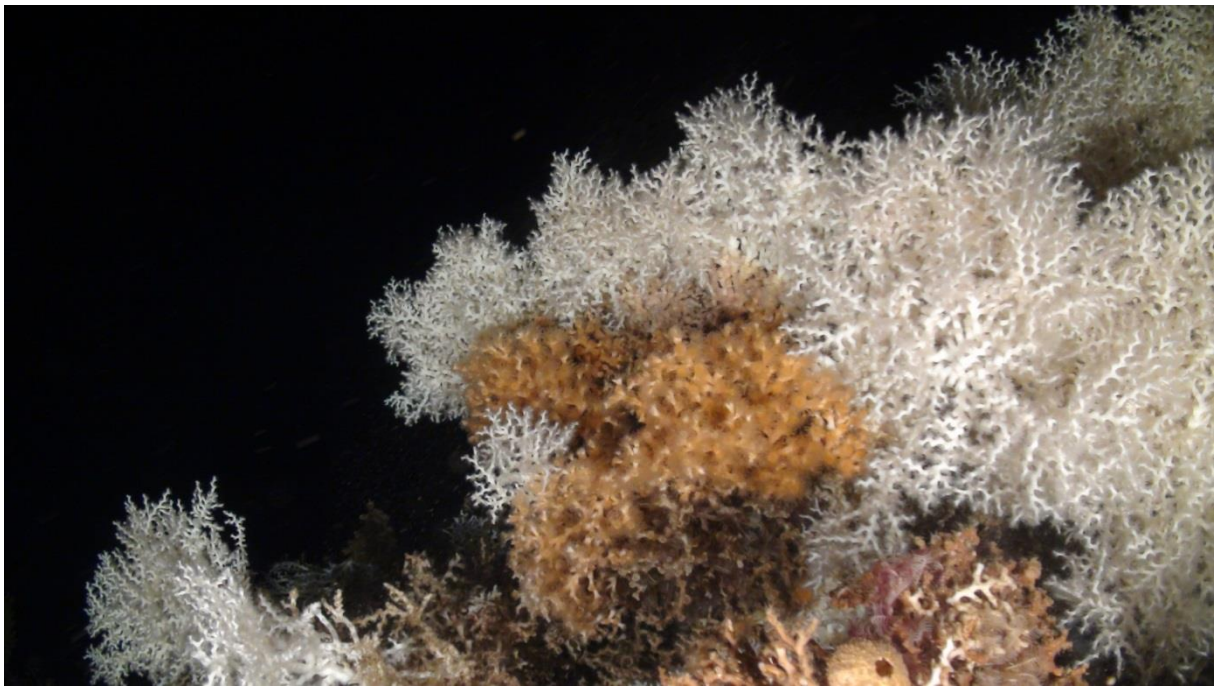
Scientific Information to Describe Areas Meeting Scientific Criteria for Mediterranean EBSAs

Information provided by OCEANA
to CBD and UNEP/MAP
for the Mediterranean EBSA Workshop

March 2014



Report prepared by

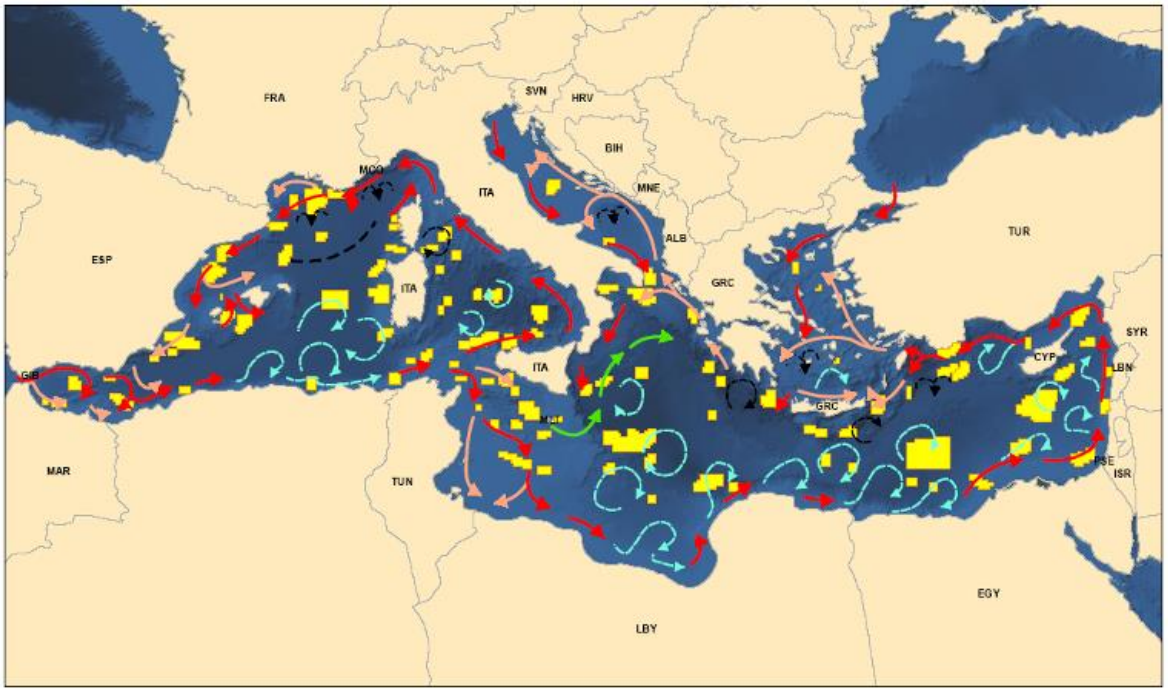
Pilar Marín
Ricardo Aguilar
Silvia García

CONTENTS

In this report, 37 marine sites are described to contribute on the identification of Ecologically or Biologically Significant Areas (EBSAs) in the Mediterranean Sea in order to follow requirements under the Barcelona Convention (decision IG.21/5) and the Convention on Biological Diversity (decision X/29)[1]. Oceana has identified these sites mainly because of the occuerrence of species listed as protected (under several international Conventions or Reference Lists) or due to the presence of sensitive and/or essential habitats. When scientific information is either scarce or not available, several features are included due to its affection by the main circulation (mesoescale) patterns to ensure the connectivity within marine subregions in a potential MPA network.

The information provided through this document is an essential part of the Oceana MedNet project. Since it was launched, when possible, the information has been updated to feed the project and now to develop the current report. The MedNet proposal contains one hundred sites aiming to reach the Aichi Target 11[2] and it is mainly focused in covering the current gap in offshore protection in the Mediterranean Sea. As the proposal is mainly based on the seafloor geomorphology, a high fraction is represented by seamounts and submarine canyons, although many other features were added (mud volcanos, gyres, cold seeps, etc.) during the design process.

Figure 1. Oceana MedNet and main circulation patterns in the Mediterranean Sea (Marín et al, 2011)



In this document, we have selected those areas that Oceana considers as a priority for protection, including information required for filling EBSA template. The information for the rest of MedNet sites can be found in the Annex II (Ecological importance of Oceana MedNet sites) to the MedNet report. Other ecologically valuable information from Oceana at-sea expeditions has been also incorporated to the document. On the other hand, additional material will be uploaded to Oceana's website available for downloading (see Annex) to support the information submitted to the Mediterranean EBSA workshop:

http://webdisk.oceana.org
FILE: EBSA workshop 2014
User: **oceanaeuoshared**
Password: **H0laoceana** (first in capital letter – second is a zero)

[1] UNEP/CBD/COP/DEC/IX/20 http://www.cbd.int/doc/decisions/cop-09/cop-09-dec-20-en.pdf

[2] https://www.cbd.int/sp/targets/rationale/target-11/

NOTES:

- The description of sites has been done from the West (Alboran Sea) to the East (Levantine basin)
- Regarding the interpretation of the table for the Assessment of the area against CBD EBSA Criteria, we have highlighted in green the criteria that are met in each site.
- The term "Territorial waters" has been used throughout the document to refer not only to the waters exclusively under national jurisdiction, but also to those potential/claimed or designated as EEZ areas beyond the Territorial Sea. The green line used in the maps represents the EEZ according to the kml version of the Flanders Institute (VLIZ) and it does not reflect Oceana position in this regard.

1. XAUEN AND TOFIÑO BANKS, AND SOUTHERN ALBORAN VOLCANOES

Description and key species

This proposal includes one of the most singular enclaves to the west of the Alboran Sea (see Figure 2) as it is composed by mud volcanos (Dhaka, Mulhacen and Maya) and seamounts (Xauen and Tofiño Banks). Mud volcanos give to this area a very special significance as this kind of geological feature has a very limited distribution in the Mediterranean (see Figure 3). Summits of the seamounts are topped by calcareous sediments (Martínez-García et al., 2011), providing the base for the settlement of sensitive habitats and species. Fluid seepage has also recently been found on these features (Poort et al., 2012). The area concentrates different cetacean species (striped dolphin, bottlenose dolphin, common dolphin, pilot whale, Cuvier's beaked whale) and small and large pelagic fisheries. Furthermore, it is used as feeding ground by seabirds. In addition, the seamounts are regarded as nurseries for small sharks of commercial interest such as the small-spotted catshark (*Scyliorhinus canicula*). This biodiversity maybe oceanographically influenced by the West Alboran Gyre and the Atlantic Anticyclonic Gyre (see Figure 4and Figure 5). From the geological point of view, the Alboran volcanos are also very interesting structures that generate highly characteristic biological communities. The main threats arise from the use of destructive fishing gears and potential oil/gas prospections.

Depth Range	Approx. 200-800m	
Jurisdictional status	Morocco Territorial waters	
Location	Southern Alboran Volcanoes Latitude: 35° 25,014' N Longitude: 4° 36,217' W	Xauen and Tofiño Banks Latitud: 35° 24,207' N Longitud: 4° 6,053' W
MedNet Proposal	YES	
MEOW[3]	Alboran Sea	

KEY SPECIES	
Birds – breeding	*Ziphius cavirostris*
Delphinus delphis	
Globicephala melas	
Large Pelagics - fisheries	
Scyliorhinus canicula (nursery)	
Small Pelagics - habitat	
Stenella coeruleoalba	
Tursiops truncatus	

Features to be protected according CBD examples[4]
Carbonate mounds
Cold seeps
Fronts
Gyres
Seabirds
Seamount communities
Sharks
Whales and other cetaceans

A joint expedition (UNEP MAP-RAC/SPA, IUCN and OCEANA) was planned to take place in 2012, but unfortunately it was not carried out.

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				X
Mud volcanos give to this area a very special significance as this kind of geological feature has a very limited distribution in the Mediterranean				
Special importance for life-history stages of species				X

[3] Marine Ecoregions Of the World according to Spalding, et al (2007). "*Marine ecoregions of the world: a bioregionalization of coastal and shelf areas*". BioScience, 57(7), 573-583.
http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/colorado/scienceandstrategy/marine-ecoregions-of-the-world.pdf

[4] UNEP/CBD/EWS.MPA/1/2. Examples of features that would meet the scientific criteria for identifying ecologically or biologically significant marine areas or species. UNEP/CBD/EWS.MPA/1/2. Appendix to Annex II.

These seamounts are regarded as nurseries for small sharks of commercial interest such as the small-spotted catshark (Scyliorhinus canicula)				
Importance for threatened, endangered or declining species and/or habitats				X
Confluence of different cetacean species, some of them under international Convention Lists or the IUCN Red List				
Vulnerability, fragility, sensitivity, or slow recovery	X			
No information available, although high probably occurrence of Cold Water Corals, sponge aggregations and other vulnerable habitats, including bubbling reefs and chemosynthetic communities.				
Biological productivity			X	
Because of the influence of the hydrology				
Biological diversity			X	
Confluence of pelagic biodiversity (small and large pelagic species of commercial interest and several species of cetaceans)				
Naturalness	X			

spp	CITES	CMS_BONNconv	SPA/BD Protocol	IUCN Red List(*)
Delphinus delphis	Appendix II	Appendix I and II	Annex II	LC/EN (Med)
Globicephala melas	Appendix II		Annex II	DD
Stenella coeruleoalba	Appendix II	Appendix II (Med)	Annex II	LC/VU (Med)
Tursiops truncatus	Appendix II	Appendix II	Annex II	LC/VU (Med)
Ziphius cavirostris	Appendix II		Annex II	LC

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 2. Location of Xauen and Tofiño banks and Southern Alboran volcanos

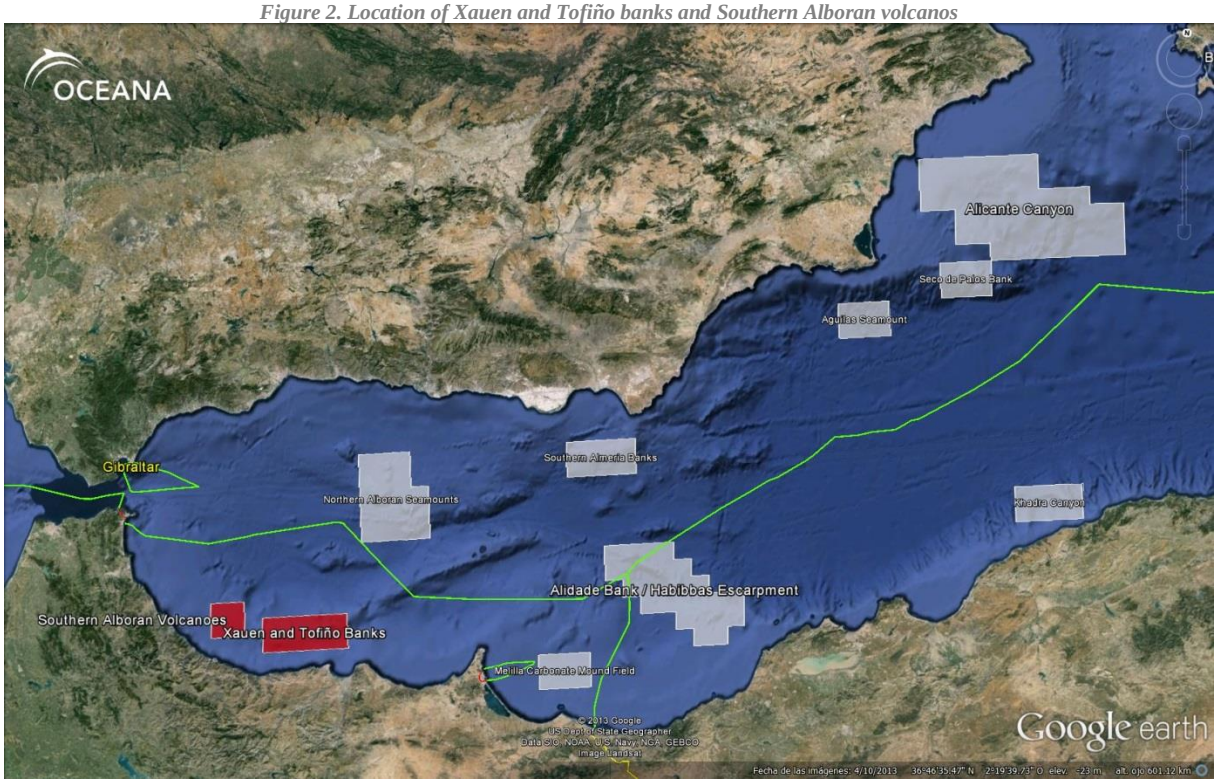


Figure 3. Southern Alboran volcanoes location. Shaded area: Mud Diapir Province. WAB: West Alboran Basin; EAB: East Alboran Basin; SAB: South Alboran Basin; AR: Alboran Ridge (Margreth et al, 2011)

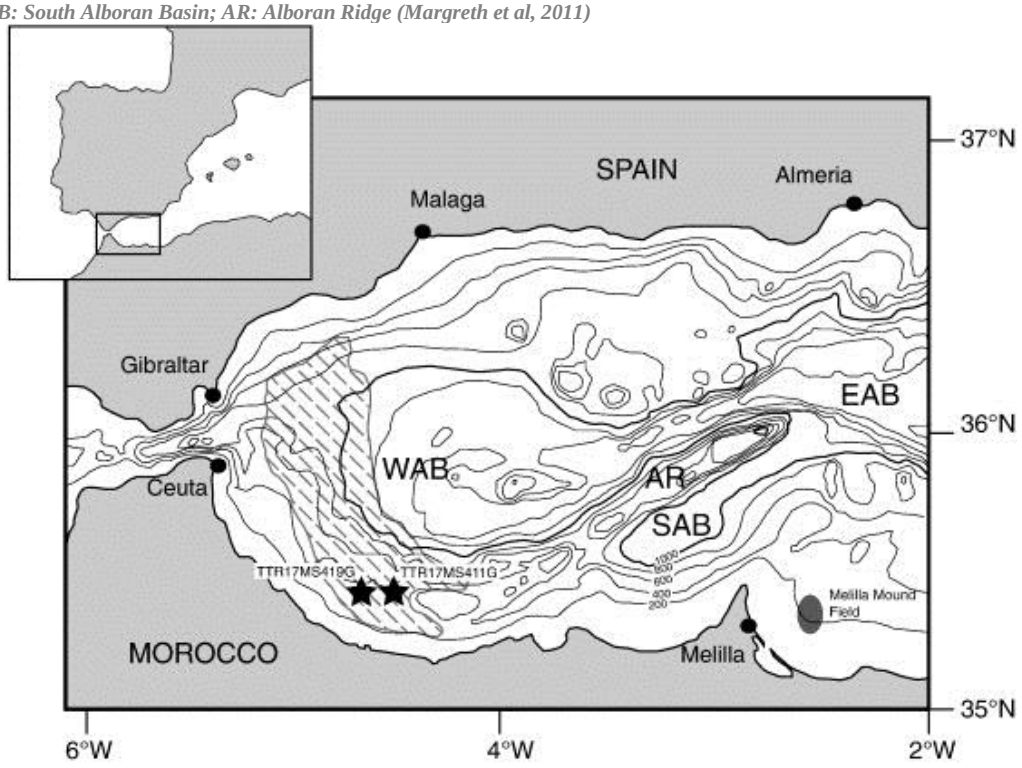


Figure 4. Schematized surface circulation pattern in the Alboran Sea (Western Mediterranean Sea). WAG: West Alboran Gyre. EAG: East Alboran Gyre. AC: Algerian Current. Box within dotted lines shows the study area (L'Helguen et al, 2002)

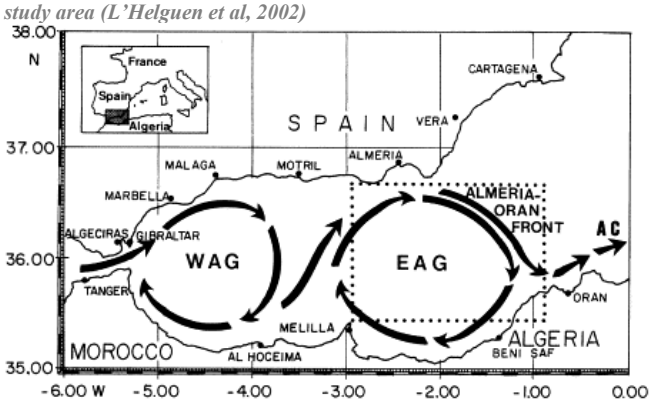
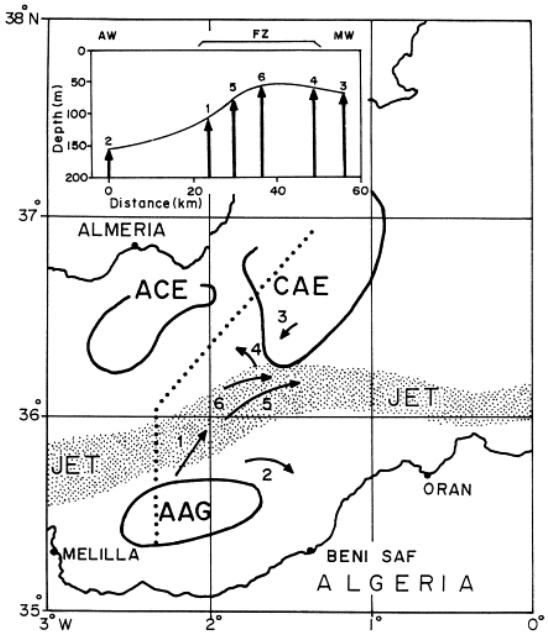


Figure 5. Main hydrological structures. AAG: Atlantic Anticyclonic Gyre. ACE: Almeria Cyclonic Eddy. CAE: Cartagena Anticyclonic Eddy. JET: frontal jet. Arrows show the drift direction of the sediment traps on deployment from each site (L'Helguen et al, 2002).



References

Comas M.C., Pinheiro L.M. & S. Spezzaferri (2011). Growth and demise of cold-water coral ecosystems on mud volcanoes in the West Alboran Sea: The messages from the planktonic and benthic foraminifera. Marine Geology, 282 (1/2). pp. 26-39. ISSN 0025-3227. doi 10.1016/j.margeo.2011.02.006.

CIESM (2011). Marine Peace Parks in the Mediterranean - a CIESM proposal. Nº 41 in CIESM Workshop Monographs [F. Briand Ed.], 128 pages, Monaco

Deep Sea drilling project. URL (consultada Enero 2011): www.deepseadrilling.org

De Mol B., Amblas D., Calafat A., Canals M., Duran R., Lavoie C., Muñoz A., Rivera J., HERMESIONE, DARWIN CD178, and COBAS Shipboard Parties (2012). 60 - Cold-Water Coral Colonization of Alboran Sea Knolls, Western Mediterranean Sea. Seafloor Geomorphology as Benthic Habitat, Elsevier, London, 2012, Pages 819-829

Dimitrov L.I. (2002). Mud volcanoes—the most important pathway for degassing deeply buried sediments. Earth-Science Reviews 59 (2002) 49-76

GFCM (2011). Report of the Workshop on Stock Assessment of selected species of Elasmobranchs in the GFCM area. Scientific Advisory Committee (SAC). Sub-Committee on Stock Assessment (SCSA)

L'Helguen S., Le Corre P., Madec C. & P. Morin (2002). New and regenerated production in the Almeria-Oran front area, eastern Alboran Sea, Deep Sea Research Part I: Oceanographic Research Papers, Volume 49, Issue 1, January 2002, Pages 83-99, ISSN 0967-0637

Martínez-García, P., Comas, M., Soto, J.I., Lonergan, L., Pérez-Hernández, S. 2009. Recent submarine slides in the Alboran Ridge (Alboran Sea). Geogaceta, 47 (2009), 89-92. ISSN: 0213683X

Martínez-García P., Soto J.I. & M. Comas (2011). Recent structures in the Alboran Ridge and Yusuf fault zones based on swath bathymetry and sub-bottom profiling: evidence of active tectonics. Geo-marine Letters, 31 (1): 19-36,

Mauffret A., Ammar A.& C. Gorini (2008). Al Idrissi Active Fracture Zone. Abstract. MAPG First International Conference and Exhibition. Marrakech (Morocco).

Notarbartolo di Sciara G. & T. Agardy (2009). Identification of potential SPAMIs in Mediterranean Areas Beyond National Jurisdiction. Contract N° 01/2008_RAC/SPA, High Seas. 70p.

Poort J., Mercier de Lépinay B., Rabaute A., d'Acremont E., Migeon S., Ammar A., Le Roy P., Ercilla G., Alonso B., Vazquez J.T., Lopez-Gonzalez N., Ceramicola S., Do Couto D., Gorini C. & and the MARLBORO & SARAS teams (2012). Fluid seepage indices on Tofiño and Xauen Banks, Alboran Sea. 11th International Conference of Gas in Marine Sediments. 4-7 September 2012. Nice, France (poster).

Sautkin A., Talukder A.R., Comas M.C., Soto J.I & A. Alekseev (2003). Mud volcanoes in the Alboran Sea: evidence from micropaleontological and geophysical data, Marine Geology, Volume 195, Issues 1-4, Sedimentary Processes and Seafloor Hydrocarbon Emission on Deep European Continental Margins, 30 March 2003, Pages 237-261, ISSN 0025-3227, DOI: 10.1016/S0025-3227(02)00691-6.

2. CHELLA BANK

Description and key species

Chella Bank or Seco de los Olivos is a seamount located off the Spanish coast (12 nautical miles from the Almeria coast), rising from bottoms of -300m depth in its northern slope and descending to -700m depth in the southern slope (see Figure 6). It is influenced by two different oceanographic patterns, the SE-E and the NW-N currents, which have different speeds and temperatures. The summit of the main elevation (guyot) rises 76m under the sea level, so circalittoral and bathyal communities occur embracing a broad range of marine life, from photophilic algae to deep-sea habitats. Although it is not a large seamount (100km²), Chella Bank is one of the richest biodiversity features in Spanish waters, being this the reason of its inclusion in the European-Spanish project LIFE + INDEMARES to complete the Natura 2000 network at sea. Many marine species (more than 600) have been identified in the area , including protected and/or threatened species such as cetaceans, cnidarians and sponges as well as many priority species (under GFCM) of commercial value, from fish (*Pagellus bogaraveo, Lophius piscatorius, Mullus surmuletus, Trachurus trachurus, Sardina pilchardus, Xiphias gladius, Solea solea*, etc.) to crustaceans (*Palinurus elephas, Palinurus mauritanicus, Aristeus antennatus, Nephrops norvegicus*) and cephalopods (*Eledone cirrosa, Loligo vulgaris, Sepia officinalis*). The carnivorous sponge *Asbestopluma hypogea* was recorded in this area, being the first record of the species in Spanish waters and in the Mediterranean deep-sea waters (Aguilar *et al.,* 2011). Previously, this species was only known in shallow infralittoral caves of France and Croatia. It is worth highlighting another scientific finding in the Chella Bank, the stony coral *Anomocora fecunda (*Aguilar *et al.,* 2013*)*, only known in the Macaronesian region and the Atlantic (see Figure 7). For the last four years as result of Oceana expeditions, a list of 20 habitats have been described and mapped in the seamount (e.g. coralligenous beds, sponge aggregations, cold water coral reefs, sea pens and bamboo gorgonian communities).

Depth Range	Approx. 80-700m
Jurisdictional status	Spain Territorial waters
Location	Latitude: 36°30'47.79"N Longitude: 02°51'47.05"W
MedNet Proposal	NO
MEOW	Alboran Sea

KEY SPECIES	
Anomocora fecunda	*Hexanchus griseus*
Antipathella subpinnata	*Javania cailleti*
Antipathes dichotoma	*Leiopathes glaberrima*
Anthomastus sp.	*Leptogorgia sarmentosa*
Aplysina aerophoba	*Leptometra phallangium*
Asbestopluma hypogea	*Lophelia pertusa*
Axinella polypoides	*Madrepora oculata*
Babelomurex cariniferus	*Merluccius merluccius*
Balaenoptera acutorostrata	*Mitra zonata*
Callogorgia verticillata	*Neopycnodonte zibrowii*
Calyx nicaeensis	*Nicella granifera*
Caretta caretta	*Oxynotus centrina*
Centrophorus granulosus	*Palinurus elephas*
Centrostephanus longispinus	*Paramuricea clavata*
Charonia lampas	*Parantipathes larix*
Corallium rubrum	*Pentapora fascialis*
Delphinus delphis	*Pourtalosmilia anthophyllites*
Dendrobrachia bonsai	*Ranella olearium*
Dendrophyllia cornigera	*Savalia savaglia*
Dendrophyllia ramea	*Scyllarus arctus*
Ellisella paraplexauroides	*Sideractis glacialis*
Epinephelus caninus	*Spongia agaricina*
Eunicella verrucosa	*Stenella coeruleoalba*
Gaidropsarus granti	*Tethya aurantium*
Geodia cydonium	*Tursiops truncatus*
Globicephala melas	*Xiphias gladius*
Hacelia attenuata	*Zonaria pyrum*
Halocynthia papillosa	

Features to be protected according CBD examples
Cold water coral reefs
Coral, sponge and bryozoan aggregations
Fronts
Highly migratory fish
Seamount communities
Sea turtles
Sharks
Submerged atolls, bank and guyot communities
Upwelling areas
Whales and other cetaceans

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity			X	
Rare species like carnivorous sponges (Asbestopluma hypogea) and large specimens of long-live black corals like Leiopathes glaberrima				
Special importance for life-history stages of species			X	
Important feeding area for cetaceans, specially Tursiops truncatus and Globicephala melas. Mating site for groupers (Epinephelus caninus)				
Importance for threatened, endangered or declining species and/or habitats				X

spp	CITES	CMS	SPA/BD Protocol	IUCN Red List (*)
Anomocora fecunda	Appendix II			
Antipathella subpinnata	Appendix II		Annex II	
Antipathes dichotoma	Appendix II		Annex II	
Aplysina aerophoba			Annex II	
Asbestopluma hypogea			Annex II	
Axinella polypoides			Annex II	
Balaenoptera acutorostrata	Appendix I		Annex II	LC
Callogorgia verticillata			Annex II	
Caretta caretta	Appendix I	Appendix I	Annex II	EN
Centrophorus granulosus			Annex III	VU/VU (Med)
Centrostephanus longispinus			Annex II	
Charonia lampas			Annex II	
Corallium rubrum			Annex III	
Delphinus delphis	Appendix II	Appendix I and II	Annex II	LC/EN (Med)
Dendrophyllia cornigera	Appendix II			
Dendrophyllia ramea	Appendix II			
Ellisella paraplexauroides			Annex II	
Eunicella verrucosa				VU
Geodia cydonium			Annex II	
Globicephala melas	Appendix II		Annex II	DD
Hexanchus griseus			Annex II	NT/VU (Med)
Isurus oxyrinchus		Appendix II	Annex II	VU/CR (Med)
Javania cailleti	Appendix II			
Leiopathes glaberrima	Appendix II		Annex II	
Lophelia pertusa	Appendix II		Annex II	
Madrepora oculata	Appendix II		Annex II	
Merluccius merluccius				VU (Med)
Mitra zonata			Annex II	
Oxynotus centrina			Annex II	VU/CR (Med)
Palinurus elephas			Annex III	
Parantipathes larix	Appendix II		Annex II	
Pourtalosmilia anthophyllites	Appendix II		Annex II	
Prionace glauca			Annex III	NT/VU (Med)
Ranella olearium			Annex II	Lower Risk/NT
Savalia savaglia			Annex II	
Scyllarus arctus			Annex III	
Stenella coeruleoalba	Appendix II	Appendix II (Med)	Annex II	LC/VU (Med)

Tethya aurantium			Annex II	
Tursiops truncatus	Appendix II	Appendix II	Annex II	LC/VU (Med)
Xiphias gladius			Annex III	NT (Med)
Zonaria pyrum			Annex II	

Vulnerability, fragility, sensitivity, or slow recovery			X	
High wulnerability to fishing activities (trawling, lost gears, etc) for coral and sponge communities, and impact form dense maritime traffic to cetaceans. Occurence of red tides (Noctiluca scintillans)				
Biological productivity			X	
Big schools of small pelagics (Engraulis encrasicolus, Thachurus sp., Scomber scombrus, etc.) and important crustacenas grounds (Nephorps norvegicus, Plesionika spp.). It is considered and important nursery area for hake (Merluccius merluccius)				
Biological diversity				X
It is a meeting point for Mediterranean and Atlantic species				
Naturalness			X	
Impacted by human activities, mainly fishing, but with high valuable habitats and species				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 6. Location of the Chella bank

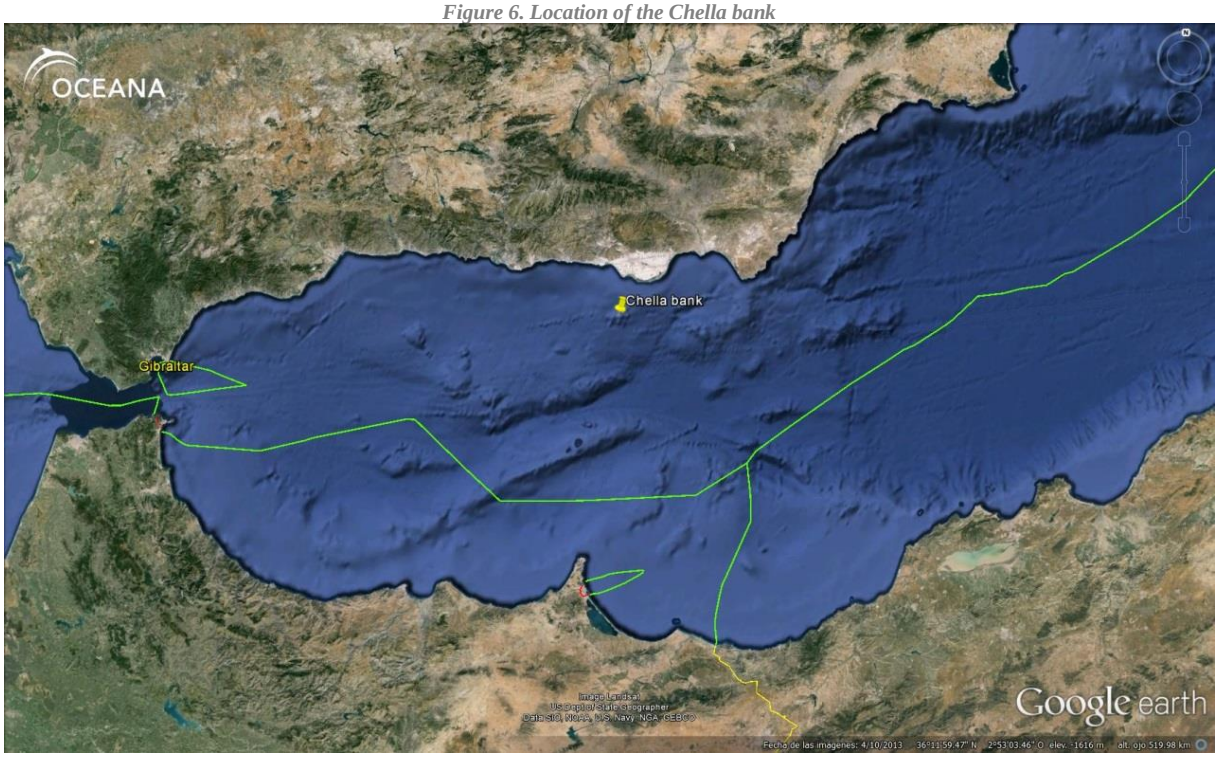


Figure 7. Anomocora fecunda distribution in the Atlantic Ocean. Source: OBIS http://iobis.org/mapper/?taxon=Anomocora%20fecunda

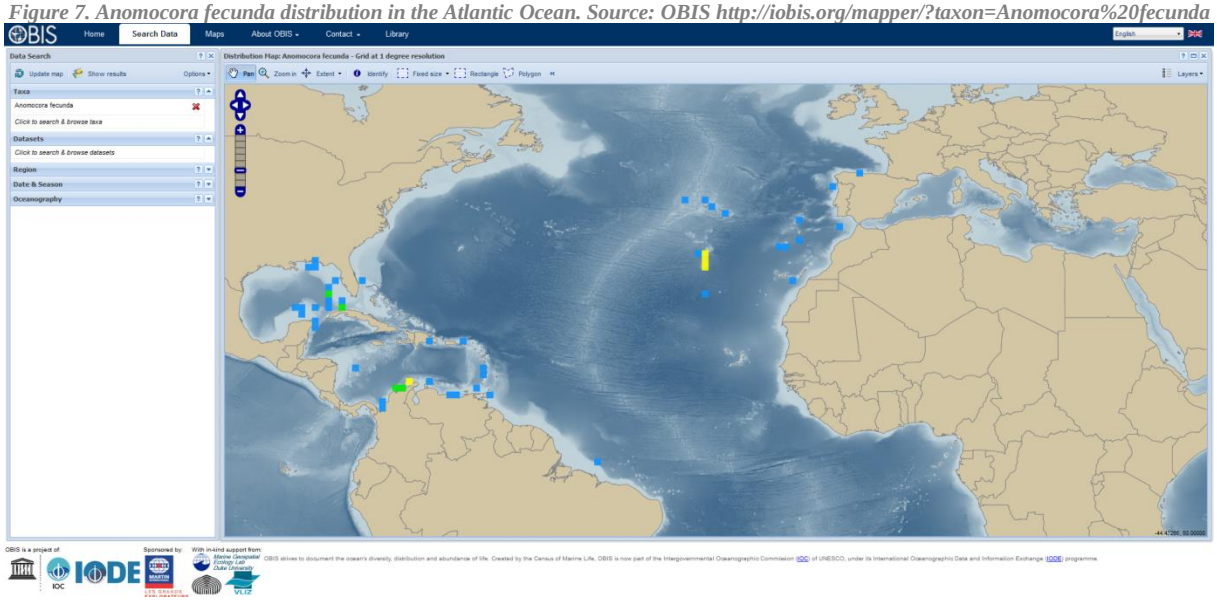


Figure 8. Glass sponge aggregation (Asconema setubalense)

Figure 9. Coralligenous habitat

Figure 10. Dendrophyllia ramea

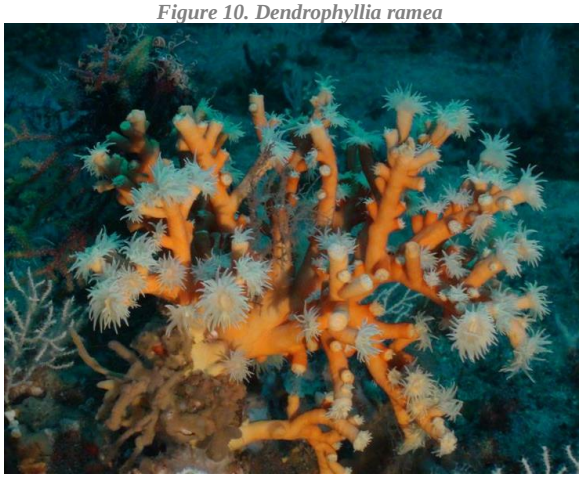


Figure 11. Epinephelus caninus

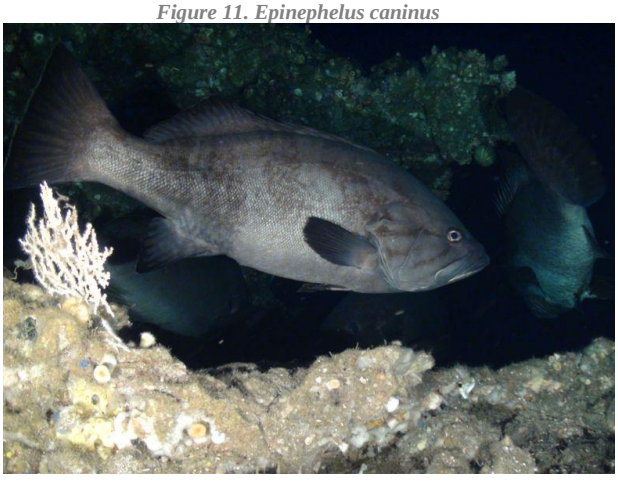


Figure 12. Leiopathes glaberrima

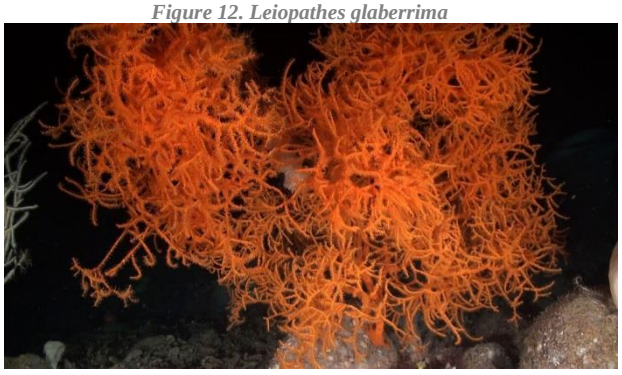


Figure 13. Pagurus arrosor with Ramella olearia shell and Madrepora oculata

Figure 14. Deep-sea shark (Oxynotus centrina)

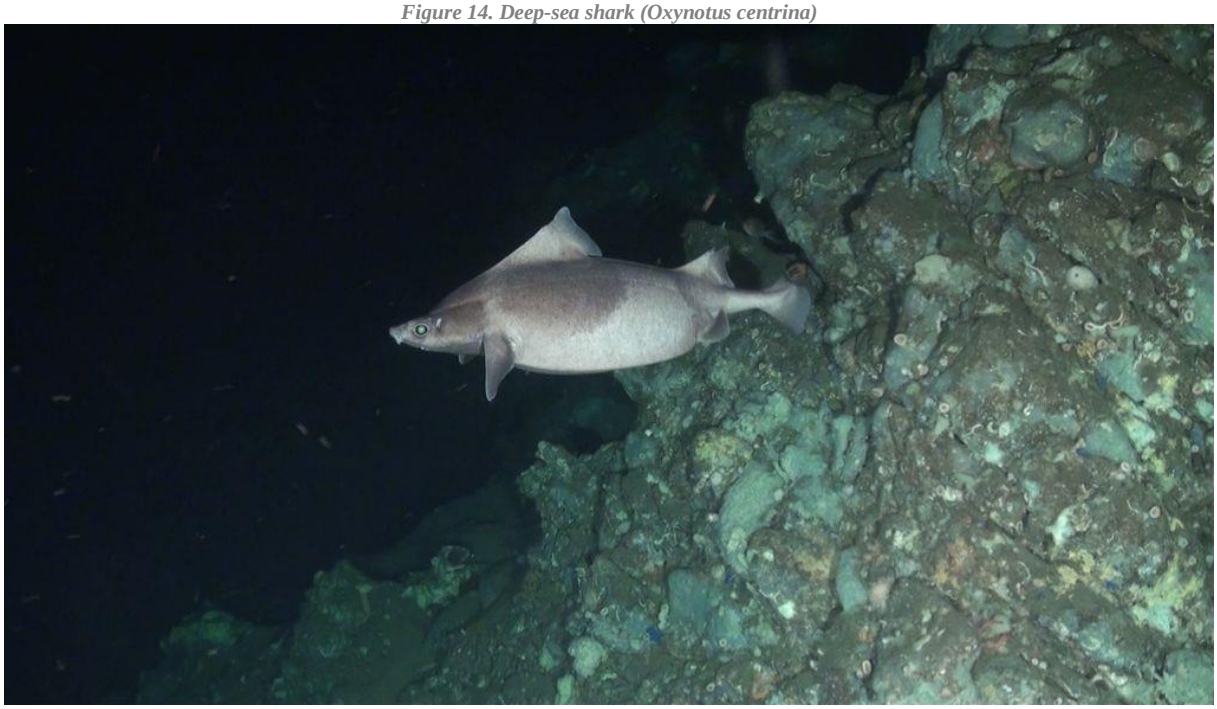


Figure 15. Cidaris cidaris facies

Figure 16. Corallium rubrum

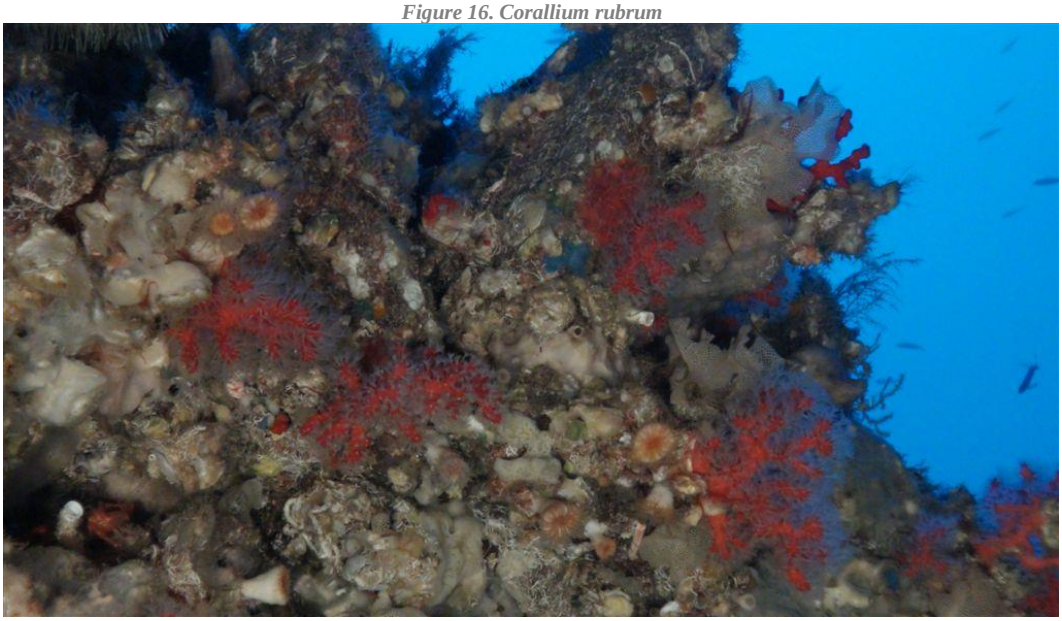


Figure 17. Lophius piscatorius

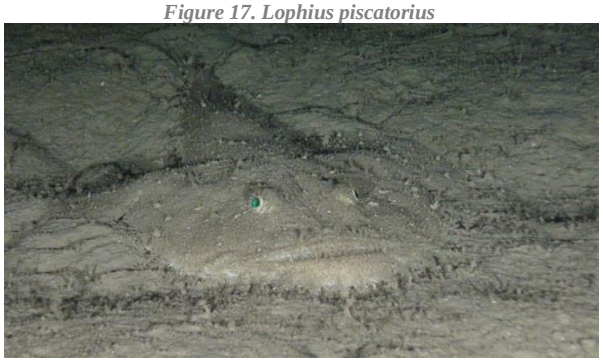
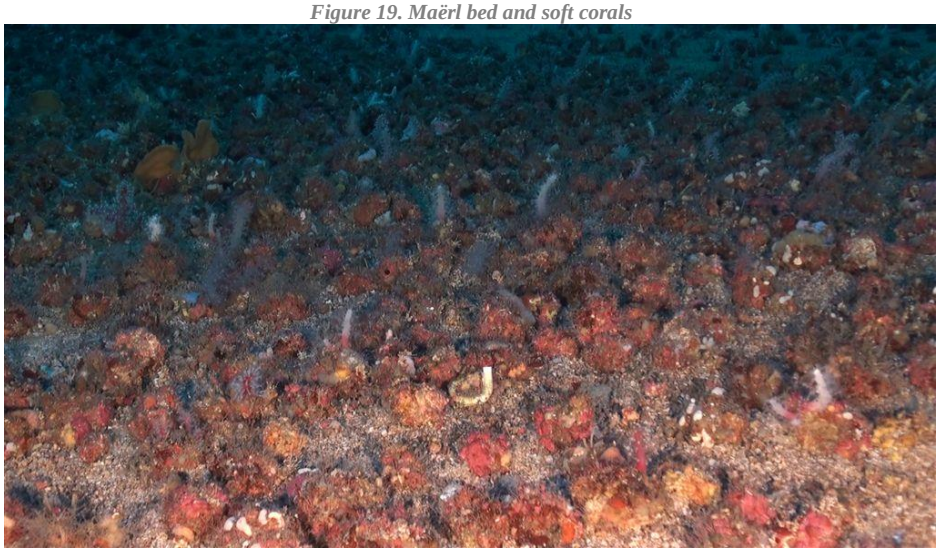


Figure 18. Pteroctopus tetracirrhus

Figure 19. Maërl bed and soft corals



References

Aguilar R., López Correa M., Calcinai B., Pastor X., de la Torriente A. & S. Garcia (2011). First records of Asbestopluma hypogea Vacelet and Boury-Esnault, 1996 (Porifera, Demospongiae, Cladorhizidae) on seamounts and in bathyal settings of the Mediterranean Sea. In: Zootaxa 2925 (2011), pp 33-40

Aguilar R., Pastor X., García S & P. Marín (2013). Importance of seamount-like features for conserving Mediterranean marine habitats and threatened species. 40th CIESM Congress. Marseille, France. 28 October - 1 November 2013.

