length, it requires 15 to 35 years.



- **Sea Mammals: *Tursiops Truncatus***

Second species in common with Torre del Cerrano MPA; This species of **Dolphins** *Tursiops Truncatus* (Montagu 1821), live in the Adriatic sea and you can spot them in groups along the perimeter of the island of Beijuni.

3.3 REPORT OF BRIJUNI NATIONAL PARK WITH THE STAKEHOLDERS

The intention of the National Park and the Public Institution of Brijuni was to gather information and opinions of the local community and all the main users of the island, starting point for the later stages of strategic planning for the implementation of the Plan Management.

Both within the boundaries with the neighboring population, the park has organized a series of meetings and two workshops with representatives of local governments, relevant institutions, non-governmental organizations and with people who have an interest in the park and in a certain way represent the local population.

The guides of the Park have also conducted personal interviews with visitors, representatives were also interviewed: the ministries and state authorities carrying out their activities along the Brijuni Islands area, mayors of cities and municipalities with which the Brijuni cooperates, representatives of educational institutions of the city of Fazana, non-governmental associations dive centers (dealers), representatives of tourism associations of the city, representatives of the Istrian region, etc.

The workshops are invited all representatives of the institutions and organizations linked to the Brijuni National Park, working on the objectives, the management activities and priorities.

During the preparation of the Management Plan, they have held two seminars with stakeholders:

1. The first was held on the theme: "The objectives and management activities of the Brijuni National Park."
2. The second workshop on "Zoning Brijuni" are called the stakeholders that could contribute to a mile re-zoning of the park areas.

It was concluded that it is necessary to strengthen the technical capacity of the park to inform the public about the value and the mode of action and will continue cooperation with the parties concerned, in order to exploit the high degree of interest, including all parties for cooperation

3.4 REPORT OF BRIJUNI NATIONAL PARK WITH THE FISHERIES

Activity	Strict protection zone			direct protection zone	Zone of use
	1a very strict protection	2a Strict protection zone	3a Special Purpose of use		
Research					
Diving		R	R	R	
Snorkelling		R	R	R	
Anchoring				R	
Navigation			R		
Swimming		R	R	R	
Fishing				R	
Tying		R		R	
Sea Kayak			R	R	
Visiting		R	R		
Traditional Agricultural Activities					
Sport Recreation				R	

Illustration 28: regulation of activities by zones.

GREEN permissible activities; **RED** prohibited activities (R): Permissible activities with regulation

were able to use nets for fishing outside the EU standards until 2014). Many small fishermen operate in the traditional way (Ill. 30), and those employed in fishing for economic purposes with nets and traps, changes its activities in summer becoming tour promoter.



Illustration 29: Fishing boat along the Brijuni Islands

Many anglers offering tours around the perimeter of the Brijuni islands is mostly navigable, this attitude places a high opinion of the park by fishermen since the park remains a source of income for people living in those areas. Despite this, the Park still have the issue related to illegal fishing or otherwise in-law that disturbs or harms the protected habitats.

Paradoxically, the concept of protection and conservation of the Island of Brijuni is justified by a tourist economy and a political and cultural history. Once the Croatian government was managing the area that was completely inaccessible and unapproachable. Now the government still controls part of the island regions and some small islands that can not yet be visited physically.



Illustration 30: Traditional boat

THE MONITORING ACTIVITY OF THE BRIJUNI NATIONAL PARK

Many of the SCI Brijuni monitoring activities were carried out over the past five years by different specialized institutions, some are performed on an annual basis both inside and outside the Protected Park in order to safeguard fish stocks and protect habitats.

1. Monitoring of *Poseidonia Oceanica* Meadows at Brijuni National Park September 2011. Data interpretation and report preparation: (15)

National Park Brijuni, Croatia

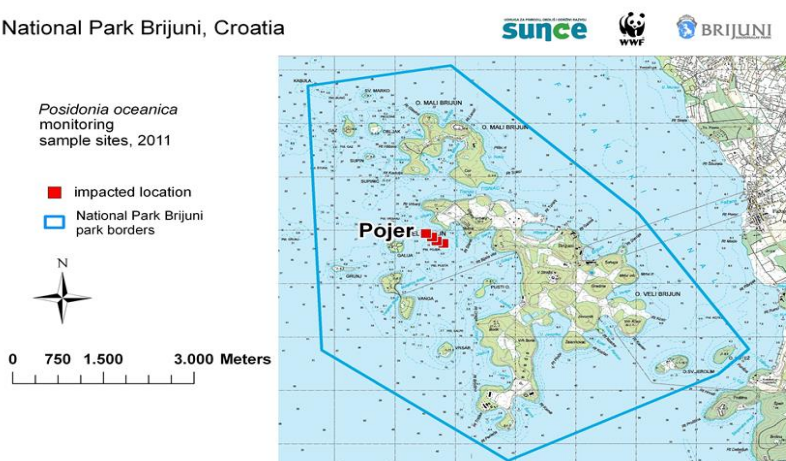


Illustration 31: Monitoring transect



Illustration 32: *Posidonia Oceanica* meadow with an exemplar of *Pinna Nobilis*

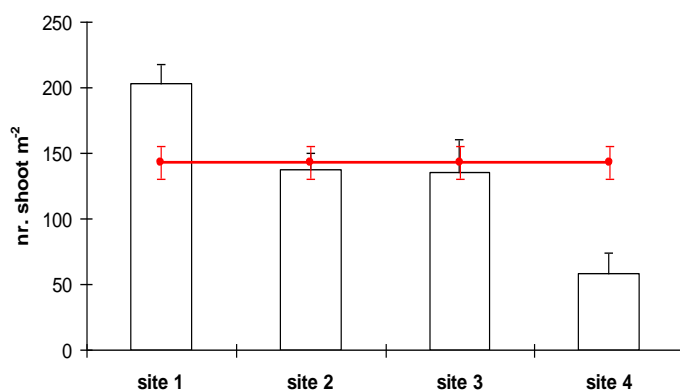


Illustration 33: Mean values (\pm se) of the shoot density at each site. The red line is the density of the meadow

