



**United Nations
Environment
Programme**



UNEP(DEPI)/MED WG.320/Inf.17
30 July 2007

ENGLISH



MEDITERRANEAN ACTION PLAN

Meeting of MAP Focal Points

Madrid (Spain), 16-19 October 2007

**ANNOTATED FORMAT FOR THE PRESENTATION
REPORTS FOR THE AREAS PROPOSED
FOR INCLUSION IN THE SPAMI LIST**

MPA “PLEMMIRIO”



Plemmirio
area marina protetta



**ANNOTATED FORMAT FOR THE PRESENTATION
REPORTS FOR THE AREAS PROPOSED
FOR INCLUSION IN THE SPAMI LIST**

MPA “PLEMMIRIO”



Plemmirio
area marina protetta



*Ministero dell'Ambiente
e della Tutela del Territorio e del Mare
Direzione Protezione della Natura*



Index:

- 1- Presentation report
- 2- SDF
- 3- EMAS II Environmental Declaration (in italian; only in electronic form)
- 4- Plemmirio MPA Regulation (in italian; only in electronic form)
5. Bibliography
6. Biodiversity
- 7 Maps
- 8-Slides

FOR MORE INFORMATION, PLEASE CONTACT:

Consorzio Plemmirio- Information point
P.zza Euripide, 21
96100 - Siracusa
Tel [+39]0931449310
Fax [+39]0931449954
E-mail: info@plemmirio.it



Plemmirio
area marina protetta



Direttore AMP « Plemmirio » Sig. Vincenzo Incontro
Sede Legale: Consorzio Plemmirio Via Necropoli del Fusco, 7 96100 Siracusa
Tel 0931-709734
335-8276704
Fax 0931- 709732
v.incontro@plemmirio.it



**ANNOTATED FORMAT FOR THE PRESENTATION
REPORTS FOR THE AREAS PROPOSED
FOR INCLUSION IN THE SPAMI LIST**

PLEMMIRIO

OBJECTIVE

The objective of this Annotated Format is to guide the Contracting Parties in producing reports of comparable contents, including the information necessary for the adequate evaluation of the conformity of the proposed site with the criteria set out in the Protocol and in its Annex I (Common criteria for the choice of protected marine and coastal areas that could be included in the SPAMI List).

CONTENTS

The presentation report shall include the following main information on: (i) identification of the proposed protected area (ii) site description (iii) its Mediterranean importance (iv) the activities in and around the area and their impacts (v) legal status (vi) management measures (vii) human and financial resources available for the management and the protection of the site.

SUBMISSION OF REPORTS

The reports should be submitted to the RAC/SPA two months before the meeting of National Focal Points for SPA in English or in French.

Dossiers should be compiled on A4 paper (210 mm x 297 mm), with maps and plans annexed on paper with a maximum size of an A3 paper (297 mm x 420 mm). Contracting Parties are also encouraged to submit the full text of the proposal in electronic form.

The requested annexes should be submitted on paper and, if possible, also in electronic form.

They are the following:

- Copies of legal texts
- Copies of planning and management documents
- Maps: administrative boundaries, zoning, land tenure, land use, and distribution of habitats and species, as appropriate
- Existing inventories of plant and fauna species
- Photographs, slides, films/videos, CD-ROMs
- List of publications and copies of the main ones concerning the site

N.B.: All the following sections have to be in the report submitted, even those sections or elements that do not apply to the proposed area. Where that is the case, please put “not applicable to the proposed area”.

1. AREA IDENTIFICATION

1.1 COUNTRY/COUNTRIES (in the case of transboundary areas)

ITALY

1.2 ADMINISTRATIVE PROVINCE OR REGION

Regione Sicilia/Sicily
Provincia di Siracusa/Province of Siracusa

1.3 NAME OF THE AREA

Plemmirio Marine Protected Area

1.4 GEOGRAPHIC LOCATION

Describe its geographical boundaries, e.g. rivers, roads, geographical or administrative boundaries (do not describe the co-ordinates here; please make a separate annex with a map and a description of geographical co-ordinates as stated in the legal declaration of the area).

The Plemmirio MPA is off the Maddalena Peninsula, a few kilometres south of the city of Siracusa; it stretches from Punta dela Mola to Punta Milocca.

The Maddalena Peninsula was produced by intense tectonic activity that pushed up a block lying along a NW-SE axis. With a maximum height above sea level of 54 m, the resulting small plateau slopes towards the sea both to the east and west, sloping gently in some places through a series of marine terraces dating from the Plio-Pleistocene Age while in others more brusquely through a series of marine escarpments from the same period caused by eustatic action or erosion by the sea. The coast presents similar features, alternating between low points, with small beaches, and ragged high points. The ragged part of the coast presents a series of highly significant caves scoured by marine abrasion that contain peculiar micro-environments.



Plemmiri
area marina protetta



1.5 SURFACE OF THE AREA (total)

(in national unit)	about
--------------------	-------

1.6. LENGTH OF THE MAIN COAST (Km)

15



2. EXECUTIVE SUMMARY (maximum 3 pages)

Supply a summary of the information contained in sections 3 to 9.

The Plemmirio MPA is off the Maddalena Peninsula, a few kilometres south of the city of Siracusa; it stretches from Punta dela Mola to Punta Milocca.

The Maddalena Peninsula is for the most part a calcarenitic platform featuring major sequences of faults and fissures aligned along a NNW-SSE axis, and lesser faults aligned along an E-W axis, evidence of intense tectonic activity in the past. The coastline is formed by cliffs, that rise high in the west and are subject to forms of local erosion (tidal notches, enclaves and rockslides), and low to the east, where calcarenitic rockslides are frequent due to removal at the base of the underlying clay and clay sands. In terms of sedimentation, the sea beds are mostly hard rock with occasional patches of coarse sediment resulting from the breakdown of the carbonate and calcarenitic cliffs and of the *Posidonia oceanica* meadows facies as well as the coastal detritic bottom.

Underwater morphology is of course influenced by the presence of the faults. Starting from the coastline, it chiefly features a hard substrate outlined by a series of terraces alternating with submerged inlets bound by clear morphological ruptures and presenting loose sediments composed mostly of coarse sand and debris, especially at the base of the escarpments that are a defining characteristic of the terraces.

From Capo Castelluccio to Punta Tavernare, the sea bottom is low and uniform for several hundred metres, then it suddenly drops to much deeper levels. From Punta Tavernara to Capo Murro di Porco, the seabed already presents depths of 30-40 m immediately below the coastline. Where the seabed suddenly falls away, there are a great many submerged caves, and there are caves above surface level at Capo Murro di Porco. The Maddalena Peninsula is located in an area where the waters respond to and produce very particular dynamics. There are at least three major factors influencing the marine waters in the area: the alternating force of the powerful currents at work in the Strait of Messina, the meandering course of the current coming from the Atlantic, and the surface, intermediate and deep movements of the Ionian Sea (the so-called Ibleo-Maltese-Pelagic vortex).

The intertidal zone features well-structured belts that follow the stretch of coast between Punta Faro and Punta Milocca; in particular, the upper intertidal zone presents a photophyllic association *Polysiphonio-Lithophylletum papilloso* and a belt in the lower portion presenting the sub-association *Lithophylletosum trochanteris* which, south of Capo Meli and as far as Punta di Milocca, appears fragmented because of the continuous interventions by man along this stretch of coast. The coves and caves present in the stretch of coast between Punta Tavernara and Capo Murro di Porco contain the littoral sciophilous association *Phymatolithetum lenormandii*. Such associations are considered high priority habitats. Moreover, the Maddalena Peninsula is the classic site, the place of first description, for the photophyllic sub-association and association mentioned above. The mid-tide zone is characterized by association with *Cystoseira amentacea* present in the mid-tide fringe that stretches along the whole perimeter of the peninsula followed, at depths of 3 to 5 metres, by association with *Cystoseira crinita*, where the leading species is represented by *Cystoseira brachycarpa*. On the north side of the peninsula, at depths of 7 to 15 metres, we find the association with *Cystoseira sauvageauana*, where the leading species is represented by *Cystoseira spinosa v. tenuior*. The sheer cliff walls at Capo Meli and Punta Tavernara present at depths between 5 and 10 metres the mid-tidal sciophilous association with *Flabellio-Peyssonnelieturn squamariae*. Between depths of 30 to 50 metres, on the detritic bottom, the biocoenosis of the coastal detritic strip spreads across the whole area, in effect an elongated strip



Plemmirid
area marina protetta



running parallel to the coastline. On the north side, from Capo Faro to Punta Tavernara, this biocoenosis is contiguous to the biocoenosis of the mid-tide zone Algae, while on the south side, from Capo Murro di Porco to Punta Milocca, the algae biocoenosis is contiguous with the coralligenous biocoenosis. The latter extends throughout the area over hard bottoms at depths between 25 and 50 metres, sometimes penetrating even further down than the -50 m isobaths. On the north side, between Capo Faro and Punta Tavernara the biocoenosis is present at depths of between 35 and 50 metres below the biocoenosis of the coastal detritic strip, while in the span of coast between Punta Tavernara and Capo Murro there is a small strip between the biocenotic complex of the mid-tide zone Algae and the coastal detritic strip (CD). To the south, between Capo Murro and Punta di Milocca, the strip does not go beyond -40 metres and is bound above by the *Posidonia* meadow and below by the coastal detritic bottom.