OBIS (2014). Global biodiversity indices from the Ocean Biogeographic Information System. Intergovernmental Oceanographic Commission of UNESCO. Web. http://www.iobis.org (consulted on 14/03/14)

3. ALIDADE BANK AND HABIBBAS ESCARPMENT

Description and key species

The proposal contains one of the largest geomorphological formations in the Alboran Sea, including different kind of underwater elevations (Alidade Bank and Yusuf ridge) and a large escarpment (Habibbas) which reaches around 1,000 meters depth. The seamounts probably influence the Almería-Oran front and the oceanographic features of the area. For this reason, it is a large pelagic fishery where different dolphin species (*Delphinus delphis, Globicephala melas, Stenella coeruleoalba, Tursiops truncatus*) as well as other cetaceans such as Cuvier's beaked whale (*Ziphius cavirostris*) are concentrated. It is also a distribution area for loggerhead turtle (*Caretta caretta*) which commonly use the dominant surface currents for their large migrations and to locate feeding grounds. It is also relevant for seabird feeding. Furthermore, the area closest to the shore was regarded, in the late 70s, as one of the few distribution areas for Mediterranean monk seal (*Monachus monachus*).

Depth Range	Approx. 600-1700m
Jurisdictional status	Territorial waters from Algeria, Morocco and Spain
Location (centroid)	Latitude: 35° 50,461' N Longitude: 1° 47,522' W
MedNet Proposal	YES
MEOW	Alboran Sea

KEY SPECIES	
Birds - breeding	*Monachus monachus*
Caretta caretta	*Stenella coeruleoalba*
Delphinus delphis	*Tursiops truncatus*
Globicephala melas	*Ziphius cavirostris*
Large Pelagics - fisheries	

Features to be protected according CBD examples
Seamount communities
Seabirds
Sea turtles
Gyres
Whales and other cetaceans

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
Special importance for life-history stages of species				
Importance for threatened, endangered or declining species and/or habitats				X

spp	CITES	CMS	SPA/BD Protocol	IUCN Red List (*)
Caretta caretta	Appendix I	Appendix I	Annex II	EN
Delphinus delphis	Appendix II	Appendix I and II	Annex II	LC/EN (Med)
Globicephala melas	Appendix II		Annex II	DD
Monachus monachus	Appendix I	Appendix I and II	Annex II	CR
Stenella coeruleoalba	Appendix II	Appendix II (Med)	Annex II	LC/VU (Med)
Tursiops truncatus	Appendix II	Appendix II	Annex II	LC/VU (Med)
Ziphius cavirostris	Appendix II		Annex II	LC

Monk seal (*Monachus monachus*) is not occurring in the area but its former presence close to the area should be considered

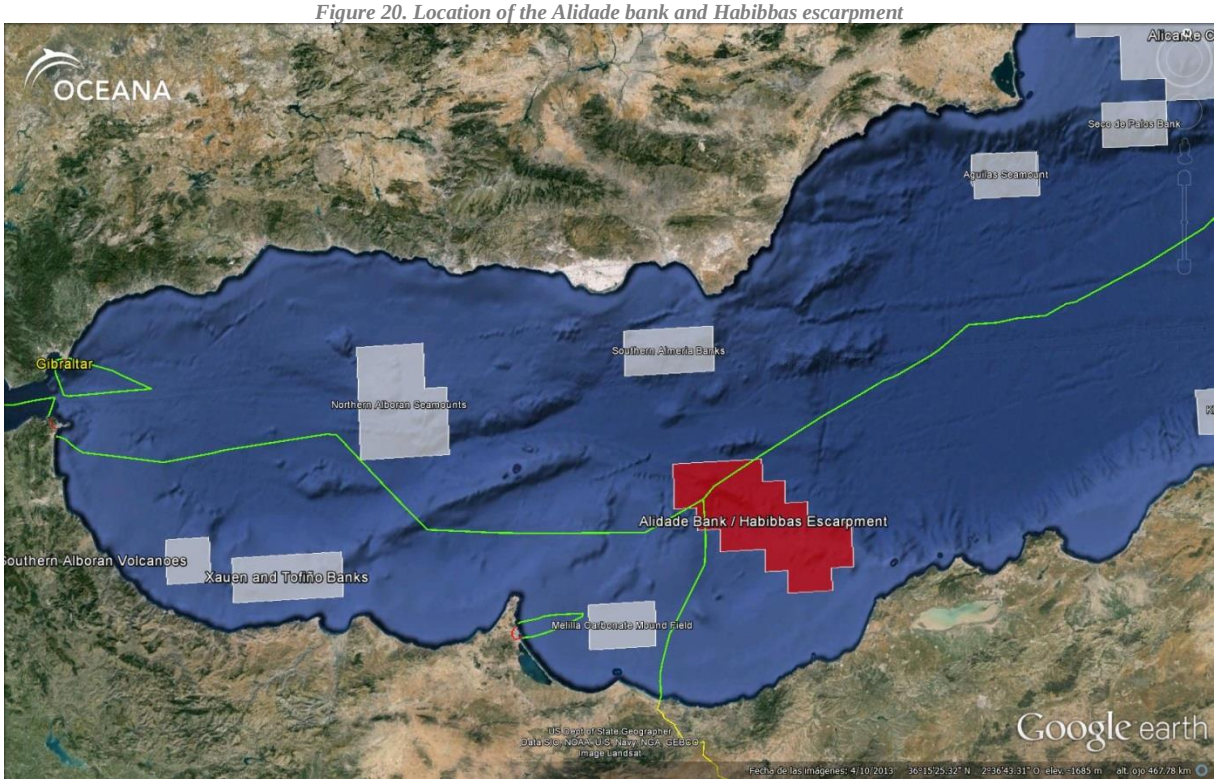
Vulnerability, fragility, sensitivity, or slow recovery				
Biological productivity				
Biological diversity				

Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 20. Location of the Alidade bank and Habibbas escarpment



References

Notarbartolo di Sciara G. & T. Agardy (2009). Identification of potential SPAMIs in Mediterranean Areas Beyond National Jurisdiction. Contract N° 01/2008_RAC/SPA, High Seas. 70p.

L'Helguen S., Le Corre P., Madec C. & P. Morin (2002). New and regenerated production in the Almeria-Oran front area, eastern Alboran Sea, Deep Sea Research Part I: Oceanographic Research Papers, Volume 49, Issue 1, January 2002, Pages 83-99, ISSN 0967-0637

Sergeant D., Ronald K., Boulva J. & F.Berkes (1978). The recent status of Monachus monachus, the Mediterranean monk seal, Biological Conservation, Volume 14, Issue 4, December 1978, Pages 259-287, ISSN 0006-3207, doi: 10.1016/0006-3207(78)90044-7

4. CABLIERS BANK

Description and key species

The Cabliers Bank is a volcanic formation conformed by two elevations, the one in the Western named Catifas, (summit at 350m depth) and the other in Eastern, named Cabliers (summit at 250m depth). The bank reaches depths exceeding 1000m on its northern flank (see Figure 20**¡Error! No se encuentra el origen de la referencia.**). Invertebrates such as spiny lobsters (*Palinurus mauritanicus*) and Norway lobsters (*Nephrops norvegicus*), echinoderms as *Cidaris cidaris*, cnidarians as *Kophobelemnon stelliferum* and *Isidella elongata* or sand mason worms (*Lanice conchilega*) are abundant in detritic and muddy bottoms. In areas of compacted muddy bottoms with small rocky outcrops, the occurrence of glass sponge aggregations (*Asconema setubalense*) is relevant associated to several species of fishes such as blue-mouth (*Helicolenus dactylopterus*), scorpionfish (*Scorpaena* sp.) and rat-tails (*Coelorinchus caelorhincus*) among others. The bank is also characterized by the presence of large coral reefs of *Lophelia pertusa* and *Madrepora oculata*, which reach more than one meter high in some locations. This is likely one of the largest live cold-water reefs documented up to date in the Mediterranean Sea covering an area of over 100,000 m^2. Gorgonians *Acanthogorgia armata* and *A. hirsuta* are also common together with black corals (*Antipathes dichotoma, Leiopathes glaberrima, Parantipathes larix*, etc.) and some isolated colonies of *Dendrophyllia cornigera*, more developed in other areas of this bank. In certain areas glass sponge agregations (*Asconema setubalense*) are higly significant with a scattered presence of small living colonies of *Lophelia pertusa* and solitary corals (*Desmophyllum dianthus*). Some fish species can be found in these reefs such as *Helicolenus dactylopterus, Coelorinchus caelorhincus, Pagellus bogaraveo* and *Conger conger*, or cephalopods such as *Sepiola oweniana, Pteroctopus tetracirrhus* and *Eledone cirrhosa*.

Depth Range	Approx. 300-1000 meters
Jurisdictional status	Morocco and Spain Territorial waters
Location	Latitude: 35º 48,8404'N Longitude: 02º 16, 2912'W
MedNet Proposal	NO
MEOW	Alboran Sea

KEY SPECIES	
Asbestopluma hypogea	*Kinetoskias cf. smithii*
Asconema setubalense	*Leucoraja circularis*
Acanthogorgia armata	*Leiopathes glaberrima*
Acanthogorgia hirsuta	*Leptometra phallangium*
Antipathes dichotoma	*Lophelia pertusa*
Anthomastus sp.	*Madrepora oculata*
Callogorgia verticillata	*Nicella granifera*
Coelorinchus caelorhincus	*Nephrops norvegicus*
Conger conger	*Pagellus bogaraveo*
Dalatias licha	*Parantipathes larix*
Dendrobrachia bonsai	*Palinurus mauritanicus*
Dendrophyllia cornigera	*Savalia savaglia*
Desmophyllum dianthus	*Scorpaena sp.*
Eledone cirrhosa	*Sepiola oweniana*
Helicolenus dactylopterus	*Stenocyathus vermiformis*
Isidella elongata	*Trigla lyra*

Features to be protected according CBD examples
Cold water coral reefs
Coral, sponge and bryozoan aggregations
Seamount communities

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
Large live coral reefs are rare in the Mediterranean. Cabliers bank has a diverse and well represented CWC reef with some species that can be new to science, like a black corals that is being identified. Other not common species like carnivorous sponges (Asbestopluma hypogea) and mushrrom corals (Anthomastus sp.) are also present.				
Special importance for life-history stages of species				
It seems to be a important area for seabream (Pagellus bogaraveo)				
Importance for threatened, endangered or declining species and/or habitats				X

spp	**CITES**	**CMS**	**SPA/BD Protocol**	**IUCN Red List (*)**
Antipathes dichotoma	Appendix II		Annex II	

Asbestopluma hypogea	-	-	Annex II	-
Callogorgia verticillata	-	-	Annex II	-
Dalatias licha				NT
Desmophyllum dianthus	Appendix II			
Dendrophyllia cornigera	Appendix II			
Leiopathes glaberrima	Appendix II	-	Annex II	-
Leucoraja circularis	Appendix II		Annex II	CR (Med)
Lophelia pertusa	Appendix II		Annex II	-
Madrepora oculata	Appendix II	-	Annex II	-
Parantipathes larix	Appendix II	-	Annex II	-
Savalia savaglia			Annex II	
Stenocyathus vermiformis	Appendix II			

Isidella elongata constitutes a essential habitat for several commercial species, reason why this facie have almost completely disappeared due to trawl fishing in many Mediterranean areas (Ardizzone *et al.* 2006).

Vulnerability, fragility, sensitivity, or slow recovery				X

*Deep-sea coral species are extremely vulnerable and fragile species to face **physical impacts** (bottom gears).*
*The effects of **climate change** and **ocean acidification** on the Mediterranean Sea may affect corals' ability to grow and maintain the carbon-based structures of certain species (Otero et al., 2013; Maier et al., 2012; OSPAR, 2010). Organisms that have aragonite shells or skeletons (e.g. cold water corals) are unlikely to survive below the aragonite carbonate compensation depth (CCD) (Harris & Whiteway, 2010), which is expected to decrease as a consequence of global warming.*
*Black corals have been demonstrated to be species with a very **slow growth rate** (especially for Leiopathes glaberrima which is considered as one of the most long-living organisms known on Earth; estimated at more than 2000 or even more 4000 years old – (Roark et al., 2009)*

Biological productivity				

Biological diversity				X

High biodiversity due to the occurrence of deep-sea corals (Pardo et al, 2011)

Naturalness				X

Only a few lost fishing gears were found. Most of the reef is very well preserved

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 20. Location of the Cabliers bank

Figure 21. Capture from ROV raw footage during diving on Cabliers Bank © OCEANA

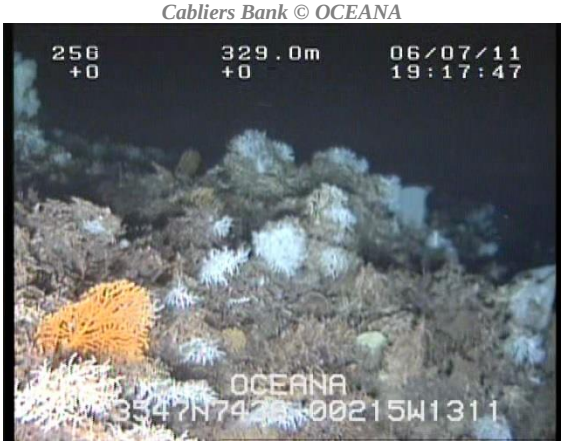


Figure 22. Black coral (Leiopathes glaberrima). Cabliers bank, Alboran Sea © OCEANA

Figure 23. Black corals (Parantipathes larix) and glass sponges (Asconema setubalense) at CabliersBbank, Alboran Sea © OCEANA

Figure 24. Cold water coral (Lophelia pertusa) reef at Cabliers Bank, Alboran Sea © OCEANA

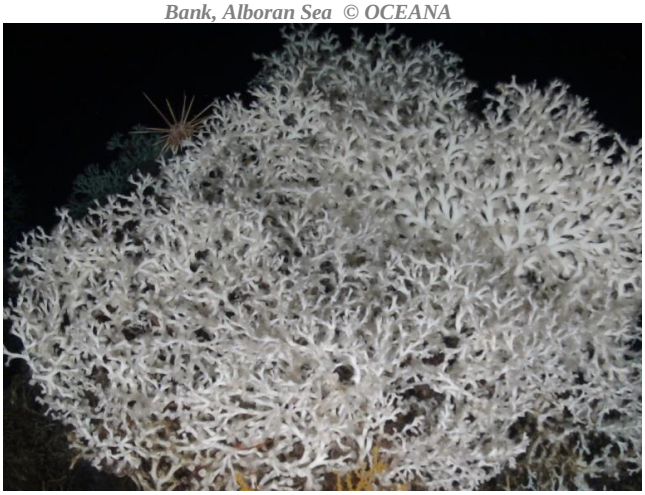


Figure 25. Coral (Isidella elongata)at Cabliers bank © OCEANA

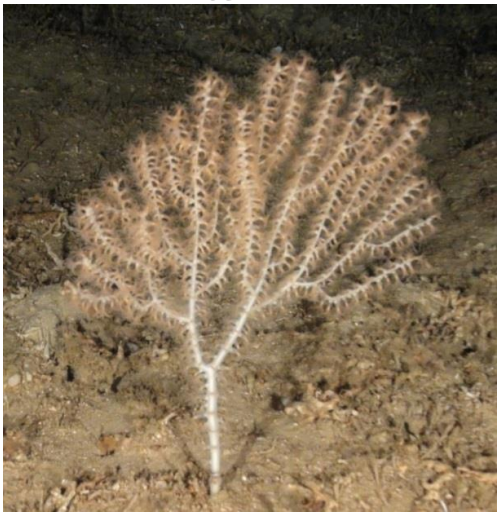


Figure 26. Gorgonian (Callogorgia verticillata)and glass sponge (Asconema setubalense) at Cabliers bank © OCEANA

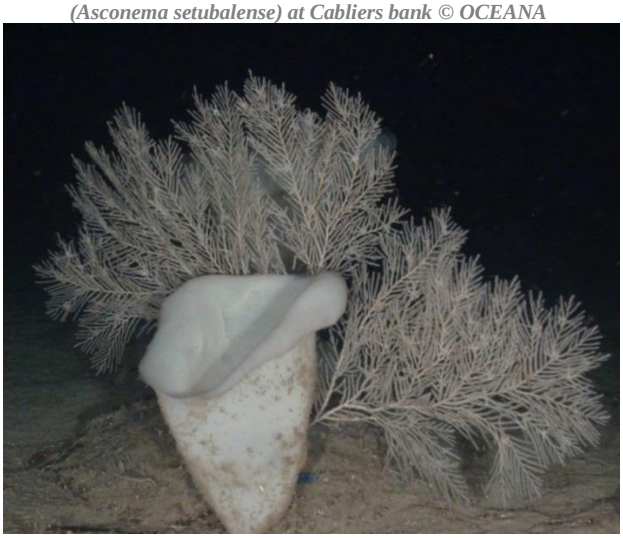


Figure 27. Glass pedunculated sponges and carnivorous sponge (Asbestopluma hypogea) at Cabliers Bank, Alboran Sea © OCEANA

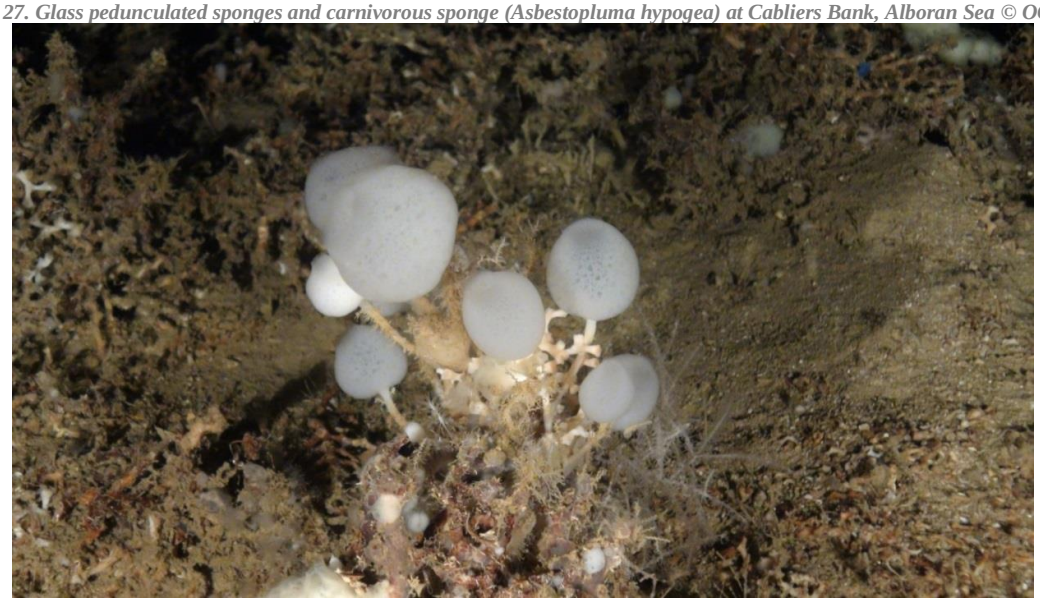


Figure 28. Piper gurnard (Trigla lyra) at Cabliers Bank © OCEANA

Figure 29. Norway lobster (Nephrops norvegicus)at Cabliers Bank © OCEANA

Figure 30. Cold Water Coral reef (Lophelia pertusa and Madrepora oculata) at Cabliers Bank, Alboran Sea © OCEANA

References

Further information from Oceana expeditions (images, footage, maps, etc.) is available upon request

Aguilar, R., Pastor, X., García, S., Marín, P. (2013). Importance of seamount-like features for conserving Mediterranean marine habitats and threatened species. 40th CIESM Congress. Marseille, France. Poster URL: http://oceana.org/sites/default/files/reports/OCEANA_Cartel_CIESM_web.pdf

Ardizzone G.D. (2006). An introduction to Sensitive and Essential Fish Habitats identification and protection in the Mediterranean Sea. Working Document to the STECF/SGMED-06-01 sub-group meeting on Sensitive and Essential Fish Habitats in the Mediterranean (Rome, March 2006), 17 pp.

Ballesteros, M., Rivera, J., Muñoz, A., Muñoz-Martin, A., Acosta, J., Carbó, A., Uchupi, E. (2008). Alboran Basin, southern Spain—Part II: Neogene tectonic implications for the orogenic float model. Marine and Petroleum Geology, 25 . Pp. 75-101

Harris, P.T., Whiteway, T. (2011). Global distribution of large submarine canyons: Geomorphic differences between active and passive continental margin. Marine Geology. Volume 285, Issues 1–4, 1 July 2011, Pages 69–86

Maier, C., Watremez, P., Taviani, M., Weinbauer, M.G., Gattuso, J.P. (2012). Calcification rates and the effect of ocean acidification on Mediterranean cold-water corals. Proceedings of the Royal Society [B] 279(1734):1716-1723

Marin, P., Aguilar, R. (2013). Mediterranean deep-sea corals: reasons for protection under the Barcelona Convention. OCEANA. URL. http://oceana.org/sites/default/files/euo/OCEANA_Brief_Deep-sea__Corals.pdf

Pardo, E., Aguilar, R., García, S., De la Torriente, A., Ubero, J. 2011. Documentación de arrecifes de corales de agua fría en el Mediterráneo occidental (Mar de Alborán). Chronica naturae, 1: 20-34 (2011) URL: http://www.hombreyterritorio.org/chronica_naturae/num1/archivos/chronicanaturae1_20_2011.pdf

Otero, M., Garrabou, J., Vargas, M. (2013). Mediterranean Marine Protected Areas and climate change: A guide to regional monitoring and adaptation opportunities. Malaga, Spain: IUCN. 52 pages.OSPAR Commssion. (2010). OSPAR Recommendation 2010/8 on furthering the protection and restoration of Lophelia pertusa reefs in the OSPAR Maritime Area

Roark E.B., Guilderson T.P, Dunbar R.B, Fallon S.J. & D. A. Mucciarone (2009). Extreme longevity in proteinaceous deep-sea corals. Proceedings of the National Academy of Sciences, 106 (13): 5204-5208.

5. SECO DE PALOS SEAMOUNT

Description and key species

Seco de Palos is a seamount off the SE coast of Spain (see Figure 31) that harbors many communities and habitats of ecological interest which are extremely fragile to negative human impacts. Those habitats include large gorgonian gardens and extensive fields of soft corals near the summit, as well as crinoid fields in bathyal zones. Gorgonian gardens can be found in the shallower areas over rocky substrate (down to 100m depth) where the red gorgonian *Paramuricea clavata* (see Figure 35) is the dominant species. Deeper to -160m, deep-sea gorgonian gardens occurs. They are conformed by *Viminella flagellum* (*see* Figure 36) and by *Callorgorgia verticilata* and *Swiftia pallida* in deeper areas. Some of the most significant habitats, because of their abundant occurrence, are those dominated by soft corals of the genus *Paralcyonium spinulosum* and *Alcyonium palmatum*. These alcionacea corals constitute large gardens between 110-150m depth over rocky substrate (see Figure 32). There are another interesting community-forming species (tubeworm *Lanice conchilega*) relatively common throughout the area occurring in high wide-range concentrations (171-602m depth), however, the highest concentrations were found about 350m. Sensitive Habitats such as crinoid beds of *Leptometra phalangium* which in certain places of the Mediterranean is considered as assemblage with hake (*Merluccius merluccius*), blue whiting (*Micromesistius poutassou*) or pout (*Trisopterus capelanus*) can also be found in the area. Such habitats have been documented in depths about 375m mainly over rocky bottom, in spite of their typical occurrence in soft bottoms. The seamount also harbors many protected and/or threatened species, and even new findings such as the giant foraminifera *Spiculosiphon oceana* (Maldonado *et al.*, 2013). Along the exploration of the seamount many shark eggs (Rajidae) were found, thus it suggests that the area can be used as spawning ground for these elasmobraches (see Figure 33). The seamount is a very well known area for large pelagic species, like tuna, swordfish, marlins, sharks, cetaceans and sea turles.

Depth Range	Approx. 95-1200m
Jurisdictional status	Spain Territorial waters
Location	Latitude: 37° 34,435' N Longitude: 0° 5,889' W
MedNet Proposal	YES
MEOW	Western Mediterranean

KEY SPECIES	
Alcyonium palmatum	*Lappanella fasciata*
Anthias anthias	*Lepidopus caudatus*
Aulopus filamentosus	*Leptometra phalangium*
Balaenoptera physalus	*Leucoraja naevus*
Calappa granulata	*Liocarcinus depurator*
Callogorgia verticillata	*Merluccius merluccius*
Capros aper	*Mola mola*
Caretta caretta	*Molva dypterigia*
Caryophyllia cyathus	*Mullus surmuletus*
Cetorhinus maximus	*Muraena helena*
Chaetaster longipes	*Nidalia* sp.
Chelidonichthys cuculus	*Ophiothrix fragilis*
Coelorinchus caelorhincus	*Palinurus elephas*
Conger conger	*Paralcyonium spinulosum*
Corallinacea *n.i.*	*Paramuricea clavata*
Coris julis	*Phycis blennoides*
Dendrophyllia cornigera	*Phycis phycis*
Dermochelys coriacea	*Physeter macrocephalus*
Echinus melo	*Ranella olearium*
Epinephelus caninus	*Scorpaena scrofa*
Eunicella verrucosa	*Serranus cabrilla*
Filograna implexa	*Spiculosiphon oceana*
Gadiculus argenteus	*Stenella coeruleoalba*
Globicephala melas	*Swiftia pallida*
Helicolenus dactylopterus	*Thunnus thynnus*
Hexanchus griseus	*Viminella flagellum*

Features to be protected according CBD examples
Cold water coral reefs
Coral, sponge and bryozoan aggregations
Highly migratory fish
Seamount communities
Sharks

Holothuria forskali *Xiphias gladius* *Hoplostethus mediterraneus*	

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
Special importance for life-history stages of species	X			
Sharks spawning ground				
Importance for threatened, endangered or declining species and/or habitats				X

SPECIE	CITES	CMS	SPA/BD Protocol	IUCN Red List (*)
Balaenoptera physalus	Appendix I	Appendix I and II	Annex II	EN/VU (Med)
Caryophyllia cyathus	Appendix II			
Callogorgia verticillata			Annex II	
Caretta caretta	Appendix I	Appendix I	Annex II	EN
Cetorhinus maximus	Appendix II	Appendix II	Annex II	VU/VU (Med)
Dendrophyllia cornigera	Appendix II			
Dermochelys coriacea	Appendix I	Appendix I and II	Annex II	CR
Epinephelus caninus				DD
Eunicella verrucosa				VU
Globicephala melas	Appendix II		Annex II	DD
Hexanchus griseus				NT/VU (Med)
Leucoraja naevus				NT (Med)
Merluccius merluccius				VU (Med)
Palinurus elephas			Annex III	
Physeter macrocephalus	Appendix I	Appendix I and II	Annex II	VU/EN (Med)
Raja clavata				NT/ NT (Med)
Ranella olearium			Annex II	NT
Stenella coeruleoalba	Appendix II	Appendix II (Med)	Annex II	LC/VU (Med)
Thunnus thynnus			Annex III	EN/EN (Med)
Xiphias gladius			Annex III	NT (Med)

Vulnerability, fragility, sensitivity, or slow recovery				
Biological productivity				
Biological diversity				
Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 31. Location of the Seco de Palos seamount

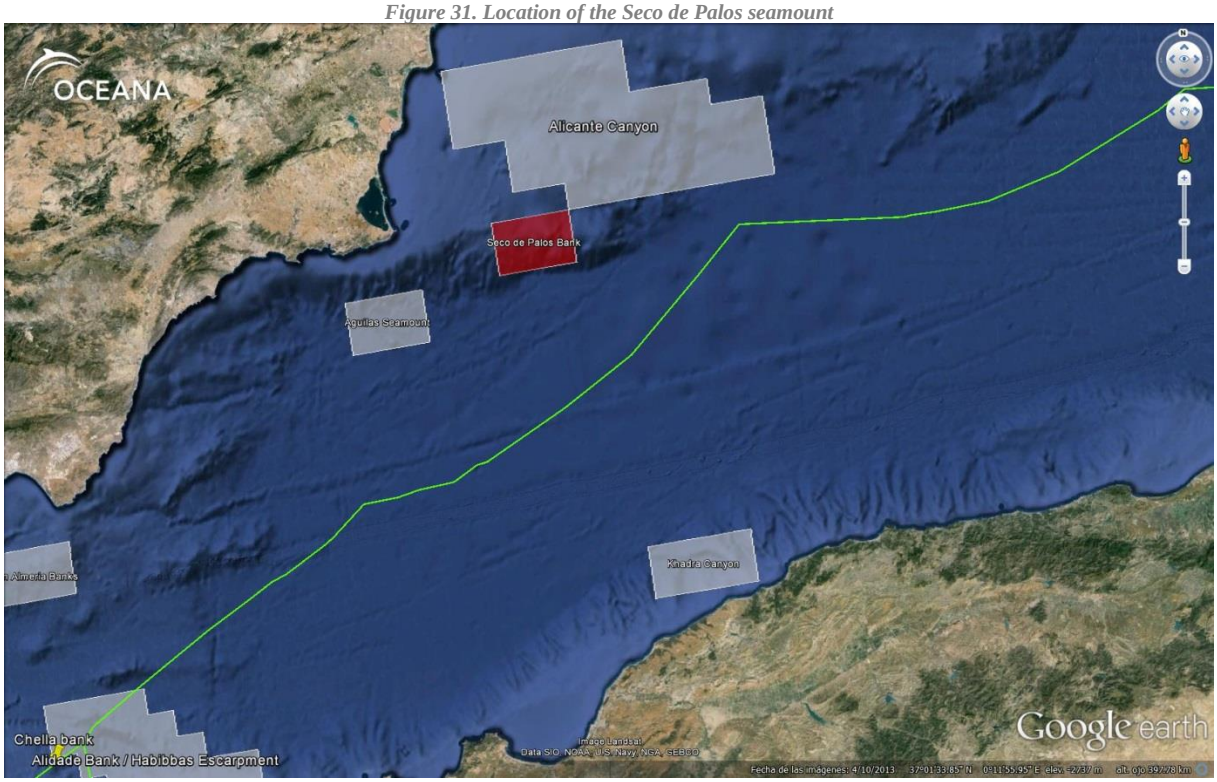


Figure 32. Alcionacea (Paralcyonium spinulosum) garden over rocky bottom © OCEANA

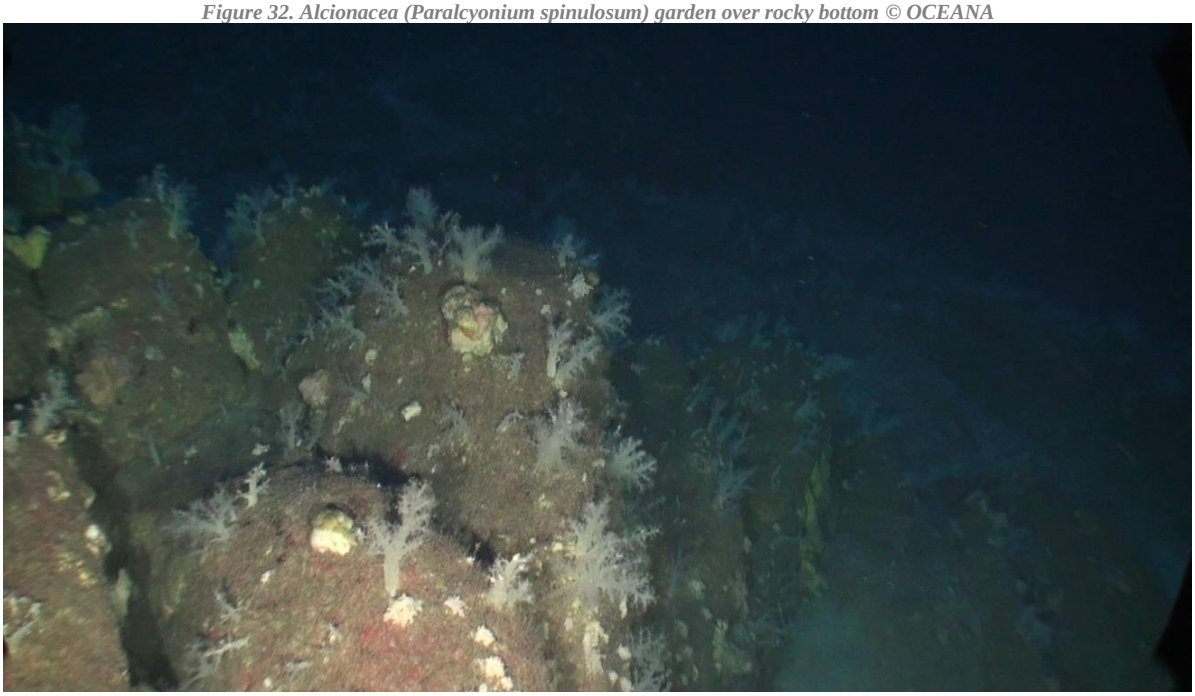


Figure 33. Egg of Leucoraja naevus © OCEANA

Figure 34. Sunfish (Mola mola) © OCEANA

Figure 35. Gorgonian garden of Paramuricea clavata © OCEANA

Figure 36. Gorgonian garden of Viminella flagellum © OCEANA

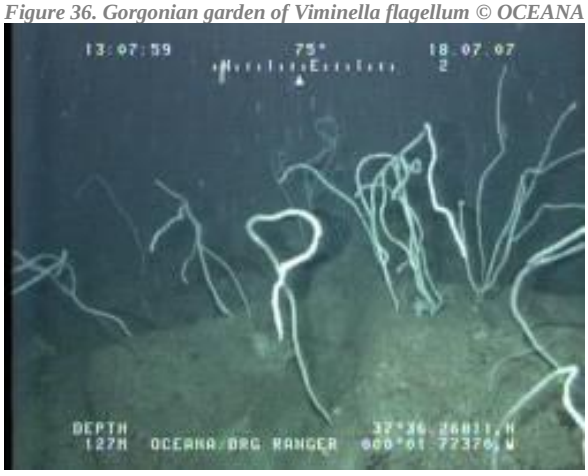


Figure 37. Callogorgia verticillata © OCEANA

Figure 38. Swiftia palida © OCEANA

Figure 39. Grouper (Epinephelus caninus) © OCEANA

Figure 40. Lobster (Palinus elephas) © OCEANA

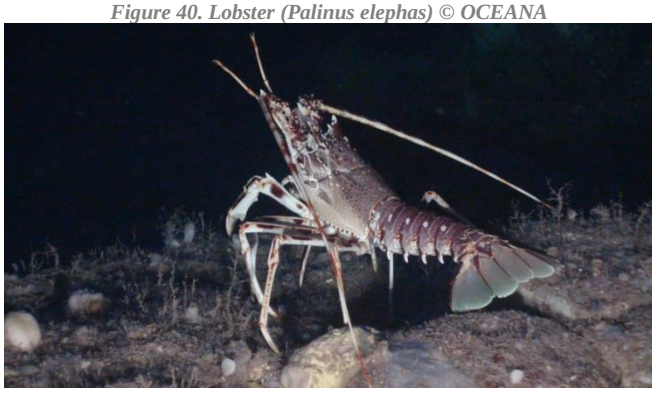


Figure 41. Bluntnose sixgill shark (Hexanchus griseus). © OCEANA

Figure 42. Ranela olearia © OCEANA

Figure 43. Soft coral (Paralcyonium spinulosum) © OCEANA

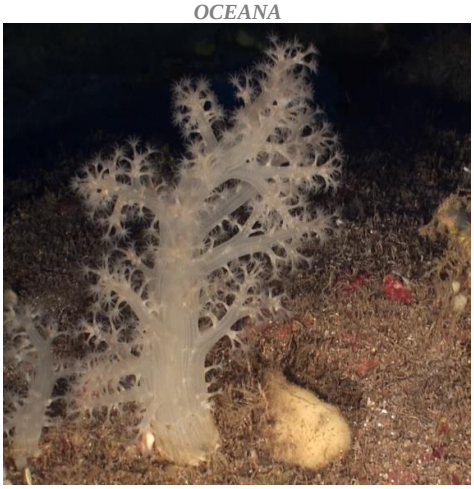


Figure 44. Hake (Merluccius merluccius) © OCEANA

References

Maldonado M., Lópes-Acosta M., Sitjà C, Aguilar R., García S & J Vacelet (2013). A giant foraminifer that converges to the feeding strategy of carnivorous sponges: Spiculosiphon oceana sp. nov. (Foraminifera, Astrorhizida). Zootaxa 3669 (4): 571–584

6. ALICANTE CANYON

Description and key species

This is one of the largest submarine canyons in Spain's Eastern waters (see Figure 45). Located in one of the areas with the widest shelf of the mainland, it is part of one of the main rose shrimp (*Parapenaeus longirostris*) fishing areas, and thus is impacted by the damaging effects of shrimp bottom trawling. This area is a proven hake (*Merluccius merluccius*) nursery (see Figure 47), and as such there are probably other associated species (assemblages) in the canyon, which can be therefore regarded as an Essential Fish Habitat (EFH). It is a distribution area for several cetacean species (Odontoceti) and loggerhead turtle (*Caretta caretta*). The deepest area in the canyon, located to the east side (see Figure 46) is a spawning ground for bluefin tuna (*Thunnus thynnus*). It is considered as a sensitive habitat for several elasmobranchs species (*Etmopterus spinax, Galeus melastomus* and *Scyliorhinus canicula*) (see Figure 48).