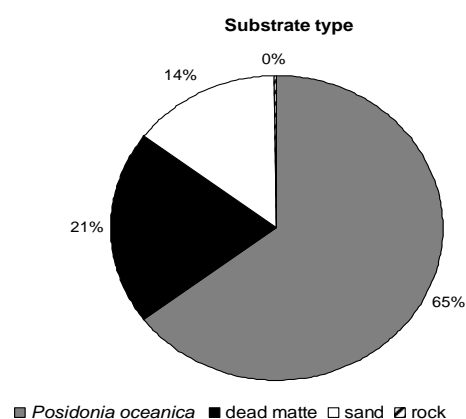


Illustration 34: Percentage cover of different substrata and living *Posidonia Oceanica*

2. Subject: Report on the first results of continuous recording of temperature of the sea Brijuni National Park at the station on Cape Kamik 2015 Zagabria



Illustration 35



Illustration 36

Illustration 35: Station Kamik on Veli Brijuni where he placed temperature sensors. Small temperature sensors, programmed so that every hour of recorded sea temperature and data stored in the instrument's memory, are mounted on the station Kamik, every 5 m depth, in depth ranging from 5 to 30 meters deep (Ill 36).

3. Stereo-video fish surveys and fish community ecology research activities at Brijuni NP (16)

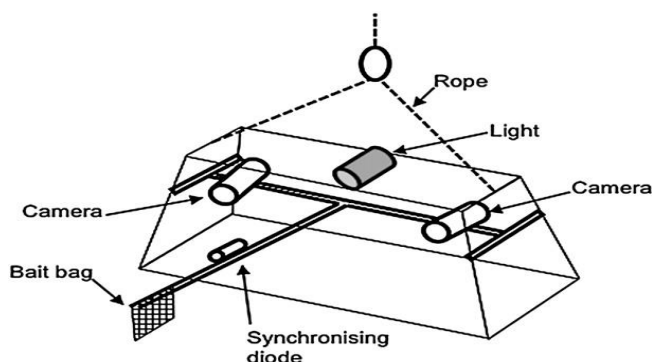


Illustration 37: Schematic drawing of the BUSS (Baited Underwater Stereo Video System) as it will be used starting September 2013. The BUSS used in Brijuni NP has no synchronizing diode. Notice: in September 2013 we will not use a light yet, as we are not yet

The Brijuni NP research activities are part of a larger effort (spatial and temporal) to use MPAs as an experimental tool to test hypotheses on the effect of differential fishing pressure on densities and biomass of large predators, to detect differences in total benthic-demersal fish community

structure, and to detect evidence for top-down control of fish communities. In addition the research will test hypotheses on fish export/spillover from MPAs into bordering open fished areas.

The method used to census fish to estimate fish community descriptors and to estimate fish size distribution is baited underwater videography when using BUSS, the fish census is not limited to fish identification and quantification but allows for estimation of fish size distribution using photogrammetry. Thus, BUSS are used routinely to monitor fisheries resources and also when conducting basic fish community ecology research and regular fish surveys.

4. Monitoring the effectiveness of protection National Park Brijuni for coastal communities of fish.(17)

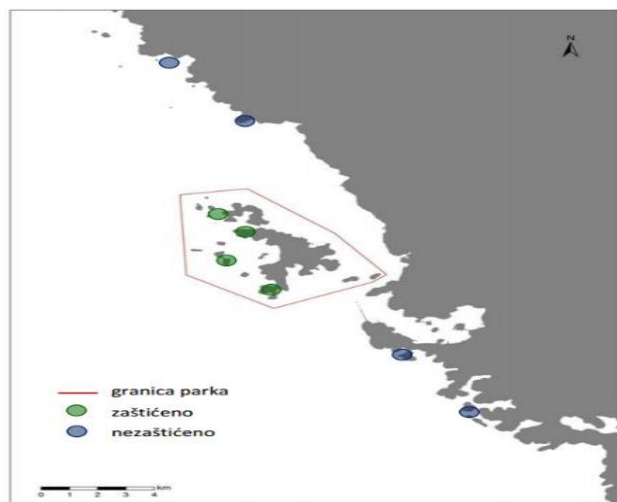


Illustration 38: National Park "Brijuni" - geographic location areas of different levels of protection studied to assess the state of coastal settlements fish (Map source: SINP)

Green: Protect Areas

Blue: No Protect areas

Illustration 38

Illustration 39 (2011) and 40 (2013): the average numerical representation of coastal fish species in areas under different level of protection (PZ - fully protected, unprotected NZ) wider waters of the National Park "Brijuni"