At Punta Tavernara, between depths of 36 and 45 metres, there is a sciophilous population belonging to *Lithophyllo-Halimedetum tunae* and *Rodriguezelletum strafforellii*, colonized in a higher layer by a population of *Phyllariopsis brevipes*, a species originally from the Atlantic and found in the western part of the Mediterranean and off the island of Linosa in areas with very strong currents where it forms extensive populations. This species is always associated with *Mesophyllum lichenoides*, because the microscopic gametophyte latches onto the calcareous alga using a parasite's haustorium.

On loose substrates from Capo Faro to Punta Milocca, we find the meadow of *Posidonia oceanica*, which is quite widespread here. On the north side of the peninsula, from Punto Faro to Capo Murro di Porco, because the loose beds are interrupted by outcrops of rock, the meadow appears discontinuous, and alternates with the biocoenosis of the mid-tide zone Algae. The biocoenosis appears continuous only in the stretch between Punta Tavola and Punta del Gigante, where at depths between 20 and 30 metres there is a sandy plane running parallel to the coastline bound by two rocky escarpments. On the south side, between Capo Murro di Porco and Punta Milocca, the biocoenosis does not present any interruptions although there are variations in its bathometric spread. Between Capo Murro di Porco and Capo Meli, the biocoenosis extends below the cliff-face to depths between 15 and 30 metres, while in the rest of the area it spreads at depths of between 2 and 30/35 metres. At Capo Meli, at depths of between 18 and 26 metres, a meadow of *Halophila stipulacea* was found.

The sea bottom around the Maddalena Peninsula is rich in benthic fauna. Where the seabed suddenly drops away, there are a number of submerged caves teeming with benthic and nektonic life, such as solitary corals, sponges, bryozoa, slipper lobsters, nudibranchs and numerous species of fish. The sea bottoms featuring meadows of *Posidonia oceanica* often harbour large examples of *Pinna nobilis*. Higher up and nearer the coast, there is a strong presence of colonial corals such as *Astroides calicularis* with its intense red colour, reminding us that the Ionian Sea also has distinct tropical characteristics. Along the spray zone, it is quite common to come across in highly interesting structures (trottoirs). The last remaining grouper fish to have survived intensive fishing have abandoned the low sea bottom and have taken refuge higher up. Due to its geographical features and the peculiar nature of the sea bottom, Capo Murro di Porco is an ideal place from which to observe some of the large pelagic fish such as tuna, the greater amberjack, sharks, as well as marine mammals such as dolphins, whales and sperm whales.

The benthic fringe just before the marine area is teeming with Mediterranean biodiversity, thanks to a variety of naturally-occurring factors, such as the geo-morphological make-up of the sea bottom that has encouraged the settlement of bivalve molluscs, an indispensable ingredient of the food chain, as well as the flow of nutrients carried by the confluence of the rivers and streams that empty their food-rich waters into the sea here. These factors have all helped the development of numerous species of



Plemmirid:
area marina protetta



Mediterranean fauna such as , Sparidae Labridae, Serranidae, Bleniodiae and so on. There is also an abundance of invertebrates, such as Acraniates, Tunicates, Echinoderms, Cephalopods, Nudibranchs, Bryozoa, as well as various species of marine phanerogams, including *Posidonia oceanica*.

To conclude, the exceptional wealth of natural resources present in and around the Maddalena Peninsula, coupled with highly efficient management, show that this MPA should be strongly considered as a candidate for swift recognition and granting of ASPIM status, especially in light of possible future development with the creation of a provincial network of MPA involving the other two recognized sites (Capo Passero and Vendicari), with the management of the wetlands in the Vendicari Reserve entrusted to the regional Forestry Corps, and the further possibility of creating an international MPA embracing Malta, raising the profile of and making optimum use of the area outlined by the Maltese-Ibleo-Pelagic Vortex which could well become a second Cetacean Sanctuary in the Ionian stretch of the Mediterranean.



Plemmirid
area marina protetta



3. SITE DESCRIPTION

1.1. TYPOLOGY OF THE SITE

3.1.1. Terrestrial surface, excluding wetlands (ha):

--

3.1.2. Wetland surface (ha):

--

3.1.3. Marine surface (Sq. Km):

Marine internal waters

--

Territorial sea

2000 ha

2000 ha

High sea

--

3.2 MAIN PHYSICAL FEATURES

3.2.1. Geology/Geomorphology

Give a brief description of: (i) geological aspects (lithologic and tectonics); (ii) processes of sedimentation and erosion observable in the area; (iii) coastal geomorphology and (iv) island system. Indicate bibliographical sources.

The Maddalena Peninsula is for the most part a calcarenitic platform featuring major sequences of faults and fissures aligned along a NNW-SSE axis, and lesser faults aligned along an E-W axis, evidence of intense tectonic activity in the past. The coastline is formed by cliffs, that rise high in the west and are subject to forms of local erosion (tidal notches, enclaves and rockslides), and low to the east, where calcarenitic rockslides are frequent due to removal at the base of the underlying clay and clay sands. In terms of sedimentation, the sea beds are mostly hard rock with occasional patches of coarse sediment resulting from the breakdown of the carbonate and calcarenitic cliffs and of the *Posidonia oceanica* meadows facies as well as the coastal detritic bottom.

Underwater morphology is of course influenced by the presence of the faults. Starting from the coastline, it chiefly features a hard substrate outlined by a series of terraces alternating with submerged inlets bound by clear morphological ruptures and presenting loose sediments composed mostly of coarse sand and debris, especially at the base of the escarpments that are a defining characteristic of the terraces. These geo-morphological features are for the most part traceable to the tectonic activity that shaped the area in question, but there are also signs of the various forms of erosion that have affected the platform during the changes in the level of the sea, in particular the abrasion platforms opposite the various bathometric steps (especially along the western coast) and the many notches in the rocky substrate, in all likelihood linked to the action of an early fluvial network of streams created during periods of high tide that left behind it some typical forms of erosion such as deposits of debris and round hollows of various diameter, some even metres across (the giants' muffler).

AMORE C, 1990-1995 - Relazione tra processi carsici ed oscillazioni del livello marino nel Massiccio Carbonatico Ibleo del Siracusano. Anni 1° Conv. Reg. Speleologia della Sicilia, Ragusa, Dic. 1990, 13 pp.

DI GRANDE A. & RAIMONDO W., 1982. Linee di costa Plio-Pleistoceniche e schema litostratigrafico del Quaternario Siracusano. Estratto da: Geologia Romana vol. XXI.



Plemmirio
area marina protetta



3.2.2. Other interesting physical features: Such as hydrodynamics, volcanic formations, caves, underwater formations, etc.

The Maddalena Peninsula, within the Plemmirio MPA, is located in a marine area that is crucial because of its peculiar dynamics of the waters. At least three significant factors determine the flow of water here: the alternating influence of the powerful currents at work in the Strait of Messina, the meandering course of the jet stream that develops in the Atlantic and comes from the Strait of Sicily, and the movement of the Ionian sea, the surface, intermediate and deep flow of its waters.

The shifting configuration over time and space of these three factors that drive the hydro-dynamics of the coastal waters in the area in question (sometimes acting together, sometimes separately) make it impossible to establish unequivocally average measures for the flow of water.

In any case, save for particular circumstances arising from stress produced by local winds, and for the occasional occurrence when a mesoscale system (triggered by a filament constantly present to the east of Capo Passero) extends as far as the peninsula, the stretch of sea facing Sicily's south-west coast is subject to a coastal current that heads south until it reaches Capo Passero. At the same time, and going a little further out to sea, the area is also subject to a major flow moving in the opposite direction, from south to north, of surface waters coming from the Sicily Channel. Surface communication between the Ionian Sea and the Sicily Channel is provided principally by a jet stream of Atlantic origin, altered, and localized in the area between Malta and Sicily, and which, north of Capo Passero, turns north, affecting the east coast of Sicily and southern Calabria.

These two currents are usually very active, ensuring not only unhindered transport of suspended material, but also a rapid turnover in coastal waters, which enhances the quality of the marine environment.