Depth Range	Approx. 0-2500m
Jurisdictional status	Spain Territorial waters
Location (centroid)	Latitud: 37° 57,634' N Longitud: 0° 13,434' E
MedNet Proposal	YES
MEOW	Western Mediterranean

KEY SPECIES	
Caretta caretta	Odontoceti
Etmopterus spinax	*Parapenaeus longirostris*
Galeus melastomus	*Scyliorhinus canicula*
Merluccius merluccius (nursery)	*Thunnus thynnus*

Features to be protected according CBD examples
Canyons
Highly migratory fish
Sea turtles
Sharks
Whales and other cetaceans

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
Special importance for life-history stages of species				X
Significant habitat for commercial species European hake (nursery) and Deepwater rose shrimp. Both of them considered as priority species under GFCM[5]				
Importance for threatened, endangered or declining species and/or habitats				X

spp	CITES	CMS	SPA/BD Protocol	IUCN Red List (*)
Caretta caretta	Appendix I	Appendix I	Annex II	EN
Merluccius merluccius				VU (Med)
Odontoceti	Appendix I and II	-	(**)	(**)
Thunnus thynnus	-	-	Annex III	EN/EN (Med)

Vulnerability, fragility, sensitivity, or slow recovery				
Biological productivity				

[5] List of GFCM Priority Species http://www.gfcm.org/gfcm/topic/166221/en

Biological diversity				
Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)
(**) Several of them included

Maps and Figures

Figure 45. Location of the Alicante canyon

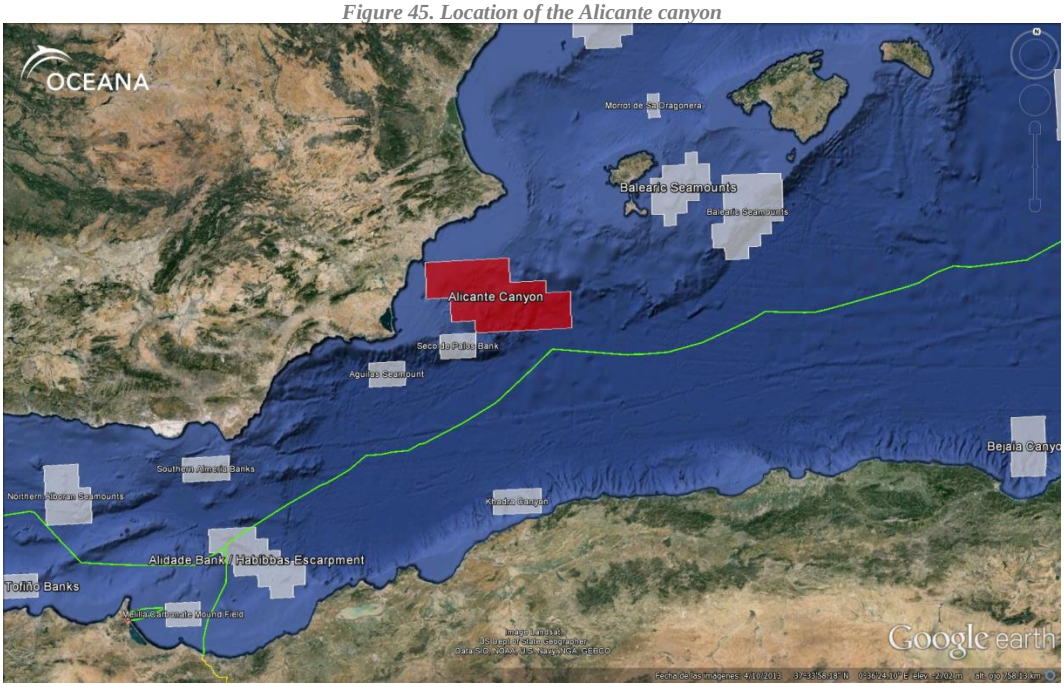


Figure 46. Spawning areas of Thunnus thynnus identified through analysis of VMS data used in the 2010 GBYP aerial survey program for surveying spawning biomass in the Mediterranean. These areas are consistent with current scientific knowledge of the main spawning locations. (ICCAT, 2010)

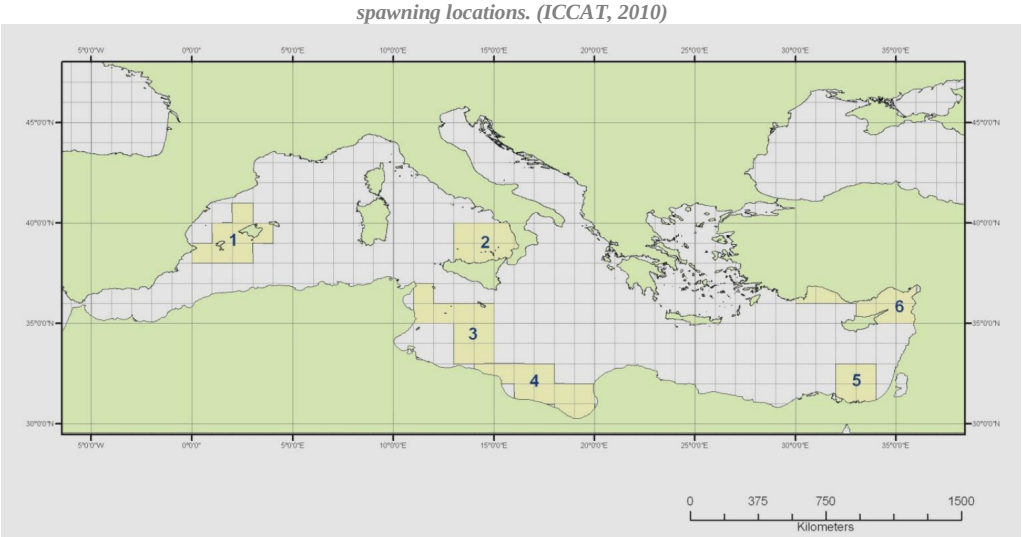


Figure 47. Spatial distribution of hake nurseries in the GSAs 01 (Northern Alboran Sea) and 06 (Northern Spain) (Ardizzone, 2006)

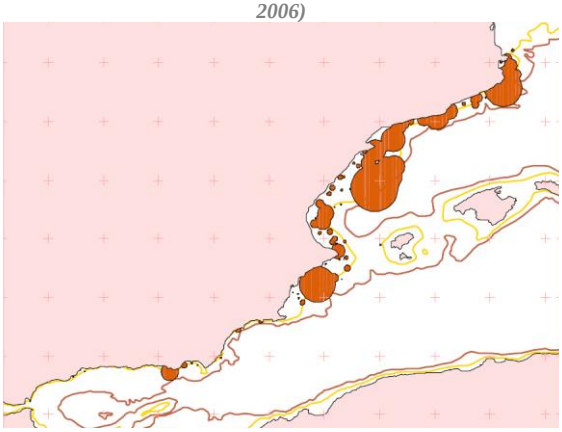
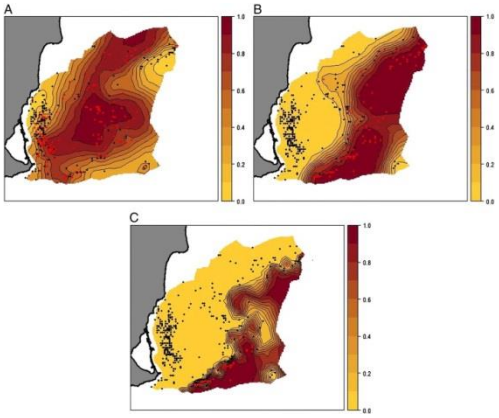


Figure 48. Median of the posterior probability of the presence of the studied elasmobranchs: S. canicula (A); G. melastomus (B); and E. spinax (C). Sampling locations for the presence (●) and the absence (●) were plotted (Pennino et al, 2013).



References

Ardizzone G.D. (2006). (Inédito). Sensitive and Essential Fish Habitats in the Mediterranean Sea. Working document to the STECF/SGMED-06-01 sub-group meeting on sensitive and essential fish habitats in the Mediterranean; 2006. Rome,17

ICCAT. Anon. 2010. Report of the 2010 ICCAT Bluefin Tuna Data preparatory meeting. Madrid, Spain – June 14 to 19, 2010. International Commission for the Conservation of Atlantic Tunas

Notarbartolo di Sciara G & T Agardy (2009). Identification of potential SPAMIs in Mediterranean Areas Beyond National Jurisdiction. Contract N° 01/2008_RAC/SPA, High Seas. 70p.

Pennino M.G., Muñoz F., Conesa D., López-Quílez A & J.M. Bellido (2013). Modeling sensitive elasmobranch habitats, Journal of Sea Research (in press)

7. STONY SPONGES SEAMOUNT

Description and key species

The Stony Sponge Seamount is an underwater elevation located in the northern sector of the Eivissa Channel. SW-NE oriented, it is a significant area commonly used by cetaceans as migratory route. The seamount rises from 1200m depth in the base to almost 700m below the surface. It is worth highlighting that the only stony sponge (*Leiodermatium lynceus*) aggregation known so far in the Mediterranean (Oceana, data not published) has been found in this area. This is a relevant habitat for different species including several of commercial interest. Dead colonies of *Dendrophyllia cornigera* as well as deep-sea gorgonians gardens of *Muriceides lepida* have been documented in the summit. According to the Spanish reference list of marine habitats, they conform the habitat types "coral framework" and "deep-sea gorgonians gardens" respectively, both of them associated to many different species of fish, and invertebrates, among others. The fishing activity does not suppose a real threat to the marine environment since it is located far away from the coast (almost 30 nautical miles from the nearest point in the Eivissa Island). However, the oil and gas industry must be considered as a real threat, since several exploration projects are likely to be put into operation soon which will affect the entire ecosystem, including the water column and the benthic habitats.

Depth Range	Approx. 700-1200m
Jurisdictional status	Spain Territorial waters
Location (centroid)	39º 21,447'N 00º 51,520'E
MedNet Proposal	NO
MEOW	Western Mediterranean

KEY SPECIES	
Balaenoptera physalus	*Physeter macrocephalus*
Conger conger	*Stenella coeruleoalba*
Delphinus delphis	*Tursiops truncatus*
Desmophyllum dianthus	*Ziphius cavirostris*
Geryon trispinosus	
Globicephala melas	
Grampus griseus	Dead colonies of
Leiodermatium lynceus	*Dendrophyllia cornigera*
Meganyctiphanes norvegica	
Muriceides lepida	

Features to be protected according CBD examples
Coral, sponge and bryozoan aggregations
Seamount
Whales and other cetaceans

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				X
The only one stony sponge aggregation known in the Mediterranean Sea				
Special importance for life-history stages of species				
Importance for threatened, endangered or declining species and/or habitats				X

spp	**CITES**	**CMS**	**SPA/BD Protocol**	**IUCN Red List (*)**
Balaenoptera physalus	Appendix I	Appendix I and II	Annex II	EN/VU (Med)
Delphinus delphis	Appendix II	Appendix I and II	Annex II	LC/EN (Med)
Dendrophyllia cornigera	Appendix II			
Desmophyllum dianthus	Appendix II			
Globicephala melas	Appendix II		Annex II	DD
Grampus griseus	Appendix II	Appendix II	Annex II	LC
Physeter macrocephalus	Appendix I	Appendix I and II	Annex II	VU/EN (Med)

Stenella coeruleoalba	Appendix II	Appendix II (Med)	Annex II	LC/VU (Med)
Tursiops truncatus	Appendix II	Appendix II	Annex II	LC/VU (Med)
Ziphius cavirostris	Appendix II		Annex II	LC

Vulnerability, fragility, sensitivity, or slow recovery				
Sponge aggregation and coral gardens occurrence				
Biological productivity				
Biological diversity				
Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 49. Location of Stony Sponges Seamount

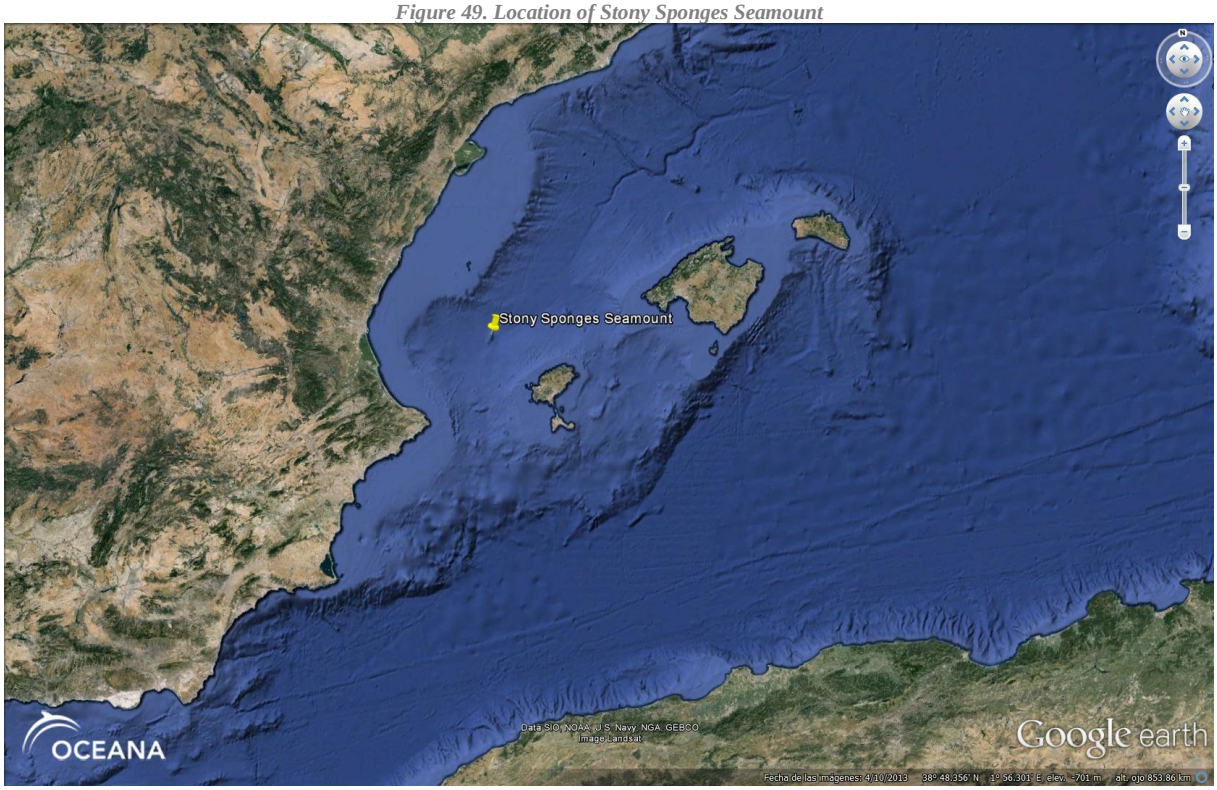


Figure 50. Muriceides lepida garden © OCEANA

Figure 51. Stony sponge aggregation (Leiodermatium lynceus) © OCEANA

References

Ministerio de Medio Ambiente(2002). Identificación de las áreas de especial interés para la conservación de los cetáceos en el Mediterráneo español. Volumen I. Resumen. Diciembre 2002. Dirección General de Conservación de la Naturaleza. 119 pp

8. BALEARIC SEAMOUNTS

Description and key species

The seamounts of the Majorca Channel have a high environmental significance due to its particular oceanographic conditions associated with its location and geomorphology (see Figure 52). The area comprises four different seamounts: Emile Baudot, Ses Olives, Ausías March and Bell Guyot. Essential Fish Habitats (bluefin tuna spawning ground), Sensitive Habitats (bamboo coral gardens - *Isidella elongata*), maërl beds, coralligenous, gorgonian gardens (*Muriceides lepida*, *Swiftia palida*, *Eunicella verrucosa*, *Villogorgia brevicoides*, *Viminella flagelum*, *Callogorgia verticilata*) and black corals (*Leiopathes glaberrima*, *Antipathes dichotoma*) have been documented in Oceana expeditions (see from Figure 53 to Figure 58). All of them are especially threatened by fishing activities destroying their habitats. It is particularly under pressure from bottom trawling (see Figure 59) and long-liner fishing fleets. The occurrence of most of these species is often associated with the presence of commercial species (monkfish, hake, Norway lobster, lobster, octopus, red shrimp) calling for adequate management. The proposed area is also visited by pelagic species such as swordfish (*Xiphias gladius*), different dolphin species (*Tursiops truncatus*, *Delphinus delphis*), sperm whale (*Physeter macrocephalus*) or loggerhead turtle (*Caretta caretta*). The proposal also covers a distribution area for small sharks (*Etmopterus spinax*, *Dalatias licha*, *Centroscymnus coelolepis*, *Galeus melastomus*). It is also worth highlighting that Balearic Islands are currently targeted by new oil/gas prospections some of them including seismic airgun testing (see Figure 60).

Depth Range	Approx. 50-700 m	
Jurisdictional status	Spain Territorial waters	
Location (centroid)	Ausías March and Ses Olives Latitude: 38° 52,027' N Longitude: 1° 52,815' E	Emile Baudot Seamount Latitude: 38° 52,027' N Longitude: 1° 52,815' E
MedNet Proposal	YES	
MEOW	Western Mediterranean	

KEY SPECIES	
Aristeus antennatus	*Palinurus elephas*
Aplysina aerophoba.	*Paramuricea clavata*
Asbestopluma hypogea	*Peniagone* sp.
Axinella spp.	*Petromyzon marinus*
Black corals:	*Physeter macrocephalus*
- *Leiopathes glaberrima*	*Polyprion americanus*
- *Antipathes dichotoma*	*Raja montagui*
Caretta caretta	*Ranella olearium*
Centroscymnus coelolepis	*Savalia savaglia*
Charonia lampas	Scleractinia:
Chimaera monstrosa	- *Balanophyllia cf. cellulose*
Dalatias licha	- *Caryophyllia cyathus*
Delphinus delphis	- *Caryophyllia calveri*
Dendrophyllia cornigera	- *Caryophyllia dianthus*
Epinephelus caninus	- *Caryophyllia* sp.
Erosaria spurca	*Sideractis glacialis*
Etmopterus spinax	*Spongia agaricina*
Eunicella verrucosa	*Stenella coeruleoalba*
Galeus melastomus	*Tethya aurantium*
Gryphus vitreus	*Thunnus thynnus*
Isidella elongata	*Tonna galea*
Javania cailleti	*Tursiops truncatus*
Leptometra phallangium	*Xiphias gladius*
Neopycnodonte zibrowii	
Nidalia studeri	Coralligenous and Maërl beds

Features to be protected according CBD examples
Cold seeps (Pockmarks)
Coral, sponge and bryozoan aggregations
Highly migratory fish
Sea turtles
Seamount communities
Sharks
Whales and other cetaceans

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
Special importance for life-history stages of species				
Vulnerable Marine Ecosystems (reef builders and coral gardens) are present in the area. According to the FAO (2009), they are considered sensitive and potentially vulnerable to deep sea fisheries. In areas where they have been designated, or are known or likely occur, states and RFMOs should close areas to deep sea fishing practices.				
Importance for threatened, endangered or declining species and/or habitats				X

See Figure 53 to Figure 58

spp	CITES	CMS	SPA/BD Protocol	IUCN Red List (*)
Antipathes dichotoma	Appendix II		Annex II	
Aplysina aerophoba			Annex II	
Asbestopluma hypogea			Annex II	
Axinella polypoides			Annex II	
Caretta caretta	Appendix I	Appendix I	Annex II	EN
Centroscymnus coelolepis				NT
Cetacea	Appendix II			
Charonia lampas			Annex II	
Chimaera monstrosa				NT
Dalatias licha				NT
Delphinus delphis	Appendix II	Appendix I and II	Annex II	LC/EN (Med)
Dendrophyllia cornigera	Appendix II			
Epinephelus caninus				DD
Erosaria spurca			Annex II	
Eunicella verrucosa				VU
Leiopathes glaberrima	Appendix II		Annex II	
Palinurus elephas			Annex III	
Petromyzon marinus			Annex III	
Physeter macrocephalus	Appendix I	Appendix I and II	Annex II	VU/EN (Med)
Ranella olearium			Annex II	
Savalia savaglia			Annex II	
Scleractinia	Appedix II			
Tethya aurantium			Annex II	
Thunnus thynnus			Annex III	EN/EN (Med)
Tonna galea			Annex II	
Tursiops truncatus	Appendix II	Appendix II		LC//VU (Med)
Xiphias gladius			Annex III	NT (Med)

Isidella elongata constitutes a essential habitat for several commercial species, reason why this facie have almost completely disappeared due to trawl fishing in many Mediterranean areas (Ardizzone *et al.* 2006)

Vulnerability, fragility, sensitivity, or slow recovery				
Sponge aggregations, coral gardens and other vulnerable marine ecosystems occurrence				
Biological productivity				
Biological diversity				
See Oceana's report: Marín, P., Aguilar., R., García, S., Pardo, E. 2011. Montañas Submarinas de las Islas Baleares: Canal de Mallorca. Propuesta de protección para Ausías March, emile Baudot y Ses Olives. Oceana. 60 pp				

Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 52. Balearic seamounts location

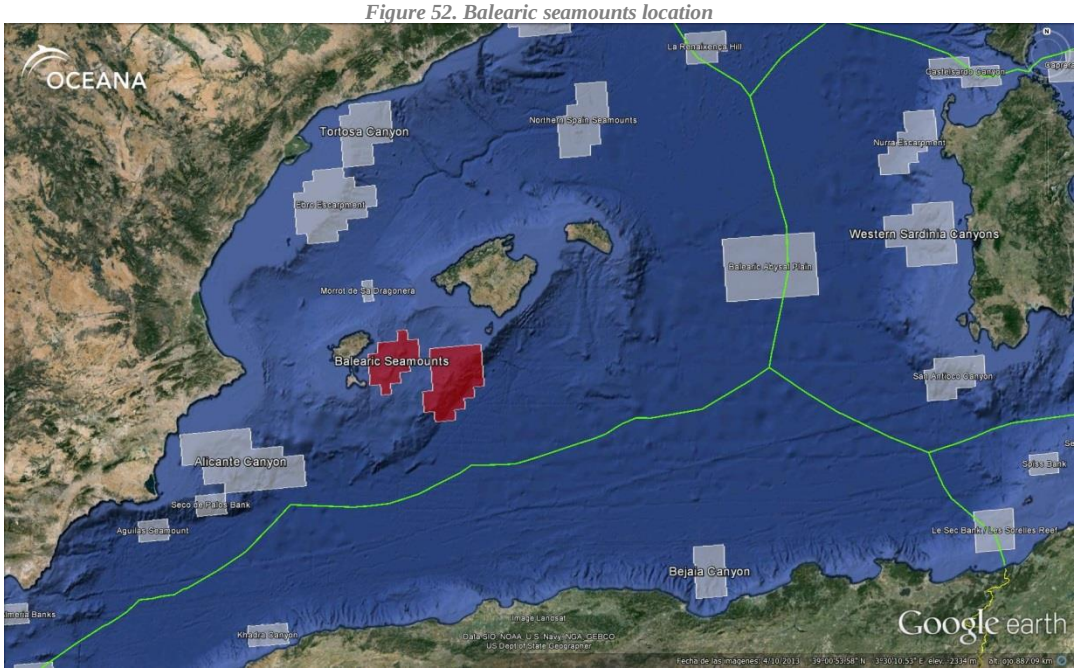


Figure 53. Protected species in Ausias March

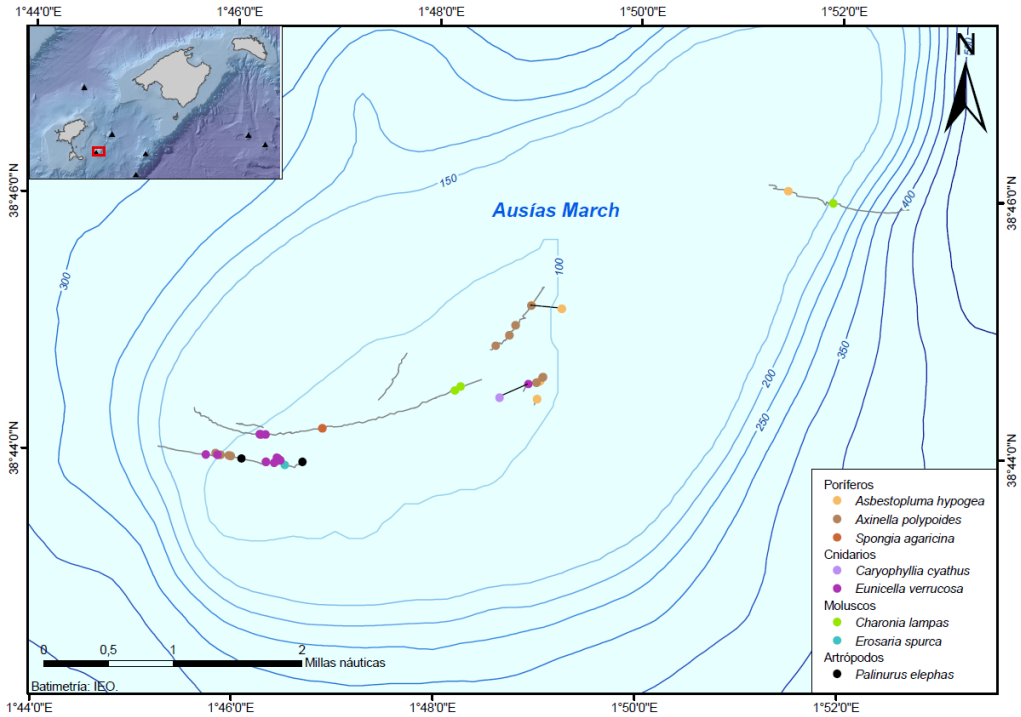


Figure 54. Protected species in Ses Olives

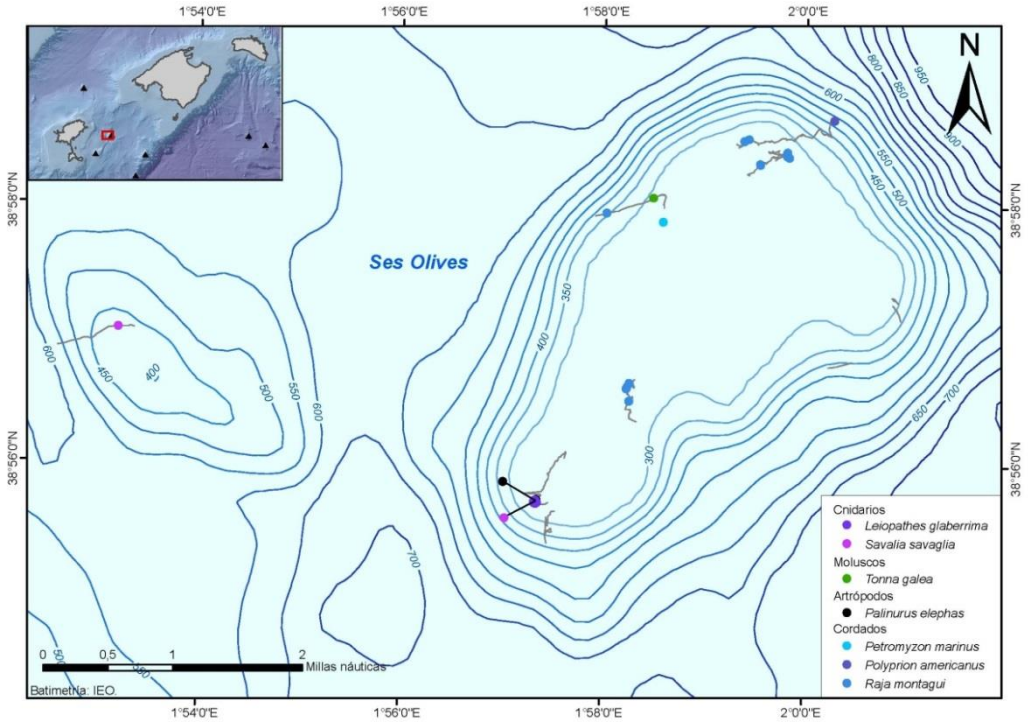


Figure 55. Protected species in Emile Baudot North

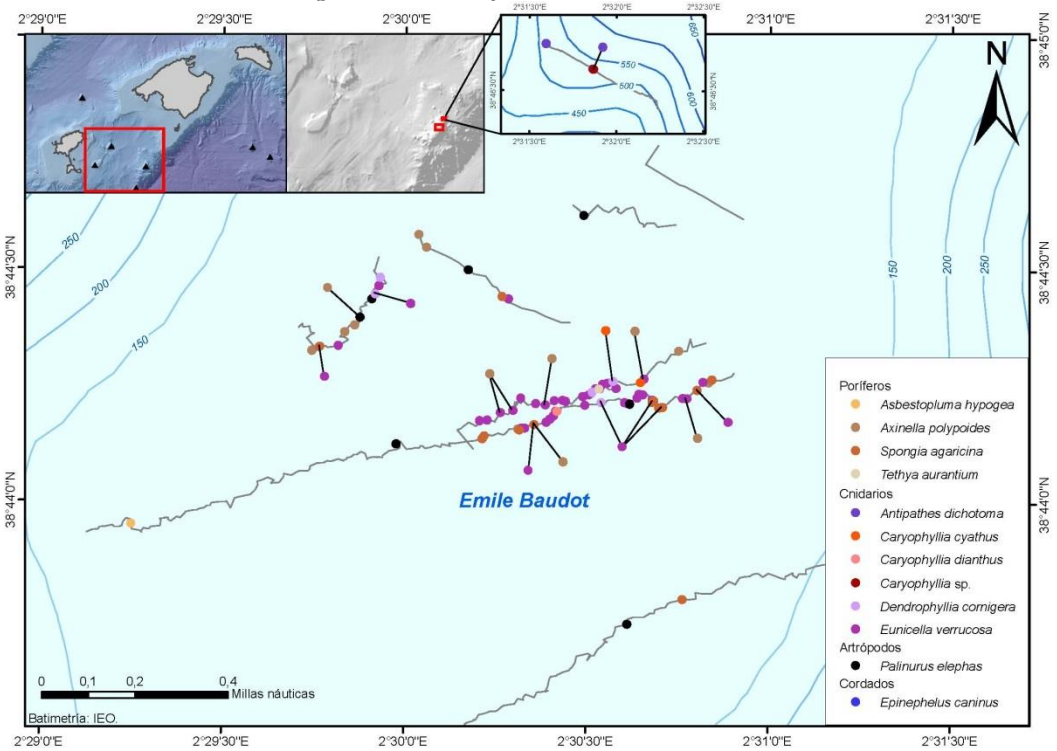


Figure 56.Other species of interest usually conforming assemblages with commercial species

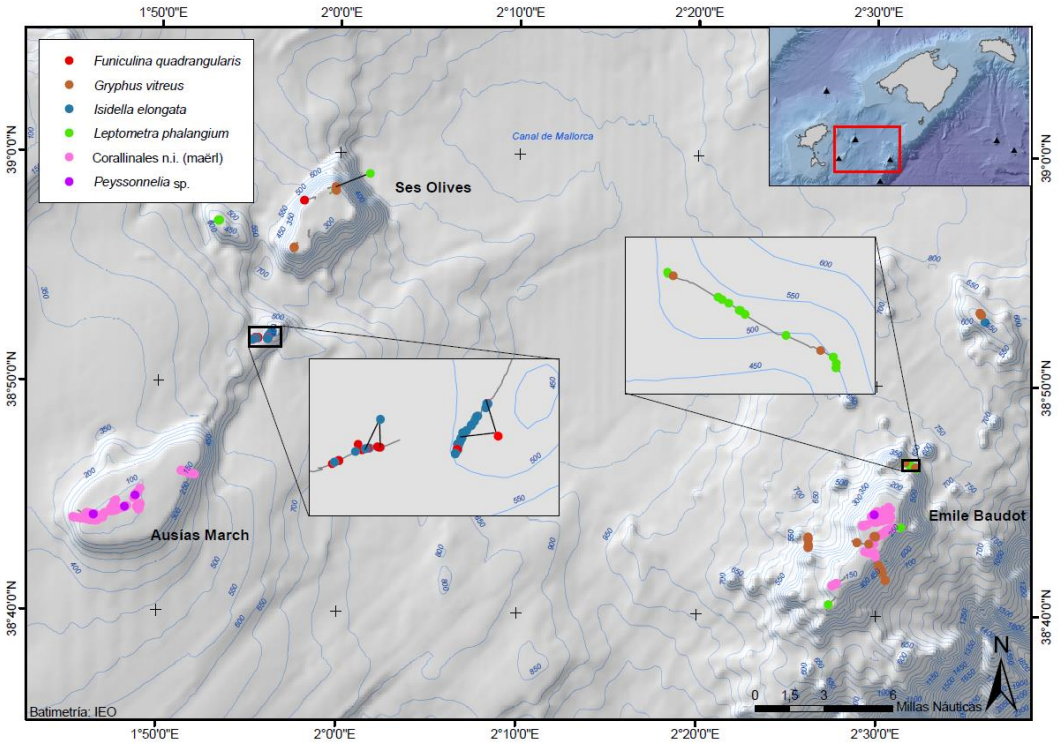


Figure 57.Protected species in Emile Baudot South

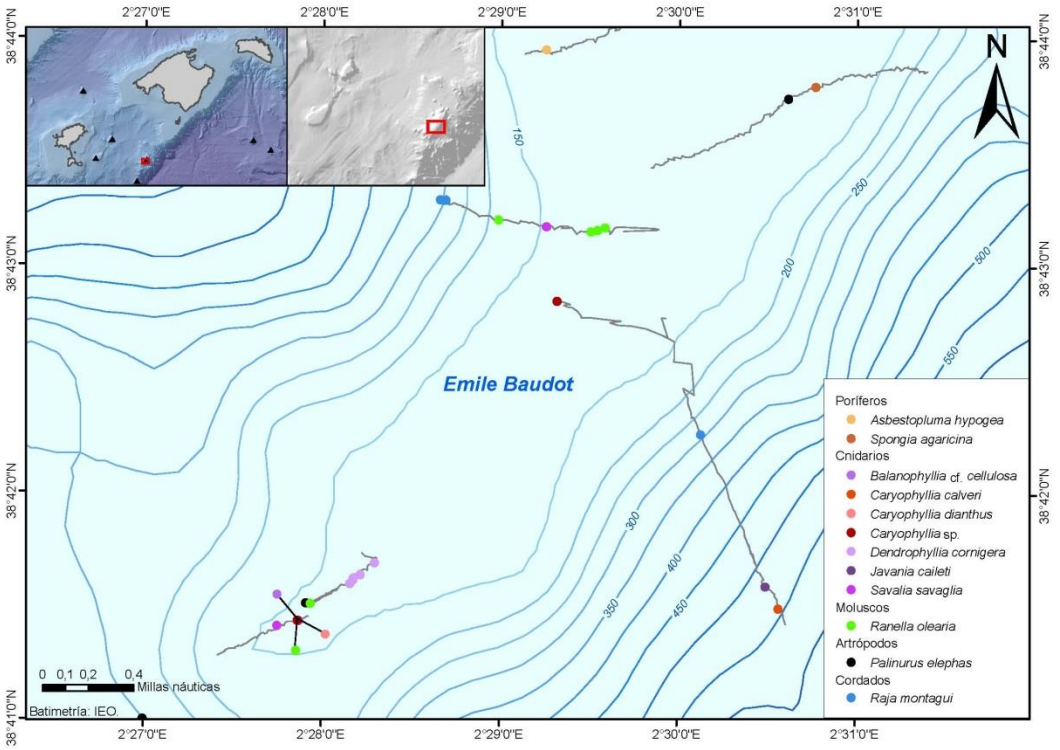


Figure 58. Cetaceans and turtles sightings

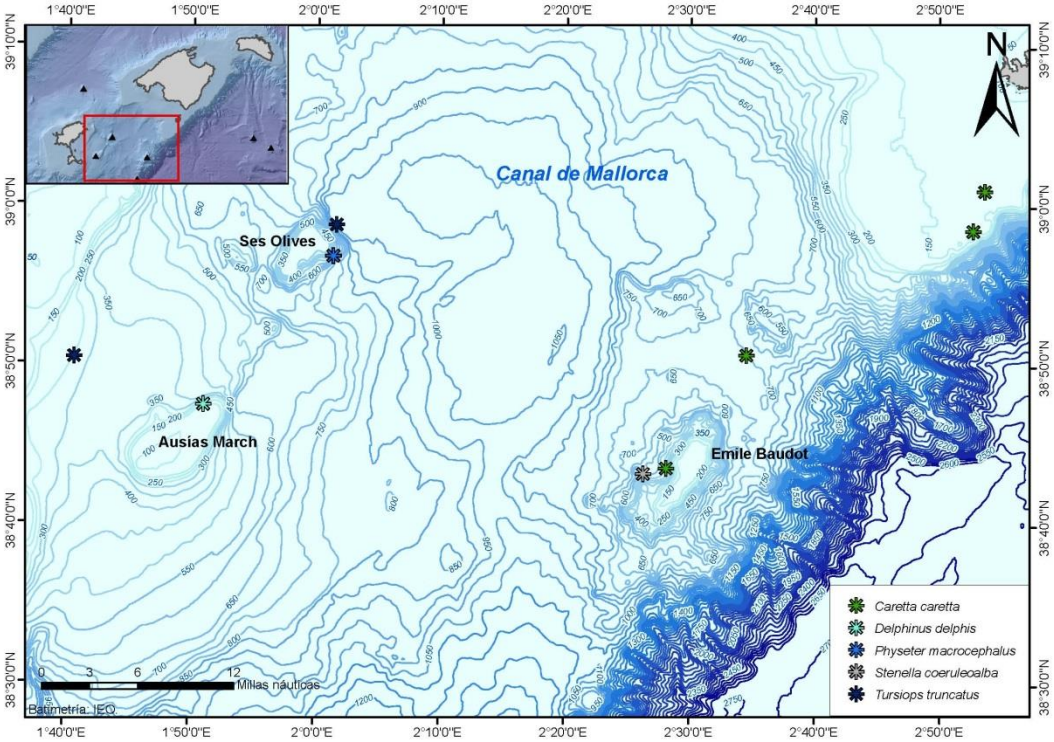


Figure 59. Bottom trawling VMS signals

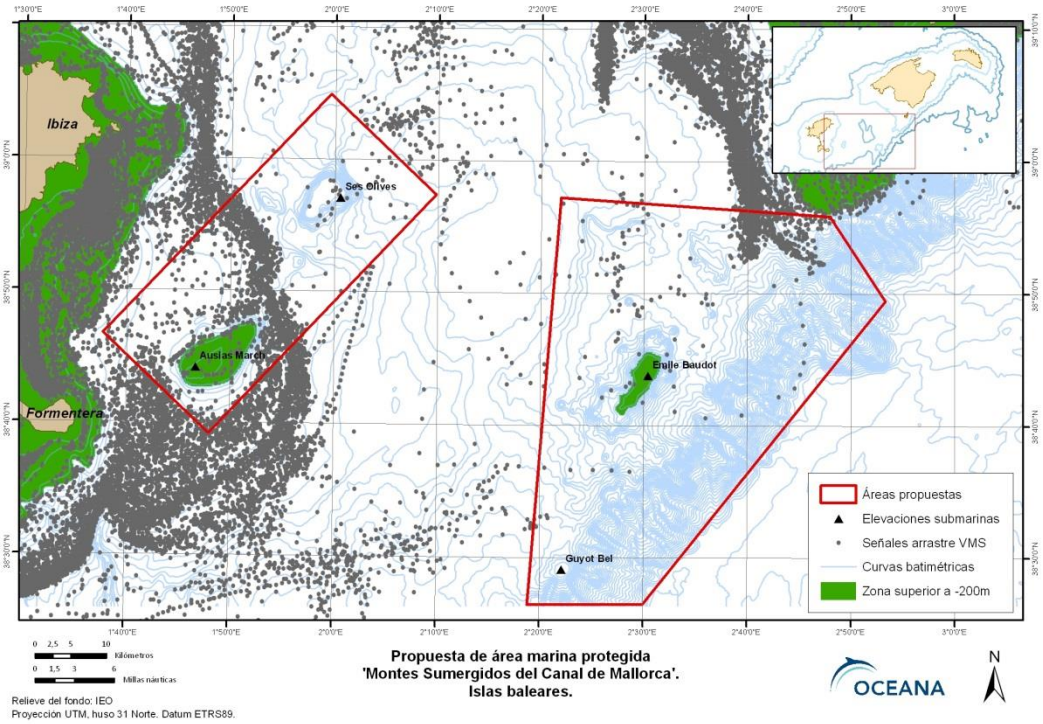
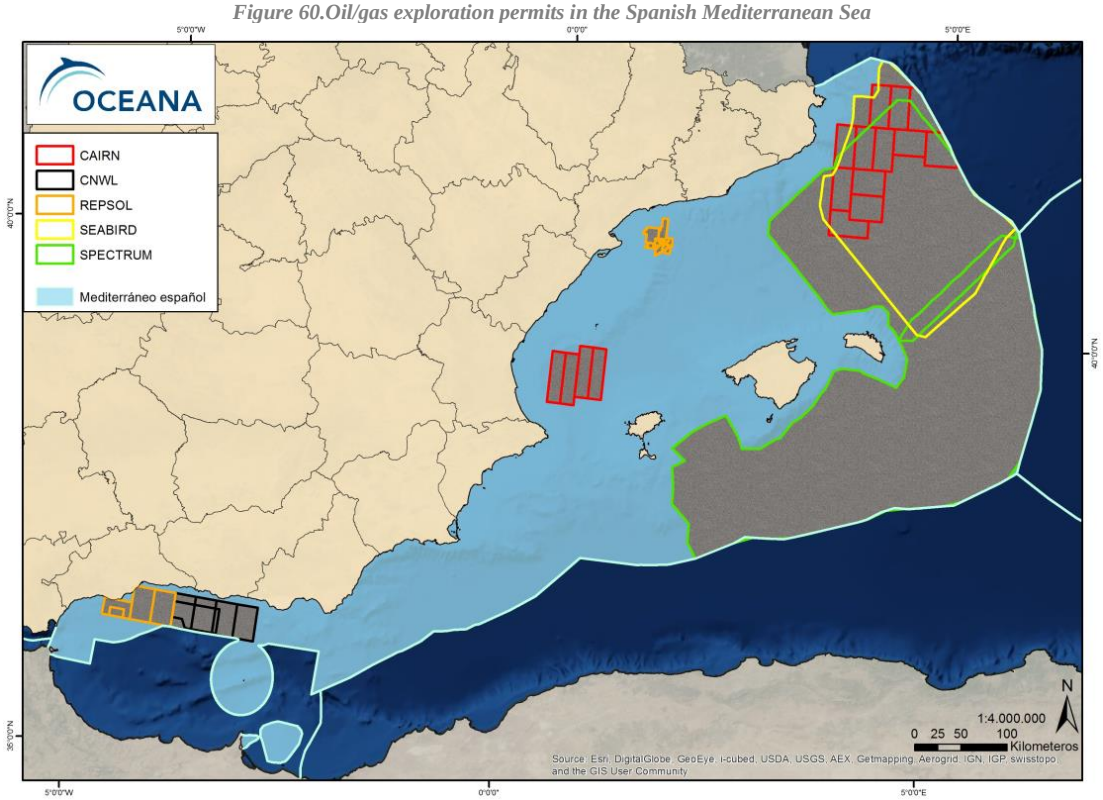


Figure 60.Oil/gas exploration permits in the Spanish Mediterranean Sea



References

Further information from Oceana expeditions (images, footage, maps, etc.) is available upon request

Acosta J., Ancochea E., Canals M., Huertas M.J. & E. Uchupi (2004). Early Pleistocene volcanism in the Emile Baudot Seamount, Balearic Promontory (western Mediterranean Sea), Marine Geology, Volume 207, Issues 1-4, 30 June 2004, Pages 247-257, ISSN 0025-3227. doi: 10.1016/j.margeo.2004.04.003.

Aguilar R., Pardo E, Cornax M.J., García S. & J. Ubero. (2010). Montañas Submarinas. Propuesta de área marina protegida. Montes sumergidos del Canal de Mallorca (Islas Baleares). Oceana. 60 pp

Ardizzone G.D. (2006). An introduction to Sensitive and Essential Fish Habitats identification and protection in the Mediterranean Sea. Working Document to the STECF/SGMED-06-01 sub-group meeting on Sensitive and Essential Fish Habitats in the Mediterranean (Rome, March 2006), 17 pp.

Carbonell A., Carbonell M., Demestre M., Grau A. & S., Monserrat. (1999). The red shrimp Aristeus antennatus (Risso, 1816) fishery and biology in the Balearic Islands, Western Mediterranean, Fisheries Research, Volume 44, Issue 1, November 1999, Pages 1-13, ISSN 0165-7836

FAO. (2009). International Guidelines for the Management of Deep-sea Fisheries in the High Seas. FAO, Rome, Italy, 73pp.

Guijarro B., Massuti E., Moranta J. & P. Diaz. (2008). Population dynamics of the red shrimp Aristeus antennatus in the Balearic Islands (western Mediterranean): Short spatio-temporal differences and influence of environmental factors, Journal of Marine Systems, Volume 71, Issues 3-4, The Wrapping Up of the IDEA Project: - International workshop on environment, demersal resources and fisheries, June 2008, Pages 385-402, ISSN 0924-7963

ICCAT. Anon. (2010). Report of the 2010 ICCAT Bluefin Tuna Data preparatory meeting. Madrid, Spain – June 14 to 19, 2010. International Commission for the Conservation of Atlantic Tunas

Marín P., Aguilar R., García S. & E. Pardo. (2011). Montañas Submarinas de las Islas Baleares: Canal de Mallorca. Propuesta de protección para Ausías March, emile Baudot y Ses Olives. Oceana. 60 pp

Morato T., Kvile K.Ø., Taranto G.H., Tempera F., Narayanaswamy B.E., Hebbeln D., Menezes G., Wienberg C., Santos R.S. & T.J. Pitcher (2012). Seamount physiography and biology in North-East Atlantic and Mediterranean Sea. Biogeosciences Discuss., 9, 18951-18992, 2012. doi:10.5194/bgd-9-18951-2012

Notarbartolo di Sciara G. & T. Agardy. (2009). Identification of potential SPAMIs in Mediterranean Areas Beyond National Jurisdiction. Contract N° 01/2008_RAC/SPA, High Seas. 70p.

Sardá F., D'Onghia G., Politou C.Y., Company J.B., Maiorano P. & K. Kapiris. (2004). Deep-sea distribution, biological and ecological aspects of Aristeus antennatus (Risso, 1816) in the western and central Mediterranean Sea. SCI. MAR., 68 (Suppl. 3): 117-127 en Mediterranean Deep-Sea Biology. F. Sardá, G. D'Onghia, C.Y. Politou and A. Tselepides (eds.)