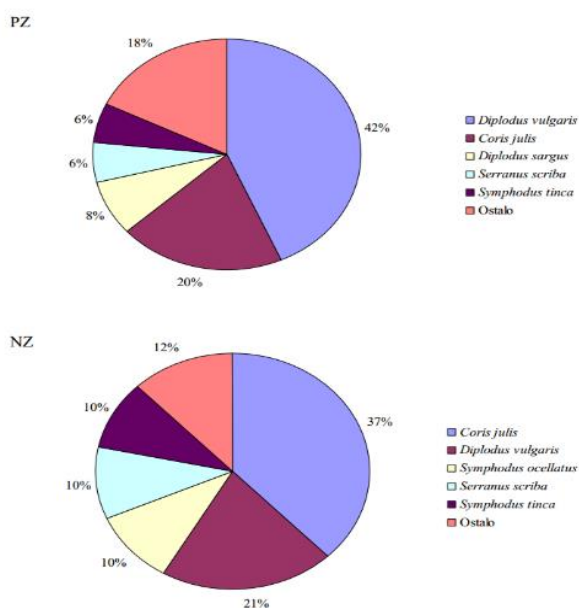


Illustration 39

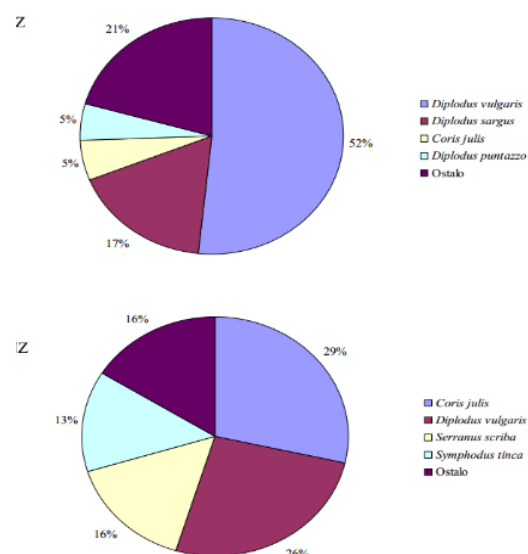


Illustration 40

On the basis of two studies in 2008 and 2013, has tested the effectiveness of the protection of the Brijuni National Park for the restoration of coastal species communities, you can make the following conclusions:

- The total number of fish show marked variations depending on the level of protection (PZ, NZ) and the time of year. Between 2008 and 2013 there has been a downward trend.
- The areas under protection of the Brijuni National Park in 2013 found a number of fish on average 34% lower than in 2008, while the unprotected circus-stakes areas 53%. However, considering the differences in the number of species classified both in protected areas and in non-protected, it is clear that Brijuni National Park PZ there was a significantly higher number (166% higher than in 2013, and in 2008 55% of fish in relation to areas outside NZ).

All results of previous studies confirm that the waters of the Brijuni National Park significantly contributes to the restoration and conservation of coastal fish communities.

ACTIVITY OF CENTER FOR CONVALESCENCE OF SEA TURTLES ACQUARIUM PULA

Also this summer on the Brijuni National Park, in the swimming pool with sea water circulation system, will take care of the sea turtle “Gianni”.



Illustration 41

tem, will take care of the sea turtle “Gianni”.

Gianni, said Vatreani, (Ill 42) is sexually mature male of the common turtle with serious injuries of the head and plastron (bottom shell), who arrived first at the **Center for the convalescence of sea turtles Aquarium of Pula** to be rehabilitated, (Ill 43) then he transferred into the large pool Brijuni, located in the safari

Park (Ill 41). It also spent the last summer in the swimming pool of the National Park of Brijuni, but with the arrival of the cold and the decrease in temperature of the sea, he returned to the Aquarium of Pula, in the swimming pool with water temperature controlled.



Illustration 42



Illustration 43

Vatreani arrived at the Center for the convalescence of the sea turtles in Pula in June 2014, and prior to this he was treated by veterinarians of the **Center for the convalescence of sea turtles Blue World of Mali Lošinj**. It is the largest loggerhead turtle *Caretta caretta*, strictly protected taxon of the sea turtle, which has a 70 cm carapace, found in an extreme state of malnutrition, indicated that the problem of a long fast. Vatreani had deep wounds, not swimming, just floated. In collaboration with the **Faculty of Veterinary Medicine in Zagreb**, Vatreani re-

ceived treatment and additional care and recovery procedures have been established.

3.5 REPORT OF BRIJUNI NATIONAL PARK WITH THE TOURIST

The Brijuni National Park is visited by guests, who spend only a few hours. The park uses a strategy of visitor management studies. The aim is to reconcile the visit and the protective value in the protected area. The Services for sales and reception of visitors are handled by the offices of the management of the park and are situated on the pier entry point of the



Illustration 44 Port of Fažana

Fažana harbor. (Ill.44) Visitors are offered various ways to visit the island of Brijuni. The classic major Brioni tour with a hard driving four hours and includes a tour of the tourist train (Ill.46) and introduce visitors to its rich history and its cultural and natural heritage.

Also on offer is a tour of the archaeological sites, bike tours (Ill.47) and trails of good vibrations. Another important form of tourism is tourism diving (Ill.48), but this is a form of tourism that is managed through authorized dealers and in strictly specified areas.