We would like to emphasize the significance of the episodic occurrence of a filament that stretches east of Capo Passero, producing baroclinic effects that may lead to vertical remixing, thus providing another opportunity for water turnover, as well as a mechanism to draw up waters coming from the depths out to sea off Eastern Sicily's continental escarpment.

At the beginning of the 1990s, a major phenomenon was recorded in the East Mediterranean, known in the literature as East Mediterranean Transient (EMT). What occurred was a shift in the site of deep-water formation from the Adriatic to the Aegean. The cause of the event was reported to be due to changes in the make-up of the body of water in the Aegean triggered by major meteorological anomalies in the eastern basin.

Thereafter, a new inversion of flow was recorded in the Ionian Sea, the area the Plemmirio MPA belongs to. This change in flow, which even had repercussions on the Levantine Intermediate Waters, provoke a flow of Atlantic waters towards the far eastern side of the Levantine Basin rather than towards the southern Ionian Sea, as had been the case. Salinity levels in the Ionian Sea rose as a result of the flow of highly saline waters coming from both the Levantine Basin and the Aegean, waters from the later flowing mainly towards the Adriatic.

Examination of the thermohaline circulation today shows that the Adriatic has regained its leading role as the site for the formation of dense water, while in the Ionian Sea cyclonic circulation has been restored, involving surface and intermediate layers. A major transitional layer (800-1200 m), situated between the intermediate level dominated by the LIW and the deep level dominated by the dense waters of the Adriatic and/or Aegean appears to be currently occupied by waters that previously were found on the bottom layer.

From Capo Castelluccio to Punta Tavernara, the sea bottom remains low and uniform for hundreds of meters before plunging suddenly to deeper levels. From Punta Tavernara to Capo Murro di Porco, on the



Plemmirid
area marina protetta



3.2.3. Length of beaches (in Km), including islands:

a) Length of sandy beaches:

b) Length of pebble or stony beaches:

c) Length, height and depth of active sand-dunes:

FRESHWATER INPUTS

3.3.1. Mean annual precipitation (in mm)

3.3.2. Main water courses (permanent and seasonal)

3.3.3. Estuarine areas: Existence and brief description

3.3.4. Freshwater springs: Existence and brief description, including marine offsprings

BIOLOGICAL FEATURES (B2, Annex I)

3.4.1. Habitats: A brief description of dominant marine and terrestrial habitats, on the basis of the habitat classifications adopted within the framework of MAP (and their coverage in ha)

- II. 4. 1. 3. Association with *Nemalion helminthoides* and *Rissoella verruculosa*
- II. 4. 1. 4. Association with *Lithophyllum papillosum* and *Polysiphonia* spp.
- II. 4. 2. 1. Association with *Lithophyllum byssoides* (*L. trochanter*)
- II. 4. 2. 8. Concretion with *Neogoniolithon brassica-florida*
- II. 4. 3. Mediolittoral caves
- II. 4. 3. 1. Association with *Phymatolithon lenormandii* and *Hildenbrandia rubra*
- III. 2. 2. 2. Association with *Halophila stipulacea*
- III. 5. 1. Posidonia oceanica meadows (= Association with *Posidonia oceanica*)
- III. 6. 1. 2. Association with *Cystoseira amentacea*
- III. 6. 1. 15. Association with *Cystoseira brachycarpa* (v. *brachycarpa* and v. *claudiae*)

- III. 6. 1. 16. Association with *Cystoseira crinita*

- III. 6. 1. 18. Association with *Cystoseira sauvageauana*
- III. 6. 1. 19. Association with *Cystoseira spinosa*
- III. 6. 1. 20. Association with *Sargassum vulgare*

- III. 6. 1. 25. Association with *Cystoseira compressa*
- III. 6. 1. 35. Facies and Associations of Coralligenous biocenosis (in enclave)
- IV. 2. 2. 7. Association with *Laminaria rodriguezii* on detritic
- IV. 3. 1. 1. Association with *Cystoseira zosteroides*
- IV. 3. 1. 3. Association with *Cystoseira dubia*
- IV. 3. 1. 5. Association with *Sargassum* spp. (indigenous)
- IV. 3. 1. 9. Association with *Rodriguezella strafforelloii*
- IV. 3. 1. 10. Facies with *Eunicella cavolinii*
- IV. 3. 1. 11. Facies with *Eunicella singularis*
- IV. 3. 1. 13. Facies with *Paramuricea clavata*
- IV. 3. 1.15. Coralligenous platforms
- IV. 3.2. Semi-dark caves (also in enclave in upper stages)

Other biocenosis are :

- II. 4. 1. 1. Association with *Bangia atropurpurea* (*Bangia fuscopurpurea*)
- II. 4. 2. 4. Association with *Ceramium ciliatum* and *Corallina elongata*
- III. 6. 1. 1. Overgrazed facies with encrusting algae and sea urchins
- III. 6. 1. 5. Association with *Corallina elongata* and *Herposiphonia secunda*
- III. 6. 1. 13. Association with *Ceramium rubrum* (*Ceramium virgatum*)
- III. 6. 1. 32. Association with *Flabellia petiolata* and *Peyssonnelia squamaria*
- IV. 2. 1. Biocenosis of the muddy detritic bottom
- IV. 2. 2. Biocenosis of the coastal detritic bottom
- IV. 2. 4. Biocenosis of coarse sands and fine gravels under the influence of bottom currents (biocenosis

3.4.2. List of regionally important species (flora and fauna) (B-2a, Annex I)

List here ONLY those species protected by international agreements, particularly those marine species included in Annex II of the Protocol, which are present in the area. Any other species may be listed if it is clearly considered of regional importance given its high representation in the area. Display the species list under the headings Marine Plants, Terrestrial Plants, Marine Invertebrates, Fish, Amphibians and Reptiles, Birds, and Mammals. For each species state:

- its relative abundance as Common (C), Uncommon (U) or Occasional (O),
- Its global status as rare (r), endemic (e) and/or threatened (t), and
- its status as an important resident population (R), or important for its breeding (B), feeding (F), wintering (W) or migratory passage (M)

SPECIES	Rel. Abundance (C) (U) (O)	Global STATUS (r) (e) (t)	Local STATUS (R) (B) (F) (W) (M)
Examples: BIRDS			
<i>Pelecanus onocrotalus</i>	(C)	(e) (t)	(R)
<i>Falco eleonora</i>	(U)	(e) (t)	(B)
MARINE INVERTEBRATES			
CNIDARIANS			
<i>Astroides calycularis</i>	(C)		(R)
<i>Corallium rubrum</i>	(U)	(t)	(R)
MOLLUSCS			
<i>Dendropoma petraeum</i>	(C)	(t)	(R)
<i>Pinna nobilis</i>	(C)	(r) (t)	(R)
<i>Pinna rudis</i>	(U)	(r) (t)	(R)
<i>Erosaria spurca</i>	(C)	(r) (t)	(R)
<i>Luria lurida</i>	(C)	(t)	(R)
<i>Ranella olearia</i>	(C)	(t)	(R)
<i>Charonia tritonis</i>	(C)	(t)	(R)
<i>Lithophaga lithophaga</i>	(U)	(t)	(R)
CRUSTACEANS			
<i>Palinurus elephas</i>	(C)	(t)	(R)
<i>Scyllarides latus</i>	(C)	(t)	(R)
<i>Scyllarus arctus</i>	(C)	(t)	(R)
<i>Scyllarus pygmaeus</i>	(C)	(t)	(R)
<i>Maja squinado</i>	(C)	(t)	(R)
<i>Homarus gammarus</i>	(C)	(t)	(R)
ECHINODERMS			
<i>Centrostephanus longispinus</i>	(U)	(t)	(R)
<i>Paracentrotus lividus</i>	(C)		(R)
<i>Ophidiaster ophidianus</i>	(U)	(t)	(R)
FISHES			
<i>Epinephelus marginatus</i>	(C)	(t)	(R)



Plemmirid
area marina protetta



<i>Sciaena umbra</i>	(C)	(t)	(R)
<i>Thunnus thynnus</i>	(U)	(t)	(M)
<i>Xiphias gladius</i>	(C)	(t)	(R)
<i>Hippocampus hippocampus</i>	(U)	(t)	
<i>Alosa fallax</i>			
<i>Anguilla anguilla</i>			
<i>Prionace glauca</i>	(C)	(t)	(R)
MARINE VERTEBRATES			
<i>Caretta caretta</i>	(U)	(t)	(M)
<i>Tursiops truncatus</i>	(U)	(t)	(M)
<i>Stenella coeruleoalba</i>	(U)	(t)	(M)
<i>Steno bredanensis</i>	(U)	(t)	(M)
<i>Baloptera acutirostris</i>	(U)	(t)	(M)
<i>Baloptera physalus</i>	(U)	(t)	(M)
<i>Delphinus delphis</i>	(U)	(t)	(M)
MARINE PLANTS			
<i>Posidonia oceanica</i>	(C)	(e) (t)	(R)
<i>Cymodocea nodosa</i>	(C)	(e) (t)	(R)
MACROALGAE			
<i>Cystoseira amentacea</i>	(C)	(e) (t)	(R)
<i>Cystoseira spinosa</i>	(U)	(e) (t)	(R)
<i>Cystoseira zosteroides</i>	(U)	(t)	(R)
<i>Laminaria rodriguezii</i>	(C)	(e) (t)	(R)
<i>Lithophyllum byssoides</i>	(C)	(t)	(R)
<i>Lithophyllum trochanter</i>	(C)	(t)	(R)