Sion L., Bozzano A., D'Onghia G., Capezzuto F. & M. Panza. (2004). Chondrichthyes species in deep waters of the Mediterranean Sea. Scientia Marina, Vol 68, No S3 (2004) doi:10.3989/scimar.2004.68s3153

9. EMILE BAUDOT ESCARPMENT

Description and key species

The Emile Baudot Escarpment is located in the SE side of the Balearic Promontory (see Figure 61 and Figure 62). It is one of the most relevant escarpments along the Mediterranean basin with more than 300Km length, SW-NE oriented, and reaching almost 2700m depth in the South East-Algerian Basin (see Figure 63 and Figure 64). The escarpment is used as feeding area by fin whales (*Balaenoptera physalus*), sperm whales (*Physeter macrocephalus*), turtles (*Caretta caretta*), manta rays (*Mobula mobular*) and other large pelagic species as dolphins, bluefin tuna (*Thunnus thynnus*) and swordfish (*Xiphias gladius*). A wide range of deep-sea habitats occur in the area, as bathyal muds with burrowing fauna, coral reefs, crinoids beds (*Leptometra phalangium*, see Figure 69), brachiopods fields (*Gryphus vitreus*), rocky walls with caves, giant oysters reefs, gorgonian gardens, sponges aggregations among others. Several species of commercial interest, such as fish, crustaceans and cephalopods, have been recently described in the area, together with protected species as *Ranella olearium* or *Centrostephanus longispinus* and deep-sea species as boa dragonfish (*Stomias boa*, see Figure 66), Sloane's viperfish (*Chauliodus sloani*, see Figure 65), tripod fish (*Bathypterois dubius*) or gulper shark (*Centrophorus granulosus*) (Oceana, data not published). Located several nautical miles off the coast, the escarpment is far from being safe from human destructive impacts. Big amounts of marine litter such as plastics, lost fishing gears and other debris are found either on the surface or at the sea-bottom (see Figure 73 and Figure 74). Several oil and gas companies are trying to develop exploration projects that threaten marine biodiversity. Maritime traffic can also be considered a threat, since one of the routes of the Mediterranean Sea crosses the escarpment.

Depth Range	Approx. 200 -2600 m
Jurisdictional status	Spain Territorial waters
Location	Latitude: 38° 53.869'N Longitude: 2° 47.023'E
MedNet Proposal	NO
MEOW	Western Mediterranean

KEY SPECIES	
Balaenoptera physalus	*Neopycnodonte zibrowii*
Bathypterois dubius	*Nephrops norvegicus*
Bebryce mollis	*Nicella granifera*
Caretta caretta	*Pennatula phosphorea*
Caryophylliidae	*Physeter macrocephalus*
Centrophorus granulosus	*Polyprion americanus*
Centrostephanus longispinus	*Ranella olearium*
Dendrophyllia cornigera	*Spondylus gussonii*
Epinephelus caninus	*Stylocordyla pellita*
Farrea sp.	*Thenea muricata*
Funiculina quadrangularis	*Thunnus thynnus*
Gryphus vitreus	*Trachyrincus scabrus*
Leiodermatium lynceus	*Tursiops truncatus*
Lepidion eques	*Xiphias gladius*
Leptometra phalangium	
Meganycitphanes norvegica	Dead colonies of *Madrepora oculata* and *Lophelia pertusa*
Mobula mobular	

Features to be protected according CBD examples
Coral, sponge and bryozoan aggregations
Escarpment
Whales and other cetaceans

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity			X	
Special importance for life-history stages of species				X
Importance for threatened, endangered or declining species and/or habitats				X

spp	CITES	CMS	SPA/BD Protocol	IUCN Red List (*)
Balaenoptera physalus	Appendix I	Appendix I and II	Annex II	EN
Caretta caretta	Appendix I	Appendix I	Annex II	EN
Caryophylliidae	Appendix II			
Centrophorus granulosus			Annex III	VU/VU (Med)
Centrostephanus longispinus			Annex II	
Dendrophyllia cornigera	Appendix II			
Epinephelus caninus				DD
Mobula mobular			Annex II	EN/EN (Med)
Physeter macrocephalus	Appendix I	Appendix I and II	Annex II	VU
Polyprion americanus				DD
Ranella olearium			Annex II	Lower Risk/NT
Thunnus thynnus			Annex III	EN/EN (Med)
Tursiops truncatus	Appendix II	Appendix II	Annex II	LC/VU (Med)
Xiphias gladius			Annex III	NT (Med)

Funiculina quadrangularis constitutes a essential habitat for several commercial species, reason why this facie have almost completely disappeared due to trawl fishing in many Mediterranean areas (Ardizzone *et al.* 2006).

Vulnerability, fragility, sensitivity, or slow recovery				
Biological productivity				
Biological diversity				
Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 61. Location of the Emile Baudot Escarpment

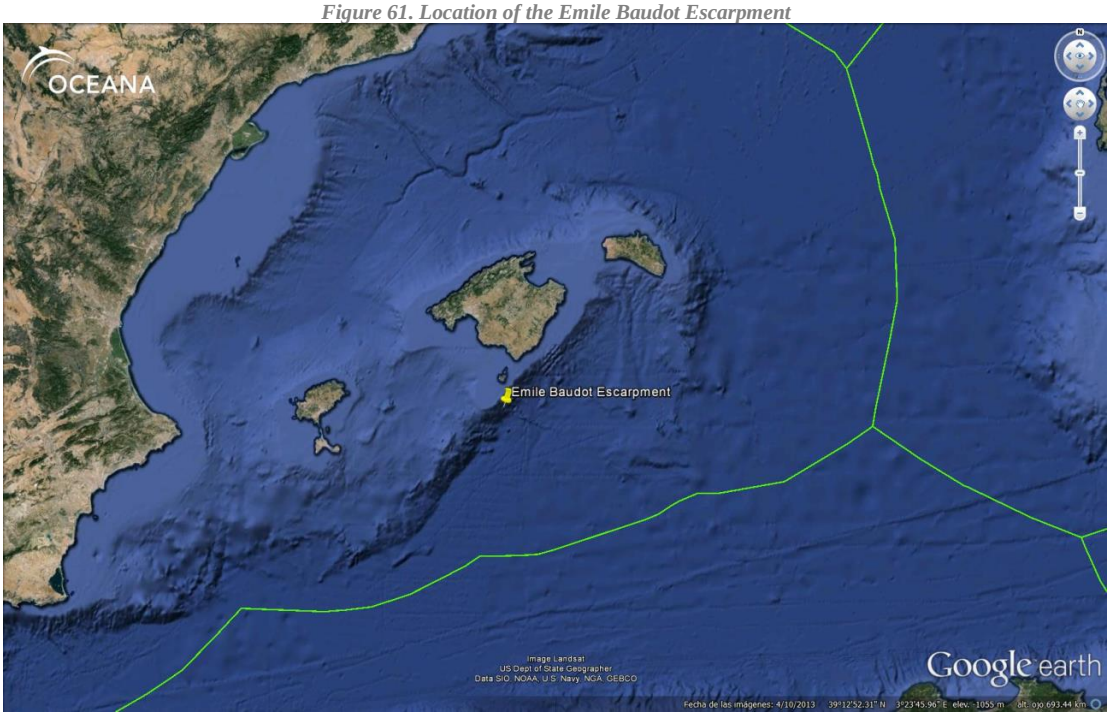


Figure 62. ROV divings in the Emile Baudot Escarpment. Oceana Expedition 2013

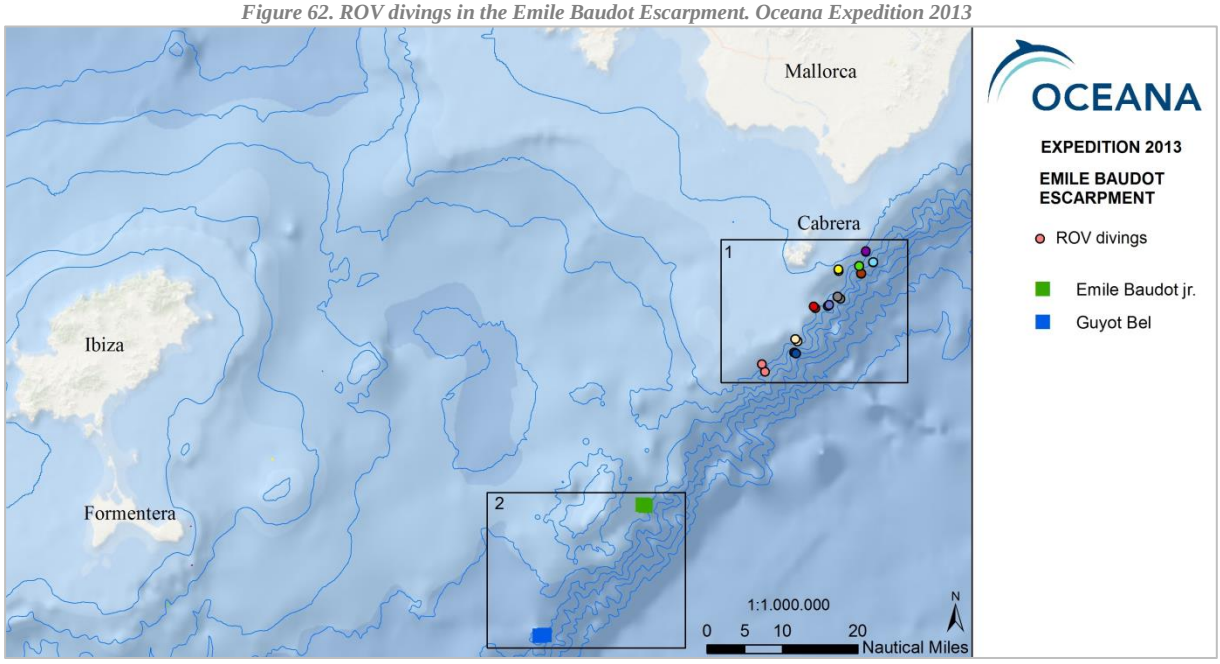


Figure 63. Multi-beam topography of a segment of Emile Baudot Escarpment (Acosta et al, 2001).

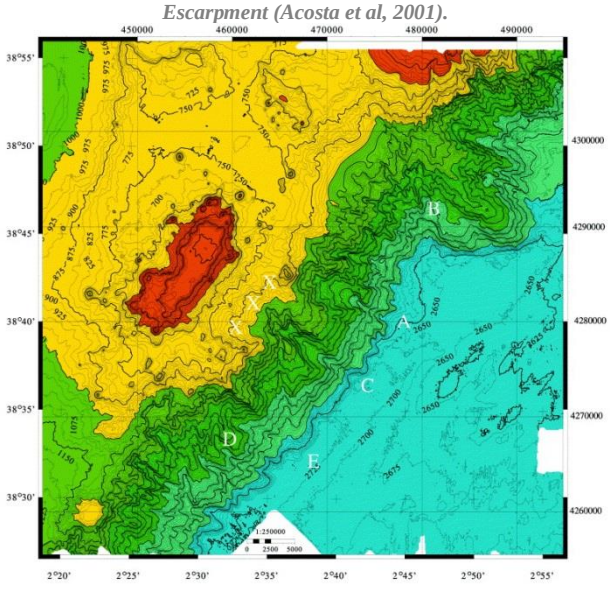


Figure 64. Physiographic features of the area of the Emile Baudot Escarpment (Acosta et al, 2001)

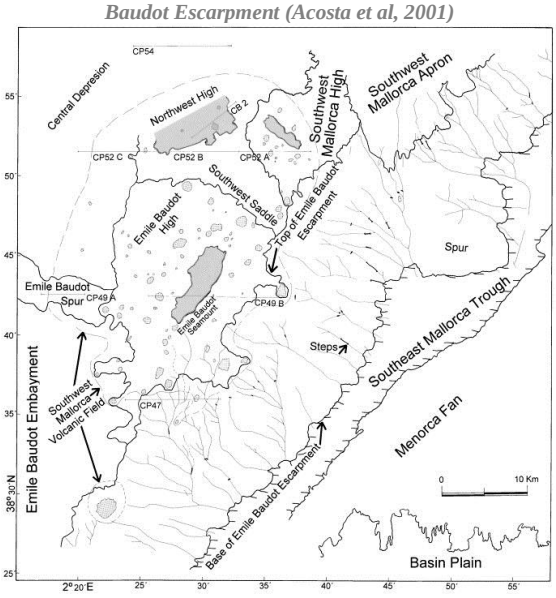


Figure 65. Deep-sea fish (Chauliodus sloani) © OCEANA

Figure 66. Deep-sea fish (Stomias boa) © OCEANA

Figure 67. stony coral colony (Dendrophyllia cornigera) © OCEANA

Figure 68. Gorgonian garden (Nicella granifera) © OCEANA

Figure 69. Crinoids beds (Leptometra phallangium) © OCEANA

Figure 70. Grouper (Epinephelus caninus) and sea urchin (Centrostephanus longispinus) © OCEANA

Figure 71. Deep-sea cave © OCEANA

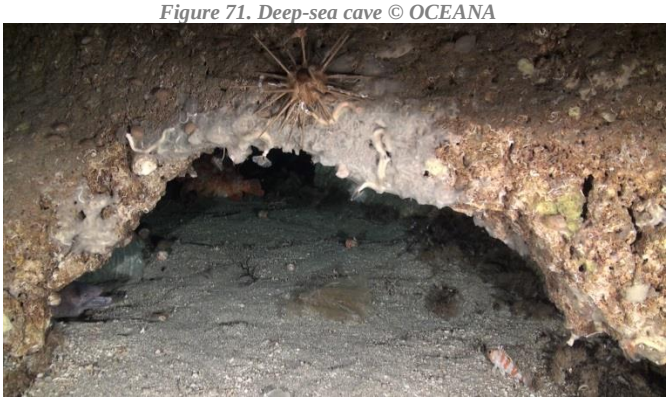


Figure 72. Deep-sea fish (Trachyrincus scabrous) © OCEANA

Figure 73. Marine litter in the Escarpment © OCEANA

Figure 74. Abandoned gears in the Escarpment © OCEANA

References

Acosta J., Muñoz A., Herranz P., Palomo C., Ballesteros M., Vaquero M. & E. Uchupi. (2001). Geodynamics of the Emile Baudot escarpment and the Balearic Promontory, western Mediterranean. Mar. Pet. Geol. 18 (3), 349– 369

Ardizzone G.D. (2006). An introduction to Sensitive and Essential Fish Habitats identification and protection in the Mediterranean Sea. Working Document to the STECF/SGMED-06-01 sub-group meeting on Sensitive and Essential Fish Habitats in the Mediterranean (Rome, March 2006), 17 pp.

10. MINORCA CANYON

Description and key species

Located in the Balearic archipelago, it is a canyon with medium activity and a large extension and bathymetric distribution (see Figure 75). It gives rise to a wide range of environments and communities: from coralligenous beds at its head to black coral communities, rocky beds with porifera and cnidarians, shell generating beds, sedimentary and muddy beds etc. The canyon has been included in several oceanographic campaigns, but relevant data has not been published yet. Oceana explored the area and the information gathered is reflected as follows (see from Figure 76 to Figure 79).

Depth Range	Approx. 50-1000m
Jurisdictional status	Spain Territorial waters
Location (centroid)	Latitude: 39°48'59.39"N Longitude: 4° 0'24.21"E
MedNet Proposal	NO
MEOW	Western Mediterranean

KEY SPECIES	
Antipathes dichotoma	*Mesophyllum* sp
Callogorgia verticillata	*Palinurus elephas*
Charonia lampas	*Paralcyonium spinulosum*
Corallium rubrum	*Phakelia ventilabrum*
Corallinacea (maërl and coralligenous)	*Peyssonnelia* sp
Dendrophyllia cornigera	*Posidonia oceanica*
Eunicella verrucosa	*Scyliorhinus canicula*
Funiculina quadrangularis	*Spatangus purpureus*
Gryphus vitreus	*Tethya aurantium*
Helicolenus dactylopterus	*Zeus faber*
Laminaria rodriguezii	
Lithophyllum sp	
Lithothamnion corallioides	
Lophius piscatorius	

Features to be protected according CBD examples[6]
Coral, sponge and bryozoan aggregations
Canyons

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
Special importance for life-history stages of species				
Importance for threatened, endangered or declining species and/or habitats				X

ESPECIE	**CITES**	**CMS**	**SPA/BD Protocol**	**IUCN Red List (*)**
Antipathes dichotoma	Appendix II		Annex II	
Callogorgia verticillata			Annex II	

[6] UNEP/CBD/EWS.MPA/1/2. Examples of features that would meet the scientific criteria for identifying ecologically or biologically significant marine areas or species. UNEP/CBD/EWS.MPA/1/2. Appendix to Annex II.

Charonia lampas			Annex II	
Corallium rubrum			Annex III	
Dendrophyllia cornigera	Appendix II			
Eunicella verrucosa				VU
Laminaria rodriguezii			Annex II	
Palinurus elephas			Annex III	
Posidonia oceanica			Annex II	LC
Tethya aurantium			Annex II	

Funiculina quadrangularis constitutes an essential habitat for several commercial species, reason why this facie have almost completely disappeared due to trawl fishing in many Mediterranean areas (Ardizzone *et al.* 2006)

Vulnerability, fragility, sensitivity, or slow recovery				
Biological productivity				
Biological diversity				
Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 75. Location of the Minorca canyon

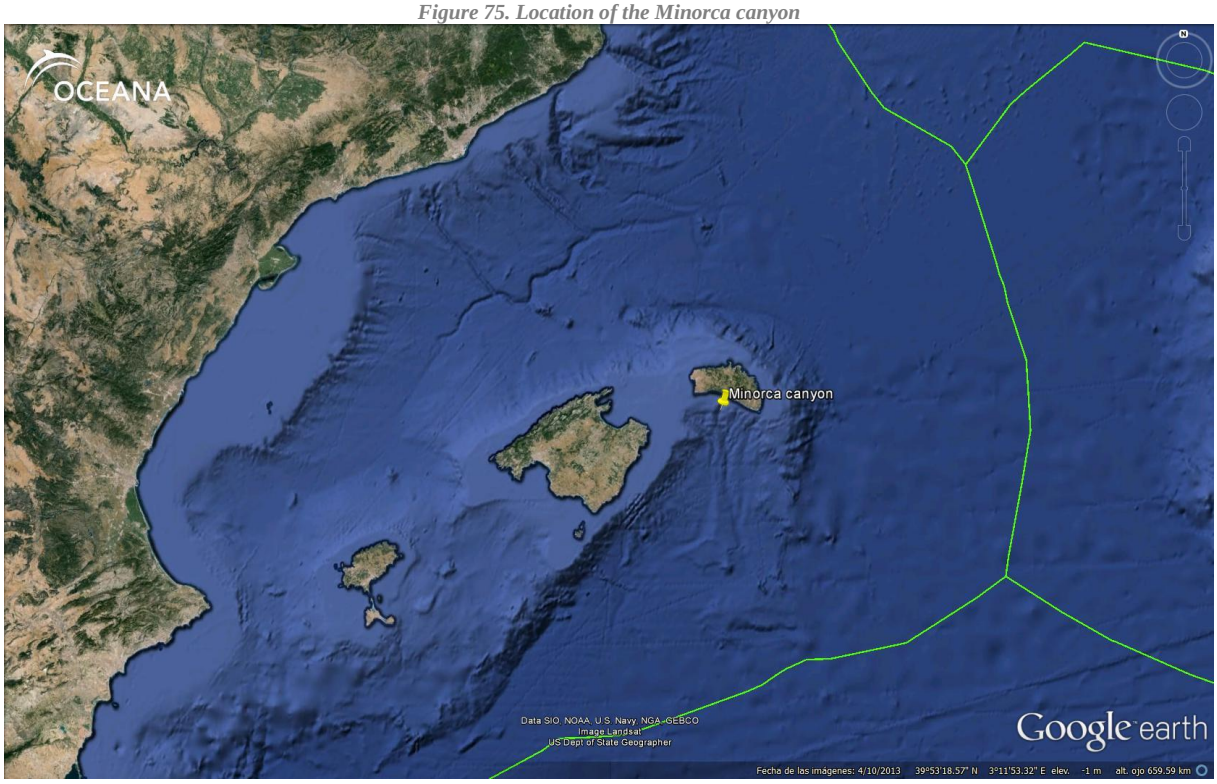


Figure 76. Location of the protected species found in the Minorca canyon

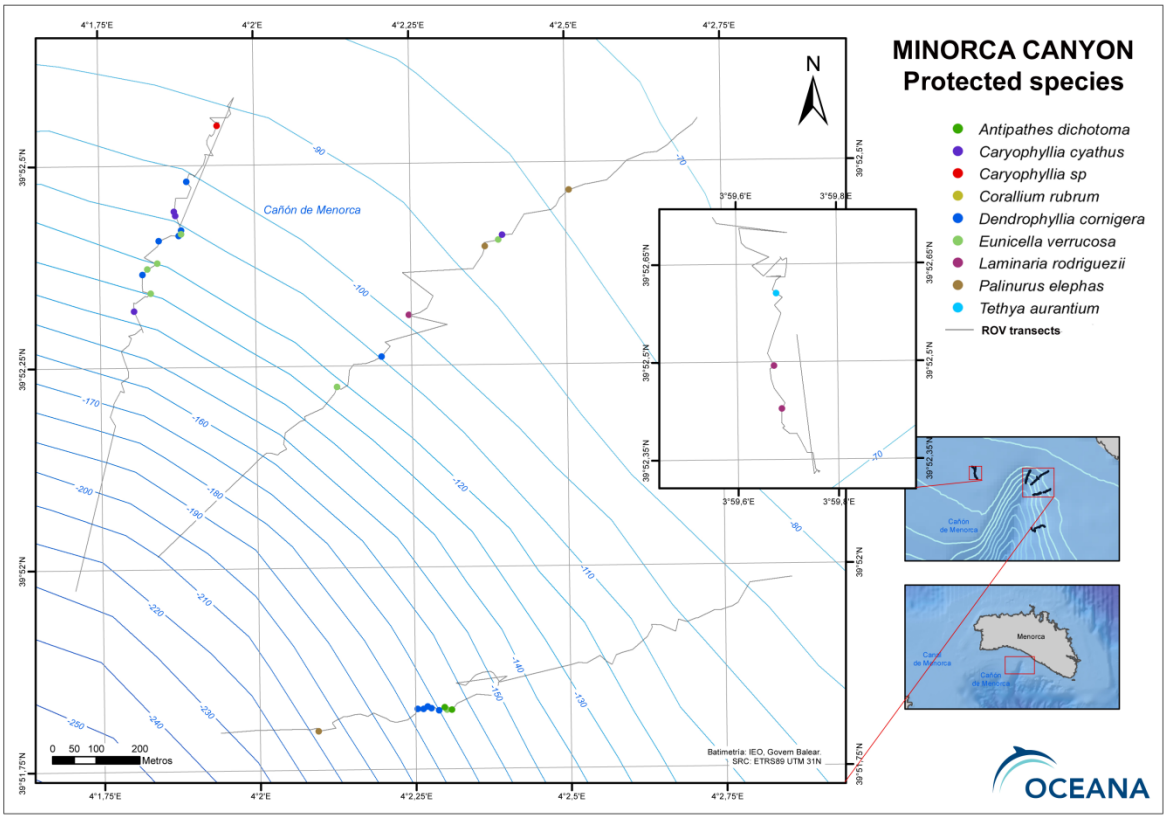


Figure 77. Corals and gorgonians documented in the Minorca canyon. (A) Dendrophyllia cornigera; (B) Funiculina quadrangularis; (C) Callogorgia verticillata; (D) Eunicella verrucosa garden; (E) Antipathes dichotoma; (F) Paralcyonium spinulosum. © OCEANA

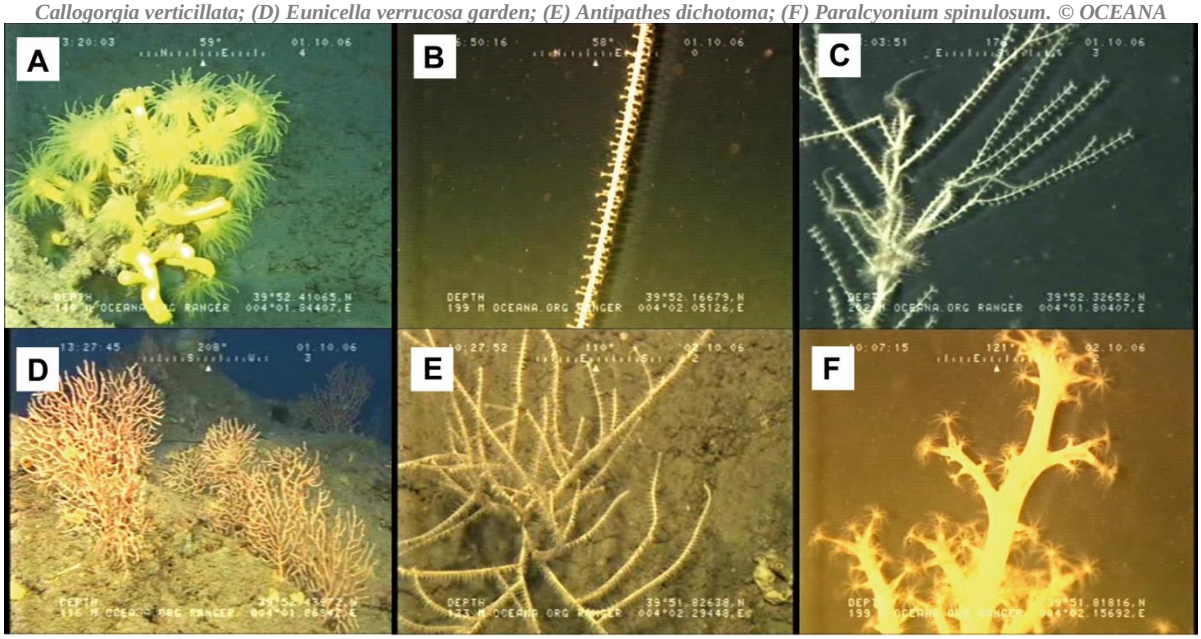


Figure 78. Vertebrates (fish) documented in the Minorca canyon. (A) Arnoglossus sp; (B) Lophius piscatorius; (C) Scorpaena scrofa; (D) Pontinus kuhli © OCEANA

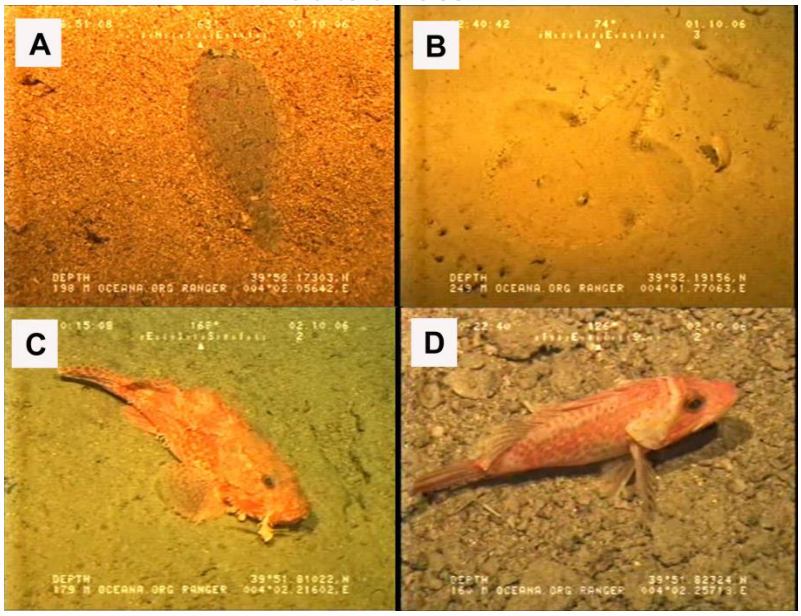
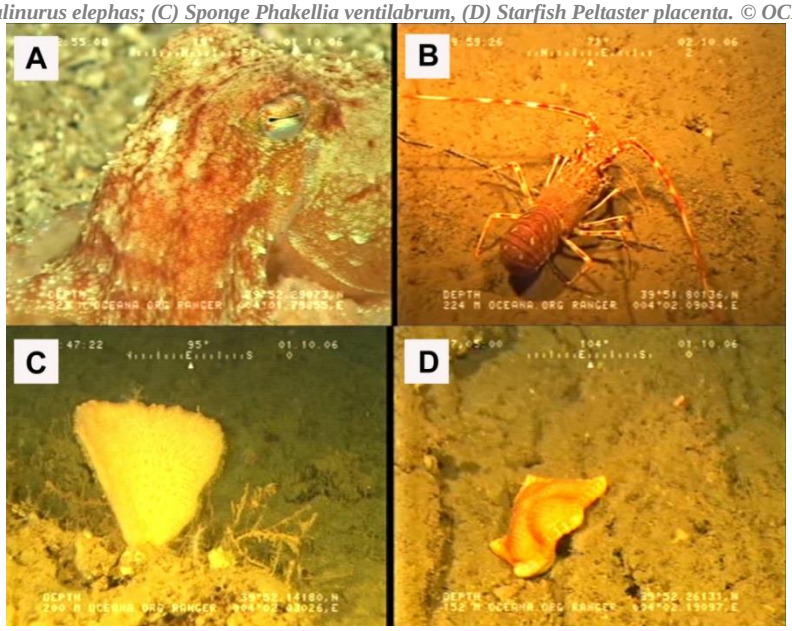


Figure 79. Invertebrates (molluscs, crustaceans, sponges and echinoderms) documented in the Menorca canyon. (A) Eledone cirrhosa; (B) Palinurus elephas; (C) Sponge Phakellia ventilabrum, (D) Starfish Peltaster placenta. © OCEANA



References

Further information from Oceana expeditions (images, footage, maps, etc.) is available upon request

Barberá C., Moranta J., Ordines F., Ramón M., De Mesa A., Díaz-Valdés M., Grau A.M. & E. Massutí (2012). Biodiversity and habitat mapping of Menorca Channel (western Mediterranean): implications for conservation. Biodivers Conserv (2012) 21:701–728. doi: 10.1007/s10531-011-0210-1

Ardizzone G.D. (2006). An introduction to Sensitive and Essential Fish Habitats identification and protection in the Mediterranean Sea. Working Document to the STECF/SGMED-06-01 sub-group meeting on Sensitive and Essential Fish Habitats in the Mediterranean (Rome, March 2006), 17 pp.

11. TORTOSA CANYON

Description and key species

The Tortosa Canyon is a small-sized canyon that belongs to the canyon system in the continental shelf to the east of the Iberian Peninsula (see Figure 80). The biological information available for this area is relatively scarce although interesting references exist. It may be related to fisheries of red shrimp (*Aristeus antennatus*) in adjoining areas, or to the occurrence of adult hake (*Merluccius merluccius*) by analogy with other canyons in the western Mediterranean. In fact, Sensitive Habitats have been documented within the canyon, such as those constituted by bamboo coral (*Isidella elongata*) which are deep-sea habitats acting as assemblages and associated with commercial species. The area is identified with a large pelagic fishing ground and distribution area for cetacean species (odontocetes) and loggerhead turtle (*Caretta caretta*). It has been also defined as a spawning area for bluefin tuna (*Thunnus thynnus*) with a high relative abundance of basking shark (*Cetorhinus maximus*).

Depth Range	Approx. 100-1000 m
Jurisdictional status	Spain Territorial waters
Location (centroid)	Latitude: 40° 50,751' N Longitude: 1° 30,543' E
MedNet Proposal	YES
MEOW	Western Mediterranean

KEY SPECIES	
Aristeus antennatus	*Merluccius merluccius* (adults)
Caretta caretta	Odontoceti
Cetorhinus maximus	*Thunnus thynnus*
Delphinus delphis	
Isidella elongata	
Lophius sp	

Features to be protected according CBD examples
Canyons
Highly migratory fish
Sea turtles
Sharks
Whales and other cetaceans

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
Special importance for life-history stages of species				
May be related to the spawning area s for hake				
Importance for threatened, endangered or declining species and/or habitats				X

spp	**CITES**	**CMS**	**SPA/BD Protocol**	**IUCN Red List (*)**
Caretta caretta	Appendix I	Appendix I	Annex II	EN
Cetorhinus maximus	Appendix II	Appendix II	Annex II	VU/VU (Med)
Delphinus delphis	Appendix II	Appendix I and II (D. delphis)	Annex II	
Merluccius merluccius				VU (Med)
Odontoceti	Appendix I/II			
Thunnus thynnus			Annex III	EN/EN (Med)

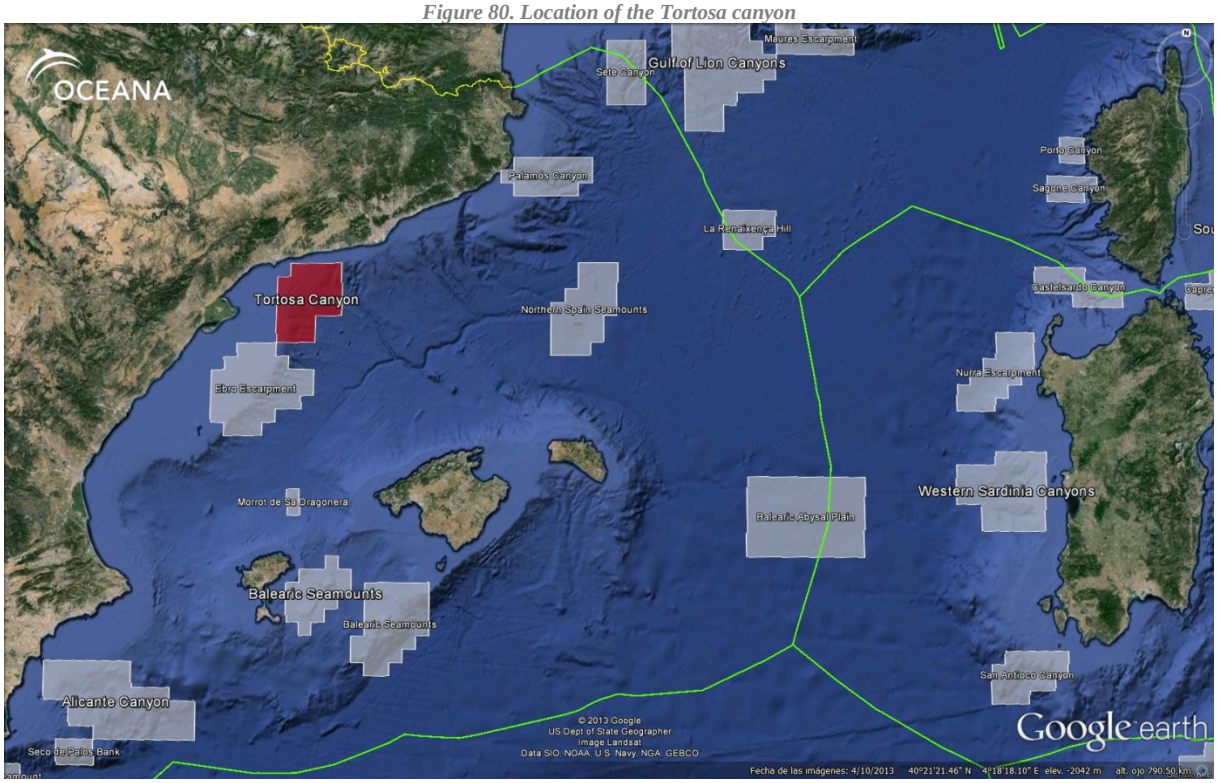
Isidella elongata constitutes a essential habitat for several commercial species, reason why this facie have almost completely disappeared due to trawl fishing in many Mediterranean areas (Ardizzone *et al.* 2006)

Vulnerability, fragility, sensitivity, or slow recovery				
Biological productivity				
Biological diversity				
Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 80. Location of the Tortosa canyon



References

Ardizzone G.D. (2006). (Unedit) Sensitive and Essential Fish Habitats in the Mediterranean Sea. Working document to the STECF/SGMED-06-01 sub-group meeting on sensitive and essential fish habitats in the Mediterranean; 2006. Rome,17

Baino R., Barone M., Mancusi C. & F. Serena (2010). The MEDLEM database: 30 years of data collection on large cartilaginous fishes in the Mediterranean Sea. Transversal Expert meeting on the status of elasmobranches in the Mediterranean and Black Sea. 20-22 September 2010, Sfax, Tunisia

Coll M., Palomera I., Tudela S. & F. Sarda (2006). Trophic flows, ecosystem structure and fishing impacts in the South Catalan Sea, Northwestern Mediterranean, Journal of Marine Systems, Volume 59, Issues 1-2, January 2006, Pages 63-96

Gili J.M., Ros J.D. & F. Pagés (1987). Types of bottoms and benthic cnidaria from the trawling grounds (littoral and bathyal) off Catalonia (NE Spain). Vie Milieu, 1987. 37(2):85-98

ICCAT. Anon. (2010). Report of the 2010 ICCAT Bluefin Tuna Data preparatory meeting. Madrid, Spain – June 14 to 19, 2010. International Commission for the Conservation of Atlantic Tunas

Mancusi C., Clò S., Affronte M., Bradaï M.N., Hemida F., Serena F., Soldo A. & M. Vacchi (2005). On the presence of basking shark (Cetorhinus maximus) in the Mediterranean Sea. Cybium 2005, 29(4): 399-405.

Maynou F. & J.E. Cartes (2011). Effects of trawling on fish and invertebrates from deep-sea coral facies of Isidella elongata in the western Mediterranean. Journal of the Marine Biological Association of the United Kingdom, pp 1-7. doi:10.1017/S0025315411001603

Notarbartolo di Sciara G. & T. Agardy (2009). Identification of potential SPAMIs in Mediterranean Areas Beyond National Jurisdiction. Contract N° 01/2008_RAC/SPA, High Seas. 70p.

12. GULF OF LION CANYONS

Description and key species

This proposal comprises the Marseille Canyon, the Grand Rhône Canyon, and the Rhône undersea delta fan (Rhône Fan). It is regarded as a highly significant area for commercial fisheries. These submarine canyons are very productive structures (upwelling areas), and different cetacean species can be found here, such as fin whale (*Balaenoptera physalus*), sperm whale (*Physeter macrocephalus*), striped dolphin (*Stenella coeruleoalba*) and Risso's dolphin (*Grampus griseus*) as well as large filter feeders such as the basking shark (*Cetorhinus maximus*). The canyons hydrodynamic also contributes to the occurrence of deep-sea coral aggregations (*Madrepora oculata*) which are regarded as having an extraordinary environmental significance and which are threatened by bottom trawling, as in the nearby Creus canyon. It is also regarded as a significant area for seabird feeding. Recent results about reasearches carried out in these canyons have provided information on the presence and abundance of vulnerable marine ecosystems, like cold water coral reefs, bamboo coral beds or sea pen and gorgonian communities (Fabri *et al.*, 2013). In the Casidaigne canyon, other significant assemblages and communities can also be added such as deep-sea giant osyters (*Neocpycnodonte zibrowii*), red coral (*Corallium rubrum*), black corals (*Leiopathes glaberrima*, *Antipathes dichotoma*, *Antipathella subpinnata*) and sponge aggregations (*Poecillastra compresa*). An interesting project[7] showing the major use of canyons and surrounded areas (e.g. Maures escarpment) as habitat for blue shark (*Prionace glauca*) was presented at the last GFCM-SCMEE meeting (Montenegro, February 2014)[8] (see Figure 82). Blue sharks are one of the most wide-ranging and previously abundant shark species. Now, they are the most heavily fished shark in the world. An estimated 10-20 million individuals are killed by pelagic fisheries annually, mostly as bycatch.

Depth Range	Approx. 100-2000m
Jurisdictional status	France Territorial waters
Location (centroid)	Latitude: 42° 43,127' N Longitude: 5° 3,428' E
MedNet Proposal	YES
MEOW	Western Mediterranean

KEY SPECIES	
Antipatharia	*Madrepora oculata*
-Antipathes dichotoma	*Lophelia pertusa*
-Antipathella subpinnata	*Isidella elongata*
-Leiopathes glaberrima	*Funiculina quadrangularis*
Balaenoptera physalus	*Callogorgia verticiallata*
Birds	*Physeter macrocephalus*
Cetorhinus maximus	*Prionace glauca*
Desmophyllum dianthus	*Stenella coeruleoalba*
Grampus griseus	

Features to be protected according CBD examples
Canyons
Coral, sponge and bryozoan aggregations
Seabirds
Sharks
Upwelling areas
Whales and other cetaceans

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
Special importance for life-history stages of species				
Importance for threatened, endangered or declining species and/or habitats				X

[7]) http://www.stellaris-asso.org/index.php/fr/suivi-requin

[8] See report of the fourteenth session of the GFCM SAC-SCMEE: https://gfcmsitestorage.blob.core.windows.net/documents/Reports/GFCM-Report-2014-SCMEE-14.pdf

spp	CITES	CMS_BONNconv	SPA/BD Protocol	IUCN Red List (*)
Antipathella subpinnata	Appendix II		Annex II	
Antipathes dichotoma	Appendix II		Annex II	
Balaenoptera physalus	Appendix I	Appendix I and II	Annex II	EN/VU (Med)
Cetorhinus maximus	Appendix II	Appendix II	Annex II	VU/VU (Med)
Callogorgia verticillata			Annex II	
Corallium rubrum			Annex III	
Desmophyllum dianthus	Appendix II			
Dendrophyllia cornigera	Appendix II			
Grampus griseus	Appendix II	Appendix II	Annex II	LC
Madrepora oculata	Appendix II		Annex II	
Leiopathes glaberrima	Appendix II		Annex II	
Lophelia pertusa	Appendix II		Annex II	
Stenella coeruleoalba	Appendix II	Appendix II (Med)	Annex II	LC/VU (Med)
Oxynotus centrina			Annex II	VU/CR (Med)
Physeter macrocephalus	Appendix I	Appendix I and II	Annex II	VU/EN (Med)
Prionace glauca			Annex III	NT/VU (Med)

Isidella elongata constitutes a essential habitat for several commercial species, reason why this facies have almost completely disappeared due to trawl fishing in many Mediterranean areas (Ardizzone *et al.* 2006)

Vulnerability, fragility, sensitivity, or slow recovery				
Biological productivity				
Biological diversity				
Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 81. Location of the Gulf of Lion canyons

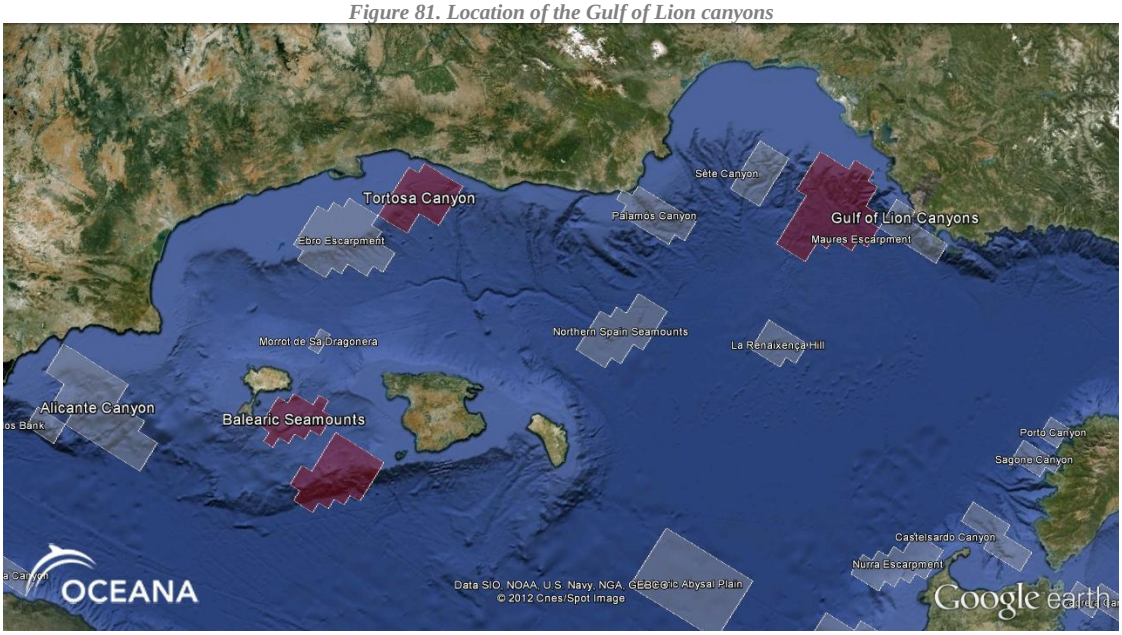


Figure 82.Screen-shot from the Stellaris project

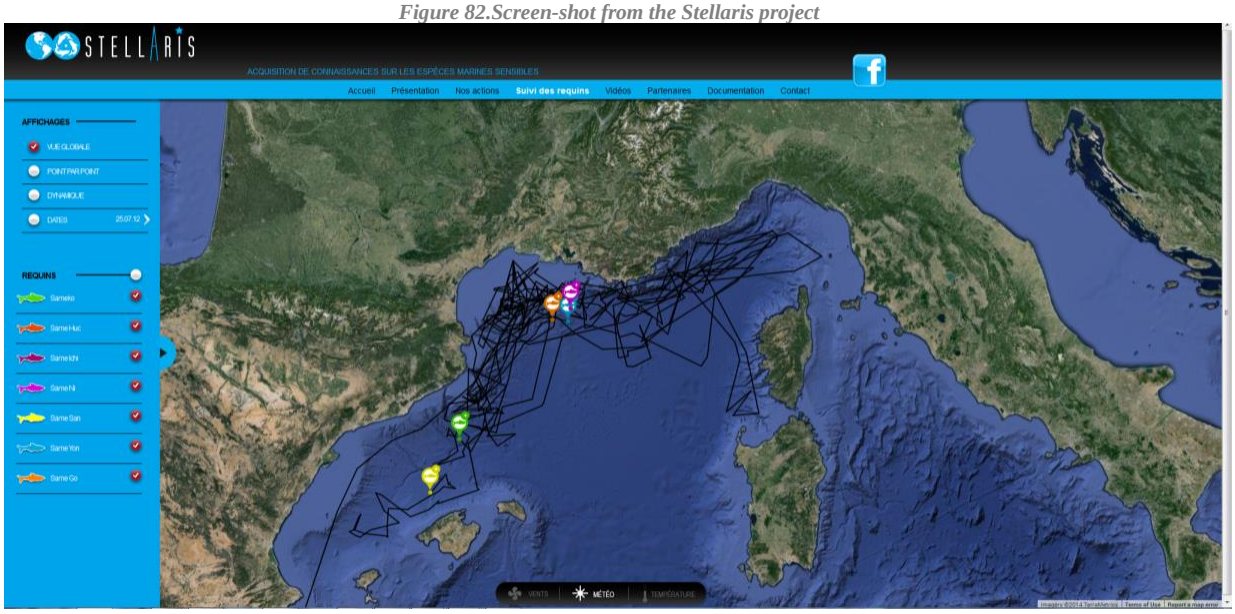
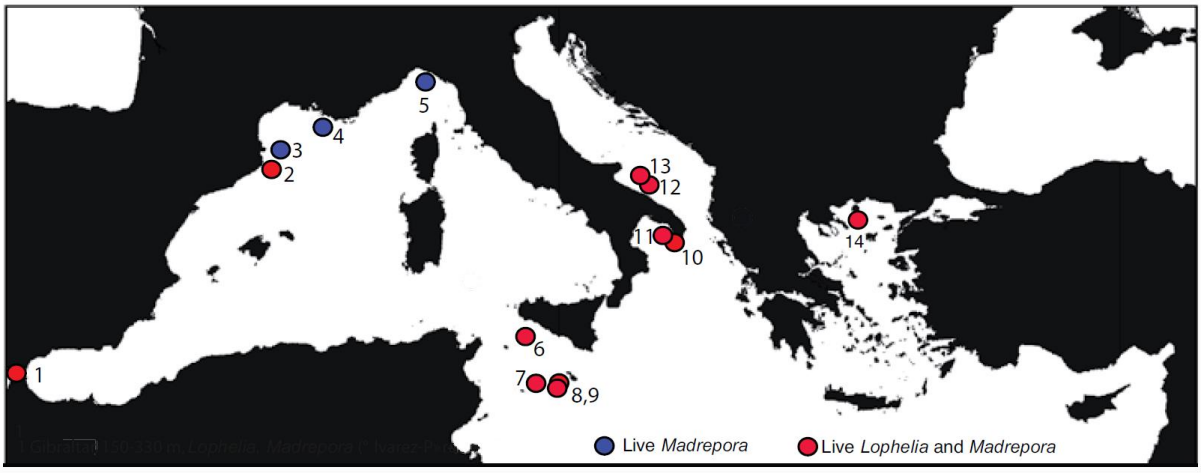


Figure 83. Occurrences of live white coral communities in the Mediterranean Sea according to Freiwald et al (2009)



References

Ardizzone G.D. (2006). An introduction to Sensitive and Essential Fish Habitats identification and protection in the Mediterranean Sea. Working Document to the STECF/SGMED-06-01 sub-group meeting on Sensitive and Essential Fish Habitats in the Mediterranean (Rome, March 2006), 17 pp.