Illustration 46 Tourist train



Illustration 45 Ferry to reach the Island of Major Brijuni



Illustration 47 Bike tour

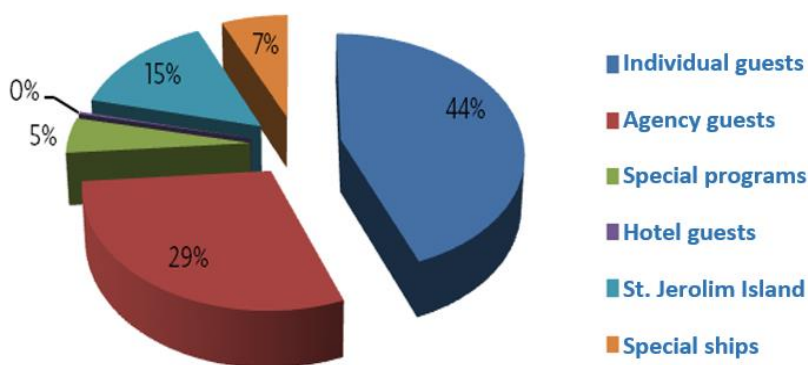


Illustration 49: Structure of visitors in Brioni (data for 2015)



Illustration 48 Snorkeling activities

Years	Visitors	Years	Overnight
2005.	157.420	2005.	35.233
2006.	165.395	2006.	29.878
2007.	176.925	2007.	32.323
2008.	173.620	2008.	33.502
2009.	162.664	2009.	29.474
2010.	145.152	2010.	28.762
2011.	155.776	2011.	27.333
2012.	150.943	2012.	28.632
2013.	151.007	2013.	27.735
2014.	153.086	2014.	28.436
2015.	160.010	2015.	29.189

Illustration 50

Illustration 51

Illustration 50. Summary of the number of visitors to Brijuni, for the period 2005-2015.

Illustration 51. Overview of the number of overnight stays in Brijuni accommodation for the period 2005-2015.

The hotel tourism and catering in Istria and the rest of Croatia employs large numbers of workers, especially in the summer. So the Brijuni National Park is important entity for the national economy and the region.

The island of Brijuni National Park despite the possibility of control of the visits and the chance to enjoy the fully inaccessible areas; it continues to develop more effective methods towards sustainable tourism also because of the numerous seasonal visits.



Illustration 52 Tourists on the Major Brijuni harbor

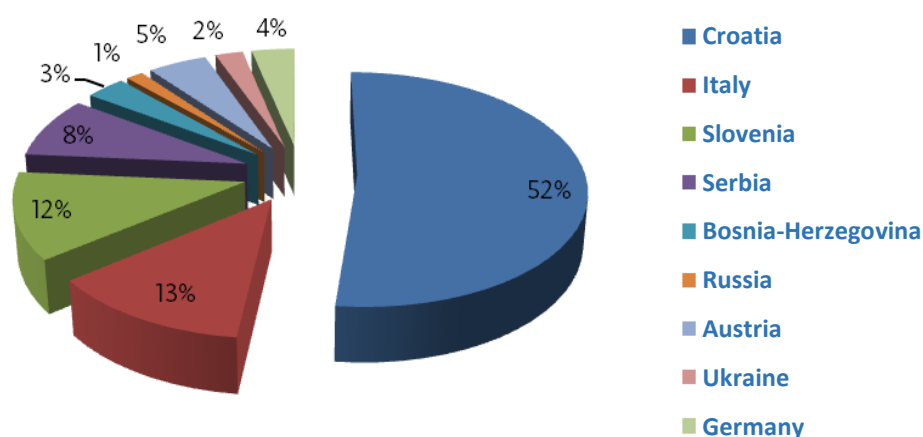


Illustration 53: The structure of overnight stays by country of visitors (data for 2015)

4. DIRECT COMPARISON, COMMON PROBLEMS AND SOLUTIONS

Many of these issues that affect then the Adriatic ecosystem, can not be resolved directly by the Sea Areas or Parks.

The typology of the territory and of problematic management puts emphasis on the governance of the Member States which are often not able to cope with such risks.

The increasing use of marine and coastal areas threatened ecosystems.

Unsustainable tourism has a negative impact on water, soil and biodiversity.

The shallowness and the semi-enclosed nature make the Adriatic Sea vulnerable to pollution.

Overfishing, the equipment for the abandoned fishing and ecological aquaculture not much threaten marine biodiversity as human health.

Untreated waste water and solid waste of predominantly terrestrial origin, discharges of agricultural activities that cause eutrophication, invasive species from ballast water and the pollution originating from exploration for oil and gas worsen the situation further.

Air quality, often worsened by climatic and local geographical conditions, is damaged by shipping emissions and the coastal activities (ports, industries).

Illegal hunting of migratory birds has an impact on the entire UE.

The networks of protected areas, such as Natura 2000, is not yet complete.

Despite this, the Protected Areas Adriatic develop new ideas and actions to help the management of the territory and resolve issue that also have an impact outside the borders of your country and require a strong collaboration.

It remains clear that despite two Adriatic marine areas, the Brijuni National Park and the Marine Protected Area Torre del Cerrano, have many differences under the naturalistic profile management.

Examination shows however that many managerial issues related to a park are the same for both, although with some differences.

4.1 CHALLENGES

Below are the main challenges that both Marine Parks like many others in Europe are trying to address:

Pollutions

Brijuni National Park

Cleaning the rocks or beaches is carried out by volunteers during day's dedicated or municipal bodies by hand.

The cleaning of the seabed is carried out during days dedicated or funded projects aimed fishermen not to reject plastic or other polluting materials finder of fishing.

The monitoring activities on pollution percentages are carried out regularly by different universities or specifics study centers.

Torre del Cerrano MPA

To combat pollution in large part by the rivers, stipulating "river contracts" with municipalities and internal stakeholders.

Cleaning the rocks or beaches is carried out by volunteers during day's dedicated or municipal bodies by hand.

The cleaning of the seabed is carried out during days dedicated or funded projects aimed fishermen not to reject plastic or other polluting materials finder of fishing.

The monitoring activities on pollution percentages are carried out regularly by different universities or specifics study centers.

Surely the activities to combat marine pollution are the same, the Croatian part of Istria has no rivers flowing into the Adriatic Sea, and so much of the pollution that we find on the coast of Brijuni comes from Italian rivers.