3.4.3. Flora: Describe in a few sentences the main plant assemblages significant in the area.



Plemmirid
area marina protetta



The intertidal zone features well-structured belts that follow the stretch of coast between Punto Faro and Punta Milocca; in particular, the upper intertidal zone presents a photophyllic association *Polysiphonio-Lithophylletum papilloso* and a belt in the lower portion presenting the sub-association *Lithophylletosum trochanteris* which, south of Capo Meli and as far as Punta di Milocca, appears fragmented because of the continuous interventions by man along this stretch of coast. The coves and caves present in the stretch of coast between Punta Tavernara and Capo Murro di Porco contain the littoral sciophilous association *Phymatolithetum lenormandii*. Such associations are considered high priority habitats. Moreover, the Maddalena Peninsula is the classic site, the place of first description, for the photophyllic sub-association and association mentioned above.

The mid-tide zone is characterized by association with *Cystoseira amentacea* present in the mid-tide fringe that stretches along the whole perimeter of the peninsula followed, at depths of 3 to 5 metres, by association with *Cystoseira crinita*, where the leading species is represented by *Cystoseira brachycarpa*. On the north side of the peninsula, at depths of 7 to 15 metres, we find the association with *Cystoseira sauvageauana*, where the leading species is represented by *Cystoseira spinosa* v. *tenuior*. The sheer cliff walls at Capo Meli and Punta Tavernara present at depths between 5 and 10 metres the mid-tidal sciophilous association with *Flabellio-Peyssonnelieturn squamariae*. Missing from the representative sample is *Osmundaria volubilis*, which prefers gentler, sandier slopes. *Peyssonnelia squamaria* reaches a high degree of cover.

Between depths of 30 to 50 metres, on the detritic bottom, the biocoenosis of the coastal detritic strip spreads across the whole area, in effect an elongated strip running parallel to the coastline. On the north side, from Capo Faro to Punta Tavernara, this biocoenosis is contiguous to the biocoenosis of the mid-tide zone Algae, while on the south side, from Capo Murro di Porco to Punta Milocca, the algae biocoenosis is contiguous with the coralligenous biocoenosis. The latter extends throughout the area over hard bottoms at depths between 25 and 50 metres, sometimes penetrating even further down than the -50 m isobaths. On the north side, between Capo Faro and Punta Tavernara the biocoenosis is present at depths of between 35 and 50 metres below the biocoenosis of the coastal detritic strip, while in the span of coast between Punta Tavernara and Capo Murro there is a small strip between the biocenotic complex of the mid-tide zone Algae and the coastal detritic strip (CD). To the south, between Capo Murro and Punta di Milocca, the strip does not go beyond 40 metres and is bound above by the *Posidonia*



Plemmirid
area marina protetta



At Punta Tavernara, between depths of 36 and 45 metres, there is a sciophilous population belonging to *Lithophyllo-Halimedetum tunae* and *Rodriguezelletum strafforellii*, colonized in a higher layer by a population of *Phyllariopsis brevipes*, a species originally from the Atlantic and found in the western part of the Mediterranean and off the island of Linosa in areas with very strong currents where it forms extensive populations. This species is always associated with *Mesophyllum lichenoides*, because the microscopic gametophyte latches onto the calcareous alga using a parasite's haustorium.

On loose substrates from Capo Faro to Punta Milocca, we find the meadow of *Posidonia oceanica*, which is quite widespread here. On the north side of the peninsula, from Punto Faro to Capo Murro di Porco, because the loose beds are interrupted by outcrops of rock, the meadow appears discontinuous, and alternates with the biocoenosis of the mid-tide zone Algae. The biocoenosis appears continuous only in the stretch between Punta Tavola and Punta del Gigante, where at depths between 20 and 30 metres there is a sandy plane running parallel to the coastline bound by two rocky escarpments. On the south side, between Capo Murro di Porco and Punta Milocca, the biocoenosis does not present any interruptions although there are variations in its bathometric spread. Between Capo Murro di Porco and Capo Meli, the biocoenosis extends below the cliff-face to depths between 15 and 30 metres, while in the rest of the area it spreads at depths of between 2 and 30/35 metres. At Capo Meli, at depths of between 18 and 26 metres, a meadow of *Halophila stipulacea* was found.



Plemmirid
area marina protetta



3.4.4. Fauna: Describe in a few sentences, which are the main fauna populations present in the area.

The sea bottom around the Maddalena Peninsula is rich in benthic fauna. Where the seabed suddenly drops away, there are a number of submerged caves teeming with benthic and nektonic life, such as solitary corals, sponges, bryozoa, slipper lobsters, nudibranchs and numerous species of fish. The sea bottoms featuring meadows of *Posidonia oceanica* often harbour large examples of *Pinna nobilis*. Higher up and nearer the coast, there is a strong presence of colonial corals such as *Astroides calcularis* with its intense red colour, reminding us that the Ionian Sea also has distinct tropical characteristics. Along the spray zone, it is quite common to come across in highly interesting structures (trottoirs). The last remaining grouper fish to have survived intensive fishing have abandoned the low sea bottom and have taken refuge higher up. Due to its geographical features and the peculiar nature of the sea bottom, Capo Murro di Porco is an ideal place from which to observe some of the large pelagic fish such as tuna, the greater amberjack, sharks, as well as marine mammals such as dolphins, whales and sperm whales. In June 2004, six specimens of common whale calf and humpback whale were sighted.

The benthic fringe just before the marine area is teeming with Mediterranean biodiversity, thanks to a variety of naturally-occurring factors, such as the geo-morphological make-up of the sea bottom that has encouraged the settlement of bivalve molluscs, an indispensable ingredient of the food chain, as well as the flow of nutrients carried by the confluence of the rivers and streams that empty their food-rich waters into the sea here. These factors have all helped the development of numerous species of Mediterranean fauna such as Sparidae, Labridae, Serranidae, Blenniidae and so on. There is also an abundance of invertebrates, such as Acraniates, Tunicates, Echinoderms, Cephalopods, Nudibranchs, Bryozoa, as well as various species of marine phanerogams, including *Posidonia oceanica*.

3.5. HUMAN POPULATION AND USE OF NATURAL RESOURCES

3.5.1 Human population

a) Inhabitants inside the area:

	Number	Date of data
Permanent	(city)121.000	2001
Seasonal number (additional to permanent)	c 4000	

Description of the population

In the province of Siracusa, the labour force is divided into the following occupations:
 Industry: 3,685
 Commerce/retail 5,122
 Services: 8,561
 Other activities: 9,029

Main human settlements and their populations

Siracusa: 121,000

3.5.2 Current human use and development

a) Briefly describe the current use of the area by subsistence, artisan, commercial and recreational fishing, hunting, tourism, agriculture and other economic sectors.

Local activities reflect the make-up of the province. Mainly traditional craftwork, fishing and tourism.

b) Enter how many of the users depend on these resources, seasonality, and assessment of the social and economic importance of their use and of the perceived impact on the conservation of the area, in a score of 0-1-2-3 (meaning null, low, medium, high).

ACTIVITY AND CATEGORY	ASSESS IMPORTANCE OF		Estimated No. of Users	Seasonality
	Socio-economic Impact	Conserv.		
FISHING				
Subsistence	2	3		
Commercial, local	2	3		
Commercial, non-local	2	2		
Controlled recreational	1	2		
Un-controlled recreational	3	3		
Other				
TOURISM				
Regulated	2	3		
Unregulated	3	3		
Indicate the type of tourism				
Culturale	3	3		
Balneare	3	3		
Tourism facilities				
	3	3		
FOREST PRODUCTS				
Subsistence	0	0		
Non-timber commercial, local	0	0		
Non-timber commercial, non-local	0	0		
	0	0		
Timber commercial, local	0	0		
Timber commercial, non-local				
Agriculture	1	1		
Stockbreeding	2	1		
Aquaculture	3	3		



Plemmirid
area marina protetta



EXTENSIVE STOCK GRAZING				
	1	1		
Subsistence	1	2		
Commercial, local	0	0		
Commercial, non-local				
OTHER ACTIVITIES	0	0		
-		0		
-				

3.5. HUMAN POPULATION AND USE OF NATURAL RESOURCES

3.5.1 Human population

a) Inhabitants inside the area:

	Number	Date of data
Permanent	(city)121.000	2001
Seasonal number (additional to permanent)	c 4000	

Description of the population

In the province of Siracusa, the labour force is divided into the following occupations:
 Industry: 3,685
 Commerce/retail 5,122
 Services: 8,561
 Other activities: 9,029

Main human settlements and their populations

Siracusa : 121,000

3.5.2 Current human use and development

b) Briefly describe the current use of the area by subsistence, artisan, commercial and recreational fishing, hunting, tourism, agriculture and other economic sectors.