Bakun A. & V.N. Agostini (2001). Seasonal patterns of wind-induced upwelling/ downwelling in the Mediterranean Sea. Scientia Marina, ISSN 0214-8358, Vol. 65, Nº. 3, 2001 , pags. 243-257

Durrieu de Madron X. (1994). Hydrography and nepheloid structures in the Grand-Rhône canyon. Continental Shelf Research, Vol. 14, No. 5, pp. 457-477

Fabri., M.-C, Pedel L., Beuck L., Galgani F, Hebbeln D. & A. Freiwald (2013). Megafauna of vulnerable marine ecosystems in French mediterranean submarine canyons: Spatial distribution and anthropogenic impacts. Deep-Sea Res. II, http://dx.doi.org/%2010.1016/j.dsr2.2013.06.016.

Freiwald A., Beuck L., Rüggeberg A., Taviani M., Hebbeln D. & R/ V Meteor Cruise M70-1 Participants (2009). The White Coral Community in the Central Mediterranean Sea Revealed by ROV Surveys. Oceanography Vol.22 No.1

Fontanier C., Jorissen F.J., Lansard B., Mouret A., Buscail R., Schmidt S., Kerherve P., Buron F., Zaragozi S., Hunault G., Ermoult E., Artero C., Anschutz P. &,C. Rabouille (2008). Live foraminifera from the open slope between Grand Rhône and Petit Rhône Canyons (Gulf of Lions, NW Mediterranean) (2008) Deep-Sea Research Part I: Oceanographic Research Papers, 55 (11), pp. 1532-1553.

Lofi J. & S. Berne (2008). Evidence for pre-Messinian submarine canyons on the Gulf of Lions slope (Western

Mediterranean). Marine and Petroleum Geology, 25 (8), pp. 804-817.

Mancusi C., Clò S., Affronte M., Bradaï M.N., Hemida F., Serena F., Soldo A. & M. Vacchi (2005). On the presence of basking shark (Cetorhinus maximus) in the Mediterranean Sea. Cybium 2005, 29(4): 399-405.

Notarbartolo di Sciara G. & T. Agardy (2009). Identification of potential SPAMIs in Mediterranean Areas Beyond National Jurisdiction. Contract N° 01/2008_RAC/SPA, High Seas. 70p.

Roberts A., Wheeler A., Freiwald A. & S. Cairns (2009). Cold-water corals: the biology and geology of deep-sea coral habitats. Cambridge Univerity Press

Orejas C., Gori A., Lo Iacono C., Puig P., Gili J.M. & M.R.T. Dale (2009). Cold-water corals in the Cap de Creus canyon, northwestern Mediterranean: spatial distribution, density and anthropogenic impact. Mar Ecol Prog Ser. Vol. 397: 37–51

Petrenko A.A. (2003). Variability of circulation features in the Gulf of Lion NW Mediterranean Sea. Importance of inertial currents. Oceanologica Acta, Volume 26, Issue 4, September 2003, Pages 323-338

Würtz M. (2010). Mediterranean Pelagic Habitat: Oceanographic and Biological Processes, An Overview. Gland, Switzerland and Malaga, Spain: IUCN

13. BEJAIA CANYON

Description and key species

This is one of the main canyons off the Algerian coast (see Figure 84), probably linked with effects on local currents as it coincides with the eddy-formation area in the Algerian current. The biological information in this area is very scarce. However, it was described in the late 70s as a distribution area for monk seal (*Monachus monachus*) one of the most threatened pinnipeds in the planet, which is catalogued as "Critically Endangered" by the IUCN Red List. The Mediterranean monk seal is recognized within the framework of the Barcelona Convention as a species to be protected as a matter of priority. Regarding this, a Regional Strategy for the conservation of Mediterranean Monk Seal (2014-2019) has been adopted within the framework of the last Convention CoP meeting. On the other hand, one of the Proposed Targets within the EcAp process (also adopted during the CoP) is "The distribution of Monk Seal remains stable or expanding and the species is recolonizing areas with suitable habitats". The Gulf of Bejaia and the head of the canyon is considered as spawning area for small pelagics, like anchovy (*Engraulis encrasicolus*) (Bacha & Amara, 2012; Bacha, 2009). Experimental fisheries for demersal species found important fishing grounds several species (around 20), incuding fishes, molluscs and crustaceans (Massuti *et al.*, 2004). One of the main threats in this area comes from destructive fishing gears (bottom trawling).

Depth Range	Approx. 300-2500m
Jurisdictional status	Algeria Territorial waters
Location (centroid)	Latitude: 37° 2,590' N Longitude: 5° 21,545' E
MedNet Proposal	YES
MEOW	Western Mediterranean

KEY SPECIES
Engraulis encrasicolus
Monachus monachus

Features to be protected according CBD examples
Canyons
Gyres

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
Special importance for life-history stages of species				X
Consider as spawning area for small pelagics				
Importance for threatened, endangered or declining species and/or habitats	X			

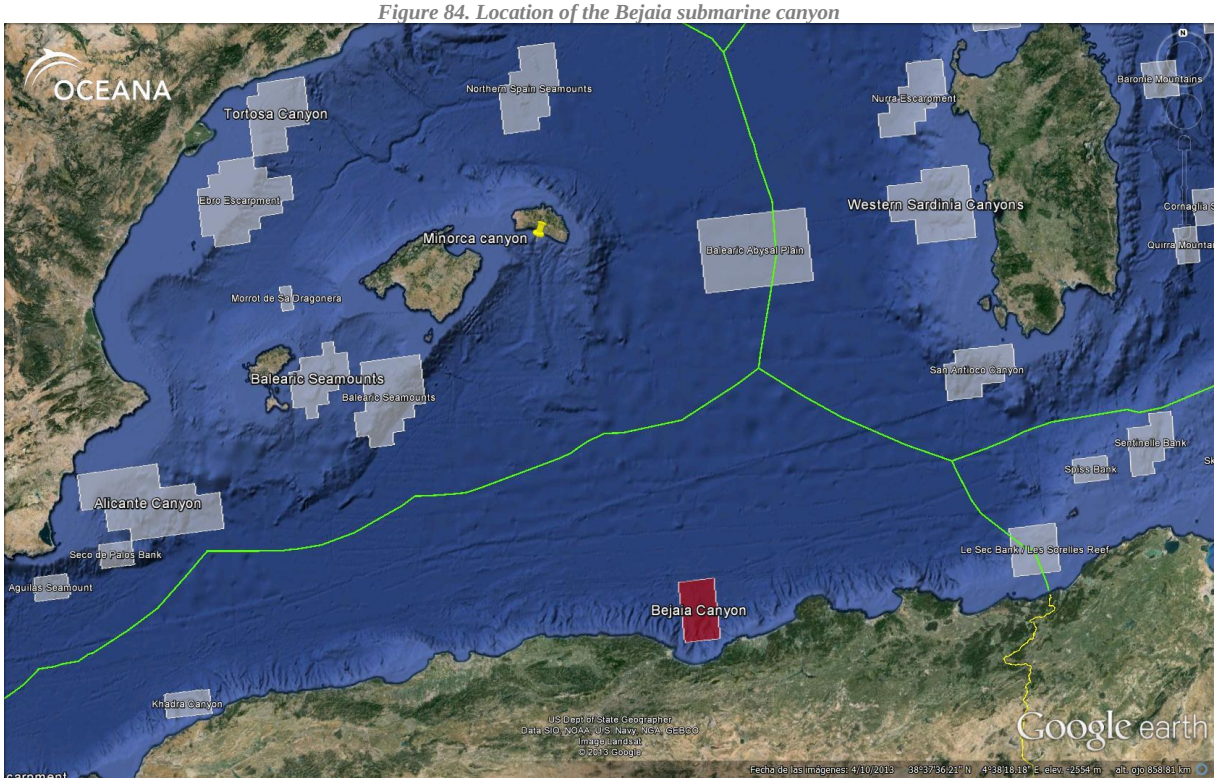
spp	CITES	CMS_BONNconv	SPA/BD Protocol	IUCN Red List (*)
Monachus monachus	Appendix I	Appendix I and II	Annex II	CR

Vulnerability, fragility, sensitivity, or slow recovery				
Biological productivity				
Biological diversity				
Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 84. Location of the Bejaia submarine canyon



References

Bacha M. (2009). Ichtyofaune de la région de Béjaia: étude de la biologie de l'anchois Engraulis encrasicolus croissance, régime alimentaire et reproduction. Thése de Doctorat, Université de Béjaia (Algérie) et Université du littoral (ULCO, France), 241 pp.

Bacha M. & R. Amara (2012). Inter-cohort differences in growth, condition and feeding of juvenile anchovy (Engraulis encrasicolus) in the Gulf of Béjaia (Algerian coast, SW Mediterranean): Implications for recruitment success. Fisheries Research, 129– 130: 73– 81.

Massuti E., Ordinas F., Guijarro B., Pomar B., Fliti K., Refes W., Zaghdoudi S., Bouaicha M., Reghis M., Miraoui M., Naili R., Aitferroukh B. & A. Muñoz (2004). Informe de la Campaña Argelia 0204 para la evaluación de recursos demersales en las costas de Argelia (mediterráneo Sud-Occidental). IEO- Centre Oceanogràfic de les Balears - Ministère de la Pêche et des Ressources Halieutiques – Secretaría General de Pesca Marítima, Junio 2004. 124 pp.

Millot C., Taupier-Letage I. & M. Benzohra (1990). The Algerian eddies, Earth-Science Reviews, Volume 27, Issue 3, May 1990, Pages 203-219, ISSN 0012-8252, DOI: 10.1016/0012-8252(90)90003-E.

Salas J., Millot C., Font J. & E. Garcia-Ladona (2002). Analysis of mesoscale phenomena in the Algerian basin observed with drifting buoys and infrared images, Deep Sea Research Part I: Oceanographic Research Papers, Volume 49, Issue 2, February 2002, Pages 245-266, ISSN 0967-0637

Sergeant D., Ronald K., Boulva J. & F. Berkes (1978). The recent status of Monachus monachus, the Mediterranean monk seal, Biological Conservation, Volume 14, Issue 4, December 1978, Pages 259-287, ISSN 0006-3207, doi: 10.1016/0006-3207(78)90044-7.

Testor P. & J.C. Gascard (2005). Large scale flow separation and mesoscale eddy formation in the Algerian Basin, Progress In Oceanography, Volume 66, Issues 2-4, Mediterranean physical oceanography and biogeochemical cycles: Mediterranean general circulation and climate variability, August-September 2005, Pages 211-230, ISSN 0079-6611, DOI: 10.1016/j.pocean.2004.07.018.

Van Haren H., Millot C. & I. Taupier-Letage (2006), Fast deep sinking in Mediterranean eddies, Geophys. Res. Lett., 33, L04606, doi:10.1029/2005GL025367.

14. WESTERN SARDINIA CANYONS

Description and key species

Il Catalano and Oristano submarine canyons are located off the East coast of Sardinia and they both constitute the largest complex of the canyons system surrounding the island (see Figure 85). They probably affect, together with the Algerian current, eddy formations in the west Mediterranean (see Figure 86). Submarine canyons usually correspond with areas of interest for fisheries, as they are highly productive zones due to their special hydrodynamics. In this case, they are possibly linked with large pelagic fisheries and with the occurrence of cetacean species such as Risso's dolphin (*Grampus griseus*), sperm whale (*Physeter macrocephalus*), fin whale (*Balaenoptera physalus*), and striped dolphin (*Stenella coeruleoalba*), as well as large filter feeders such as basking shark (*Cetorhinus maximus*) and giant devil ray (*Mobula mobular*). The latter one is relatively abundant in this area. Moreover, at the edge of the slope there are areas that are regarded as lobster (*Palinurus elephas*) nurseries. In order to protect stocks, in May 2010 the Autonomous Region of Sardinia established management measures to regulate fishing. It is very significant from a geological point of view as the deepest area, which is part of the sedimentary fan in the continental margin, reflects the effects of the salinity crisis of the Messinian period.

Depth Range	Approx. 100-2500
Jurisdictional status	Italy Territorial waters
Location (centroid)	Latitude: 39° 54,110' N Longitude: 7° 53,367' E
MedNet Proposal	YES
MEOW	Western Mediterranean

KEY SPECIES	
Balaenoptera physalus	*Mobula mobular*
Cetorhinus maximus	*Palinurus elephas*
Grampus griseus	*Physeter macrocephalus*
Large pelagics	*Stenella coeruleoalba*

Features to be protected according CBD examples
Canyons
Gyres
Sharks
Whales and other cetaceans

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
Special importance for life-history stages of species		X		
Palinurus elephas nursery in surrounded areas				
Importance for threatened, endangered or declining species and/or habitats				X

spp	**CITES**	**CMS_BONNconv**	**SPA/BD Protocol**	**IUCN Red List (*)**
Balaenoptera physalus	Appendix I	Appendix I and II	Annex II	EN/VU (Med)
Cetorhinus maximus	Appendix II	Appendix II	Annex II	VU/VU (Med)
Grampus griseus	Appendix II	Appendix II	Annex II	LC
Mobula mobular			Annex II	EN/EN (Med)
Palinurus elephas			Annex III	
Physeter macrocephalus	Appendix I	Appendix I and II	Annex II	VU EN (Med)
Stenella coeruleoalba	Appendix II	Appendix II (Med)	Annex II	LC/VU (Med)

Vulnerability, fragility, sensitivity, or slow recovery				

Biological productivity				
Biological diversity				
Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 85. Location of the Western Sardinia canyons

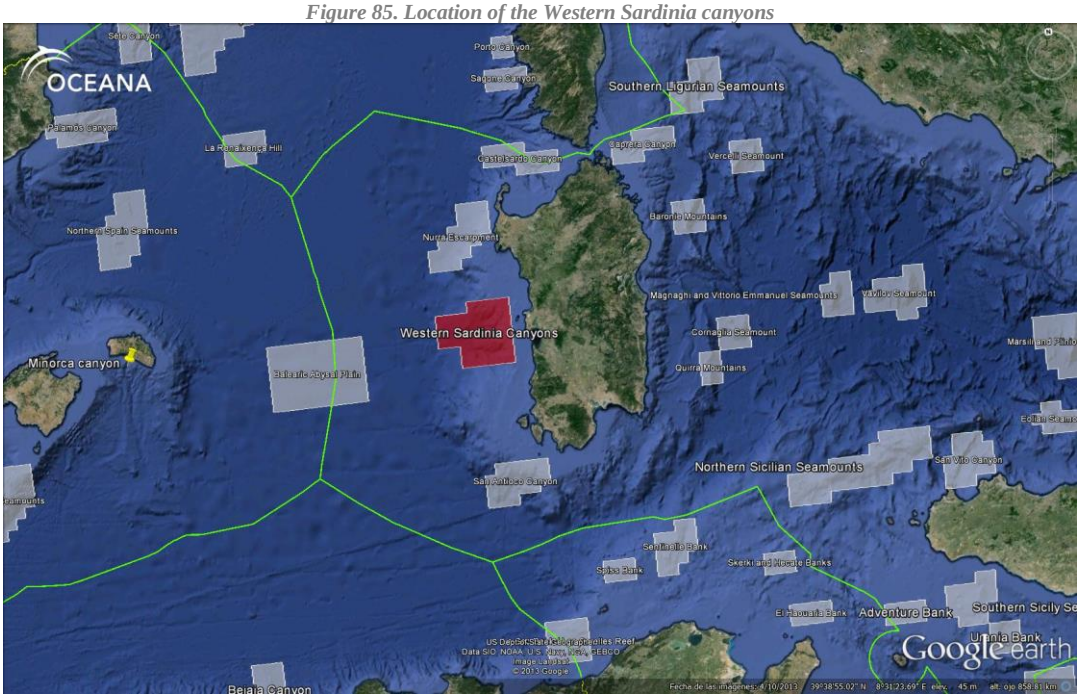
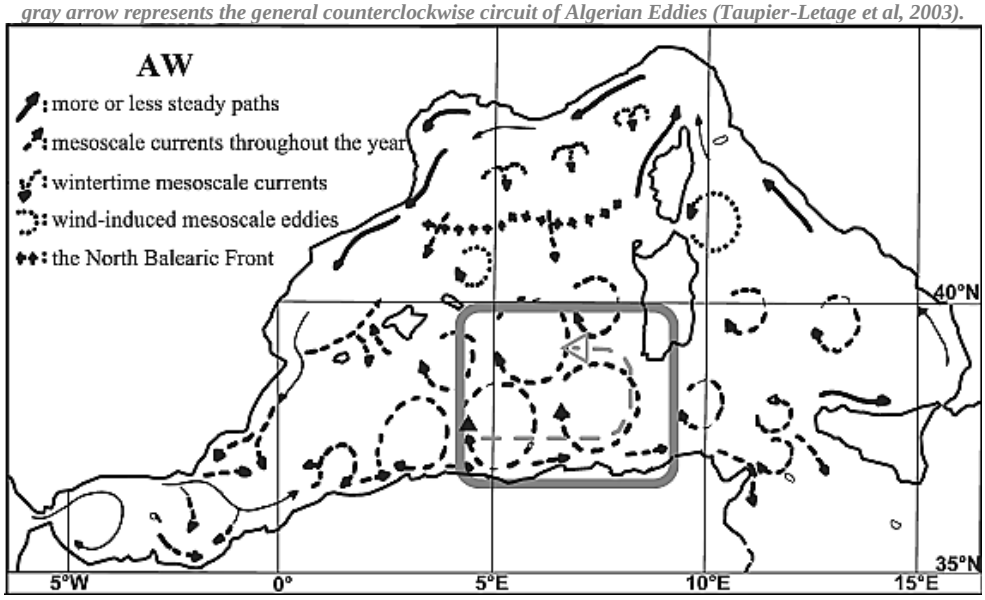


Figure 86. The general circulation of the Atlantic Water (AW) in the western Mediterranean [adapted from Millot, 1999]. The dashed gray arrow represents the general counterclockwise circuit of Algerian Eddies (Taupier-Letage et al, 2003).



References

Baino R., Barone M., Mancusi C. & F. Serena (2010). The MEDLEM database: 30 years of data collection on large cartilaginous fishes in the Mediterranean Sea. Transversal Expert meeting on the status of elasmobranches in the Mediterranean and Black Sea. 20-22 September 2010, Sfax, Tunisia

European Commission (2006). Assessment of the status, development and diversification of fisheries-dependent communities. Oristano, Sardinia case study report. European Commission Fish/2006/09

Mancusi C., Clò S., Affronte M., Bradaï M.N., Hemida F., Serena F., Soldo A. & M. Vacchi (2005). On the presence of basking shark (Cetorhinus maximus) in the Mediterranean Sea. Cybium 2005, 29(4): 399-405.

Millot C., Taupier-Letage I. & M. Benzohra (1990). The Algerian eddies, Earth-Science Reviews, Volume 27, Issue 3, May 1990, Pages 203-219, ISSN 0012-8252, DOI: 10.1016/0012-8252(90)90003-E.

Notarbartolo di Sciara G. & T. Agardy (2009). Identification of potential SPAMIs in Mediterranean Areas Beyond National Jurisdiction. Contract N° 01/2008_RAC/SPA, High Seas. 70p.

Sage F., Von Gronefeld G., Déverchère J., Gaullier V., Maillard A. & C. Gorini (2005). Seismic evidence for Messinian detrital deposits at the western Sardinia margin, northwestern Mediterranean. Marine and Petroleum Geology 22 (2005) 757–773

Taupier-Letage I., Puillat I., Millot C. & P. Raimbault (2003). Biological response to mesoscale eddies in the Algerian Basin. Journal of Geophysical Research, VOL. 108, 3245, 19 PP., 2003. doi:10.1029/1999JC000117

15. SOUTHERN LIGURIAN SEAMOUNTS

Description and key species

This area includes a number of seamounts (Cialdi, Giglio and Jadul) located to the North of the Tyrrhenian Sea and on the edge of the Pelagos sanctuary (see Figure 87). It is a high primary production area which supports many different shark and ray species (*Cetorhinus maximus*, *Carcharhinus brachyurus*, *Scyliorhinus canicula*, *Galeus melastomus*, *Etmopterus spinax*, *Raja clavata*, *Raja asterias*). For most of them, this area functions as well as a nursery and some of them are also included in different threat categories of the IUCN Red List, and thus require adequate management measures to be taken. This zone also contains a relatively high presence of six-gilled shark (*Hexanchus griseus*) and thresher shark (*Alopias* spp). It is also an important feeding ground for seabirds that use the Corsica-Sardinian-Tuscan archipelago as breeding area. Furthermore, in Cialdi seamount was discovered the first submerged micritic limestones with *Acesta excavata* (Lopez-Correa et al., 2005) associated with corals and polychaetes, including live *Vermiliopsis monodiscus* and *Protula* sp.

Depth Range	Approx. 400-1500m
Jurisdictional status	Italy Territorial waters
Location (centroid)	Latitude: 41° 46,003' N Longitude: 10° 32,764' E
MedNet Proposal	YES
MEOW	Western Mediterranean

KEY SPECIES	
Birds - breeding	*Hexanchus griseus*
Carcharhinus brachyurus	*Raja asterias*
Cetorhinus maximus	*Raja clavata*
Etmopterus spinax	*Scyliorhinus canicula*
Galeus melastomus	

Features to be protected according CBD examples
Seabirds
Seamount communities
Sharks
Upwelling areas

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
Special importance for life-history stages of species				
Importance for threatened, endangered or declining species and/or habitats				X

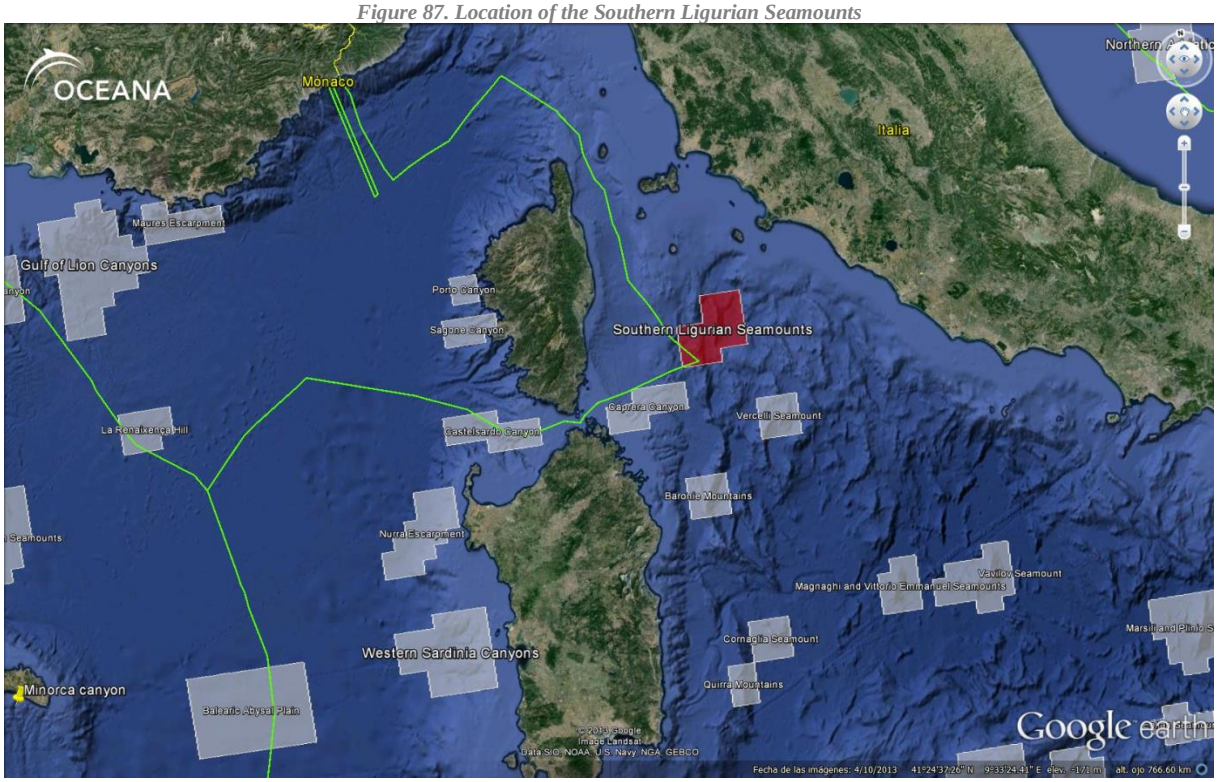
spp	**CITES**	**CMS**	**SPA/BD Protocol**	**IUCN Red List (*)**
Carcharhinus brachyurus				NT
Cetorhinus maximus	Appendix II	Appendix II	Annex II	VU/VU (Med)
Hexanchus griseus				NT/VU (Med)
Raja asterias				LC
Raja clavata				NT/NT (Med)

Vulnerability, fragility, sensitivity, or slow recovery				
Biological productivity				
Biological diversity				
Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 87. Location of the Southern Ligurian Seamounts



References

López Correa M., Freiwald A., Hall-Spencer J. & M. Taviani (2005). Distribution and habitats of Acesta excavata *(Bivalvia: Limidae) with new data on its shell ultrastructure. In: Freiwald A, Roberts JM, editors. Cold-water Corals and Ecosystems. Berlin Heidelberg: Springer-Verlag. 173–205.*

Mancusi C., Clò S., Affronte M., Bradaï M.N., Hemida F., Serena F., Soldo A. & M. Vacchi (2005). On the presence of basking shark (Cetorhinus maximus) in the Mediterranean Sea. Cybium 2005, 29(4): 399-405.

Notarbartolo di Sciara G. & T. Agardy (2009). Identification of potential SPAMIs in Mediterranean Areas Beyond National Jurisdiction. Contract N° 01/2008_RAC/SPA, High Seas. 70p.

Baino R., Barone M., Mancusi C. & F. Serena (2010). The MEDLEM database: 30 years of data collectionon large cartilaginous fishes in the Mediterranean Sea. Transversal Expert meeting on the status of elasmobranches in the Mediterranean and Black Sea. 20-22 September 2010, Sfax, Tunisia

16. NORTHERN SICILIAN SEAMOUNTS

Description and key species

Located off the Northwest coast of Sicily Island, the area comprises a seamount range that rises 1000 meters depth (see Figure 88). It is constituted by Aceste and Drepano seamounts and the Ustica ridge together with its escarpment. The Ustica escarpment and Aceste seamount are significant feeding grounds for seabirds (procellarriforms). Aceste is characterized by the presence of black corals (Antipatharia) and scleractinians (*Dendrophyllia cornigera*) and is an area of high importance for elasmobranchs, especially for sharks, in particular for the great white shark (*Carcharodon carcharias*) which is relatively abundant in this area (see Figure 89), and *Squalus blainvillei* that meet in high numbers on Aceste seamount. The southernmost area is located at the entry of the Sicily strait, an essential migratory pass in the Mediterranean Sea, which is considered as a vulnerable area for pelagic species (see Figure 90). Soft bottoms in these seamounts also host brachiopods beds of *Gryphus vitreus* and Ampeliscidae communitites.

Depth Range	Approx. 200-1500m
Jurisdictional status	Italy Territorial waters
Location (centroid)	Latitude: 38° 26,822' N Longitude: 11° 50,666' E
MedNet Proposal	YES
MEOW	Western Mediterranean

KEY SPECIES
Order Antipatharia
Birds - breeding
Carcharodon carcharias
Dendrophyllia cornigera
Elasmobranchii (Class)
Gryphus vitreus
Bebryce mollis
Leptometra phallangium

Features to be protected according CBD examples
Coral, sponge and bryozoan aggregations
Gyres
Seabirds
Seamount communities
Sharks

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
Great white shark habitat				
Special importance for life-history stages of species				
Importance for threatened, endangered or declining species and/or habitats				X

spp	CITES	CMS	SPA/BD Protocol	IUCN Red List (*)
Antipatharia	Appendix II		Annex II	
Carcharodon carcharias	Appendix II	Appendix II	Annex II	VU/EN (Med)
Dendrophyllia cornigera	Appendix II			
Leiopathes glaberrima	Appendix II		Annex II	
Antipathes dichotoma	Appendix II		Annex II	

Vulnerability, fragility, sensitivity, or slow recovery				
Occurrence of black corals and vulnerable from the fishing point of view				
Biological productivity				
Due to its geographical location at the entry of the Sicily strait				
Biological diversity				

Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 88. Location of the Northern Sicilian Seamounts

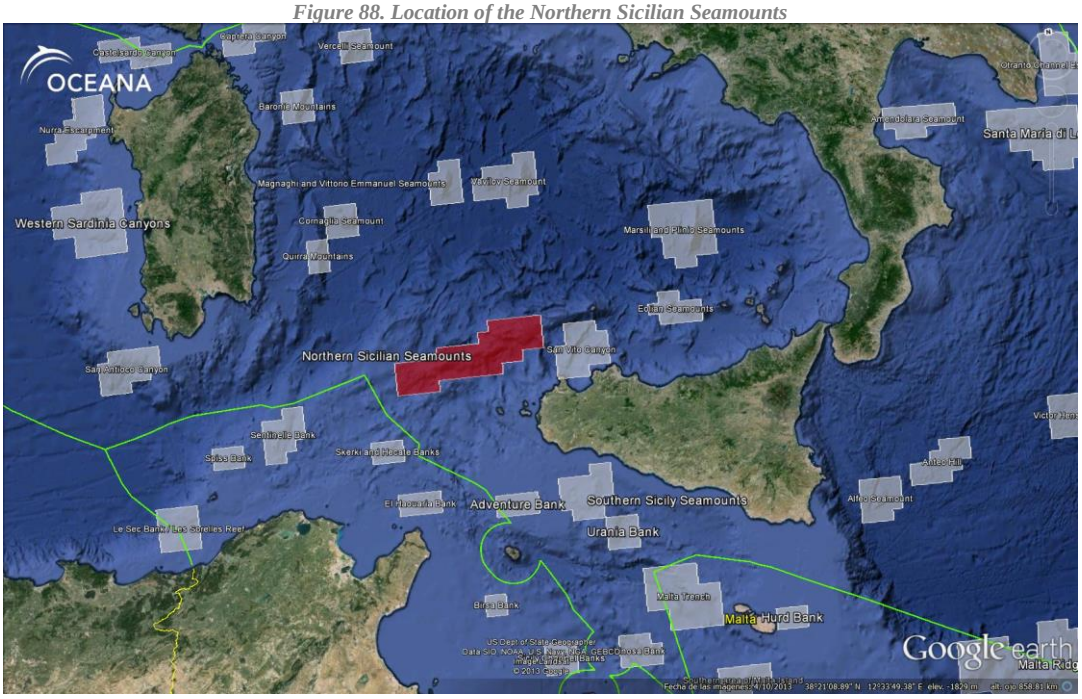


Figure 89. Geographical distribution of the great white sharks Carcharodon carcharias recorded in the Medlem database (Baino et al, 2010)

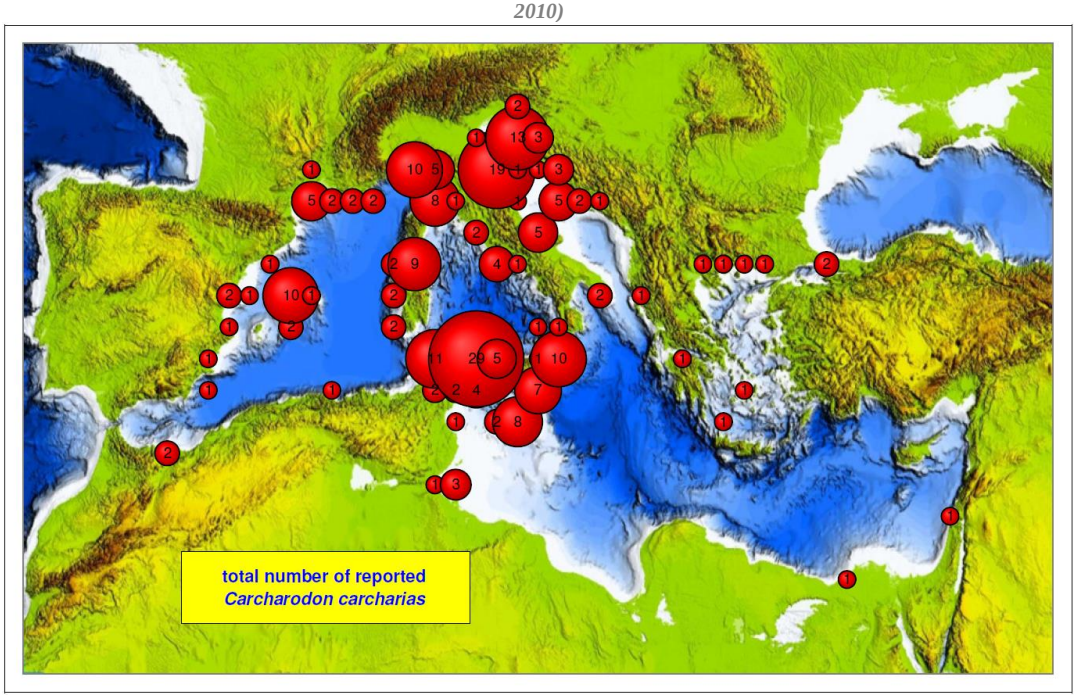


Figure 90. Vulnerable sites in the Mediterranean high seas indicating fishing activities known to occur in the area and potential impacts caused by fishing (De Juan and Lleonart, 2010)

Site	Fishing	Impact
Adventure and Malta banks	140 Trawlers from Sicily	Habitat degradation. Overexploitation of juveniles
Samothraki Plateau/Strymonikos gulf	20 Artisanal Greek trawlers and 30 industrial trawlers from other countries	Habitat degradation. Overexploitation of juveniles
Gulf of Lions slope	250 Spanish and French trawlers and gillnets	Habitat degradation. Catch of large females
Jabuka Pit	Trawling	Habitat degradation. Overexploitation of juveniles
Santa Maria di Leuca	Trawling and gillnets from Gallipoli	Habitat degradation
Nile Cold Seeps	–	Prevent future impacts
Erathostenes seamount	–	Prevent future impacts
Alboran Sea seamounts	Spanish trawlers	Habitat degradation
South of Balearic Islands	Pelagic fisheries	Fishing for tuna. Cetaceans' by-catch
North of Levantine sea	Pelagic fisheries	Fishing for tuna
Strait of Gibraltar and Alboran Sea	Pelagic long-lines, driftnets	High by-catch
Strait of Sicily	Pelagic fisheries	Fishing for tuna. High by-catch

References

Notarbartolo di Sciara G., Agardy T. (2009). Identification of potential SPAMIs in Mediterranean Areas Beyond National Jurisdiction. Contract N° 01/2008_RAC/SPA, High Seas. 70p.

De Juan, S., Lleonart, J. (2010). A conceptual framework for the protection of vulnerable habitats impacted by fishing activities in the Mediterranean high seas. Ocean & Coastal Management, Volume 53, Issue 11, November 2010, Pages 717-723, ISSN 0964-5691. doi: 10.1016/j.ocecoaman.2010.10.005

Baino, R., Barone, M., Mancusi, C., Serena, F. (2010). The MEDLEM database: 30 years of data collection non large cartilaginous fishes in the Mediterranean Sea. Transversal Expert meeting on the status of elasmobranches in the Mediterranean and Black Sea. 20-22 September 2010, Sfax, Tunisia

17. ADVENTURE BANK, SOUTHERN SICILY SEAMOUNTS AND URANIA BANK

Description and key species

Located in the strait of Sicily, between the Pantelleria Island and the Sicilian coast, it comprises 3 areas of the initial Oceana MedNet proposal (see Figure 91). They are most likely part of a system interconnected by the influence of currents, particularly the Adventure Bank Vortex (ABV). The sites included are: the Adventure Bank, the Southern Sicily Seamounts (Empedocles, Terrible Bank, the Ferdinandea and Graham Island volcanoes, Nerita Patch and the Pantelleria Shoal) and the Urania Bank. These waters are particularly important for small pelagic fisheries, although large migratory fish such as bluefin tuna (*Thunnus thynnus*) are also caught there. Various shark species such as blue sharks (*Prionace glauca*), sixgill sharks (*Hexanchus griseus*), longnose spurdog (*Squalus blainvillei*) and white sharks (*Carcharodon carcharias*) are also present, the latter being relatively abundant in the area (see Figure 92). Even the endemic and critically endangered *Leucoraja melitensis* occurs here (Serena *et al.*, 2011). The loggerhead turtle (*Caretta caretta*) is another key species which can be found here. The site is also considered as an important feeding area for seabirds (Procellariiforms). From the geological point of view, the magmatic activity due to the presence of the Ferdinandea and Graham Island undersea volcanoes is a significant aspect. Ferdinandea rises from a depth of 400 m to a height of 8 m above sea level, and was formed at the collision point of the African and European tectonic plates. Underwater volcanoes can be biodiversity hotspots as they bring up nutrients from the sea bed fostering abundance and diversity of life. In this case even colonies of cold water corals such as *Madrepora oculata* or *Lophelia pertusa* are supported. This volcanic area is also regarded as a nursery (see Figure 93 and Figure 94) for hake (*Merluccius merluccius*) one of the main commercially fished species in the Mediterranean, and is as well regarded as a priority within the GFCM framework. Essential Fish Habitats for hake (*Merluccius merluccius*), greater fork beard (*Phycis blennoides*), red mullet (*Mullus barbatus*), horned octopus (*Eledone cirrhosa*), Norway lobster (*Nephrops norvegicus*) and pink shrimp (*Parapenaeus longirostris*) have been found on Adventure bank (Garofalo *et al.*, 2011; CIESM, 2011). Benthic ecosystems have a wide variety of habitats, from the bamboo corals (*Isidella elongata*) on muddy beds to coralligenous in the shallowest areas of the Adenture bank (Garofalo *et al.*, 2002; Pipitone & Tumbiolo, 1993; Colantoni et al., 1985). Urania bank has also rocky outcrops with the presence of carnivorous sponges (*Asbestopluma hypogea*) (Aguilar *et al.*, 2011). The main threat is the fishing pressure.