Marine pollution is a global issue, the control and the purification of rivers is fundamental.

(European Problems related to pollution and new strategies that should be investigated and discussed in more detail because is a much more delicate issue regarding the activities of every individual in every nation on the planet).

Illegal Fishing

Brijuni National Park

Fishing hasn't an excessive impact, in the summer months convert the gain in tourist economy.

It is illegal anchoring and fishing in protected areas, however, the island has a service of cameras and buoys that monitor illegal fishing and maritime traffic.

The relationship with the fishermen is excellent in terms of resource exploitation and under the tourist aspect.

Development of new ideas and adherence to new U.E. regulations in fisheries.

Torre del Cerrano MPA

Fishing has an excessive impact; it is only exploitable activities.

It is illegal anchoring and fishing in protected areas, in spite of this the marine area is equipped with monitoring cameras.

The relationship with professional fishermen is hostile.

Difficult to find a common point in accordance with the U.E. regulations.

The relationship with the sports fisheries activity and artisanal fishing is active.

Fishing activities in this case are a particular problem for the Italian coast where the activity is much more developed and involves a high issue on the economic relationship between man and environment. Today in Italy fishing is a sector in crisis, resource depletion affects the whole Adriatic basin becoming a common problem to which both Marine Parks are participants to develop solutions within the local community and the State.

In Brijuni National Park, the fishing activity is indissolubly binds with summer tourism.

In Torre del Cerrano MPA however, the conversion activities Fishing Activities for more sustainable tourism and scientific monitoring, is not so unlikely.

Many of the Torre Cerrano the MPA activities have been carried out thanks to a European project **"Guardian of the see"**, with the conversion of a fishing boat for tourist use and monitoring. (18)

The same boat that allowed us to study and monitor the protected area.

(European Problems related to fishing and new strategies that should be investigated and discussed in more detail because of the uniqueness of the situation of habitat sandbanks, Torre del Cerrano MPA).

Extensive tourism

Brijuni National Park

Thousands of tourists in the summer months visiting the islands of Brijuni.

Being an island park, it is visited for a few hours. The public is offered all the comforts of a modern accommodation (Hotels, Bars, Coffee) and at the same time the opportunity to enjoy the cultural and natural beauty.

Under the point of view of nature protection, many areas are prohibited or can be visited only with a guide.

The information is managed with tables and prohibitions.

The activities of park are many, including snorkeling activity.

It has a small museum that has the task to tell and show the history, the culture and the biological heritage of the Brijuni Park.

The Brijuni National Park is organized on mass tourism and the island allows to control the visits and proposes large-scale activities including nature walks to dive into the sea.

The safari park, golf courses and historic cultural attractions make this island a 360-degree usable Park but with inaccessible areas devoted to conservation.

However, the Tower of Cerrano MPA is completely different. The extensive areas is usable only along the shore and on the sandy beach, the sea-related activities should be developed. The tourism is high in the summer months and there is the need to reconcile conservation and tourist pressure.

Needed was driving to the **European Charter for Sustainable Tourism**.

Torre del Cerrano AMP.

There are many tourists in the summer months visiting the Tower but mostly staying around exploiting the beaches and the sea of MPA.

The marine area has adopted the **European Charter for Sustainable Tourism** with which it hopes to be able to manage the fruition of a responsible tourism.

Under the natural point of view, being able to isolate many areas, it is on information pointing to prohibitions and tables and on accountability.

Snorkeling is one of the activities of MPA.

The Tower of Cerrano is set up like a small museum that has the task to tell and show the history, the culture and the biological heritage of the AMP.

Ignorance of local communities

Brijuni National Park

Local communities are often considered during the park management plans.

Organizing conferences and events with the public and municipal bodies to develop their awareness through information, events and newsletters.

Torre del Cerrano MPA

Local communities are often considered during the park management plans.

Organizing conferences and events with the public and municipal bodies to develop their awareness through information, events and newsletters.

The both parks take in consideration the local communities and the continuous promotion initiatives, following the principles of environmental protection and sustainable development, in order to bring information and critical spirit to those who visit the parks.

Pollution, Fishing, extensive tourism and ignorance of local communities are the issues that every park, reserve or MPA faces

All these problems are solved only in part from the activities and initiatives of the two parks from the marine point of view.

All these issues have a heavy impact on terrestrial ecosystems, especially of the aquatic environment. Many species including protected species (Habitats Directive, IUCN) are strongly affected by all these human pressures.

In this case, it was possible to analyze the two Marine parks by identifying common solutions to be adopted, developing new ideas and improving the projects and the networks already in operation, in order to create a conservation plan and integrated management considering the habitats and protected species in common.

4.2 “GROWING TOGETHER” DISCUSSION

SPECIES “*Tursiops truncatus*” AND “*Caretta caretta*”

There are two species in common between these two realities of Marine Parks.:

The loggerhead turtle *Caretta caretta* and the dolphin *Tursiops truncatus*, are two species that live around the Adriatic sea, sightings of both species to the Brijuni Park are frequent as much as the Marine Protected Area Torre del Cerrano.

The protection of these species require precautions and rules that go beyond a park or MPA, but affect the whole community that lives and works in the Adriatic Sea.

The main anthropogenic threats:

- Accidental Fishing in “spadare” or trammel nets and “palmiti”. Bathing tourism in the nesting areas (Torre del Cerrano MPA)
- Habitat degradation and human disturbance are a major threat to the breeding sites.
- At sea the main threat is from mortality induced by incidental catches in fishing gear operating in the Italian seas.