Local activities reflect the make-up of the province. Mainly traditional craftwork, fishing and tourism.



Plemmiri
area marina protetta



*Ministero dell'Ambiente
e della Tutela del Territorio e del Mare
Direzione Protezione della Natura*





Plemmirid
area marina protetta



b) Enter how many of the users depend on these resources, seasonality, and assessment of the social and economic importance of their use and of the perceived impact on the conservation of the area, in a score of 0-1-2-3 (meaning null, low, medium, high).

ACTIVITY AND CATEGORY	ASSESS IMPORTANCE OF		Estimated No. of Users	Seasonality
	Socio-economic	Conserv. Impact		
FISHING				
Subsistence	2	3		
Commercial, local	2	3		
Commercial, non-local	2	2		
Controlled recreational	1	2		
Un-controlled recreational	3	3		
Other				
TOURISM				
Regulated	2	3		
Unregulated	3	3		
Indicate the type of tourism				
Culturale	3	3		
Balneare	3	3		
Tourism facilities				
	3	3		
FOREST PRODUCTS				
Subsistence	0	0		
Non-timber commercial, local	0	0		
Non-timber commercial, non-local	0	0		
Timber commercial, local	0	0		
Timber commercial, non-local	0	0		
Agriculture	1	1		
Stockbreeding	2	1		
Aquaculture	3	3		
EXTENSIVE STOCK GRAZING				
Subsistence	1	1		
Commercial, local	1	2		
Commercial, non-local	0	0		
OTHER ACTIVITIES	0	0		
-		0		
-				



Plemmiri
area marina protetta



*Ministero dell'Ambiente
e della Tutela del Territorio e del Mare
Direzione Protezione della Natura*





Plemmirid
area marina protetta



3.5.3. Traditional economic or subsistence uses

Name any environmentally sound traditional activities integrated with nature, which support the well being of the local population. E.g. land, water use, target species, if closed seasons or closed zones are used as management techniques.

The area belongs to the farming/rural tradition. All the same, the presence of nearby Siracusa has always fostered a high degree of culture-based tourism.

4. MEDITERRANEAN IMPORTANCE OF THE SITE

This Section aims at stressing the importance of the site for conservation at the regional or global scales, as set in Art. 8 para. 2 of the Protocol and B2-a, B2-b and B2-c in Annex I.

4.1 PRESENCE OF ECOSYSTEMS/HABITATS SPECIFIC TO THE MEDITERRANEAN REGION

Name the type of habitats considered of Mediterranean specificity, on the basis of the habitat classifications adopted within the framework of MAP, and their estimated cover (Ha).

- II. 4. 1. 3. Association with *Nemalion helminthoides* and *Rissoella verruculosa*
- II. 4. 1. 4. Association with *Lithophyllum papillosum* and *Polysiphonia* spp.
- II. 4. 2. 1. Association with *Lithophyllum byssoides*
- II. 4. 2. 8. Concretion with *Neogoniolithon brassica-florida*
- II. 4. 3. Mediolittoral caves
- II. 4. 3. 1. Association with *Phymatolithon lenormandii* and *Hildenbrandia rubra*
- III. 2. 2. 2. Association with *Halophila stipulacea*
- III. 5. 1. Posidonia oceanica meadows (= Association with *Posidonia oceanica*)
- III. 6. 1. 2. Association with *Cystoseira amentacea*
- III. 6. 1. 15. Association with *Cystoseira brachycarpa* (v. *brachycarpa* and v. *claudiae*)

- III. 6. 1. 16. Association with *Cystoseira crinita*

- III. 6. 1. 18. Association with *Cystoseira sauvageauana*
- III. 6. 1. 19. Association with *Cystoseira spinosa*
- III. 6. 1. 20. Association with *Sargassum vulgare*

- III. 6. 1. 25. Association with *Cystoseira compressa*
- III. 6. 1. 35. Facies and Associations of Coralligenous biocenosis (in enclave)
- IV. 2. 2. 7. Association with *Laminaria rodriguezii* on detritic
- IV. 3. 1. 1. Association with *Cystoseira zosteroides*

- IV. 3. 1. 3. Association with *Cystoseira dubia*
- IV. 3. 1. 5. Association with *Sargassum* spp. (indigenous)
- IV. 3. 1. 9. Association with *Rodriguezella strafforelloi*
- IV. 3. 1. 10. Facies with *Eunicella cavolinii*
- IV. 3. 1. 11. Facies with *Eunicella singularis*
- IV. 3. 1. 13. Facies with *Paramuricea clavata*
- IV. 3. 1.15. Coralligenous platforms
- IV. 3.2. Semi-dark caves (also in enclave in upper stages)

At the current time, it is not possible to give an absolute value for cover



Plemmiri
area marina protetta



*Ministero dell'Ambiente
della Tutela del Territorio e del Mare
Direzione Protezione della Natura*



PRESENCE OF HABITATS THAT ARE CRITICAL TO ENDANGERED, THREATENED OR ENDEMIC SPECIES

A critical habitat is an area essential to the conservation of the species concerned. These species should be those included in Annex II of the Protocol. E.g. Islets and sea stacks, as small islands in the sea or in large bodies of water, mostly important for water-bird colonies; caves appropriate for monk seals; undisturbed sand beaches where marine turtle nesting occurs; coastal lagoons where threatened fish or bird species feed or breed; tidal flats, coastal or benthic substrates important for marine invertebrates, etc.

Name the habitat types and the species linked to it.

- II. 4. 2. 1. Association with *Lithophyllum byssoides* (***Lithophyllum byssoides***)
- III. 5. 1. Posidonia oceanica meadows (***Posidonia oceanica*; *Pinna nobilis*; *Hippocampus hippocampus*; *Paracentrotus lividus*; *Lithophaga lithophaga* ; *Luria lurida***)
- III. 6. 1. Biocenosis of infralittoral algae (***Lithophaga lithophaga*; *Maya squinado***)
- III. 6. 1. 3. Facies with Vermetids (***Dendropoma petraeum***)
- III. 6. 1. 2. Association with *Cystoseira amentacea* (***Cystoseira amentacea***)
- III. 6. 1. 19. Association with *Cystoseira spinosa* (***Cystoseira spinosa***)
- III. 6. 1. 31. Facies a *Astroides calycularis* (***Astroides calycularis***)
- IV. 2. 2. 7. Association with *Laminaria rodriguezii* on detritic (***Laminaria rodriguezii***)
- IV. 3. 1. Coralligenous biocenosis (***Centrostephanus longispinus*; *Sciaena umbra*; *Homarus gammarus***)
- IV 3. 1. 1. Association with *Cystoseira zosteroides* (***Cystoseira zosteroides***)
- IV. 3. 2. Semi-dark caves (also in enclave in upper stages) (***Palinurus elephas*; *Scyllarides latus*; *Scyllarus pygmaeus*; *Sciaena umbra*; *Ephinephelus marginatus***)

4.3 OTHER RELEVANT FEATURES (Art. 8 paragraph 2 in the Protocol)

4.3.1. Educational Interest (B-3 in Annex I)

E.g. particular values for activities of environmental education or awareness

Ever since it was founded, the Plemmirio Marine Protected Area has striven to achieve total access for differently-able persons, and the MPA was the first in Italy to devote maximum attention to ensuring equal opportunities for all to enjoy and use the site. Educational itineraries have been devised and the role of escort to accompany differently-able persons while at sea has been created. No other institution in Italy employs provides this kind of staff who take their place alongside the MPA volunteer workers.

Professional training courses have been sponsored by the Ministry for Equal Opportunities, the Ministry of Labour and Social Policy and by the regional department for family matters. As part of the ongoing scheme to maintain, recover and restore the coastal areas of the Maddalena Peninsula, the Plemmirio Consortium has identified no fewer than seven access points to the sea for differently-able people living in different parts of the Siracusa MPA.