Depth Range	Approx. 0-400m		
Jurisdictional status	Italy Territorial waters		
Location (centroid)	Adventure Bank Latitude: 37° 10,749' N Longitude: 12° 6,687' E	Southern Sicily Seamounts Latitude: 37° 12,034' N Longitude: 12° 50,681' E	Urania Bank Latitude: 36° 49,906' N Longitude: 13° 9,460' E
MedNet Proposal	YES		
MEOW	Ionian Sea		

KEY SPECIES	
Asbestopluma hypogea	*Lophelia pertusa*
Birds	*Madrepora oculata*
Carcharodon carcharias	*Merluccius merluccius* (nursery)
Caretta caretta	*Mullus barbatus* (spawning)
Centrophorus granulosus	*Nephrops norvegicus* (nursery)
Eledone cirrhosa (adults)	*Parapanaeus longirostris*
Eledone cirrhosa (nursery)	*Phycis blennoides* (nursery)
Hexanchus griseus	*Prionace glauca*
Illex coindetii (nursery)	Small Pelagics - habitat
Isidella elongata	*Squalus blainville*
Leucoraja melitensis	*Thunnus thynnus*

Features to be protected according CBD examples
Cold water coral reefs
Gyres
Highly migratory fish
Sea turtles
Seabirds
Seamount communities
Sharks

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity			X	
Volcanos presence				

Special importance for life-history stages of species				X
Nursery and spawning ground for certain commercial species				
Importance for threatened, endangered or declining species and/or habitats				X

spp	CITES	CMS	SPA/BD Protocol	IUCN Red List (*)
Asbestopluma hipogea			Annex II	
Carcharodon carcharias	Appendix II	Appendix II	Annex II	VU/EN (Med)
Caretta caretta	Appendix I	Appendix I	Annex II	EN
Centrophorus granulosus				VU/VU (Med)
Hexanchus griseus				NT/VU (Med)
Leucoraja melitensis			Annex II	CR/CR (Med)
Lophelia pertusa	Appendix II		Annex II	
Madrepora oculata	Appendix II		Annex II	
Merluccius merluccius				VU (Med)
Prionace glauca			Annex III	NT/VU (Med)
Thunnus thynnus			Annex III	EN/EN (Med)

Isidella elongata constitutes a essential habitat for several commercial species, reason why this facie have almost completely disappeared due to trawl fishing in many Mediterranean areas (Ardizzone *et al*, 2006)

Vulnerability, fragility, sensitivity, or slow recovery				X
Presence of Vulnerable Marine Ecosystems (cold water corals) likely supporting commercial species populations				
Biological productivity				
Biological diversity				X
Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 91. Location of Adventure Bank, Southern Sicily Seamounts and Urania Bank

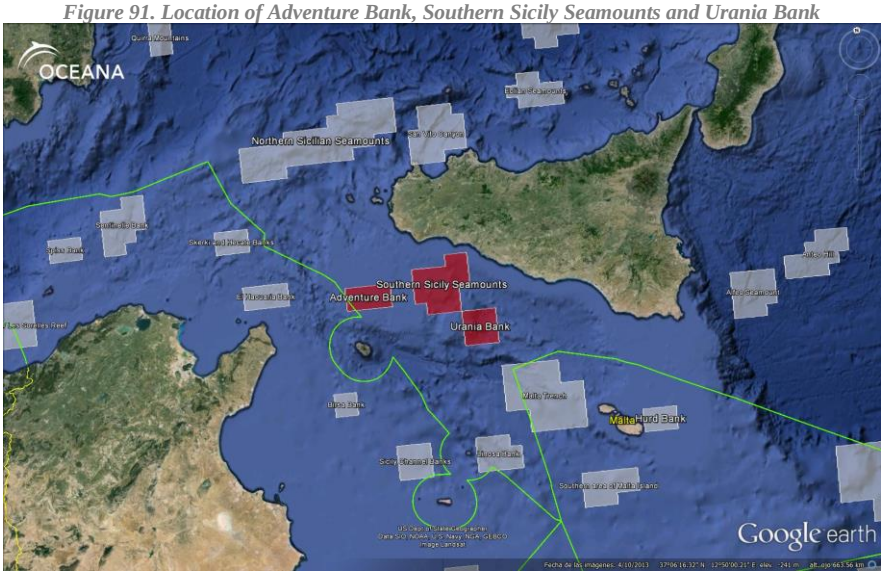


Figure 92. Spatial distribution of Chimaera monstrosa, Squalus blainville, Centrophorus granulosus and Etmopterus spinax in South Sicily (SS, yellow), Malta Island (MI, light red) and Intermediate Zone (BZ, cyan)(Ragonese et al, 2013)

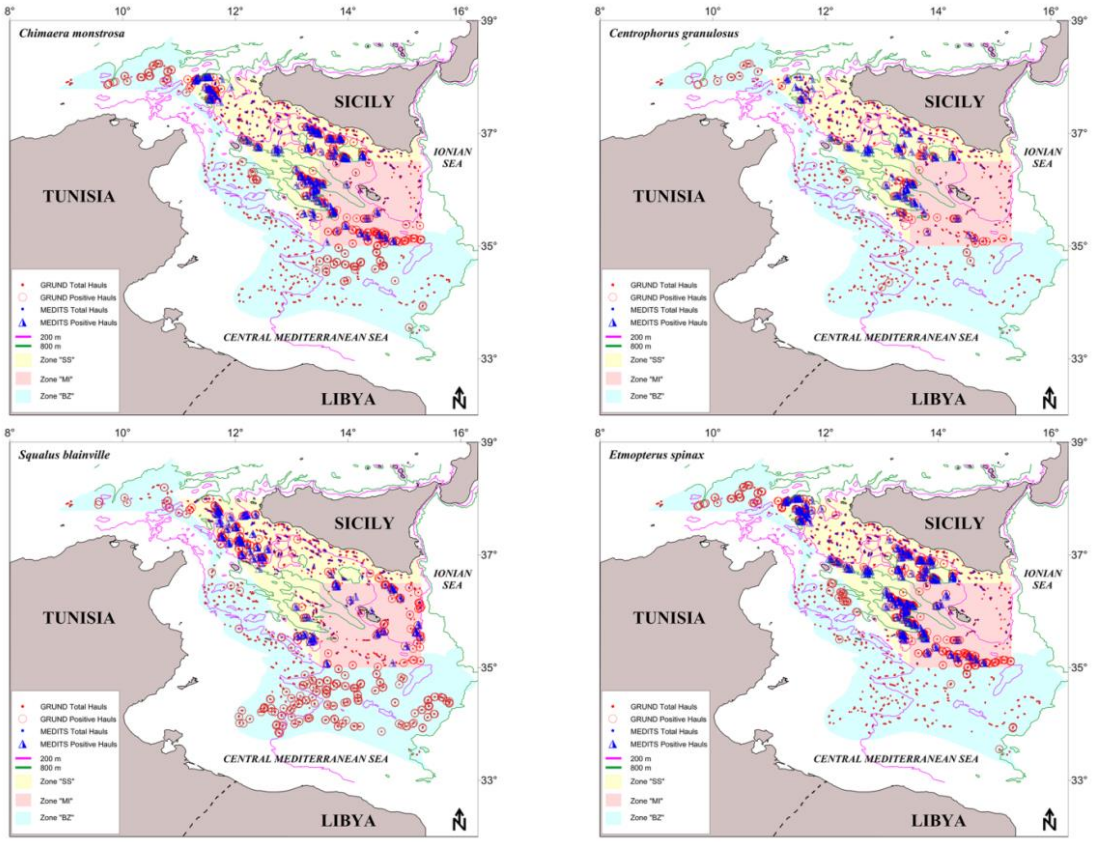


Figure 93. Mean density indices of young of the year of hake in MEDITS surveys 2002, 2003 and 2004 (late spring -early summer). Highest concentrations were found in the eastern side of Adventure and Malta Banks (Ardizzone et al, 2006).

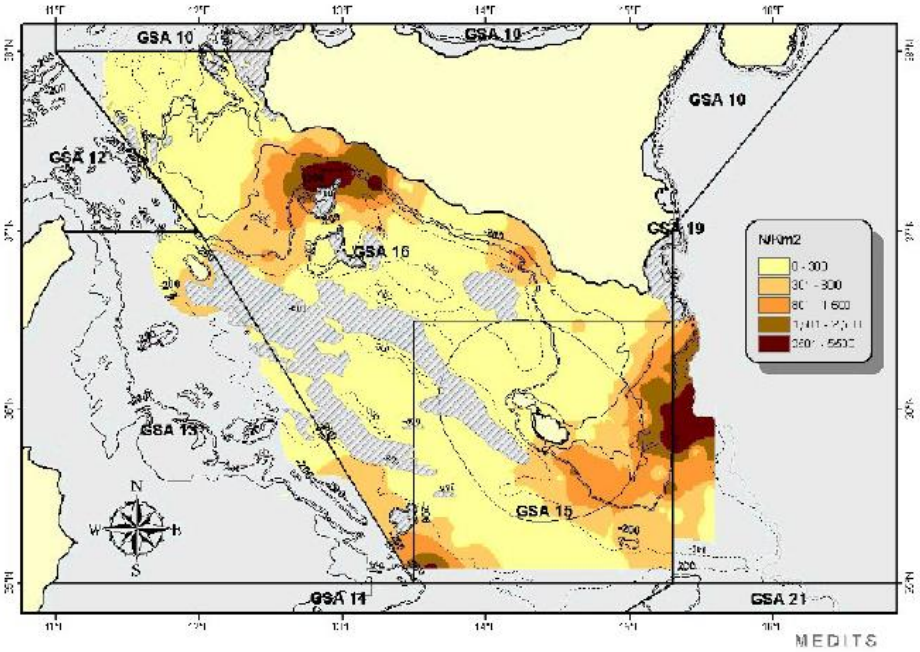
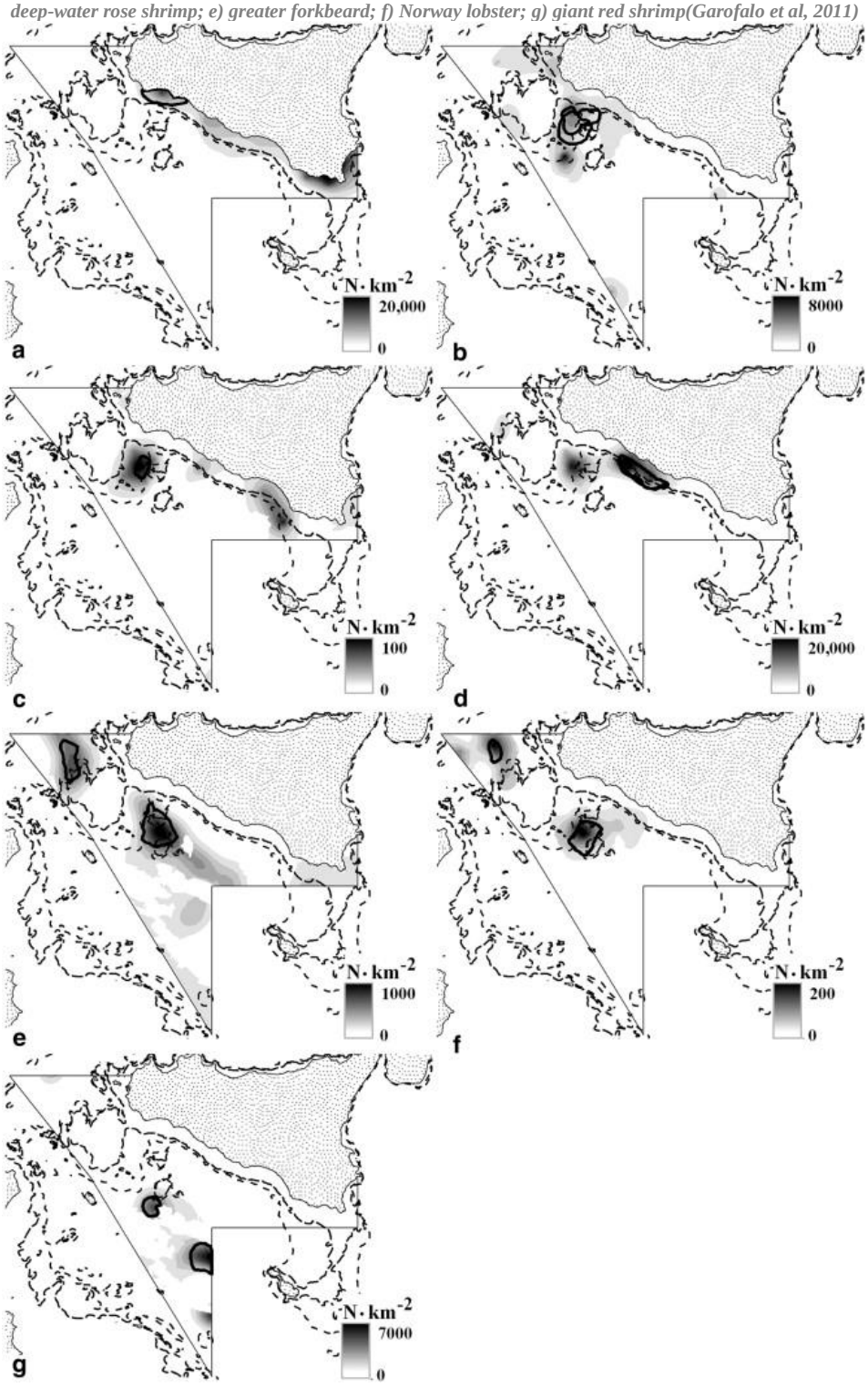


Figure 94. Examples of density maps of recruits, and persistent nurseries of: a) red mullet; b) European hake; c) horned octopus; d) deep-water rose shrimp; e) greater forkbeard; f) Norway lobster; g) giant red shrimp(Garofalo et al, 2011)



References

Ardizzone G.D. (2006). An introduction to Sensitive and Essential Fish Habitats identification and protection in the Mediterranean Sea. Working Document to the STECF/SGMED-06-01 sub-group meeting on Sensitive and Essential Fish Habitats in the Mediterranean (Rome, March 2006), 17 pp.

Aguilar R., López Correa M., Calcinai B., Pastor X., de la Torriente A. & S. Garcia (2011). First records of Asbestopluma hypogea Vacelet and Boury-Esnault, 1996 (Porifera, Demospongiae, Cladorhizidae) on seamounts and in bathyal settings of the Mediterranean Sea. In: Zootaxa

Baino R., Barone M., Mancusi C. & F. Serena (2010). The MEDLEM database: 30 years of data collectionon large cartilaginous fishes in the Mediterranean Sea. Transversal Expert meeting on the status of elasmobranches in the Mediterranean and Black Sea. 20-22 September 2010, Sfax, Tunisia

BBC (WEB). Ferdinandea: An Island That Lasted For Less Than a Year. URL: http://basementgeographer.blogspot.com/2011/07/ferdinandea-island-that-lasted-for-less.html

Beranger K., Mortier L., Gasparini G-P., Gervasio L., Astraldi M. & M. Crepon (2004). The dynamics of the Sicily Strait: a comprehensive study from observations and models, Deep Sea Research Part II: Topical Studies in Oceanography, Volume 51, Issues 4-5, The Physical Oceanography of Sea Straits, February-March 2004, Pages 411-440

Calanchi N., Colantoni P., Rossi P.L., Saitta M. & G. Serri (1989). The Strait of Sicily continental rift systems: Physiography and petrochemistry of the submarine volcanic centres, Marine Geology, Volume 87, Issue 1, Geological Aspect and Tectonic Evolution of Mediterranean Seas, May 1989, Pages 55-83, ISSN 0025-3227, DOI: 10.1016/0025-3227(89)90145-X.

CIESM (2011). Marine Peace Parks in the Mediterranean - a CIESM proposal. Nº 41 in CIESM Workshop Monographs [F. Briand Ed.], 128 pages, Monaco

Civile D., Lodolo E., Tortorici L., Lanzafame G. & G. Brancolini (2008). Relationships between magmatism and tectonics in a continental rift: The Pantelleria Island region (Sicily Channel, Italy), Marine Geology, Volume 251, Issues 1-2, 19 May 2008, Pages 32-46, ISSN 0025-3227, DOI: 10.1016/j.margeo.2008.01.009.

Colantoni P., Cremona G., Ligi M., Borsetti A.M. & F. Cati (1985). The Adventure Bank (off southwestern Sicily): a present day example of carbonate shelf sedimentation. Giornale di geologia, (ser. 3) 47 (1-2): 165-180.

Freiwald A., Beuck L., Rüggeberg A., Taviani M., Hebbeln D. & R/ V Meteor Cruise M70-1 Participants (2009). The White Coral Community in the Central Mediterranean Sea Revealed by RO V Surveys. Oceanography Vol.22 No.1

Garofalo G., Fortibuoni, T., Gristina M., Sinopoli M. & M. Fiorentino (2011). Persistence and co-occurrence of demersal nurseries in the Strait of Sicily (central Mediterranean): Implications for fishery management. Journal of Sea Research - J SEA RES, vol. 66, no. 1, pp. 29-38. doiI: 10.1016/j.seares.2011.04.008

Garofalo G., Fiorentino F., Bono G., Gancitano S. & G. Norrito (2002). Identifying spawning and nursery areas of red mullet (Mullus barbatus, L. 1758) in the Strait of Sicily. Presented as 2nd International Symposium on GIS/Spatial Analyses in Fishery and Aquatic Science 3-6 September, 2002. The University of Sussex, Brighton, UK.

Greenpeace (2009). High Seas Mediterranean Marine Reserves: a case study for the Southern Balearics and the Sicilian Channel. [PDF] URL: http://www.greenpeace.to/publications/Mediterranean-CBD-report-August-2009.pdf

Klett T.R. (2001). Total Petroleum Systems of the Pelagian Province, Tunisia, Libya, Italy, and Malta—The Bou Dabbous– Tertiary and Jurassic-Cretaceous Composite. U.S. Geological Survey Bulletin 2202-D. Version 1.0. URL: http://pubs.usgs.gov/bul/b2202-d/b2202-d.pdf

MedSudMed. (2004). Report of the Expert Consultation on the Spatial Distribution of Demersal Resources in the Straits of Sicily and the Influence of Environmental Factors and Fishery Characteristics. GCP/RER/010/ITA/MSM-TD-02. MedSudMed Technical Documents, 2: 102 pp

Notarbartolo di Sciara G. & T. Agardy (2009). Identification of potential SPAMIs in Mediterranean Areas Beyond National Jurisdiction. Contract N° 01/2008_RAC/SPA, High Seas. 70p.

Pipitone C., & M.L. Tumbiolo (1993). Decapod and stomatopod crustaceans from the trawlable bottoms of the Sicilian Channel. Crustaceana (leiden). 65(3): 358-364

Ragonese S., Vitale S., Dimech M. & S. Mazzola (2013). Abundances of Demersal Sharks and Chimaera from 1994-2009 Scientific Surveys in theCentral Mediterranean Sea. PLoS ONE 8(9): e74865. doi:10.1371/journal.pone.0074865

Serena F., Ardizzone D., Baino R., Belluscio A., Bertrand J., Carbonara P., Cau A., de Ranieri S., Dimech M., D'Onghia G., Follesa C., Garofalo G., Gil de Sola L., Giordano D., Gristina M., Mannini A., Papacostantinou C., Pasolini P., Pastorelli A.M., Relini G., Rinelli G., Sartor P., Sion L., Spedicato M.T., Tinti T & N. Ungano (2011). Considerations on the EU project - Fish/2004/03-41: Status of ray populations in the Mediterranean Sea and advice for sustainable exploitation of the stocks 2006-2008. Scientific Advisory Committee (SAC). Workshop on Stock Assessment of Selected Species of Elasmobranchs in the GFCM area Brussels (Belgium), 12 -16 December 2011.

Würtz M. (2010). Mediterranean Pelagic Habitat: Oceanographic and Biological Processes, An Overview. Gland, Switzerland and Malaga, Spain: IUCN

Zibrowius H. (2003). The "white coral community", canyon and seamount faunas of the deep Mediterranean Sea. Distribution, biological richness and interest of the « white coral » community, canyons and seamounts of the deep Mediterranean. Project for the preparation of a Strategic Action Plan for the conservation of biodiversity in the Mediterranean region (SAP-BIO). Regional Activity Centre for Specially Protected Areas

18. HURD BANK

Description and key species

The Hurd bank is the eastward undersea extension of the Malta Island (see Figure 95). It is characterized by its great biological richness and a high hydrodynamic activity (see Figure 96), as it is influenced by many currents including the Ionian shelf break Vortex (ISV). There are magmatic activity areas in nearby zones. This area is one of the main Maltese fisheries, especially for red mullet (*Mullus barbatus*) It is a spawning area for bluefin tuna (*Thunnus thynnus*) (see Figure 98) with a high relative abundance of white shark (*Carcharodon carcharias*) (see Figure 89) and sixgill shark (*Hexanchus griseus*) (see Figure 100). This is also a distribution area for basking shark (*Cetorhinus maximus*). Other key species are common dolphin (*Delphinus delphis*) and loggerhead turtle (*Caretta caretta*). It is also a feeding ground for seabirds. The main threats include overfishing, maritime traffic and banking by tankers and other very large vessels.

Sea-bottom host different substrats including deep maerl/rodolith beds and it is considered and important fisheries area, with species like *Scomber japonicus, Trachurus spp., Sarda sarda, Sardinella aurita, Engraulis encrasicolus, Boops boops, Sardina pilchardus, Sphyraena sphyraena, Mullus barbatus, Serranus cabrilla, Pagellus* spp., *Illex coindetti, Sepia* spp., *Trachinus* spp., etc.

Depth Range	Approx. 0-100m
Jurisdictional status	Malta Territorial waters
Location (centroid)	Latitude: 35° 53,941' N Longitude: 14° 45,891' E
MedNet Proposal	YES
MEOW	Ionian Sea

KEY SPECIES	
Birds - breeding	*Hexanchus griseus*
Carcharodon carcharias	LARGE PELAGICS - fisheries
Caretta caretta	Thunnus thynnus
Cetorhinus maximus	Thunnus thynnus (spawning)
Delphinus delphis	

Features to be protected according CBD examples
Gyres
Highly migratory fish
Sea turtles
Seabirds
Seamount communities
Sharks
Whales and other cetaceans

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
Special importance for life-history stages of species				X
Spawning ground for bluefin tuna				
Importance for threatened, endangered or declining species and/or habitats				X

spp	CITES	CMS	SPA/BD Protocol	IUCN Red List (*)
Carcharodon carcharias	Appendix II	Appendix II	Annex II	VU/EN (Med)
Caretta caretta	Appendix I	Appendix I	Annex II	EN
Cetorhinus maximus	Appendix II	Appendix II	Annex II	VU/VU (Med)
Delphinus delphis	Appendix II	Appendix I and II	Annex II	LC/EN (Med)
Hexanchus griseus				NT/VU (Med)
Thunnus thynnus			Annex III	EN/EN (Med)

Vulnerability, fragility, sensitivity, or slow recovery				
Biological productivity				
Biological diversity				
Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 95. Location of the Hurd bank

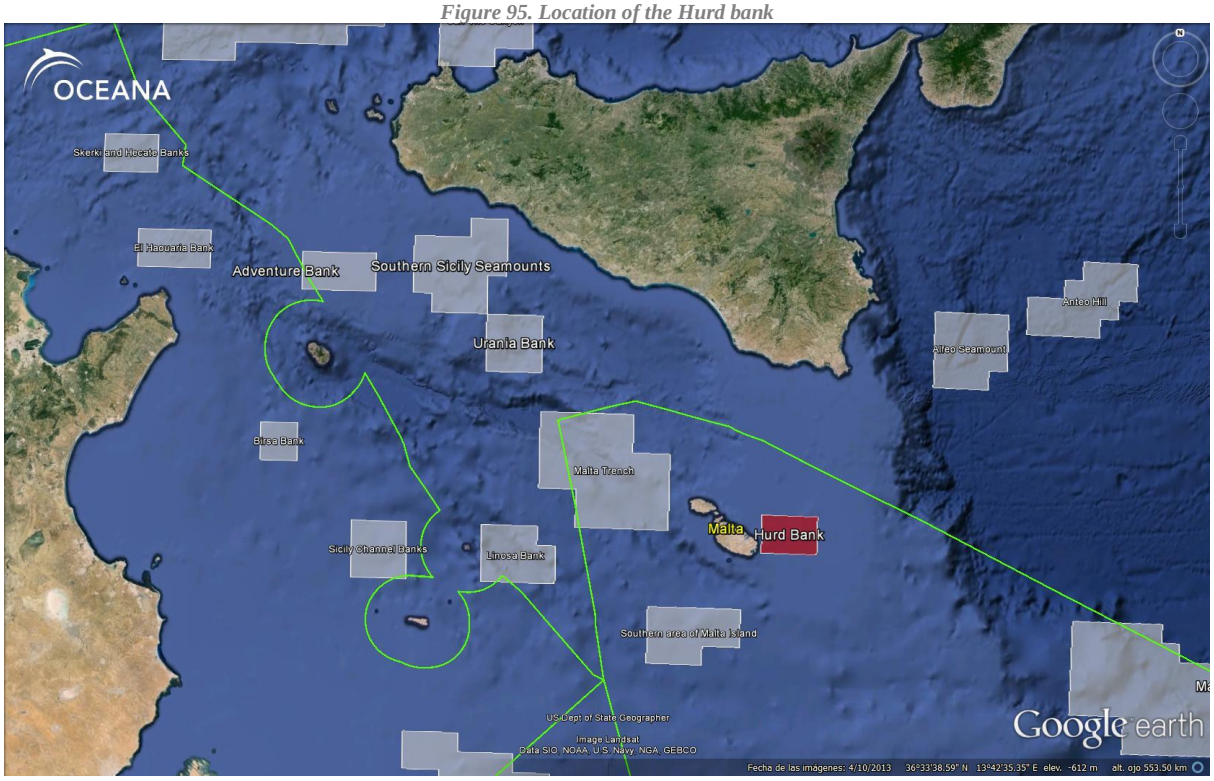


Figure 96. General circulation in the upper layer in summer and winter in the Straits of Sicily (Camilleri et al, 2008)

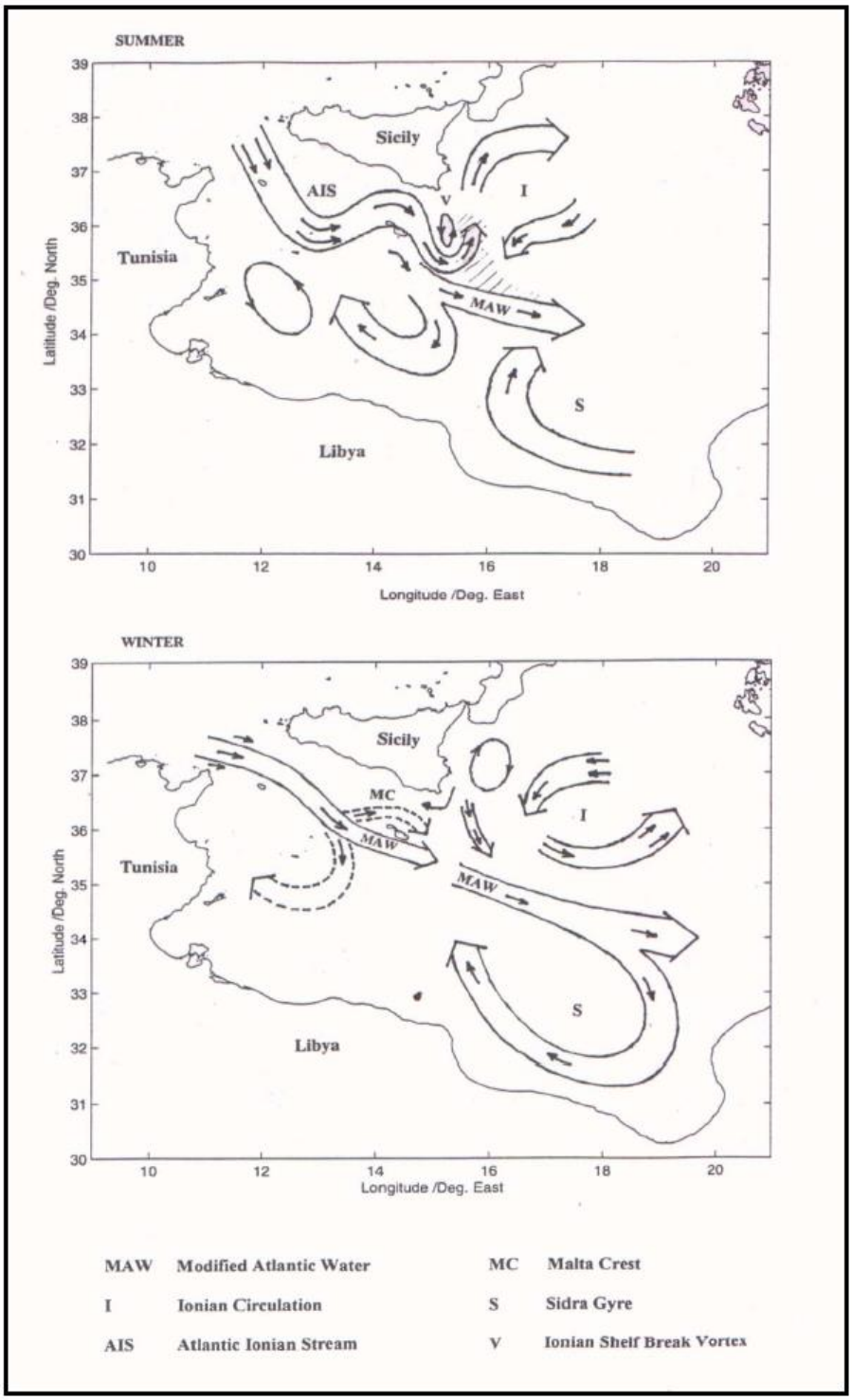


Figure 97. Stability areas of the density index of recruits and adult females of Mullus barbatus for spring and autumn ((Camilleri et al, 2008)

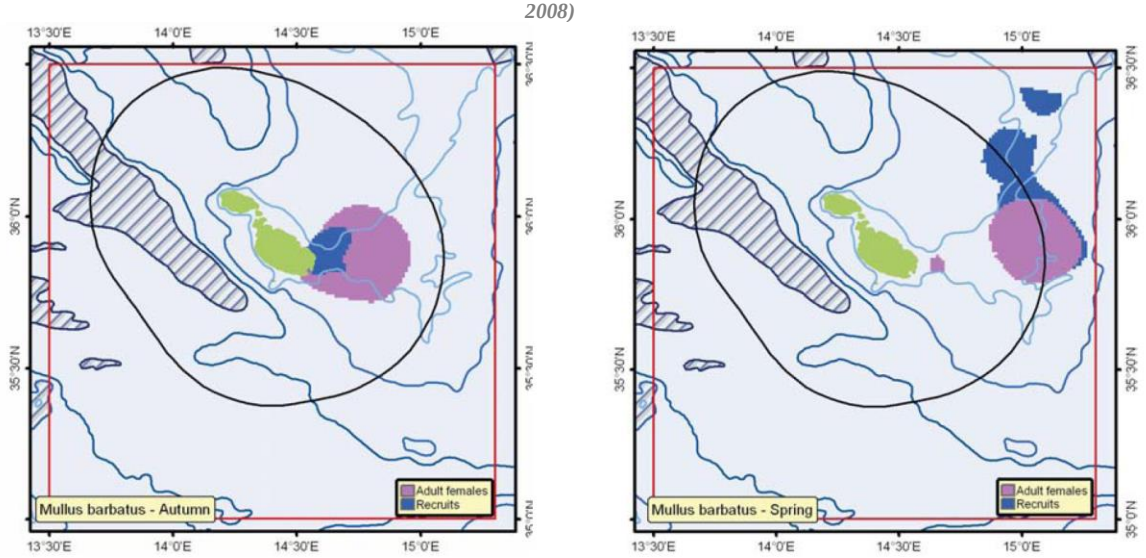


Figure 98. Spawning areas of Thunnus thynnus identified through analysis of VMS data used in the 2010 GBYP aerial survey program for surveying spawning biomass in the Mediterranean. These areas are consistent with current scientific knowledge of the main spawning locations. (ICCAT, 2010)

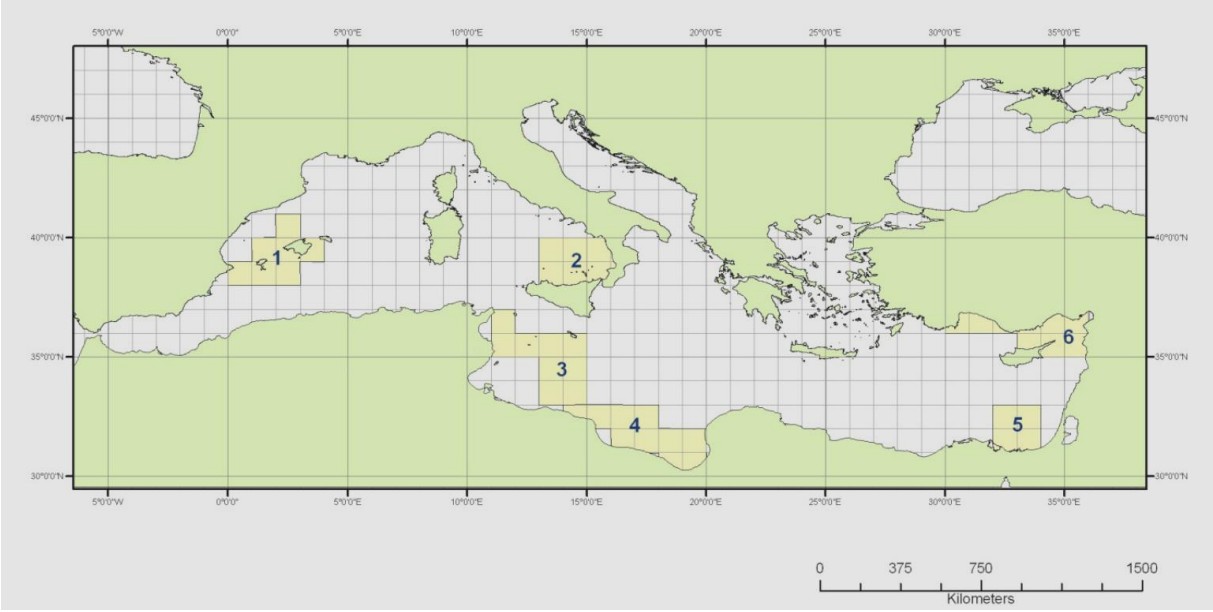


Figure 99. White shark distribution in the Mediterranean Sea. Blue intensity is proportional to the relative shark abundance. (Wurtz et al, 2010)

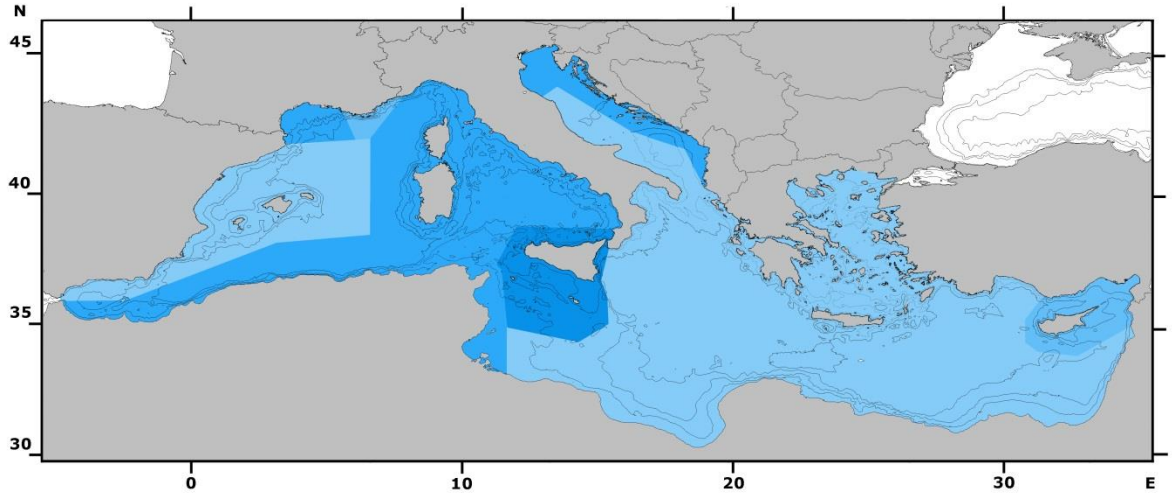
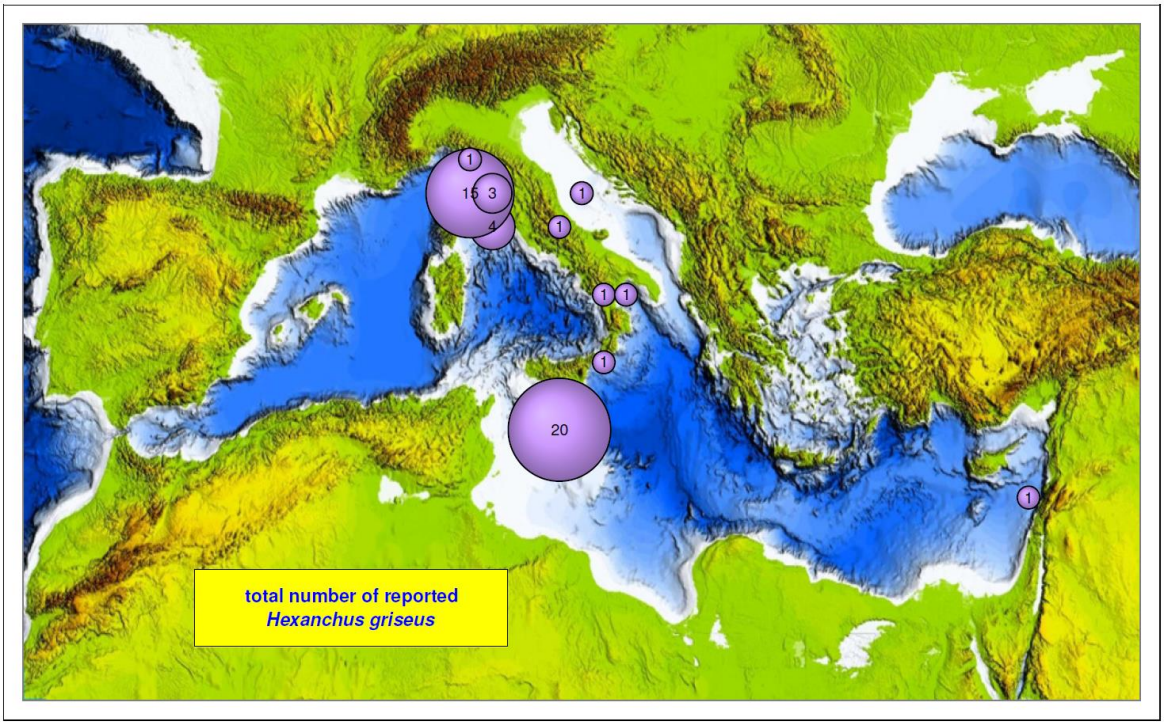


Figure 100. Geographical distribution of the bluntnose six-gill shark Hexanchus griseus recorded in the Medlem database (Baino et al, 20120)



References

Beranger K., Mortier L., Gasparini G-P., Gervasio L., Astraldi M. & M. Crepon (2004). The dynamics of the Sicily Strait: a comprehensive study from observations and models, Deep Sea Research Part II: Topical Studies in Oceanography, Volume 51, Issues 4-5, The Physical Oceanography of Sea Straits, February-March 2004, Pages 411-440

Camilleri M., Dimech M., Drago A., Fiorentino F., Fortibuoni T., Garofalo G., Gristina M., Schembri P.J., Massa F., Coppola S., Bahri T. & V. Giacalone (2008). Spatial distribution of demersal fishery resources, environmental factors and fishing activities in GSA 15 (Malta Island). GCP/RER/010/ITA/MSM-TD-13. MedSudMed Technical Documents, 13: 97 pp.

EC (2013) Malta. Fisheries Management Plan. Fisheries Control Directorate. Scientific, Technical and Economic Committee for Fsheries. European Commission. http://www.google.es/url?sa=t&rct=j&q=&esrc=s&source=web&cd=5&cad=rja&uact=8&ved=0CEsQFjAE&url=http%3A%2F%2Fstecf.jrc.ec.europa.eu%2Fdocuments%2F43805%2F595618%2FMaltas%2BFisheries%2BManagement%2BPlan%2B-%2BTrawler%2Band%2BLamapra.pdf&ei=GW0pU53RKfGb0AWYl4CIDg&usg=AFQjCNGqnvbBRE3ndTQ9ad12Sa3bHFnm8w&bvm=bv.62922401,d.bGQ

Fergusson I.K. (2000). Occurrence and biology of the Great White Shark, carcharodon carcharias, in the central Mediterranean Sea: A review. Proc. 4th Europ. Elasm. Assoc.Meet. Loorno (Italy), 2000. Vacchi M., La Mesa G., Serena F., & B. Séret, eds. ICRAM, ARPAT & SFI. 1001: 7-30

Gruppetta A. (2002). An overview of the conservative management of Maltese fisheries. In: The code of conduct for responsible fisheries and its implementation in the Mediterranean. Third APS Seminar. URL: http://www.apsbank.com.mt/filebank/documents/APSproced02.pdf

ICCAT. Anon. (2010). Report of the 2010 ICCAT Bluefin Tuna Data preparatory meeting. Madrid, Spain – June 14 to 19, 2010. International Commission for the Conservation of Atlantic Tunas

Klett T.R. (2001). Total Petroleum Systems of the Pelagian Province, Tunisia, Libya, Italy, and Malta—The Bou Dabbous– Tertiary and Jurassic-Cretaceous Composite. U.S. Geological Survey Bulletin 2202-D. Version 1.0. URL: http://pubs.usgs.gov/bul/b2202-d/b2202-d.pdf

Mancusi C., Clò S., Affronte M., Bradaï M.N., Hemida F., Serena F., Soldo A. & M. Vacchi (2005). On the presence of basking shark (Cetorhinus maximus) in the Mediterranean Sea. Cybium 2005, 29(4): 399-405.

Notarbartolo di Sciara G. & T. Agardy (2009). Identification of potential SPAMIs in Mediterranean Areas Beyond National Jurisdiction. Contract N° 01/2008_RAC/SPA, High Seas. 70p.

Würtz M. (2010). Mediterranean Pelagic Habitat: Oceanographic and Biological Processes, An Overview. Gland, Switzerland and Malaga, Spain: IUCN

19. JARRAFA TROUGH

Description and key species

This is a depression located in the outer area of the gulf of Gabes, which, together with others existing in the area (Tripolitan, Pantellaria, Linosa, Malta) form the main depressions in the Sicily strait. This region is of high geological significance, as it was a key region in the tectonic development of the Mediterranean Sea, and it is surrounded by areas with strong volcanic influences. The area is affected by the permanent Algerian current. The gulf of Gabes is one of the most significant grounds for feeding and hibernation of sea turtles (*Chelonia mydas* and *Caretta caretta*). The occurrence of fin whale (*Balaenoptera physalus*) has also been documented. This site is also a feeding ground for seabirds and harbors high relative presences of sixgill sharks (*Hexanchus griseus*) and giant devil rays (*Mobula mobular*). The westernmost area is defined as a vulnerable habitat as it lies in the migration route of large pelagic fish and is furthermore regarded as a spawning area for white shark (*Carcharodon carcharias*) and bluefin tuna (*Thunnus thynnus*). This is an area targeted by fishermen for its large pelagic fish and cephalopods; the highest fishing activity taking place during summer and one of the main threats comes from the strong fishing pressure on tuna-like populations. The high number of accidental turtle bycatch and drilling are also matters of high concern.