In Italy several projects have already been developed for the protection of *Caretta caretta* and *Cetans*.

The **TARTALIFE** project (19), promoted in 15 Italian regions overlooking the sea, is part of this complex issue and aims to reduce the mortality of sea turtle *Caretta caretta* induced by fishing activities; this contributes to the conservation of the species in the Mediterranean.



TARTALIFE intends to pursue the reduction of mortality of *Caretta caretta* accidentally determined by professional fishing activities through two specific objectives:

- Reduction of **bycatch** made with longlines, trawls and gill, with spread of circle hooks and perfected TED and testing of UV lights to deter turtles and an alternative tool to nets
- Reduce mortality post capture, with the training of fishermen and strengthening recovery Deans / First Aid.



GeoCetus (20) is a voluntary project created and developed by the Cetaceans Study Centre in order to create a georeferenced database of strandings of cetaceans and sea turtles along the Italian coast.

The data in Geocetus are freely accessible and reusable under the terms of the Creative Commons license, it is therefore free data. For the data and all the work done on the ground for the collection and organization of the same can help to create, enhance and disseminate knowledge in the field of conservation of cetaceans and sea turtles; it is necessary that represent a heritage available to the community. Projects already being developed continue their activity and can be great long-date and understand the data also of sightings and discoveries in the Adriatic in Croatia.

One of my actions was to present **TARTALIFE** and **GeoCetus** to the Brijuni Park and the possibility of extending the data on the findings to the entire Balkan coast.

Visit: <http://geocetus.spaziogis.it/esplora.php> to date information and sightings.

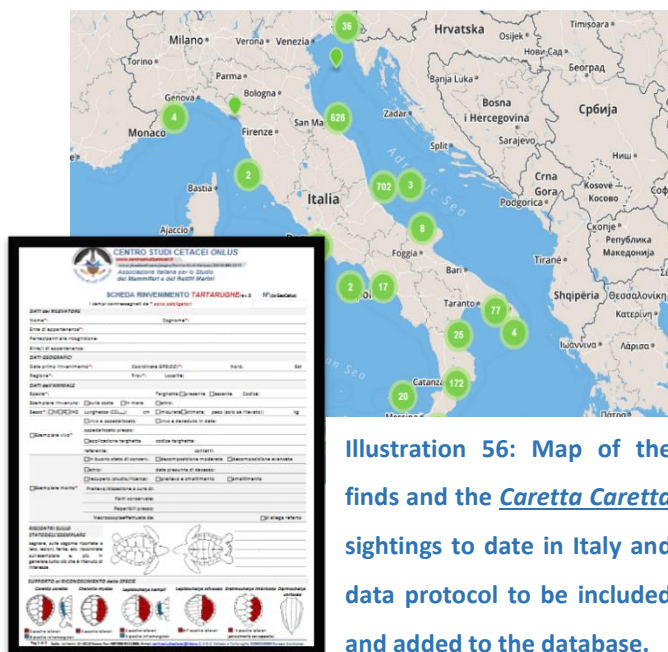


Illustration 56: Map of the finds and the *Caretta Caretta* sightings to date in Italy and data protocol to be included and added to the database.



Illustration 57: Map of the finds and the *Cetaceans* sightings to date in Italy and data protocol to be included and added to the database.



Illustration 58: Safety net nest of *Caretta Caretta*

Another discussion was on the preservation of births along the sandy shores of the Adriatic as AMP Torre Cerrano where turtles lay their eggs. The excessive human pressure hurts and sometimes destroys turtle nests also



Illustration 59: Species born on nest.

bearing in mind the reduced amount of secluded beaches without the presence of man. Implement monitoring and information is critical. (Photo CentroStudiCetacei).

HABITAT 1170 REEF, 1120 POSIDONIA BEDS AND PINNA NOBILIS

As discussed, only Habitat 1170 Reef is present in both protected areas but with the exception that Torre del Cerrano MPA may have had populations of Pinna Nobilis or “Seagrass” before the establishment of the same MPA.

The Marine Protected Area Torre del Cerrano is studying the possible reintroduction and replanting of seagrass meadows (Zostera spp. / Cymodocea spp.) and Pinna Nobilis populations, bearing in mind the **Guidelines for reintroductions and other conservation translocations (IUCN) (21)**

Translocation of seagrasses will reduce the hydrodynamic effects and increase the levels of oxygenation in target sites, thereby increasing the chances of success of any of translocation of P. Nobilis, and recruitment of potential new individuals. Furthermore, both bodies are "structuring species": the seagrass affect nutrient cycling, stabilize sediments, rap-have a trophic resource for many animals and a habitat for many plant and animal species. P. Nobilis contrib-



Illustrazione 60: Habitat of P. Nobilis in Brijuni National Park



Illustrazione 61: Part of Habitat reef of Torre del Cerrano

utes to the transfer of energy from the pelagic to the benthic, or through the filtration activities through the issuance of larvae, increases the complexity of the substrate allowing the establishment and development of a community rich in plant organisms and animals. The proposed action will result in an increase of biodiversity in

the release areas; also, the translocated species and associated organisms represent an attraction for divers, and the action will bring economic benefits and an increase in the value of the target areas awareness. Finally, as the bivalve using CO₂ to build the shell, while the marine plants fix carbon through photosynthesis, shellfish and seagrass beds contribute to the mitigation of the effects of climate change.

Thanks to useable knowledge on the part of the National Park of Brijuni in the field of management and protected species reintroduction would be possible to create workshops with representatives and experts of the two parks in the possibility of exchange of good practices and the opportunity to develop a project in which both precisely the Brijuni Park to provide the species.