The most original project, and another first in Europe, is the creation of two underwater itineraries in the area near Capo Meli and Punta delle Monache designed for blind people, and making use of Braille to provide informative materials on this very special underwater visit, the idea being that even people with sight problems may be able to go for a dive among the splendid sea beds of the Plemmirio MPA, in absolute safety, in a spirit of education and information.

4.3.2. Scientific Interest (B-3 in Annex I)

Explain if the site represents a particular value for research in the field of natural or heritage sciences.

Despite being close to the coast that has been heavily affected by human activity, the Plemmirio MPA presents a very high degree of biodiversity. There are 25 priority habitats and 42 species listed in Annex II ASPIM.



Plemmiri
area marina protetta



4.3.3. Aesthetic Interest (B-3 in Annex I)

Name and briefly describe any outstanding natural features, landscapes or seascapes.

The Maddalena Peninsula is without doubt an area of considerable prestige and importance, both because of the characteristics of its coasts and sea beds, rich in cliffs and caves, and because of the many habitats worth preserving and species to be protected.

The stretch of coast between Punta della Mola and Capo Murro di Porco is a designated SIC (site of community importance), regulated and protected by Directive 92/43/EC.

Moreover, the whole peninsula is protected by landscape regulations based on decree 6/04/1998 issued by the regional Dept. for Cultural and Environmental Heritage and Education. The Department issued another decree dated 29/01/2003 that accorded the status of archaeological areas of considerable public interest to some stretches of sea opposite the peninsula's coast.

4.3.4. Main cultural features

Indicate if the area has a high representative value with respect to the cultural heritage, due to the existence of environmentally sound traditional activities integrated with nature which support the well-being of local populations.

Given its closeness to the city, the eastern side of the Maddalena Peninsula, known to the inhabitants of Siracusa as the "Island", has always been subject to human intervention, carried out for different reasons, that show close ties between this slice of coast and the Greek city. We only have to remember that in just six kilometres of coast (the area bound by regulatory restrictions), there is a great deal of evidence of human presence from prehistory to the modern day.

The "Grotta Pellegrina" was the object of extensive studies that demonstrated how the cavern was used as shelter by prehistoric man. At Punta della Mola, there is a Bronze Age necropolis with vestiges of an adjacent village. There are six ancient Greek quarries situated along the coast, further proof that the site was the location of the ancient suburban district of Plemmyrion, long since vanished. At Punta della Mola and Capo Murro di Porco, there are extensive underground tunnels used as air-raid shelters in the Second World War. And in the Grotta Pellegrina area there are two cisterns to collect rain water, probably dating back to the nineteenth century. The scene is completed by the endless kilometres of dry stone walls, executed according to the finest local tradition. A little outside the regulated area there are a number of marvellous farmsteads and stately homes that have been abandoned, like the villa of the Baron Beneventano del Bosco



Plemmirid
area marina protetta



5. IMPACTS AND ACTIVITIES AFFECTING THE AREA

5.1 IMPACTS AND ACTIVITIES WITHIN THE SITE

5.1.1. Exploitation of natural resources

Assess if the current rates of exploitation of natural resources within the area (sand, water and mineral exploitation, wood gathering, fishing, grazing...) are deemed unsustainable in quality or quantity, and try to quantify these threats, e.g. the percentage of the area under threat, or any known increase in extraction rates.

The area is particularly popular with divers and fishermen. As many as 150 divers a day enjoy the area in high season.

5.1.2. Threats to habitats and species

Mention any serious threats to marine or coastal habitats (e.g. modification, desiccation, disturbance, pollution) or to species (e.g. disturbance, poaching, introduced alien species...) within the area.

The presence of a strong flow of diver-tourists constitutes a potential nuisance for the species.

5.1.3. Demand by an increased population and infrastructures

Assess whether the current human presence or an expected increase in frequentation (tourism, passage of vehicles and boats) and any human immigration into the area, or plans to build infrastructures, are considered a threat.

At the present time, the area seems to be keeping the external human pressure under control.

5.1.4. Historic and current conflicts

Make a brief statement of any historic or current conflicts between users or user groups.

No local conflicts to report



Plemmirid
area marina protetta



5.2 IMPACTS AND ACTIVITIES AROUND THE SITE

In Art.7.2-e the Protocol calls for the regulation of activities compatible with the objectives for which a SPA was declared, such as those likely to harm or disturb species or ecosystems (Art.6.h), while Section B4 in Annex I asks to consider “the existence of threats likely to impair the ecological, biological, aesthetic or cultural value of the area” (B4-a in Annex I), recommending the existence, in the area and its surroundings, of opportunities for sustainable development (B4-d) and of an integrated coastal management plan (B4-e).

5.2.1. Pollution

Name any point and non-point sources of external pollution in nearby areas, including solid waste, and especially those affecting waters up-current.

5.2.2. Other external threats, natural and/or anthropogenic

Briefly describe any other external threat to the ecological, biological, aesthetic or cultural values of the area (such as unregulated exploitation of natural resources, serious threats on habitats or species, increase of human presence, significant impacts on landscapes and cultural values, pollution problems, any sectorial development plans and proposed projects, etc.), likely to influence the area in question.

5.2.3. Sustainable development measures

Comment whether the area is covered by an integrated coastal management plan, or bordering upon a zone under such a plan. Are there other opportunities for sustainable development provided for in the neighbouring areas?

The area is engaged in activities in support of sustainable development and the population is particularly aware of the issue.

6. EXPECTED DEVELOPMENT AND TRENDS¹

The foreseeable development and trends of the site do not appear in the list of common criteria for the choice of protected marine and coastal areas that could be included in the SPAMI list, as established in the Protocol and its Annex I. Moreover, this is not always easy to assess and it is necessary to have knowledge about the site, which is not always available to all managers of protected areas; Thus, it is not obligatory to fill in the boxes in this Section 6.

On the other hand, the assessment of this foreseeable evolution and trends constitutes a dynamic supplement to the static knowledge of the site, as it appears in Sections 3, 4 and 5 above. Moreover, it is of significant importance for the definition of the objectives and the management plan of the site.

It thus appears desirable to bringing out the main outlines at least in respect to the following points:

6.1 EXPECTED DEVELOPMENT AND TRENDS OF THREATS TO AND PRESSURES UPON THE AREA

Deal briefly in succession with:

- The demographic development in and around the site
- The development of economic activities (other than tourism and recreation) within the area
- The development of local demand on tourism and recreation
- The development of tourism pressure on the area

The area's demographic development does not present any significant variation compared with the National trend.

-The local economy is geared towards tourism and essential accommodation and hospitality services.

-There is a great deal of potential for developing tourism and leisure activities, and development in this direction has been forecast.

-As of today, there are no critical indication related to the pressures of tourism in the area.

6.2. POTENTIAL CONFLICTS IN THE AREA

Make a brief statement of potential use conflicts between the users or group of users of the site.

There are no significant conflicts to report in the area. However, the low level of awareness on the part of the resident population often represents an obstacle to the management of the area and the proper implementation of conservation policies for the area.

in the



6.3. EXPECTED DEVELOPMENT AND TRENDS OF THE NATURAL LAND ENVIRONMENT AND LANDSCAPES OF THE AREA: as expected arising from the evolution of the pressures

No growth indications have been recorded, although the area is affected by the proximity of the city of Siracusa and its heavy traffic.

6.4. EXPECTED DEVELOPMENT AND TRENDS OF THE MARINE ENVIRONMENT AND SEASCAPES OF THE AREA: as expected arising from the evolution of the pressures

The major threat in this sense is represented by the high number of craft used for diving.

7. PROTECTION REGIME

7.1 LEGAL STATUS (General Principles “e” and Section C-2 both in Annex I)

7.1.1. Historical background of the protection of the site

Identified as a recognized marine area «Penisola Maddalena -Capo Murro di Porco» by Italian law L. 394/91 (L. 93/01); Istituted by means of [D.I. dated 15.09.2004](#) (published in the G.U. n° 32 dated 9/02/05).

Managing body: Consorzio costituito tra la Provincia Regionale di Siracusa e il Comune di Siracusa; Responsabile dell'Area Marina Protetta: Sig. Vincenzo Incontro.

7.1.2. Legal texts currently ruling the protection on the site

Enter the national conservation category, the dates and the present enforcement status of the legal instrument declaring the protection of the area. Consider both the land and the marine areas of the site. Include the full text(s) as an annex.

SEE THE ATTACHED: “Decreto Istitutivo Ministeriale [del 15.09.2004](#) (G.U. n° 32 del 9/02/05)

7.1.3. Objectives (General Principles “a” and D-1 in Annex I)

Name in order of importance the objectives of the area as stated in its legal declaration.