Depth Range	Approx. 100-200m
Jurisdictional status	Tunisia and Libya Territorial waters
Location (centroid)	Latitude: 34° 41,531' N Longitude: 13° 6,266' E
MedNet Proposal	YES
MEOW	Tunisian Plateau/Gulf of Sidra

KEY SPECIES	
Balaenoptera physalus Birds - breeding *Caretta caretta* Cephalopods *Chelonia mydas*	*Hexanchus griseus* LARGE PELAGICS - fisheries *Mobula mobular* *Thunnus thynnus*

Features to be protected according CBD examples
Highly migratory fish
Sea turtles
Seabirds
Sharks
Whales and other cetaceans

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
Special importance for life-history stages of species				
Importance for threatened, endangered or declining species and/or habitats				X

spp	CITES	CMS	SPA/BD Protocol	IUCN Red List (*)
Balaenoptera physalus	Appendix I	Appendix I and II	Annex II	EN/VU (Med)
Carcharodon carcharias				VU/EN (Med)
Caretta caretta	Appendix I	Appendix I	Annex II	EN
Chelonia mydas	Appendix I	Appendix I and II	Annex II	EN
Hexanchus griseus				NT/VU (Med)
Mobula mobular			Annex II	EN/EN (Med)
Thunnus thynnus			Annex III	EN/EN (Med)

Vulnerability, fragility, sensitivity, or slow recovery				
Biological productivity				

Biological diversity				
Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 101. Location of the Jarrafa Trough

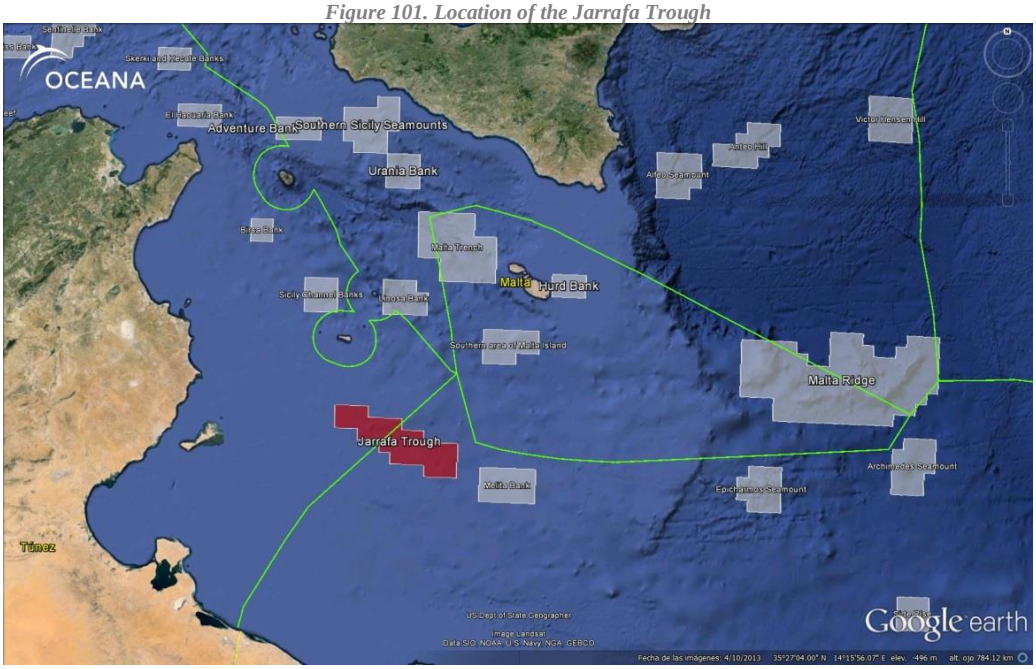
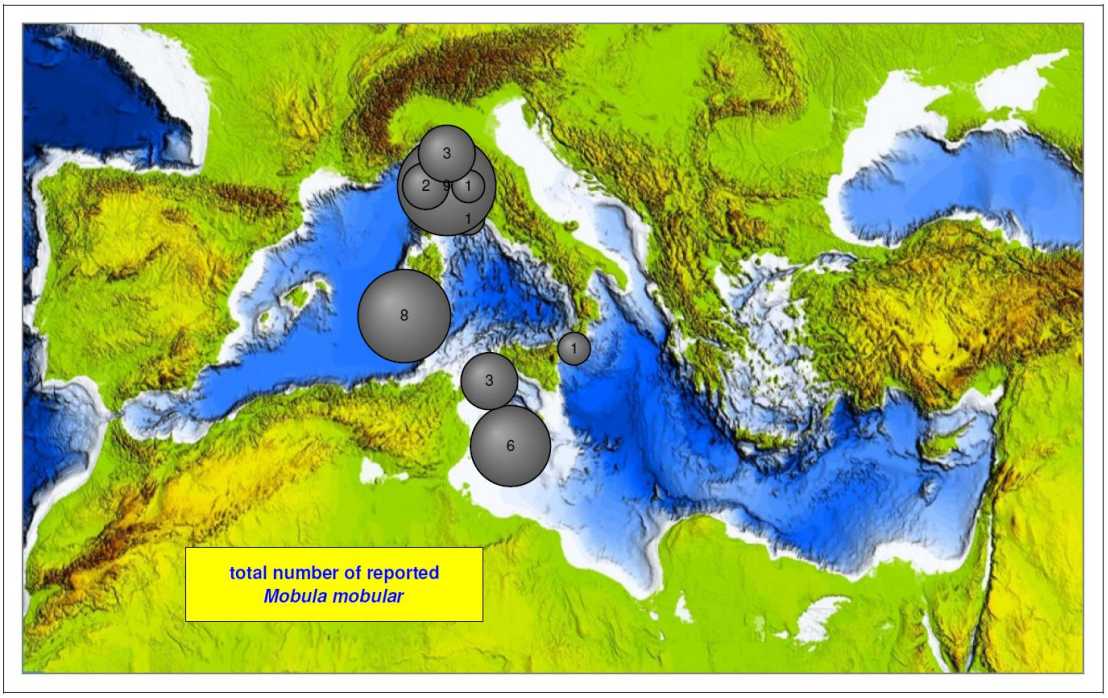


Figure 102. Geographical distribution of the devil ray Mobula mobular recorded in the Medlem database. (Baino et al, 2010)



References

Baino R., Barone M., Mancusi C. & F. Serena (2010). The MEDLEM database: 30 years of data collection on large cartilaginous fishes in the Mediterranean Sea. Transversal Expert meeting on the status of elasmobranches in the Mediterranean and Black Sea. 20-22 September 2010, Sfax, Tunisia

Blanpied, C., Bellaiche, G. (1983). The Jarrafa Trough (Pelagian Sea): Structural evolution and tectonic significance, Marine Geology, Volume 52, Issues 1-2, June 1983, Pages M1-M10, ISSN 0025-3227, doi: 10.1016/0025-3227(83)90013-0.

Burollet, P.F. (1981). The Pelagian Sea east of Tunisia: Bioclastic deposition under temperate climate. In: M.B. Cita and W.B.F. Ryan (Editors), Carbonate Platforms of the Passive-Type Continental Margins, Present and Past. Mar. Geol., 44: 157-170.

Echwikhi K., Jribi I., Bradai M.N. & A. Bouain (2010). Effect of type of bait on pelagic longline fishery–loggerhead turtle interactions in the Gulf of Gabes (Tunisia). Aquatic Conserv: Mar. Freshw. Ecosyst. 20: 525–530. DOI: 10.1002/aqc.1120

Gerosa G. & P. Casale (1999). Interaction of Marine Turtles with Fisheries in the Mediterranean. Marine Turtle Newsletter 94:19-21. 59 pp. UNEP; Regional Activity Centre for Specially Protected Areas (RAC/SPA); Tunis, Tunisia. ISBN : 9973-9926-6-0

ICCAT. Anon. 2010. Report of the 2010 ICCAT Bluefin Tuna Data preparatory meeting. Madrid, Spain – June 14 to 19, 2010. International Commission for the Conservation of Atlantic Tunas

Jongsma D., Van Hinte J.E. & J.M. Woodside (1985). Geologic structure and neotectonics of the North African Continental Margin south of Sicily. Marine and Petroleum Geology, 1985, Vol 2, May

Klett T.R. (2001). Total Petroleum Systems of the Pelagian Province, Tunisia, Libya, Italy, and Malta—The Bou Dabbous– Tertiary and Jurassic-Cretaceous Composite. U.S. Geological Survey Bulletin 2202-D. Version 1.0. URL: http://pubs.usgs.gov/bul/b2202-d/b2202-d.pdf

Notarbartolo di Sciara G. & T. Agardy (2009). Identification of potential SPAMIs in Mediterranean Areas Beyond National Jurisdiction. Contract N° 01/2008_RAC/SPA, High Seas. 70p.

MedSudMed. (2004). Report of the Expert Consultation on the Spatial Distribution of Demersal Resources in the Straits of Sicily and the Influence of Environmental Factors and Fishery Characteristics. GCP/RER/010/ITA/MSM-TD-02. MedSudMed Technical Documents, 2: 102 pp.

20. GUITARFISH NURSERY IN THE GULF OF GABES

Description and key species

This information is based on a presentation during the last GFCM-SCMEE meeting (February 2014).on the longline fisheries in the Gulf of Gabès The abundance of elasmobranchs in catches suggests that these species find favorable conditions to reproduce in the area. The presence of neonates, pregnant post-partum and ovulating females indicates that the area is a pupping or a primary nursery.

The area has extreme significance because of the presence of guitarfish (*Rhinobatos cemiculus* and *Rhinobatos rhinobatos*) and bycatch over these species when longline fleet is targeting swordfish (*Xiphias gladius*). Particular concern about *Rhinobatos rhinobatos* population, since which was common and now virtually extirpated from northern Mediterranean. Both species have been threatened by overfishing (now listed under Annex II, SPA/BD Protocol) and also because of degradation of shallow inshore habitats.

Depth Range	Approx. 20-100m
Jurisdictional status	Tunisia and LibyaTerritorial waters
Location (centroid)	See Figure 103
MedNet Proposal	NO
MEOW	Tunisian Plateau/Gulf of Sidra

KEY SPECIES
Rhinobatos cemiculus
Rhinobatos rhinobatos
Xiphias gladius

Features to be protected according CBD examples
Highly migratory fish
Sharks

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
Special importance for life-history stages of species	X			
The area maybe a nursery for sharks				
Importance for threatened, endangered or declining species and/or habitats				X

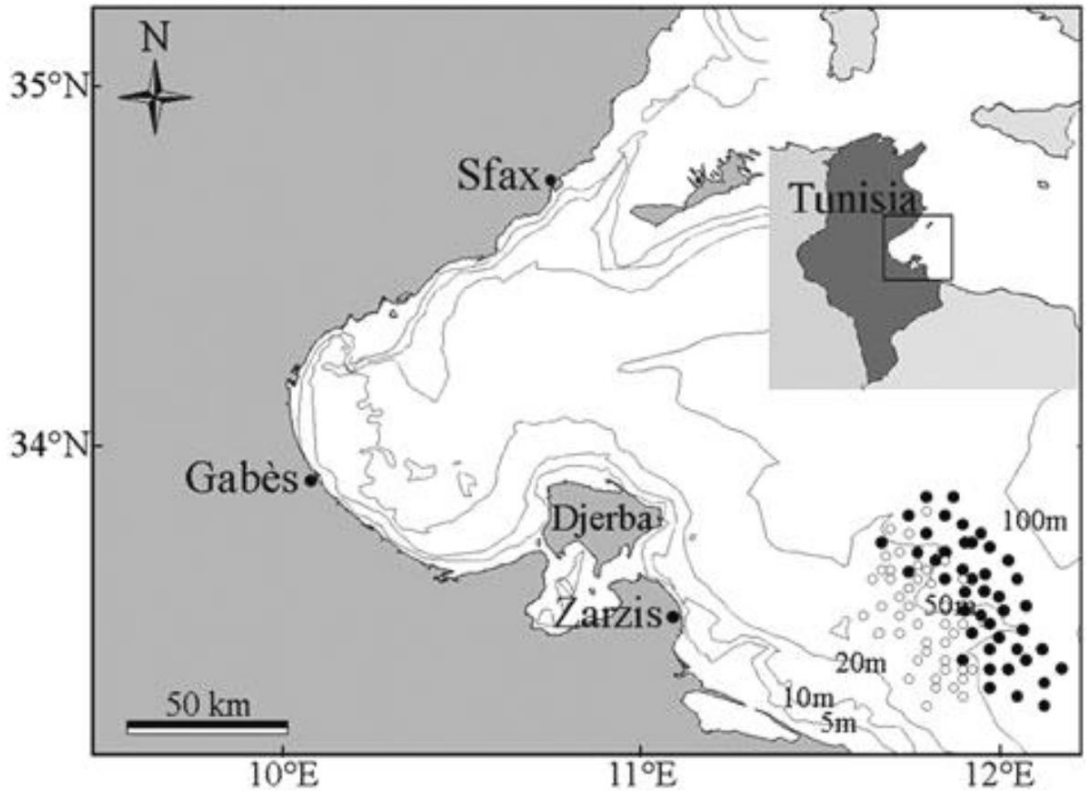
spp	CITES	CMS	SPA/BD Protocol	IUCN Red List (*)
Rhinobatos cemiculus			Annex II	EN/EN (Med)
Rhinobatos rhinobatos			Annex II	EN/EN (Med)
Xiphias gladius			Annex III	NT (Med)

Vulnerability, fragility, sensitivity, or slow recovery				
Biological productivity				
Biological diversity				
Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 103. Location



References

Echwikhi K., Saidi B. & M.N. Bradai (2014). Elasmobranchs longline fisheries in the Gulf of Gabès. Presentation to the 14th Session of the Subcommittee on Marine Environment and Ecosystems (GFCM-SAC) URL: https://gfcmsitestorage.blob.core.windows.net/documents/SAC/SCMEE/14/PPT/Gulf_of_Gabes_elasmobranchs_SCMEE2014.pdf

Notarbartolo di Sciara G., Bradai M.N., Morey G., Marshall A.D., Compagno L.J.V., Mouni A., Hicham M., Bucal D., Dulvy N., Heenan A. & Rui Coelho (2007). Rhinobatos rhinobatos. In: IUCN 2013. IUCN Red List of Threatened Species. Version 2013.2. <www.iucnredlist.org>. Downloaded on 10 March 2014. http://www.iucnredlist.org/details/63131/0

21. MALTA RIDGE

Description and key species

It is one of the main mountain ranges of the central Mediterranean. It comprises several seamounts and is a volcanic activity area. In its waters such significant species as Cuvier's beaked whale (*Ziphius cavirostris*), sperm whale (*Physeter macrocephalus*), loggerhead turtle (*Caretta caretta*) and bluefin tuna (*Thunnus thynnus*) can be found. The oceanographic features of these seamounts are very significant, as they create strong upwellings which make the area rich in cephalopods, clupeids and scombriforms (egg and larvae). Possibly for this reason, this is an important feeding ground for seabirds, and is probably frequented by cetaceans. The biological richness of this area might be threatened by future gas and oil prospections.

Depth Range	Approx. 500-4000m
Jurisdictional status	Malta and Italy Territorial waters
Location (centroid)	Latitude: 35° 4,304' N Longitude: 17° 23,867' E
MedNet Proposal	YES
MEOW	Ionian Sea and Tunisian Plateau/Gulf of Sidra

KEY SPECIES	
Birds – breeding area	*Thunnus thynnus*
Caretta caretta	*Ziphius cavirostris*
Cephalopods	
Clupeid (egg & larvae)	
Physeter macrocephalus	
Scombriform (egg & larvae)	

Features to be protected according CBD examples
Gyres
Highly migratory fish
Sea turtles
Seabirds
Seamount communities
Whales and other cetaceans

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
Special importance for life-history stages of species			X	
Spawning area for fishing commercial species (clupeids and scombriforms)				
Importance for threatened, endangered or declining species and/or habitats				X

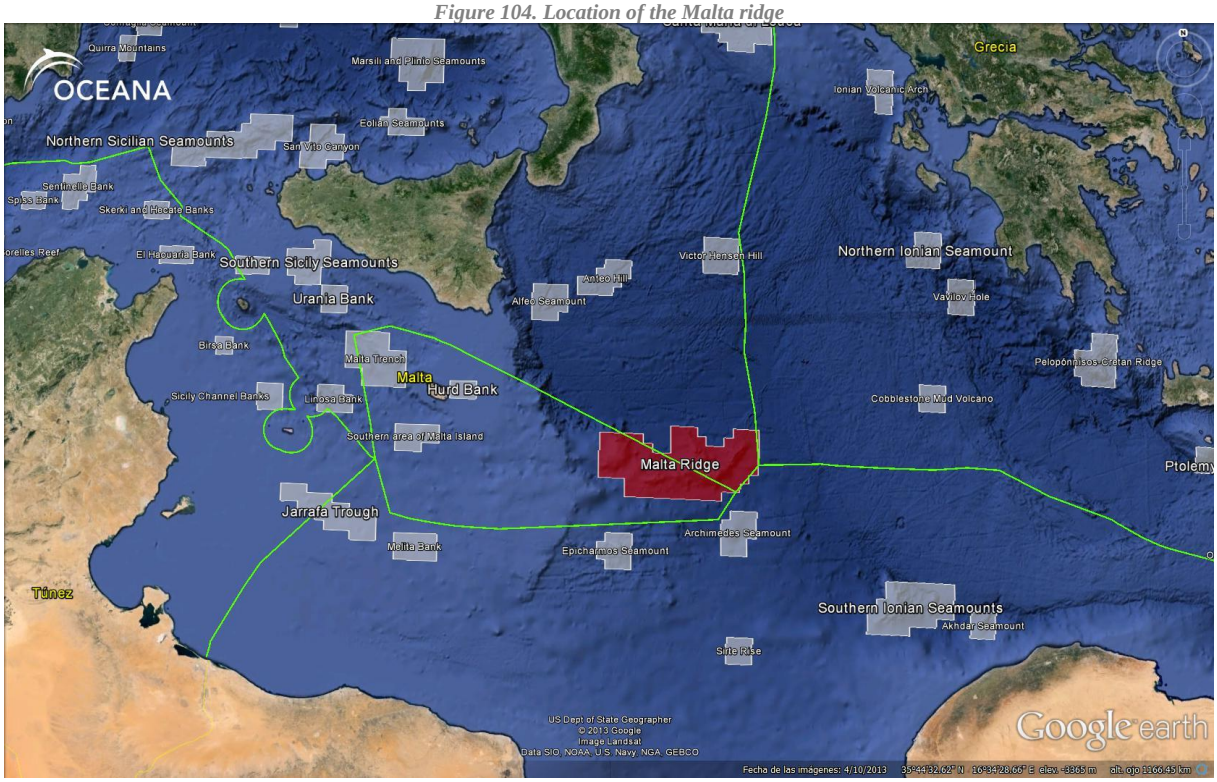
spp	**CITES**	**CMS**	**SPA/BD Protocol**	**IUCN Red List (*)**
Caretta caretta	Appendix I	Appendix I	Annex II	EN
Physeter macrocephalus	Appendix I	Appendix I and II	Annex II	VU/EN (Med)
Thunnus thynnus			Annex III	EN/EN (Med)
Ziphius cavirostris	Appendix II		Annex II	LC

Vulnerability, fragility, sensitivity, or slow recovery				
Biological productivity				
Biological diversity				
Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 104. Location of the Malta ridge



References

Jongsma D., Woodside J.M., King G.C.P. & J.E. van Hinte (1987). The Medina Wrench: a key to the kinematics of the central and eastern Mediterranean over the past 5 Ma, Earth and Planetary Science Letters, Volume 82, Issues 1-2, March 1987, Pages 87-106, ISSN 0012-821X, DOI: 10.1016/0012-821X(87)90109-9.

Klett T.R. (2001). Total Petroleum Systems of the Pelagian Province, Tunisia, Libya, Italy, and Malta—The Bou Dabbous– Tertiary and Jurassic-Cretaceous Composite. U.S. Geological Survey Bulletin 2202-D. Version 1.0. URL: http://pubs.usgs.gov/bul/b2202-d/b2202-d.pdf

Notarbartolo di Sciara G. & T. Agardy (2009). Identification of potential SPAMIs in Mediterranean Areas Beyond National Jurisdiction. Contract N° 01/2008_RAC/SPA, High Seas. 70p.

22. NORTHERN ADRIATIC

Description and key species

This is the deepest zone in the north Adriatic Sea, between the Italian coast of Pescara and the Croatian coast of Šibenik (see Figure 105). This area is characterized by the presence of several shark species (see Figure 106): porbeagle (*Lamna nasus*), smooth hammerhead (*Sphyrna zygaena*), shortfin mako (*Isurus oxyrinchus*), basking shark (*Cetorhinus maximus*), blue shark (*Prionace glauca*) and white shark (*Carcharodon carcharias*). Furthermore, other sites within the area are considered as nurseries for threatened shark species such as blue shark and porbeagle. In the late 40s, this area used to be rich in elasmobranches species. Since then, the populations of such species have been dramatically depleted in the Adriatic Sea. It covers a distribution area for loggerhead turtle (*Caretta caretta*), and is also a fishing area for large pelagic fish. Regarding benthic species, several types of corals can be found (Scleractinia and Actiniaria). It is considered an Essential Fish Habitat (EFH): nursery for commercial species and spawning area for hake (*Merluccius merluccius*). The main threats come from the overexploitation of juvenile fish, bottom trawling or accidental catches among others.

Depth Range	Approx. 100-250 m
Jurisdictional status	Italy and Croatia Territorial waters
Location (centroid)	Latitude: 43° 6,620' N Longitude: 15° 3,523' E
MedNet Proposal	YES
MEOW	Adriatic Sea

KEY SPECIES	
Actiniaria (Hexacoral)	Large Pelagics - fisheries
Carcharodon carcharias	*Merluccius merluccius*
Caretta caretta	*Prionace glauca*
Cetorhinus maximus	Scleractinia (Hexacoral)
Isurus oxyrinchus	*Sphyrna zygaena*
Lamna nasus	

Features to be protected according CBD examples
Coral, sponge and bryozoan aggregations
Sea turtles
Sharks

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
Special importance for life-history stages of species				
Nursery for commercial species and spawning area for hake				
Importance for threatened, endangered or declining species and/or habitats				X

spp	CITES	CMS	SPA/BD Protocol	IUCN Red List (*)
Carcharodon carcharias	Appendix II	Appendix II	Annex II	VU/EN (Med)
Caretta caretta	Appendix I	Appendix I	Annex II	EN
Cetorhinus maximus	Appendix II	Appendix II	Annex II	VU/VU (Med)
Isurus oxyrinchus		Appendix II	Annex II	VU/CR (Med)
Lamna nasus	Appendice II	Appendix II	Annex II	VU/CR (Med)
Merluccius merluccius				VU (Med)
Prionace glauca			Annex III	NT/VU (Med)
Sphyrna zygaena	Appendice II		Annex II	VU/VU (Med)

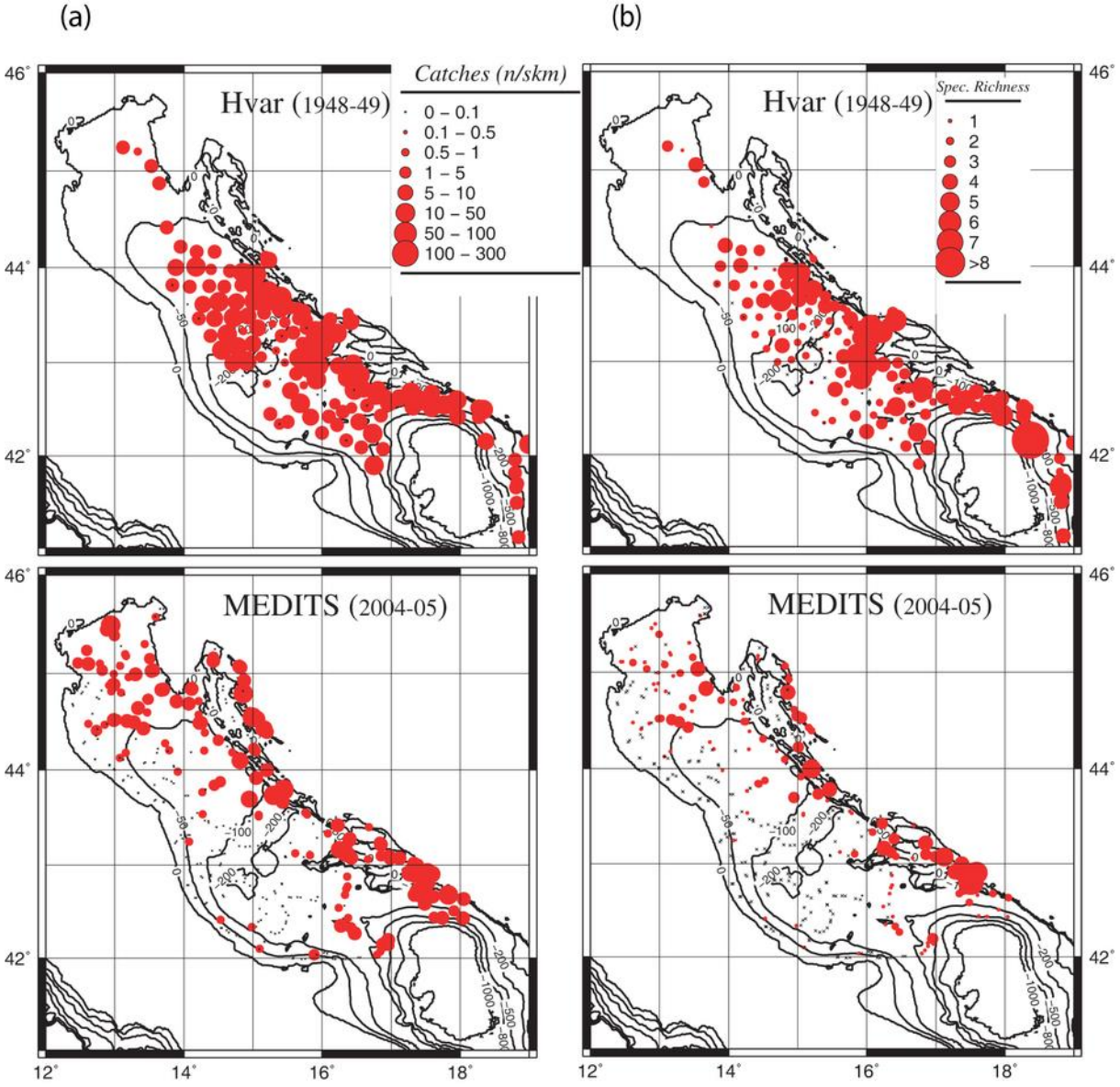
Vulnerability, fragility, sensitivity, or slow recovery				X
Corals occurrence				
Biological productivity				
Biological diversity				
Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 105. Location of Northern Adriatic site

Figure 106. (a) unstandardized CPUEs, and (b) species richness. For MEDITS we selected only the last two years of the series (2004–05) for a balanced temporal comparison. Crosses are tows with no elasmobranchs (Ferretti et al, 2013)



References

Artegiani A., Bregant D., Paschini E., Pinardi N., Raicich F. & A. Russo (1997). The Adriatic Sea General Circulation. Part II: Baroclinic Circulation Structure. Journal of Physical Oceanography. Volume 27 pp. 1515-1532

Baino R., Barone M., Mancusi C. & F. Serena (2010). The MEDLEM database: 30 years of data collection on large cartilaginous fishes in the Mediterranean Sea. Transversal Expert meeting on the status of elasmobranches in the Mediterranean and Black Sea. 20-22 September 2010, Sfax, Tunisia

Başusta N., Keskin Ç., Serena F. & B. Seret (Eds.) (2006). The Proceedings of the Workshop on Mediterranean Cartilaginous Fish with Emphasis on Southern and Eastern Mediterranean. Turkish Marine Research Foundation. Istanbul- TURKEY. Publication Number: 23

Casale P., Laurent L. & G. De Metrio (2004). Incidental capture of marine turtles by the Italian trawl fishery in the north Adriatic Sea. Biological Conservation, 119 (3), pp. 287-295

De Maddalena A. (2000). Historical and contemporary presence of the Great White Shark, Carcharodon carcharias (Linnaeus, 1758), in the Nothern and Central Adriatic Sea. ANNALES. Ser.hist.nat. 10 (2000) 1 (19) pp.3-18

Ferretti F., Osio G.C., Jenkinss, C.J., Rosenberg A.A. & H.K. Lotze (2013). Long-term change in a meso-predator community in response to prolonged and heterogeneous human impact. Scientific Reports 3, Article number: 1057. doi:10.1038/srep01057

Gerosa G. & P. Casale (1999). Interaction of Marine Turtles with Fisheries in the Mediterranean. Marine Turtle Newsletter 94:19-21. 59 pp. UNEP; Regional Activity Centre for Specially Protected Areas (RAC/SPA); Tunis, Tunisia. ISBN : 9973-9926-6-0

Kruzic P., Zibrowius H. & A. Pozar-Domac (2002). Actiniaria and Scleractinia (Cnidaria, Anthozoa) from the Adriatic Sea: First records, confirmed occurrences and significant range extensions of certain species. Italian Journal of Zoology 69:345-53.

Lazar B., Maslov L., Romanic S.H., Gracan R., Krauthacker B., Holcer D. & N. Tvrtkovic (2011). Accumulation of organochlorine contaminants in loggerhead sea turtles, Caretta caretta, from the eastern Adriatic Sea, Chemosphere, Volume 82, Issue 1, January 2011, Pages 121-129, ISSN 0045-6535, DOI: 10.1016/j.chemosphere.2010.09.015.

Mancusi C., Clò S., Affronte M., Bradaï M.N., Hemida F., Serena F., Soldo A. & M. Vacchi (2005). On the presence of basking shark (Cetorhinus maximus) in the Mediterranean Sea. Cybium 2005, 29(4): 399-405.

Megalofonou P., Yannopoulos C., Damalas D., De Metrio G. & M. Deflorio (2005). Incidental catch and estimated discards of pelagic sharks from the swordfish and tuna fisheries in the Mediterranean Sea. Fish. Bull., 103, 620–634.

Notarbartolo di Sciara G. & T. Agardy (2009). Identification of potential SPAMIs in Mediterranean Areas Beyond National Jurisdiction. Contract N° 01/2008_RAC/SPA, High Seas. 70p.

Würtz M. (2010). Mediterranean Pelagic Habitat: Oceanographic and Biological Processes, An Overview. Gland, Switzerland and Malaga, Spain: IUCN

23. BARI CANYON

Description and key species

The Bari Canyon plays an important role in the dynamics of the Adriatic Sea as it works as the main channel in the transport of sediments between the western Adriatic shelf and the southern basin. It is part of a sediment conduit from the Po River into the southern Adriatic basin and it is generally assumed to play an important role in dense water sinking and sediment transfer to the deep Adriatic basin (see Figure 109). In the area we can find a swordfish (*Xiphias gladius*) longline surface fishery with associated catches of blue shark (*Prionace glauca*). On the benthos, species of deep sea corals, cold water corals (*Lophelia pertusa* and *Madrepora oculata*), stony corals as *Desmophyllum dianthus* and *Stenocyathus vermiformis* and the yellow coral *Dendrophyllia cornigera* (see Figure 108) have been documented (Freiwald *et al.* 2009). Deep-sea sponge aggregations (*Pachastrella monilifera* and *Poecillastra compressa*) represent important biodiversity reservoirs and contribute to the trophic recycling of organic matter (see Figure 110). The main threats they face are bottom trawling and bycatch.

Depth Range	Approx. 100-1000m
Jurisdictional status	Italy Territorial waters
Location (centroid)	Latitude: 41° 17,256' N Longitude: 17° 15,141' E
MedNet Proposal	YES
MEOW	Adriatic Sea

KEY SPECIES	
Dendrophyllia cornigera	*Xiphias gladius*
Lophelia pertusa	
Madrepora oculata	
Prionace glauca	

Features to be protected according CBD examples
Canyons
Cold water coral reefs
Coral, sponge and bryozoan aggregations
Sharks

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
Special importance for life-history stages of species				
Importance for threatened, endangered or declining species and/or habitats				X

spp	**CITES**	**CMS**	**SPA/BD Protocol**	**IUCN Red List (*)**
Dendrophyllia cornigera	Appendix II			
Lophelia pertusa	Appendix II		Annex II	
Madrepora oculata	Appendix II			
Madrepora oculata	Appendix II		Annex II	
Prionace glauca			Annex III	NT/VU (Med)
Xiphias gladius			Annex III	NT (Med)

Vulnerability, fragility, sensitivity, or slow recovery					X
Occurrence of corals and sponge gardens					
Biological productivity					
Biological diversity					
Naturalness					

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN);

Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 107. Location of the Bari canyon

Figure 108. Occurrences of live white coral communities in the Mediterranean Sea according to Freiwald et al (2009)

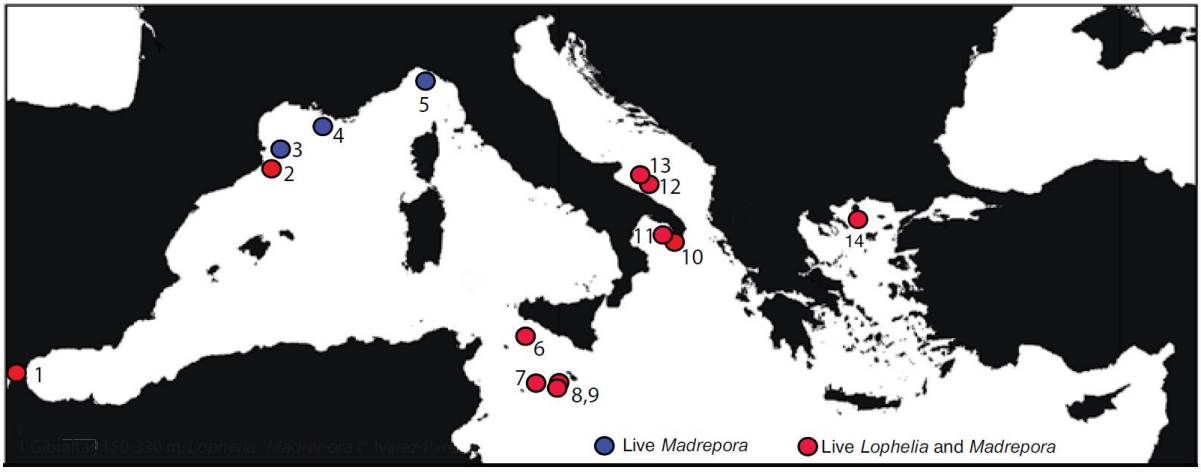


Figure 109. (A) Schematic reconstruction of regional intermediate- and bottom-water circulation patterns in the Adriatic basin. Thin blue arrows: Area of dense shelf water formation. Thick blue arrows: North Adriatic Dense Water flow. Red arrows: Levantine Intermediate Water flow. (B–C) Emergence of the Adriatic shelf during the Last Glacial Maximum in cross section and in plan view. (D–

E) Hydrological sections across the Bari margin showing the near-bottom location of the densest and coldest water mass (Canalas et al, 2009).

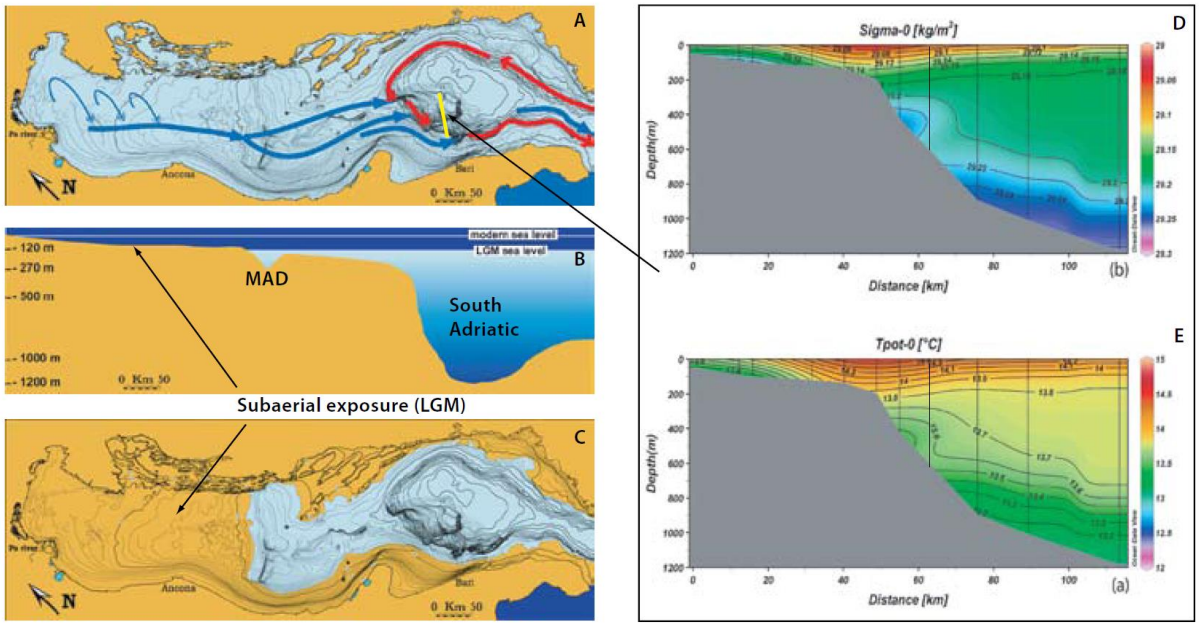
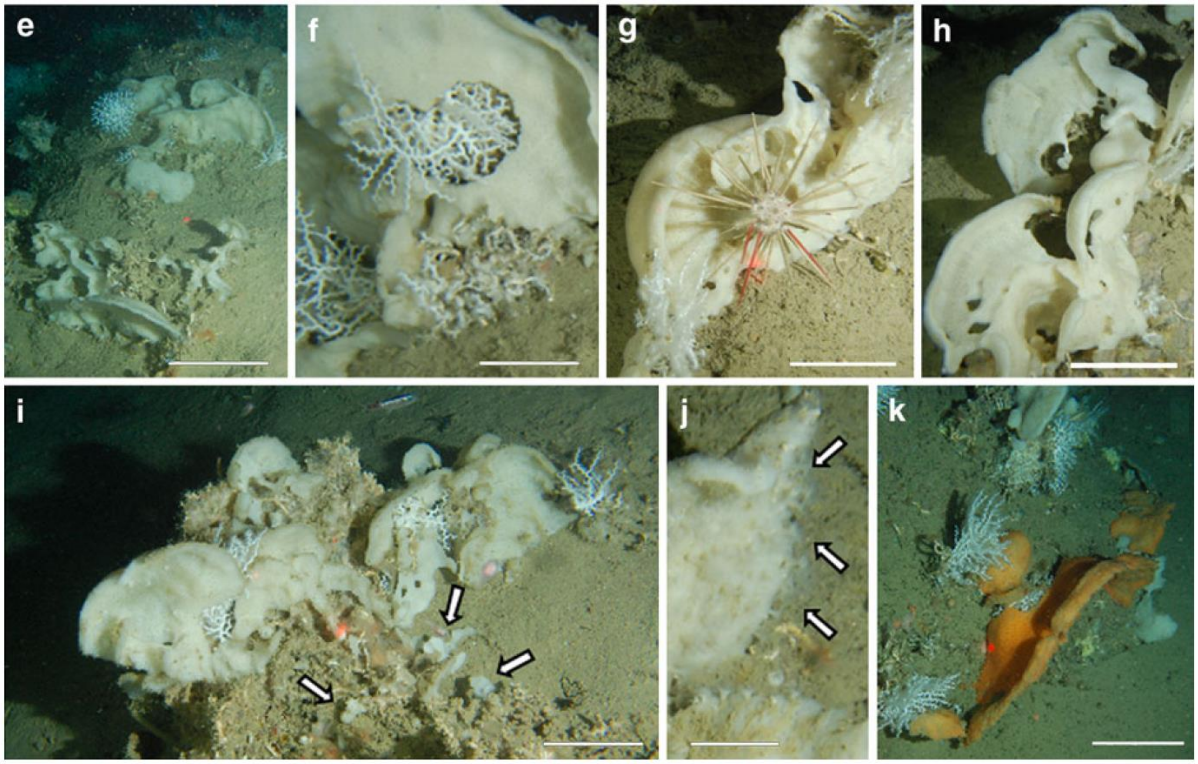


Figure 110. Sponge assemblages in the Bari canyon (Bo et al, 2012)



References

Artegiani A., Bregant D., Paschini E., Pinardi N., Raicich F. & A. Russo (1997). The Adriatic Sea General Circulation. Part II: Baroclinic Circulation Structure. Journal of Physical Oceanography. Volume 27 pp. 1515-1532

Bianchelli S., Gambi C. , Pusceddu A. & R. Danovaro (2008). Trophic conditions and meiofaunal assemblages in the Bari Canyon and the adjacent open slope (Adriatic Sea). Chemistry and Ecology, 24: 1, 101-109

Bo M., Bertolino M., Bavestrello G., Canese S., Giusti M., Angiolillo M., Pansini M. & M. Taviani (2012). Role of deep sponge grounds in the Mediterranean Sea: a case study in southern Italy. Hydrobiologia 687(1): 163-177, 2012.

Canals M., Danovaro R., Heussner S., Lykousis V., Puig P., Trincardi F., Calafat A.M., Durrieu de Madron X., Palanques A. & A. Sànchez-Vidal (2009). Cascades in Mediterranean submarine grand canyons. Oceanography, 22(1): 26-43

Casale P., Laurent L. & G. De Metrio (2004). Incidental capture of marine turtles by the Italian trawl fishery in the north Adriatic Sea. Biological Conservation, 119 (3), pp. 287-295

Freiwald A., Beuck L., Rüggeberg A., Taviani M., Hebbeln D. & R/ V Meteor Cruise M70-1 Participants (2009). The White Coral Community in the Central Mediterranean Sea Revealed by RO V Surveys. Oceanography Vol.22 No.1

Langone L., Conese I., Miserocchi S., Boldrin A. & M. Turchetto (2013). Particle transport down to the Bari canyon (Southern Adriatic): processes involved in transferring particulate matter to the deep basin. Geophysical Research Abstracts. Vol. 15, EGU2013-10241, 2013. EGU General Assembly 2013

Megalofonou P., Damalas D. & G. De Metrio (2009). Biological characteristics of blue shark, Prionace glauca, in the Mediterranean Sea. Journal of the Marine Biological Association of the United Kingdom, 2009, 89(6), 1233–1242.

Ridente D., Foglini F., Minisini D., Trincardi F.& G. Verdicchio (2007). Shelf-edge erosion, sediment failure and inception of Bari Canyon on the Southwestern Adriatic Margin (Central Mediterranean). Marine Geology, 246 (2–4), 193–207

Rubino A., Romanenkov D., Zanchettin D., Cardin V., Hainbucher D., Bensi M., Boldrin A., Langone L., Miserocchi S. & M. Turchetto (2010). On the descent of dense water on a complex canyon system in the southern Adriatic basin, Continental Shelf Research, In Press, Corrected Proof, Available online 1 December 2010, ISSN 0278-4343

Tesi T., Langone L., Goni M.A., Turchetto M., Miserocchi S. & A. Boldrin (2008). Source and composition of organic matter in the Bari canyon (Italy): Dense water cascading versus particulate export from the upper ocean, Deep Sea Research Part I: Oceanographic Research Papers, Volume 55, Issue 7, July 2008, Pages 813-831, ISSN 0967-0637

Trincardi F., Foglini F., Verdicchio G., Asioli A., Correggiari A., Minisini D., Piva A., Remia A., Ridente D. & M. Taviani (2007). The impact of cascading currents on the Bari Canyon System, SW-Adriatic Margin (Central Mediterranean). Marine Geology 246: 208-230.

Turchetto M., Boldrin A., Langone L., Miserocchi S., Tesi T. & F. Foglini (2007). Particle transport in the Bari Canyon (Southern Adriatic Sea). Marine Geology, Volume 246, Issues 2-4, EUROSTRATAFORM: Role and functioning of Canyons, 7 December 2007, Pages 231-247, ISSN 0025-3227, DOI: 10.1016/j.margeo.2007.02.007.

Vargas Yánez M., García Martínez M.C., Moya Ruiz F., Tel E., Parrilla G., Plaza F., Lavín A., & M.J. García (2008). Cambio climático en el Mediterráneo español. Instituto Español de Oceanografía. Ministerio de Educación y Ciencia.
http://www.ieo.es/apartar/varios/libro_cambio_climatico.pdf

24. SANTA MARÍA DI LEUCA

Description and key species

Located in the southern Apulia margin (see Figure 111), its importance mainly resides on the occurrence of deep-sea corals, especially on the living and dead colonies of *Lophelia pertusa* and *Madrepora oculata*. In addition to cold water corals, other sponge (see Figure 113) and coral species (see Figure 114) such as *Leiopathes glaberrima* and *Desmophyllum dianthus* have also been documented along with gorgonian gardens of *Paramuricea macrospina* (Mastrototaro *et al.*, 2010). The distribution of the cold water coral community seems to be strictly related to the local topography and hydrodynamic regime. It is linked to the main deep outflow coming from the Adriatic Sea into the northern Ionian Sea which provides a regular supply of nutrients and particulate organic matter. In 2006, Santa Maria di Leuca was designated under the GFCM as a Fishery Restricted Area (FRA) banning the use of towed gears due to the relationship between the *Lophelia* reef and the occurrence of priority commercial species (e.g. *Aristaeomorpha foliacea*, *Aristeus antennatus*, *Merluccius merluccius*, *Nephrops norvegicus*, *Pagellus bogaraveo*). It is necessary to highlight that blue shark (*Prionace glauca*) is fished in the area despite being listed under the main reference lists for protection. Due to this area's strong oceanographic conditions it constitutes an important migratory corridor for cetaceans like the short-beaked common dolphin (*Delphinus delphis*) and marine turtles. In fact, because of its strategic location close to the Otranto Strait it is used as feeding area by the loggerhead turtle (*Caretta caretta*). Close to the coral biocoenosis, some typical bathyal species also occur (e.g. *Chimaera monstrosa*, *Dalathias licha*, *Galeus melastomus*, *Aulopus filamentosus*, *Chlorophthalmus agassizi*, *Helicolenus dactylopterus*, *Caelorinchus caelorhincus*). Regarding seabirds the site is considered a breeding area. Another important characteristic is the appearance of weak methane anomalies detected at the base of some fault-linked scarps. At first, the coral colonies growth was attributed to seeping fluids. However, it has been demonstrated that it does not occur.