Among this the opportunity to develop a connecting line between the University also dealing with research and monitoring sites. University of Teramo and the University of Zagreb.

ADRIAPAN: ADRIATIC MARINE PROTECT AREAS NETWORK

Another initiative has been to deal with networking issues trying to strengthen and make the most of AdriaPAN network.

AdriaPAN: a bottom-up network in the Adriatic Sea

AdriaPAN, the Adriatic Protected Areas Network, is a bottom-up initiative, started by 2 Italian marine protected areas, Miramare and Torre del Cerrano.

The aim of the network is to make contacts between Protected Areas in the Adriatic easier, to improve their partnership effectiveness, both in management and planning activities.



AdriaPAN is a growing network with a great potential for joining efforts in environmental protection, sustainable development. 10 Italian Protected Areas, both marine and coastal, initially signed the “*Cerrano Charter*”, (22) the founding act of AdriaPAN. Now the number has increased. It counts about 40 members from all countries bordering the Adriatic Sea, and more than 30 associated organizations (institutions, NGOs, businesses, etc.) interested in collaborating on AdriaPAN initiatives. Joining the network is free and the only requirement is to officially subscribe the “*Cerrano Charter*”, to achieve the mission herein defined.

Within the Adriatic Sea and along the Adriatic coast, there are more than 200 Protected Areas recognized by national and international law. The need for effective coordination and cooperation between Adriatic MPAs led in 2008 to set up AdriaPAN, the Adriatic Protected Areas Network. AdriaPAN is an integral part of the wider **MedPAN** (network of Marine and Coastal Protected Areas managers in the Mediterranean), within such network it represents and promotes the eco-logical, cultural and economic specificities of the Adriatic Sea and coast.



The main objective of the network was to initiate a technical process in support of all MPA managers and staff in the Adriatic, by providing services to improve effective management. It aims at sharing energies and knowledge to promote common programmes of international and regional cooperation for environment protection, sustainable development, green tourism and biodiversity conservation.

A common, web-based, communication tool promotes MPAs and their activities. The portal also keeps track of conferences, seminars, meetings or initiatives, creating permanent contacts within the network. The cross-border integration of protected areas contributes significantly to their promotion, accordingly to their capability of being economically self-sustained and effective.

The network has great potential to protect biodiversity, cultural heritage and landscape.

AdriaPAN, in fact, has carried forward several EU-level and is now developing and implementing regional strategies, plans and programmes.



In 2008 AdriaPAN has been internationally recognized during an event promoted by MedPAN, at the IUCN "IV World Conservation Conference". In 2010 the network has also been recognized by AII (Adriatic-Ionian Initiative), an international organization coordinated by the Foreign Ministers of the Adriatic countries (Albania, Bosnia Herzegovina, Croatia, Greece, Italy, Montenegro, Serbia, Slovenia) for the constitution of an EU Adriatic Macro region. (23).

It is a network that can be realized if you want to create a partnership around the Adriatic basin.

EUROPEAN FUNDS FOR THE IMPLEMENTATION OF PROJECTS

Bearing in mind the **Protocol on Integrated Coastal Zone Management of the Mediterranean** and the **Convention for the Marine Environment and the Mediterranean coast** at Barcelona on 16 February 1976 and amended on 10 June 1995 to improve prevention and to develop new shares a design collaboration would lead the two partners to increase the efficiency of the activities already undertaken and increase those possible with a more open communication channel.

In this regard the European Union provides several funds in response to design ideas for the preservation of habitats and species, sustainable development, resource exploitation and fishing.

The main tenders funded to work together could be:

- LIFE 2020 (<http://ec.europa.eu/environment/life/>)
- Adrion (Development, cohesion and territorial cooperation) (<http://www.adrioninterreg.eu>)
- MedPan (<http://www.medpan.org>)
- Feamp (http://ec.europa.eu/fisheries/cfp/emff/index_en.htm)
- Horizon 2020 (<https://ec.europa.eu/programmes/horizon2020/>)

It becomes essential to know and apply the rules and European directives on the environment strategies and marine habitats, Mediterranean coastal areas, fishing, and the efficient use of resources.

Possible actions to be undertaken in collaboration and cooperation:

- Geo Cetus Database Implementation (CSC and Aquarium of Pula)
- Information Days to fishermen about new fishery regulations use of new technologies and precautions to be taken in case of incidental catches of protected species. (MPAs, fishermen, private bodies)
- Possible reintroduction of species (*Nobilis*, *Poseidonia Oceanica*), monitoring of reintroductions, study on reproduction (*Nobilis*, *Caretta Caretta* and *Tursiops Truncatus*) and monitoring of water quality. (University and Research's center).
- Investments and active involvement in the fight against pollution Earth (River Contract) and of merchant ships and fishing (fishermen, guides, stakeholders, internal and local community)
- Strengthening of the network Natura 2000 (AdriaPAN MPAs)
- Improving solutions for tourists and information for sustainable tourism. (MPAs, ECST)
- Create different economy with the possibility of enjoying the sea as "fishing tourism". (Fishermen).
- Research and monitoring, exchange of information, best practices and publications. (University, private entities and Research's center).

5. ACTIVITIES NEWSLETTER, PROMOTED BY THE TORRE DEL CERRANO MPA AND BRIJUNI NATIONAL PARK DURING MY PERMANENCE

Publicity at home and abroad, sending newsletters and sponsored stories are an important part of the promotion of Torre del Cerrano MPA and Brijuni National Park.



Illustration 62 a) Concert at down events.b) Newsletter MPA. c) Event of guide of Cerrano summer 2016



Illustration 63 : Event July-August 2016

MPA Torre del Cerrano.