The Plemmirio Marine Protected Area pursues the environmental safeguard of the area in question and sets itself the following goals:

- a) The safeguard and optimal use of the natural, chemical and physical characteristics as well as the marine and coastal biodiversity, with particular regard to the protection of the Posidonia meadows and coralligenous biocoenosis, including by means of environmental renewal operations;
- b) The promotion of environmental education and the spread of knowledge of the marine and coastal environments of the marine protected area, including by means of educational programmes;
- c) The realization of programmes for the study, monitoring and scientific research in fields of natural science and environmental stewardship, to ensure the systematic knowledge of the area;
- d) The promotion of sustainable development in the area, with particular regard to raising the profile of traditional skills and activities, local cultures, ecological tourism and the use of the area by socially challenged groups.



Plemmiri
area marina protetta



*Ministero dell'Ambiente
e della Tutela del Territorio e del Mare
Direzione Protezione della Natura*



7.1.4. Indicate whether the national protection regime arises from international treaties enforced or from implementation measures of treaties (Art. 6.a in the Protocol).

7.2 INTERNATIONAL STATUS

7.2.1. Transboundary or high seas areas

Complete this section only if the area is transboundary, totally or partially in the high sea, or within areas where the limits of national sovereignty or jurisdiction have not yet been defined. In this case, mention the modalities of the consultation (Art. 9 para. 3A in the Protocol and General Principles “d” in Annex I).

7.2.2. International category

Mention if the area, or part of it, has been designated and on what date, with an international conservation category (e.g. Specially Protected Area, Biosphere Reserve, Ramsar Site, World Heritage Site, European Diploma, Natura 2000, Emerald network, etc.).

Codice Natura 2000: ITA090008 - **Capo Murro di Porco, Penisola della Maddalena e Grotta Pellegrino** D.M.
3 April 2000

7.3 PREVIOUS LEGAL BACKGROUND AND LAND TENURE ISSUES

Briefly mention if the area or part of it is subject to any legal claim, or to any file open in that connection within the framework of an international body. Describe the land tenure regimes within the area, and append a map if existing.



Plemmirio
area marina protetta



7.4 LEGAL PROVISIONS FOR MANAGEMENT (Section D-1 in Annex I)

7.4.1. Zoning

Briefly state if the legal text protecting the area provides for different zones to allocate different management objectives of the area (e.g. core and scientific zones in both land and sea, fishing zones, visitation, gathering, restoration zones etc) and in this case the surface area in ha of these zones. Include a map as an annex

The Plemmirio marine area is divided as follows:

Zone A full reserve, including the stretch of sea facing the Capo Murro di Porco coastline.

The following are permitted:

-rescue operations, surveillance, assistance;



Plemmiri
area marina protetta



*Ministero dell'Ambiente
della Tutela del Territorio e del Mare
Direzione Protezione della Natura*

CoNISMa
Consorzio Nazionale
Interuniversitario
per le Scienze del Mare



Plemmiri
area marina protetta



7.4.2. Basic regulations

Mention the provisions, which apply to the area concerning the implementation of Article 6 of the Protocol (paragraphs a to i), Section D5 (a to d) in the Annex I and Article 17 of the Protocol.

SEE THE ATTACHED: “Disciplinare”

7.4.3. Legal competencies

Section D4 in Annex I states that the competence and responsibility with regard to administration and implementation of conservation measures for areas proposed for inclusion in the SPAMI List must be clearly defined in the texts governing each area. Additionally Art.7.4. of the Protocol calls for the provision of clear competencies and co-ordination between national land and sea authorities, with a view to ensuring the appropriate administration and management of the protected area as a whole. Mention in which way do the legal provisions clearly establish the institutional competencies and responsibilities for the administration and conservation of the area, and if being the case, their co-ordination means, including those between land and sea authorities.

Identified as a recognized marine area «Penisola Maddalena -Capo Murro di Porco» by Italian law L. 394/91 (L. 93/01); Istituted by means of [D.I. dated 15.09.2004](#) (published in the G.U. n° 32 dated 9/02/05).

Managing body: Consorzio costituito tra la Provincia Regionale di Siracusa e il Comune di Siracusa; Responsabile dell'Area Marina Protetta: Sig. Vincenzo Incontro.

The Plemmirio Marine Protected Area pursues the environmental safeguard of the area in question and sets itself the following goals:

- e) The safeguard and optimal use of the natural, chemical and physical characteristics as well as the marine and coastal biodiversity, with particular regard to the protection of the Posidonia meadows and coralligenous biocoenosis, including by means of environmental renewal operations;
- f) The promotion of environmental education and the spread of knowledge of the marine and coastal environments of the marine protected area, including by means of educational programmes;
- g) The realization of programmes for the study, monitoring and scientific research in fields of natural science and environmental stewardship, to ensure the systematic knowledge of the area;
- h) The promotion of sustainable development in the area, with particular regard to raising the profile of traditional skills and activities, local cultures, ecological tourism and the use of the area by socially challenged groups.

7.4.4. Other legal provisions

Describe any other relevant legal provisions, such as those requiring a management plan, the establishment of a local participation body, binding measures for other institutions or economic sectors present in the area, allocation of financial resources and tools, or any other significant measures concerning the protection and management of the area or its surrounding zones.

8. MANAGEMENT

Through the General Principles, para. (e) in the Annex I, the Parties agree that the sites included in the SPAMI List are intended to have a value as examples and models for the protection of the natural heritage of the region. To this end, the Parties ensure that sites included in the List are provided with adequate legal status, protection measures and management methods and means.

8.1 INSTITUTIONAL LEVEL

8.1.1. Authority/Authorities responsible for the area

A joint Consortium between the Province of Siracusa and the City of Siracusa.

8.1.2. Other participants in the management body

Such as other national or local institutions, as stated in Section D6 in Annex I.

The commission nominated by DEC/DPN n° 2334 dated 18/11/2005 works alongside the body delegated to manage the reserve, formulating proposal and suggestions for matters related to the running of the same. The commission expresses its opinion regarding the drawing of the regulations for managing the reserve and organizing the MPA, including budget forecasts and annual management programme, and concerning any suggestions related to changes in the perimeter or zoning of the MPA.

The commission is composed as follows:

- a) Chairman or Chairwoman who chairs the commission;
- b) Two experts designated by the Minister for the Environment,
- c) A representative from the principal nature associations involved;
- d) A representative from the Ministry of the Environment,
- e) Two representatives from the local municipalities;
- f) A representative of the regions whose territories are concerned
- g) A representative from the business and industry community designated by the Chamber of Commerce for each province where the reserve has been instituted;
- h) A representative from the local education authority
- i) A representative from the department for cultural and environmental heritage;
- j) The commander of the local Harbour Police.

8.1.3. Participants in other committees or bodies

Such as a scientific committee, or a body of representatives from the local stakeholders, the public, the professional and non-governmental sectors, as in Sections B4-b and B4-c in Annex I.

8.1.4. Effectiveness

As stated in Section B4 of Annex I, assess as very low, low, moderate, satisfactory, very satisfactory, and comment as needed on the following aspects:

a) Effectiveness of the co-ordination, where existing:

b) Quality of involvement by the public, local communities, economic sectors, scientific community:

8.2 MANAGEMENT PLAN (as set out in D7 of Annex I)

8.2.1. Management Plan

State if there is a management plan (MP) and in this case include the document as an annex. In the absence of a MP, mention if the main provisions governing the area and the main regulations for its protection are already in place and how (D7 in Annex I) and if the area will have a detailed management plan within three years (D7 in Annex I).

Not applicable to the proposed area

8.2.2. Formulation and approval of the Management Plan

Mention how the MP was formulated, e.g. by an expert team and/or under consultation and/or participation with other institutions or stakeholders. State the legal status of the MP, whether it is officialized, and how, and if it is binding for other institutions and sectors involved in the area.

8.2.3. Contents and application of the Management Plan

State the degree of detail in the MP by entering YES or NO in the following list of potential contents, and assess the degree of implementation of the MP by using the 0-1-2-3 score on the right hand side:

	Existing in MP	Degree of application			
Detailed management objectives	YES	0	1	2	3
Zoning	YES	0	1	2	3
Regulations for each zone	YES	0	1	2	3
Governing body(ies)	YES	0	1	2	3
Management programmes as:					
Administration	YES	0	1	2	3
Protection	YES	0	1	2	3
Natural resource management	YES	0	1	2	3
Tourism and Visitation	YES	0	1	2	3
Education and Training	YES	0	1	2	3
Research and Monitoring	YES	0	1	2	3
Services and Concessions	YES	0	1	2	3
Fund raising activities	YES	0	1	2	3
Periodic revisions of the MP	YES	0	1	2	3



Plemmirid
area marina protetta



8.3 PROTECTION MEASURES

By Art. 6 of the Protocol the Parties agree to take all the necessary protection measures required for the conservation of the area, particularly the strengthening the application of the other Protocols to the Convention, and through the regulation of any other activity likely to harm the natural or cultural value of the area, such as economic, recreation or research activities. As per Section D2 in Annex I, the protection measures must be adequate to the site objectives in the short and long term, and take in particular into account the threats upon it.