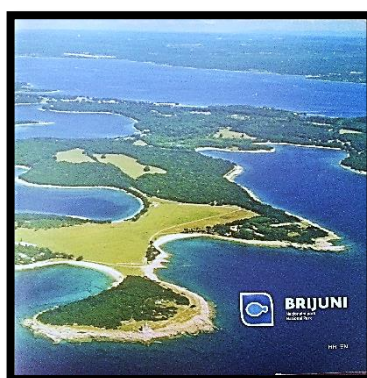
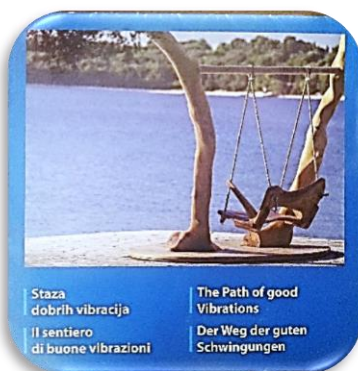


Illustration 64: brochures and tourist activities offered in Brijuni National Park.

a) The Path of good vibrations

b) e c) Maps of Brijuni National Park islands and activity

6. RESULTS AND CONCLUSIONS

It's just the beginning of a new collaboration that I hope will be lasting between the Brijuni National Park and Torre del Cerrano MPA for what that concerns the development and management of protected areas.

The Torre Cerrano MPA is a very recent marine reality (2010). The development of this reality in the Adriatic Sea is supported by local authorities, citizens and by the neighboring municipalities (Silvi and Pineto) as well as from the province of Teramo.

The spread of information, an ongoing relationship with stakeholders, the frequent organization of workshops and project activities, are the actions on which further tip the Marine Protected Area. From a technical perspective, a consortium of management of Torre del Cerrano MPA operates the SCI and prevention and monitoring activities are effective in the conservation of nature and biodiversity.

The problem of pollution of the rivers remain the most serious, this requires a more extensive management to the single MPA, which is still very active on this issue.

The relationships with the fishermen in particular with binders of Adriatic clams remain tense, the lack of fish and the economic problems affecting the MPA which regulated part of the former fishing area and fails to offer a real economic conversion in tourism.

Fishing off the coast remains a danger due to bycatch and incidental catches of protected species *Caretta Caretta* and *Tursiops truncatus*, the fishing equipment remain primitive, ignorance of the fishermen and the failure to report any catches do not respect the protocols decided to preservation of the species.

Tourism is quite impactful, preservation of the site is put to the test by the lack of complete inaccessibility areas but it does not consider essential to the fruition of a Marine Park.

The technology in prevention and in information as an interactive museum, thematic workshops and information days are the objectives to be pursued.

After identifying the expectations and challenges of this reality, the experience in another marine park such as the Brijuni National Park was key.

There were many cultural differences and approaches to the protection and management but it was very informative discuss topics that concern us closely.

The Management Plan, monitoring activities, studies on species conservation issues were much discussed by me with the heads of the Brijuni Park.

Remain very interesting discussions with the citizens of the local towns of Pula and Fazana and with local fishermen who are very friendly to inform you on what are the opportunities and challenges of the country and an industry that lives the park.

Thanks also to the island's cultural history (of Tito summer See) that the military presence of the Croatian government, the Brijuni was and is still viewed with respect and as a source of income by the local populations.

With the successful establishment of the park and the opportunity to be visited by tourists, the Brijuni becomes an asset for the region and the fishermen are in the summer months to convert their annual activities in tourist guide conducting exploration and fishing tourism.

In this case, the activities that can offer anglers is ensured by the natural beauty of the archipelago and the ability to offer a simple crossing boundaries of the Brijuni islands.

The Park management is definitely larger than a single MPA and also includes many habitats inland island.

The inaccessibility to the public of some of the islands and some of the island's major areas, however, makes the park enjoyable and usable and helps to increase the conservation and protection of habitats. A museum dedicated to the island Major offers the possibility using simple interactive videos and photos to enjoy the inaccessible islands and the historical, cultural and natural that they offer in a simple and intuitive.

Biodiversity related to studies is to maintain a consistent quality of protected areas than unprotected, but that has been slightly decreasing over the years due to pollution and the summer tourist pressure which remain a problem.

The Brijuni is therefore a very mature park and organized in many ways, remains less clear as the Croatian state and national parks lying interpret environmental policies and on Natura 2000 sites dictated by the EU.

The purpose of opposing two different realities linked by the Sea but regulated by two different states become feasible only through a common European policy.

Keeping in mind the regulations, directives and the possibilities for EU funding, it was possible to identify the characteristics and the most important issues that unite the two Marine Parks.

This allowed me to identify and exchange of information between the Parks concerning the relationship with the environment, land and resource management.

Important was given to me cooperation and willingness to work together on the protection of species and habitats protected.

As far as I'm concerned, I have gained an enormous wealth of information in addition to having met two wonderful reality of the Adriatic Sea that work to achieve the same goals.

The hope that this report is only the first step toward a future collaborative activities and for European Union financed projects is to create a communication channel for any issues relating to the Adriatic Sea, with the aim of extending the solutions, new ideas and concrete actions to all the other Adriatic partners that collaborate with AdriaPAN Network.

The invitation is also extended directly to Europarc Federation which with its activities can help to promote sustainable management of the Adriatic marine parks and European to preserve habitats and species for future generations.



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"GROWING TOGETHER"

Commonalities and differences between two Adriatic Marine Protected Areas

Dr. Roberto Piccini



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