8.3.1. Boundaries and signing

Briefly, state if the boundaries of the area and its zones are adequately marked in the field, both on land, in the sea, and at the principal points of access.

Indications and buoys are efficient and well-organized.

8.3.2. Institutional Collaboration

Name the different national and local institutions or organisations with legal responsibilities or involved in the protection and surveillance of land and sea zones, and any measures or mechanisms through which their co-ordination is pursued.

8.3.3. Surveillance

Consider the adequacy of the existing protection means (human and material), and your present ability to survey land and sea uses and accesses

Surveillance of the MPA is carried out by Siracusa Harbour Police (Piazzale IV novembre, 8 - 96100 SR; tel. 0931481011; fax 093169260), as well as by the security forces of the local bodies responsible for managing the area.

8.3.4. Enforcement

Briefly, consider the adequacy of existing penalties and powers for effective enforcement of regulations, whether the existing sanctions can be considered sufficient to dissuade infractions, and if the field staff is empowered to impose sanctions.

9. AVAILABLE RESOURCES

9.1. HUMAN RESOURCES (Art. 7.2.f in the Protocol)

9.1.1. Available staff

Assess the adequacy of the human resources available to the management body, in number of employees and training level, both in central headquarters and in the field. Indicate if there are staff training programmes.

5 full-time staff and 5 short-term contract staff with the following responsibilities: 1 head of the scientific and research activity ; 1 Head of Promotion and Education services Educazione, 1 Head of administration and finance, 2 administrative employees 1 secretariat employee, 3 employees for activities at sea, 1 press officer

9.1.2. Permanent field staff

Answer YES or NO on the current existence of the following FIELD staff categories. If YES, enter the number of staff either permanent or part-time in that category, and evaluate on a 0-1-2-3 score (0 is low, 3 is high) the adequacy of their training level.

	YES/NO	NUMBER Permanent/Part-time	ADEQUACY OF TRAINING LEVEL			
Field Administrator	YES	3 permanent	0	1	2	3
Field Experts (scientific monitoring)	YES	1 permanent	0	1	2	3
Field Technicians (maintenance, etc)	YES	1 permanent	0	1	2	3
Wardens	YES	1 part-time	0	1	2	3
Of which marine wardens	YES	1 part-time	0	1	2	3
Guides	YES		0	1	2	3
Other						

9.1.3. Additional Support

Briefly, describe if the area currently has the advantage of other external human resources in support of its objectives, either from other national or local institutions, volunteer programmes, non-governmental organisations, academic or international organisations. Mention if there are any significant changes in prospect for the near future.



Plemmiri
area marina protetta





9.2 FINANCIAL RESOURCES AND EQUIPMENT

By Art. 7 in the Protocol, the Parties agree to adopt measures or mechanisms to ensure the financing of the specially protected areas (Art.7.2.d), and the development of an appropriate infrastructure (Art.7.2.f). The General Principles para. "e" in the Annex I call upon the Parties to provide the areas with adequate management means.

9.2.1. Present financial means

Note if the basic financing is ensured: a core funding for basic staff, protection and information measures. Who provides this core funding? Briefly assess the degree of adequacy of the present financial means for the area, either low, moderate, satisfactory; e.g. the implementation of the management plan, including protection, information, education, training and research.

MATTM

9.2.2. Expected or additional financial sources

Briefly describe any alternative sources of funding in use or planned, and the perspectives for long-term funding from national or other sources.

9.2.3. Basic infrastructure and equipment

Answer YES or NO to the following questions, and if YES, assess with a score of 1-2-3 (1 is low, 3 is high) the adequacy of the basic infrastructure and equipment.

	YES/NO	ADEQUACY			
Office and/or laboratory in the field	YES	0	1	2	3
Signs on the main accesses	YES	0	1	2	3
Guard posts on the main accesses	YES	0	1	2	3
Visitors information centre	YES	0	1	2	3
Self guided trails with signs	YES	0	1	2	3
Terrestrial vehicles	YES	0	1	2	3
Marine vehicles	YES	0	1	2	3
Radio and communications	YES	0	1	2	3
Environmental awareness materials	YES	0	1	2	3
Capacity to respond to emergencies	YES	0	1	2	3
Comment on basic infrastructure and equipment					



Plemmirid
area marina protetta



9.3 INFORMATION AND KNOWLEDGE

By Section D3 of Annex I, the Parties agree that the planning, protection and management of a SPAMI must be based on an adequate knowledge of the elements of the natural environment and of socio-economic and cultural factors that characterize each area. In case of shortcomings in basic knowledge, an area proposed for inclusion in the SPAMI List must have a programme for the collection on the unavailable data and information.

9.3.1. State of knowledge

a) Assess the general state of knowledge of the area

2			
---	--	--	--

b) Briefly describe the extent of knowledge of the area, considering at least specific maps, main ecological processes, habitat distribution, inventories of species and socio-economic factors, such as artisan fishing.

In terms of biodiversity, the available data are sufficient and recent enough as far as the flora and benthic marine vegetation is concerned. The peninsula's sea beds have been the object of numerous studies by the University of Catania's Algae department.

The information on benthic fauna are sufficient if we consider the southern side of the peninsula as documented in "Cartografia delle biocenosi e dei sedimenti della piattaforma continentale del Golfo di Noto tra Capo Murro di Porco e Capo Passero" produced by the Dept. Of Animal Biology, University of Catania.

The major scientific works on the area are listed in the appendix.



Plemmirid
area marina protetta



9.3.2. Data collection

Describe and assess the adequacy of any programme and activities to collect data in the area.

There is a scientific partnership between the University of Catania's CUTGANA and since 2005 there is a « PdG » which also provides for the monitoring of the natural conditions and the effects of underwater activities in zone A. The management in both cases is efficient and well-organized, and a number of programmes have been developed specifically for differently-able people, and well-defined partnership agreements have been drawn up with scuba diving clubs, environmental associations, local fishermen and tour operators and hospitality providers. The university and public research bodies are involved in professional training courses.

9.3.3. Monitoring programme

Section D8 in Annex I states that to be included in the SPAMI List, an area will have to be endowed with a monitoring programme having a certain number of significant parameters, in order to allow the assessment of the state and trends of the area, as well as the effectiveness and protection and management measures, so that they may be adapted if need be (indicators may, for instance, supply information about species status, condition of the ecosystem, land-use changes, extraction of natural resources -sand, water, game, fish-, visiting, adherence to the provisions of the management plan, etc.).

a) Is there a monitoring programme?	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px 10px;">YES</td> <td style="padding: 2px 10px;">NO</td> </tr> </table>	YES	NO
YES	NO		
b) If NO, are there plans to start one, and when?			
c) If YES, assess as low, medium, satisfactory, its adequacy and present level of development.	Medium		
d) If YES, who is/are carrying out the monitoring programme?	MPA-CUTGANA		

e) If YES, briefly describe how the monitoring programme will be used in reviewing the management plan.



Plemmirid
area marina protetta



The five years lasting monitoring programme, will be used in order to:

- evaluate the sustainable number of visitors and regulate the activity of local diving centers
- control the maintainance of the naturality of the site and the state of health of *Posidonia oceanica* meadows
- detect possible changes of the geomorphology of the coastal belt
- prevent damages to submerged archaeological heritage

Other information, if any



Plemmirio
area marina protetta



11. CONTACT ADDRESSES (name(s), position(s) and contact address(es) of the person(s) in charge with the proposal and that compiled the report)

Direttore AMP « Plemmirio » Sig. Vincenzo Incontro
Consorzio Plemmirio tra Provincia Regionale di Siracusa e Comune di Siracusa
Via Necropoli del Fusco, 7
96100 Siracusa
Tel 0931-709734 Fax 0931- 709732
v.incontro@plemmirio.it

Prof. Giuseppe Giaccone
Dipartimento di Botanica
Università di Catania
Via A. Longo, 19
95125 Catania, Italia
tel. +39095507490
e-mail: g.giaccone@unict.it

Dott. Donatella Serio
Dipartimento di Botanica
Università di Catania
Via A. Longo, 19
95125 Catania, Italia
tel.: +39095507490
e-mail: d.serio@unict.it

Dott. Anna Pezzino
Dipartimento di Botanica
Università di Catania
Via A. Longo, 19

**12. SIGNATURE(S) ON BEHALF OF THE STATE(S)
PARTY/PARTIES MAKING THE PROPOSAL**

13. DATE