Depth Range	Approx. 100-1100 m
Jurisdictional status	Italy Territorial waters
Location (centroid)	Latitude: 39° 30,746' N Longitude: 18° 23,067' E
MedNet Proposal	YES
MEOW	Ionian Sea

KEY SPECIES	
Bebryce mollis	*Leiopathes glaberrima*
Caretta caretta	*Leucoraja fullonica*
Caryophyllia calveri	*Lophelia pertusa*
Chimaera monstrosa	*Madrepora oculata*
Dalatias licha	*Merluccius merluccius*
Delphinus delphis	*Pagellus bogaraveo*
Dendrobrachia cf. fallx	*Paramuricea macrospina*
Dendrophyllia cornigera	*Phycis blennoides*
Desmophyllum dianthus	*Polyprion americanus*
Dipturus oxyrinchus	*Prionace glauca*
Etmopterus spinax	*Stenocyathus vermiformis*
Galeus melanostomus	*Swiftia pallida*

Features to be protected according CBD examples
Carbonate mounds
Cold water coral reefs
Coral, sponge and bryozoan aggregations
Gas hydrates
Sea turtles
Seabirds
Sharks
Whales and other cetaceans

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
Special importance for life-history stages of species				
Importance for threatened, endangered or declining species and/or habitats				

spp	CITES	CMS	SPA/BD Protocol	IUCN Red List (*)

Caretta caretta	Appendix I	Appendix I	Annex II	EN
Caryophyllia calveri	Appendix II			
Chimaera monstrosa				NT
Dalatias licha				NT
Delphinus delphis	Appendix II	Appendix I and II	Annex II	LC/EN (Med)
Dendrophyllia cornigera	Appendix II			
Desmophyllum dianthus	Appendix II			
Dipturus oxyrinchus				NT
Leiopathes glaberrima	Appendix II		Annex II	
Leucoraja fullonica				NT/NT (Med)
Lophelia pertusa	Appendix II		Annex II	
Madrepora oculata	Appendix II		Annex II	
Merluccius merluccius				VU (Med)
Prionace glauca			Annex III	NT/VU (Med)

Vulnerability, fragility, sensitivity, or slow recovery				
Biological productivity				
Biological diversity				
Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 111. Location of Santa María di Leuca

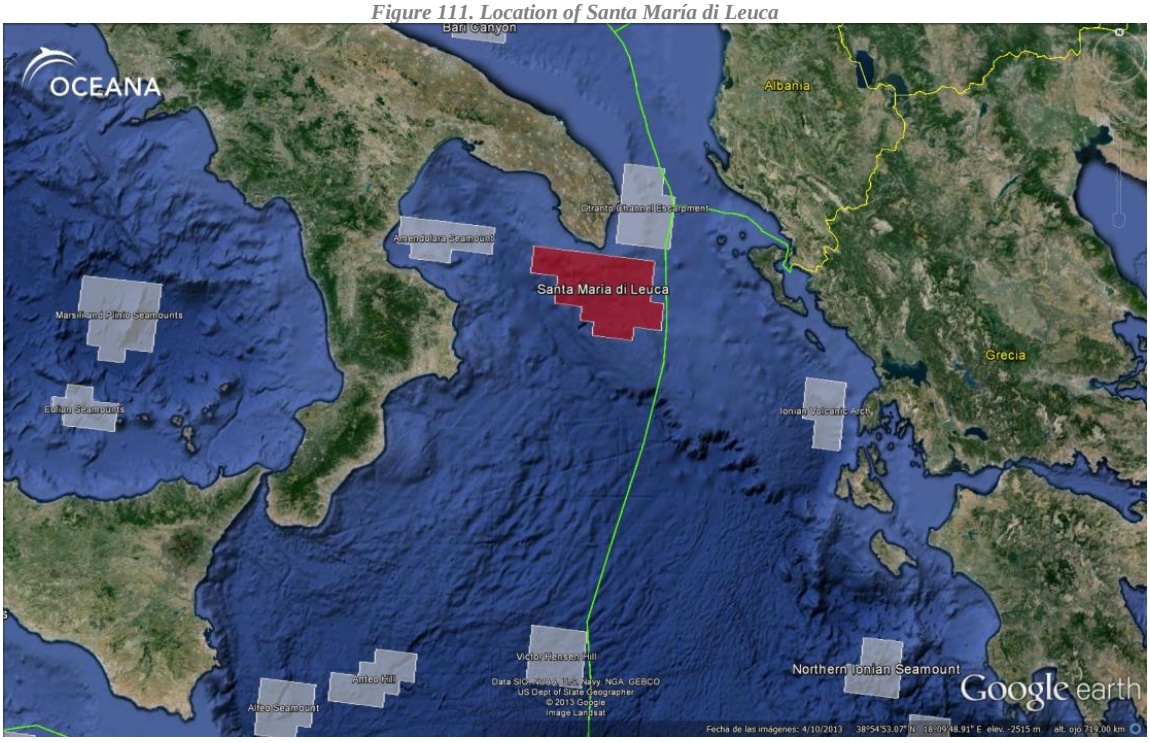


Figure 112. Santa Maria di Leuca cold-water coral (CWC) province in the Mediterranean Sea and bathymetric framework within the southern Apulia (D'Onghia et al, 2012)

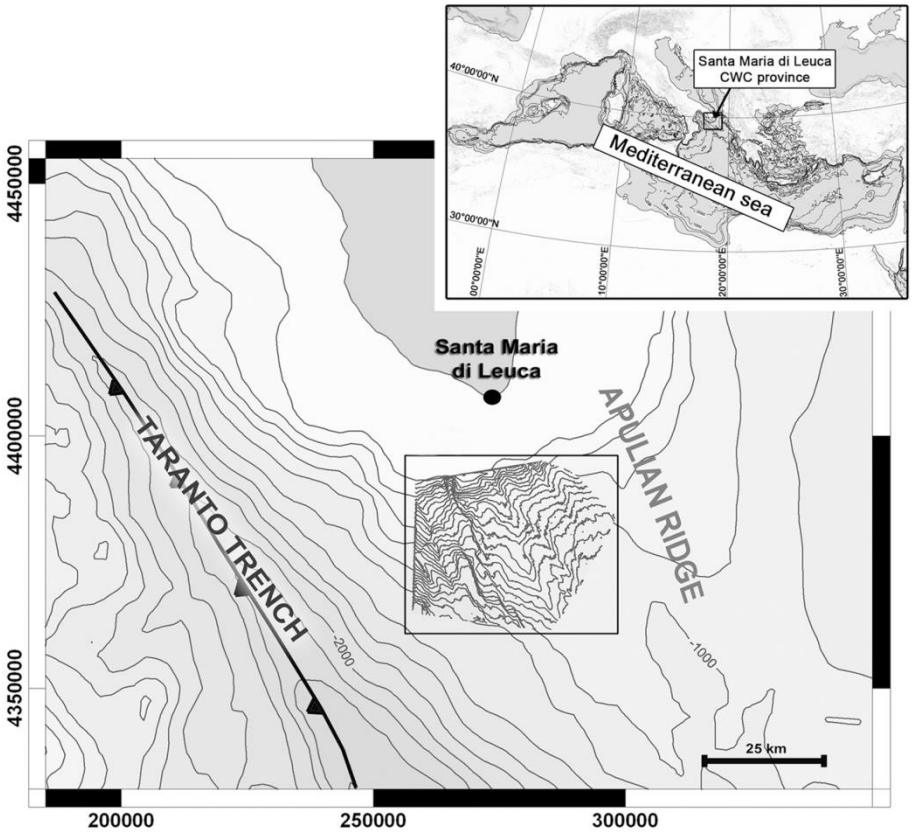


Figure 113. Sponges associated with the white corals in Santa Maria di Leuca. (a) Spongosorites sp.; (b) Poecillastra compressa; (c) Thrombus abyssi; (d) Pachastrella monilifera; (e) Erylus papulifer, (f) Spiroxya levispira.

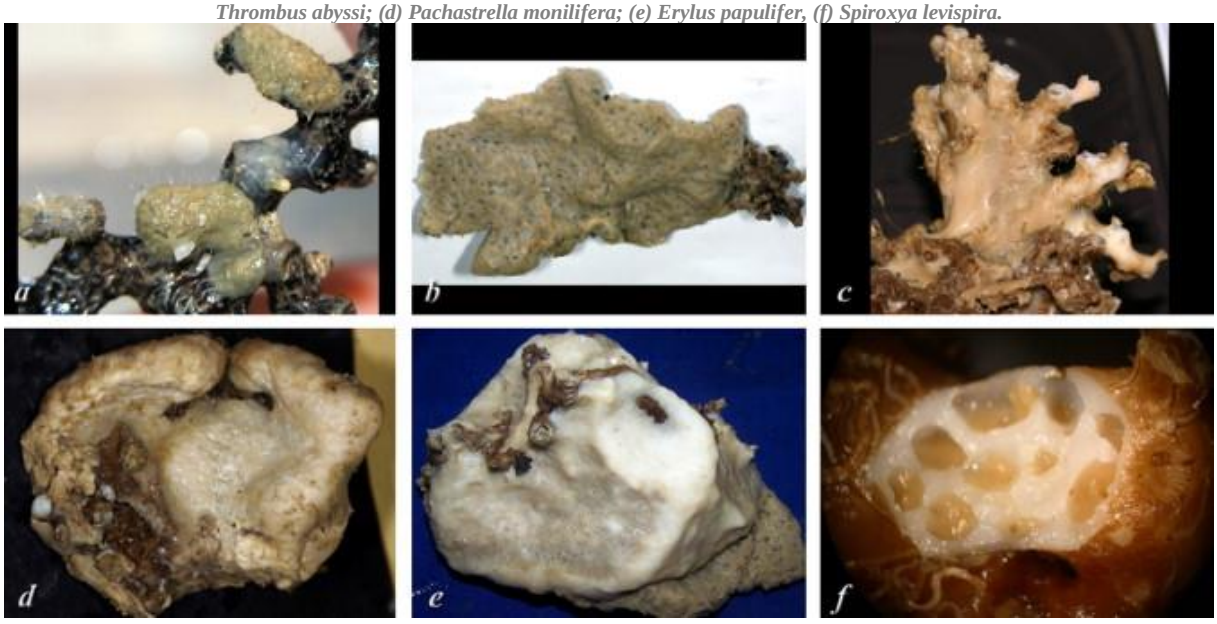


Figure 114. Cnidarians associated with the white corals in Santa Maria di Leuca. (a) Bebryce mollis; (b) Swiftia pallida; (c) Paramuricea macrospina; (d) Dendrobrachia cfr. fallax; (e) Amphianthus dorhni; (f) Sargatia elegans; (g) Kadophellia bathyalis; (h) Peachia cylindrica, (i) Leiopathes glaberrima; (j) and (k) undetermined Actiniaria; (l) Dendrophyllia cornigera; (m) Caryophyllia calveri; (n) Epizoanthus sp., (o) Nausithoe sp., (p) Nemertesia antennina.

References

Ardizzone G.D. (2006). (Unedited). Sensitive and Essential Fish Habitats in the Mediterranean Sea. Working document to the STECF/SGMED-06-01 sub-group meeting on sensitive and essential fish habitats in the Mediterranean; 2006. Rome,17

Beuck L., Freiwald A. & M. Taviani (2010). Spatiotemporal bioerosion patterns in deep-water scleractinians from off Santa Maria di Leuca (Apulia, Ionian Sea), Deep Sea Research Part II: Topical Studies in Oceanography, Volume 57, Issues 5-6, The APLABES Programme: Physical, Chemical and Biological Characterization of Deep-Water Coral Ecosystems from the Ionian Sea (Mediterranean). Pages 458-470, ISSN 0967-0645

Bongiorni L., Mea M., Gambi C., Pusceddu A., Taviani M. & R. Danovaro (2010). Deep-water scleractinian corals promote higher biodiversity in deep-sea meiofaunal assemblages along continental margins. Biological conservation: 143 (2010) pp. 1687-1700. doi: 10.1016/j.biocon.2010.04.009

Carlier A., Le Guilloux E., Olu K., Sarrazin J., Mastrototaro F., Taviani M. & J. Clavier (2009). Trophic relationships in a deep Mediterranean cold-water coral bank (Santa Maria di Leuca, Ionian Sea). Marine Ecology Progress Series 397, 125-137.

CIESM (2011). Marine Peace Parks in the Mediterranean - a CIESM proposal. Nº 41 in CIESM Workshop Monographs [F. Briand Ed.], 128 pages, Monaco

D'Onghia, G. Indennidate A., Giove A., Savini A., Capezzuto F., Sion L., Vertino A. & P. Maiorano (2011). Distribution and behaviour of deep-sea benthopelagic fauna observed using towed cameras in the Santa Maria di Leuca cold-water coral province. Mar Ecol Prog Ser. Vol. 443: 95–110, 2011. doi: 10.3354/meps09432

D'Onghia G., Maiorano P., Carlucci R., Capezzuto F., Carluccio A., Tursi A. & L. Sion (2012). Comparing Deep-Sea Fish Fauna between Coral and Non-Coral "Megahabitats" in the Santa Maria di Leuca Cold-Water Coral Province (Mediterranean Sea). PLoS ONE 7(9): e44509. doi:10.1371/journal.pone.0044509

Etiope G., Savini A., Lo Bue N., Favali P. & C. Corselli (2010). Deep-sea survey for the detection of methane at the "Santa Maria di Leuca" cold-water coral mounds (Ionian Sea, South Italy), Deep Sea Research Part II: Topical Studies in Oceanography, Volume 57, Issues 5-6, The APLABES Programme: Physical, Chemical and Biological Characterization of Deep-Water Coral Ecosystems from the Ionian Sea (Mediterranean). Pages 431-440, ISSN 0967-0645

Mastrototaro F., D'Onghia G., Corriero G., Matarrese A., Maiorano P., Panetta P., Gherardi M., Longo C., Rosso A., Sciuto F., Sanfilippo R., Gravili C., Boero F., Taviani M. & A. Tursi (2010). Biodiversity of the white coral bank off Cape Santa Maria di Leuca (Mediterranean Sea): An update, Deep Sea Research Part II: Topical Studies in Oceanography, Volume 57, Issues 5-6, The APLABES Programme: Physical, Chemical and Biological Characterization of Deep-Water Coral Ecosystems from the Ionian Sea (Mediterranean). Pages 412-430, ISSN 0967-0645

Megalofonou P., Damalas D. & G. De Metrio (2009). Biological characteristics of blue shark, Prionace glauca, in the Mediterranean Sea. Journal of the Marine Biological Association of the United Kingdom, 2009, 89(6), 1233–1242.

Miniero R., De Felip E., Magliuolo M., Ferri F. & A. Di Domenico (2005). Selected persistent organic pollutants (POPs) in the Italian environment. Ann Ist Super Sanità 2005;41(4):487-492

Notarbartolo di Sciara G. & T. Agardy (2009). Identification of potential SPAMIs in Mediterranean Areas Beyond National Jurisdiction. Contract N° 01/2008_RAC/SPA, High Seas. 70p.

25. NORTHERN IONIAN SEAMOUNT

Description and key species

Off the West coast of Greece, lies the Northern Ionian Seamount (see Figure 115 and Figure 116). This geological feature creates upwelling and thus is a high primary production area bedded with fragile coralligenous communities. The area concentrates many large pelagic species such as blue sharks (*Prionace glauca*), and is of particular concern for the important aggregation of cetacean species (*Balaenoptera physalus*, *Delphinus delphis*, *Physeter macrocephalus*, *Tursiops truncates*, *Ziphius cavirostris*). The presence of the endangered fin whale (*Balaenoptera physalus*) and the sperm whale (*Physeter macrocephalus*) calls for urgent protection of the proposed area. Deep-sea fishing catches in the area have shown the occurrence of several elasmobranches species, including endangered and threteaned species like *Squalus acanthias* and *Centrophorus granulosus* (Anastasopoulou *et al*., 2013; Baino *et al*., 2001). Northern slope areas surrounding the seamount are important for commercial pelagic and demersal commercial fish species and deep-sea crustaceans like red shrimp (*Aristeus antennatus*) (Kapiris & Thessalou-Legaki, 2011). That significant fishing maybe extended to the seamount area.

Depth Range	Approx. 1000-3000m
Jurisdictional status	Greece Territorial waters
Location (centroid)	Latitude: 37° 2,644' N Longitude: 20° 38,525' E
MedNet Proposal	YES
MEOW	Ionian Sea

KEY SPECIES	
Balaenoptera physalus	*Prionace glauca*
Centrophorus granulosus	*Squalus acanthias*
Delphinus delphis	*Tursiops truncatus*
Physeter macrocephalus	*Ziphius cavirostris*

Features to be protected according CBD examples
Seamount communities
Whales and other cetaceans

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
Special importance for life-history stages of species				
Importance for threatened, endangered or declining species and/or habitats				X

spp	CITES	CMS	SPA/BD Protocol	IUCN Red List (*)
Balaenoptera physalus	Appendix I	Appendix I and II	Annex II	EN/VU (Med)
Centrophorus granulosus				VU/VU (Med)
Delphinus delphis	Appendix II	Appendix I and II	Annex II	LC/EN (Med)
Physeter macrocephalus	Appendix I	Appendix I and II	Annex II	VU/EN (Med)
Prionace glauca			Annex III	NT/VU (Med)
Squalus acanthias				VU/EN (Med)
Tursiops truncatus	Appendix II	Appendix II	Annex II	LC/VU (Med)
Ziphius cavirostris	Appendix II		Annex II	LC

Vulnerability, fragility, sensitivity, or slow recovery				
Biological productivity				

Biological diversity				
Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 115. Location of the Northern Ionian seamount

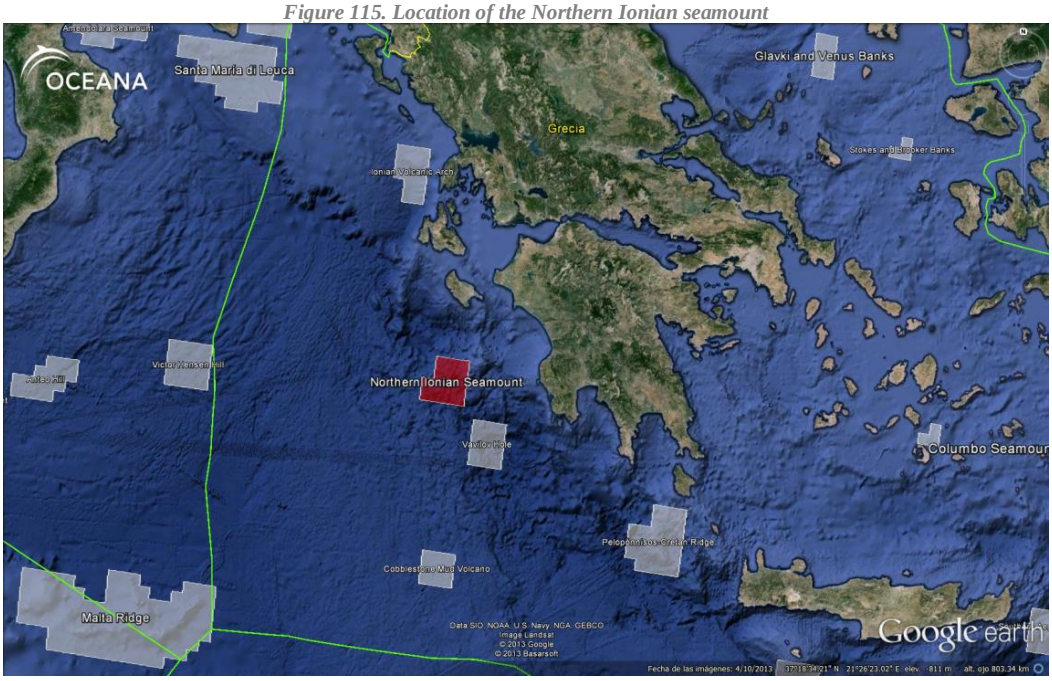
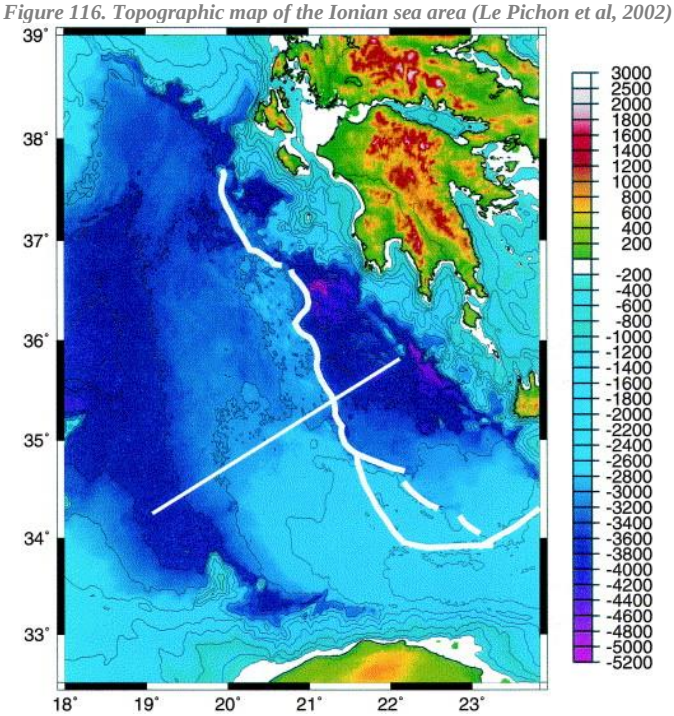


Figure 116. Topographic map of the Ionian sea area (Le Pichon et al, 2002)



References

Anastasopoulou A, Mytilineou Ch, Smith C.J. & K.N. Papadopoulou (2013) Plastic debris ingested by deep-water fish of the Ionian Sea (eastern Mediterranean). Deep-Sea Research I 74:11-1

Baino R., Serena F., Ragonese S., Rey J. & P. Rinelli (2001). Catch composition and abundance of elasmobranchs based on the MEDITS Program. Rapp. Comm. Int. Mer Medit. 36, 2001

Kapiris K. & M. Thessalou-Legaki (2011). Feeding ecology of the deep-water blue–red shrimp Aristeus antennatus (Decapoda: Aristeidae) in the Greek Ionian Sea (E. Mediterranean). Journal of Sea Research, 65: 151-160.

Le Pichon X., Lallemant S.J., Chamot-Rooke N., Lemeur D. & G. Pascal (2002). The Mediterranean Ridge backstop and the Hellenic nappes. Marine Geology Volume 186, Issues 1–2, 5 July 2002, Pages 111–125. http://dx.doi.org/10.1016/S0025-3227(02)00175-5

Megalofonou P., Damalas D. & G. De Metrio (2009). Biological characteristics of blue shark, Prionace glauca, in the Mediterranean Sea. Journal of the Marine Biological Association of the United Kingdom, 2009, 89(6), 1233–1242.

Notarbartolo di Sciara G. & T. Agardy (2009). Identification of potential SPAMIs in Mediterranean Areas Beyond National Jurisdiction. Contract N° 01/2008_RAC/SPA, High Seas. 70

26. SOUTHERN IONIAN SEAMOUNTS

Description and key species

Located off the Libyan coast, the Southern Ionian Seamounts comprises many important geological structures including the Herodotus, Battos and Cyrene seamounts as well as the Herodotus Trench. The Heredotus seamount is linked with the formation of eddies off the Libyan coast and into the Levantine Basin (see Figure 118). These eddies together with the seamounts are source of productivity and biological diversity. The Southern Ionian Sea is poorly documented but there have been sightings of the critically endangered Mediterranean Monk Seal (*Monachus monachus*) and the endangered Green Turtle (*Chelonia mydas*). Furthermore, this region is also a fishery for Bluefin Tuna (*Thunnus thynnus*) with possible spawning. The Southern Ionian Seamounts are particularly threatened by oil and gas prospecting and drilling as discoveries of sub-salt gas offshore Israel have significantly increased the interest of the industry in the eastern Mediterranean. Furthermore there are large amounts of gas hydrates that could also interest the oil and gas industry.

Depth Range	Approx. 2000-4000 m
Jurisdictional status	Libya Territorial waters
Location (centroid)	Latitude: 33° 27,970' N Longitude: 20° 6,655' E
MedNet Proposal	YES
MEOW	Tunisian Plateau/Gulf of Sidra

KEY SPECIES
Chelonia mydas
Monachus monachus
Thunnus thynnus

Features to be protected according CBD examples
Gas hydrates
Gyres
Seamount communities

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
Special importance for life-history stages of species				
Importance for threatened, endangered or declining species and/or habitats	X			

spp	CITES	CMS	SPA/BD Protocol	IUCN Red List (*)
Chelonia mydas	Appendix I			
Monachus monachus	Appendix I	Appendix I and II	Annex II	CR
Thunnus thynnus				EN/EN (Med)

Vulnerability, fragility, sensitivity, or slow recovery				
Biological productivity				
Biological diversity	X			
Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 117. Location of the Southern Eolian seamounts

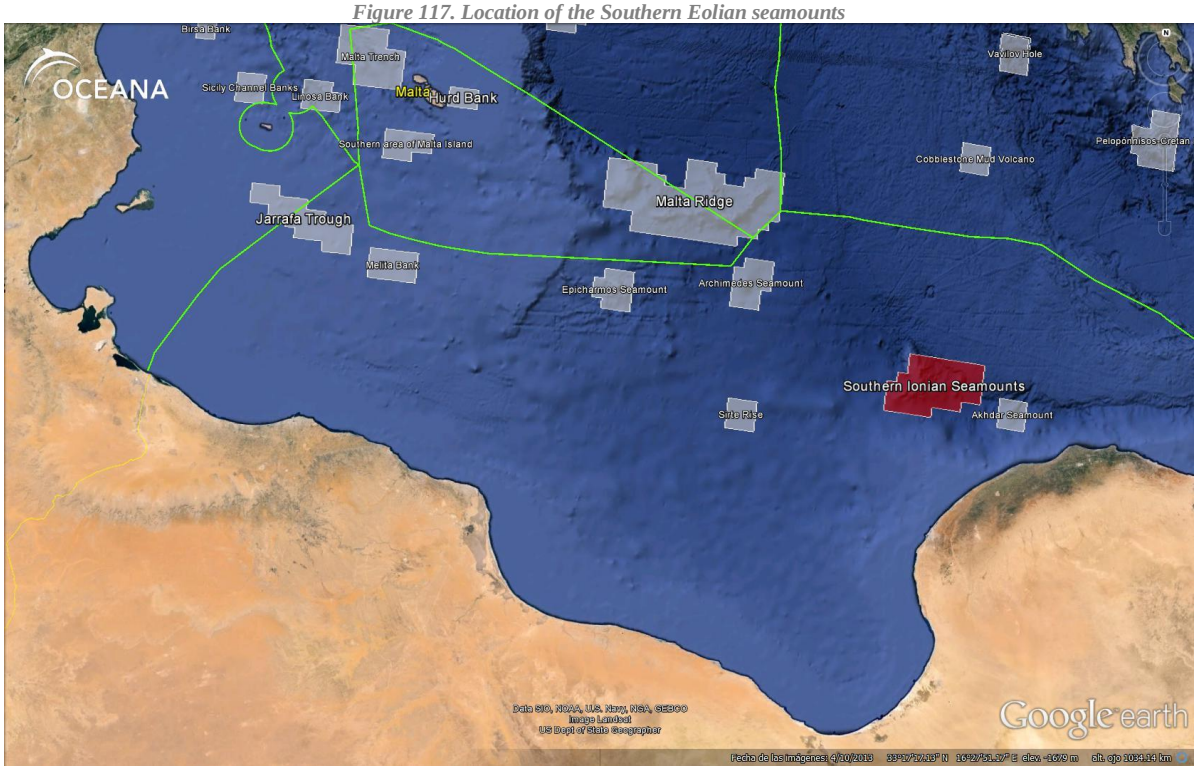
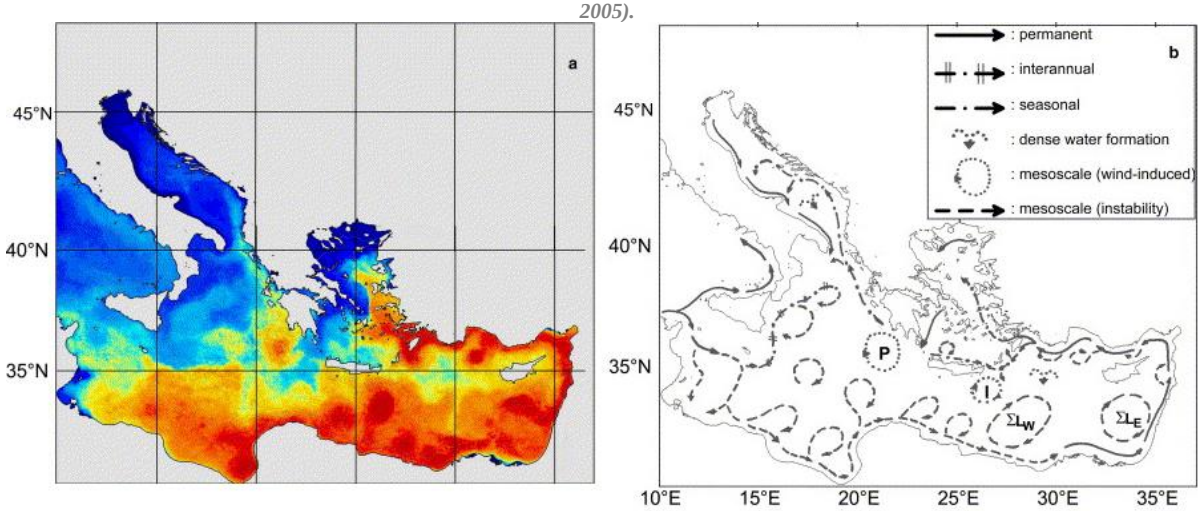


Figure 118. The eastern basin of the Mediterranean Sea in January 1998 (SST, a), and our surface circulation scheme (b) (Hamad et al., 2005).



References

Hamad N., Millot C. & I. Taupier-Letage (2005). A new hypothesis about the surface circulation in the eastern basin of the Mediterranean sea, Progress In Oceanography, Volume 66, Issues 2-4, Mediterranean physical oceanography and biogeochemical cycles: Mediterranean general circulation and climate variability, August-September 2005, Pages 287-298, ISSN 0079-6611, DOI: 10.1016/j.pocean.2005.04.002. (http://www.sciencedirect.com/science/article/B6V7B-4GHRBWC-1/2/d989a374ddde8187cbc491a3da8fce37)

Hieke W., Camerlenghi A., Cita M. B., Dehghani G. A., Fusi N., Hirschleber H. B., Mirabile L. , Müller C. & A. Polonia (2009). Bannock Basin, Sirte Abyssal Plain and Conrad Spur: structural relationships between Mediterranean Ridge and its western foreland and implications on the character of the accretionary complex (Eastern Mediterranean). Marine Geophysical Researches Volume 30, Number 3, 161-192, DOI: 10.1007/s11001-009-9075-z

Robinson A.R., Golnaraghi M., Leslie W.G., Artegiani A., Hecht A., Lazzoni E., Michelato A., Sansone E., Theocharis A. & U. Unluata (1991). The eastern Mediterranean general circulation: features, structure and variability, Dynamics of Atmospheres and Oceans, Volume 15, Issues 3-5, The Mediterranean Sea, April 1991, Pages 215-240

27. PTOLEMY SEAMOUNTS

Description and key species

The area lies off the South West of Crete and includes the Ptolemy seamounts and Ptolemy trench (see Figure 119). This area is subject to seasonal strong upwelling which greatly increases primary productivity. In addition to these seasonal patterns, the area is also subject to the Cretan current (Cretan Cyclone) and to the Levantine surface current. Longline fisheries for pelagic species such as albacore tuna (*Thunnus alalunga*) and swordfish (*Xiphias gladius*) are very active and put intense fishing pressure on this area. Longlining has high incidental bycatch on blue sharks (*Prionace glauca*) which have a relatively high abundance in this area. Furthermore, there is a permanent population of the vulnerable Sperm whale (*Physeter macrocephalus*) and of the Cuvier's Beaked Whale (*Ziphius cavirostris*). These permanent large whale populations highlight the high productivity of this area since they require very large amounts of prey such as squid.

Depth Range	Approx. 1000-2000m
Jurisdictional status	Greece Territorial waters
Location (centroid)	Latitude: 34° 32,633' N Longitude: 24° 17,904' E
MedNet Proposal	YES
MEOW	Aegean Sea

KEY SPECIES
Physeter macrocephalus
Prionace glauca
Thunnus alalunga
Xiphias gladius
Ziphius cavirostris

Features to be protected according CBD examples
Gyres
Seamount communities
Sharks
Upwelling areas
Whales and other cetaceans

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
Special importance for life-history stages of species				
Importance for threatened, endangered or declining species and/or habitats			X	

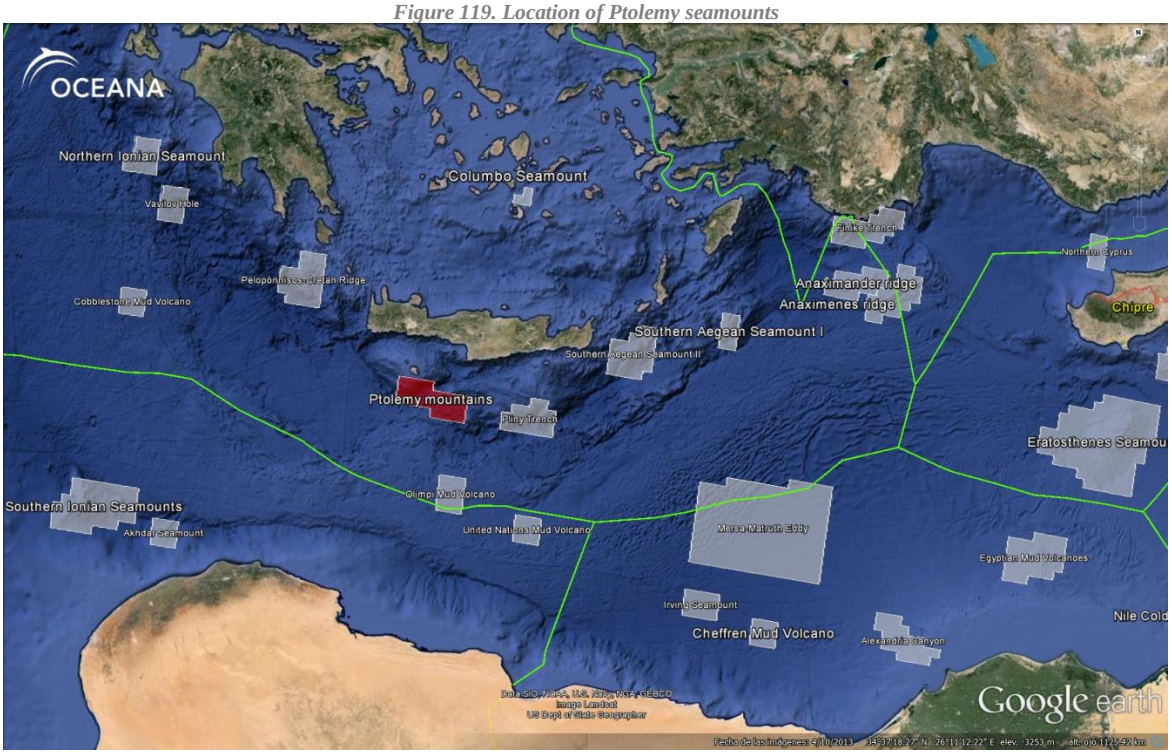
spp	CITES	CMS_BONNconv	SPA/BD Protocol	IUCN Red List (*)
Physeter macrocephalus	Appendix I	Appendix I and II	Annex II	VU EN (Med)
Prionace glauca			Annex III	NT/VU (Med)
Thunnus alalunga				DD
Xiphias gladius			Annex III	NT (Med)
Ziphius cavirostris	Appendix II		Annex II	LC

Vulnerability, fragility, sensitivity, or slow recovery	X			
Biological productivity				
Biological diversity	X			
Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 119. Location of Ptolemy seamounts



References

Bakun A. & V.N. Agostini (2001). Seasonal patterns of wind-induced upwelling/ downwelling in the Mediterranean Sea. Scientia Marina, ISSN 0214-8358, Vol. 65, Nº. 3, 2001 , pags. 243-257

Bignami F., Bohm E., D'Acunzo E., D'Archino R. & E. Salusti (2008). On the dynamics of surface cold filaments in the Mediterranean Sea, Journal of Marine Systems, Volume 74, Issues 1-2, November 2008, Pages 429-442, ISSN 0924-7963

Gerin R., Poulain P.M., Taupier-Letage I., Millot C., Ben Ismail S. & C. Sammari (2009). Surface circulation in the Eastern Mediterranean using drifters (2005–2007). Ocean Sci., 5, 559–574. www.ocean-sci.net/5/559/2009/

Hieke W., Werner F. & H.W. Schenke (1996). Geomorphological study of an area with mud diapirs south of Crete (Mediterranean Ridge), Marine Geology, Volume 132, Issues 1-4, The Mediterranean Ridge Diapiric Belt, June 1996, Pages 63-93, ISSN 0025-3227, doi: 10.1016/0025-3227(95)00154-9.

Megalofonou P., Yannopoulos C., Damalas D., De Metrio G. & M. Deflorio (2005). Incidental catch and estimated discards of pelagic sharks from the swordfish and tuna fisheries in the Mediterranean Sea. Fish. Bull., 103, 620–634.

Megalofonou P., Damalas D. & G. De Metrio (2009). Biological characteristics of blue shark, Prionace glauca, in the Mediterranean Sea. Journal of the Marine Biological Association of the United Kingdom, 2009, 89(6), 1233–1242.

Megalofonou P., Damalas D. & C. Yannopoulos (2005). Composition and abundance of pelagic shark by-catch in the eastern Mediterranean Sea. Cybium 2005, 29(2): 135-140

Notarbartolo di Sciara G., Frantzis A., Bearzi G. & R. Reeves (2012). Physeter macrocephalus (Mediterranean subpopulation). In: IUCN 2013. IUCN Red List of Threatened Species. Version 2013.2. <www.iucnredlist.org>. Downloaded on 11 March 2014. http://www.iucnredlist.org/details/16370739/0

Robinson A.R., Golnaraghi M., Leslie W.G., Artegiani A., Hecht A., Lazzoni E., Michelato A., Sansone E., Theocharis A. & U. Unluata (1991). The eastern Mediterranean general circulation: features, structure and variability, Dynamics of Atmospheres and Oceans, Volume 15, Issues 3-5, The Mediterranean Sea, April 1991, Pages 215-240

Robinson A.R., Leslie W.G., Theocharis A & A, Lascaratos (2001). Mediterranean Sea Circulation. Doi:10.1006/rwos.2001.0376

Stevens J. (2005). IUCN Red List of Threatened Species. Version 2010.4. IUCN 2010. <www.iucnredlist.org>.

Würtz M. (2010). Mediterranean Pelagic Habitat: Oceanographic and Biological Processes, An Overview. Gland, Switzerland and Malaga, Spain: IUCN

28. GLAVKI AND VENUS BANKS

Description and key species

This area is located within the North part of the Aegan Sea (see Figure 120). It includes two banks which are important because of the presence of large predators such as the blue shark (*Prionace glauca*), the swordfish (*Xiphias gladius*) and especially because it is within the distribution range of the monk seal (*Monachus monachus*). In addition to these threatened species, the site harbors cold water corals (*Lophelia pertusa* and *Madrepora cculata*) which are threatened by bottom trawling fishing that takes place in this area. Corals occurrence is likely related to the circulation patterns regime in the area (see Figure 121). Long line fishing is also a concern as it has high blue shark bycatch rates. It is considered a spawning area for pelagic fishes like *Xiphias gladius*, *Euthynnus alletteratus* or *Auxis rochei* (Vassilopoulou *et al*., 2008).

Depth Range	Approx. 100-400 m
Jurisdictional status	Greece Territorial waters
Location (centroid)	Latitude: 39° 39,004' N Longitude: 24° 34,305' E
MedNet Proposal	YES
MEOW	Aegean Sea

KEY SPECIES	
Auxis rochei	*Monachus monachus*
Euthynnus alletteratus	*Prionace glauca*
Lophelia pertusa	*Xiphias gladius*
Madrepora oculata	

Features to be protected according CBD examples
Cold water coral reefs
Seamount communities
Sharks

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
Special importance for life-history stages of species				
Importance for threatened, endangered or declining species and/or habitats				X

spp	CITES	CMS	SPA/BD Protocol	IUCN Red List (*)
Lophelia pertusa	Appendix II		Annex II	
Madrepora oculata	Appendix II		Annex II	
Monachus monachus	Appendix I	Appendix I and II	Annex II	CR
Prionace glauca			Annex III	NT/VU (Med)
Xiphias gladius			Annex III	NT (Med)

Vulnerability, fragility, sensitivity, or slow recovery				
Biological productivity				
Biological diversity				
Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 120. Location of Glavki and Venus banks

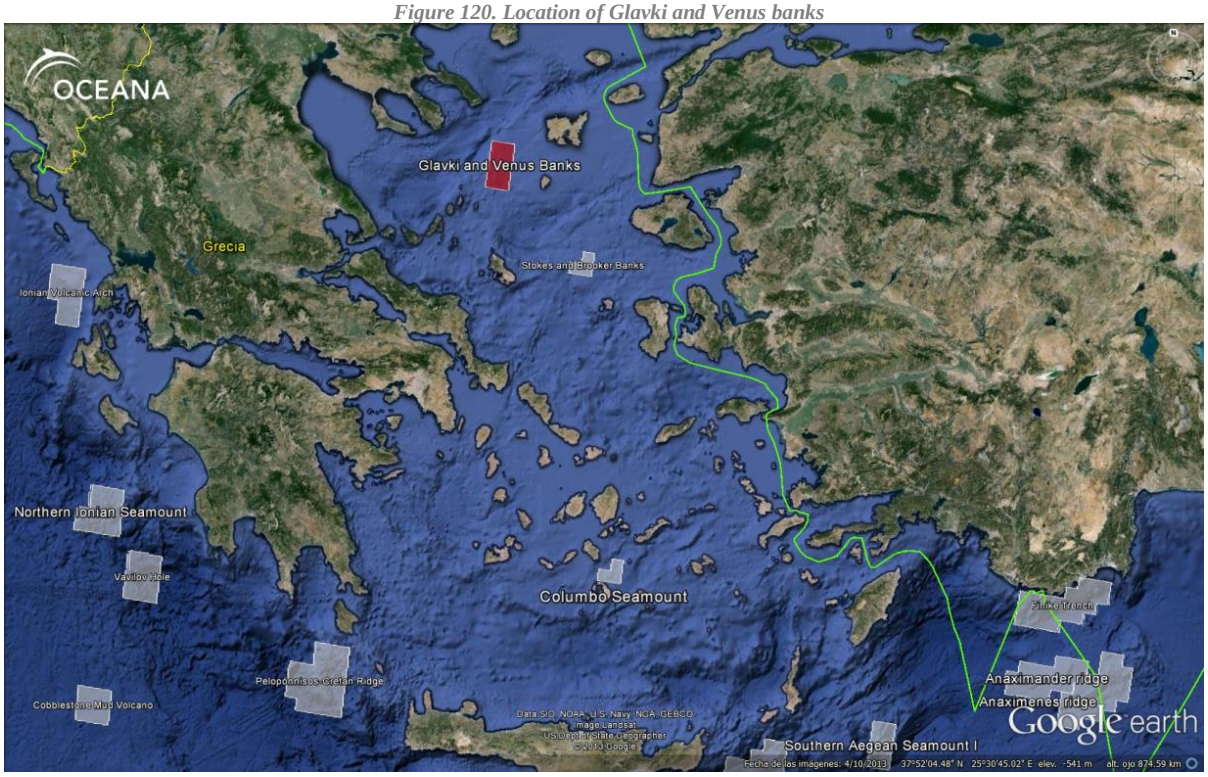
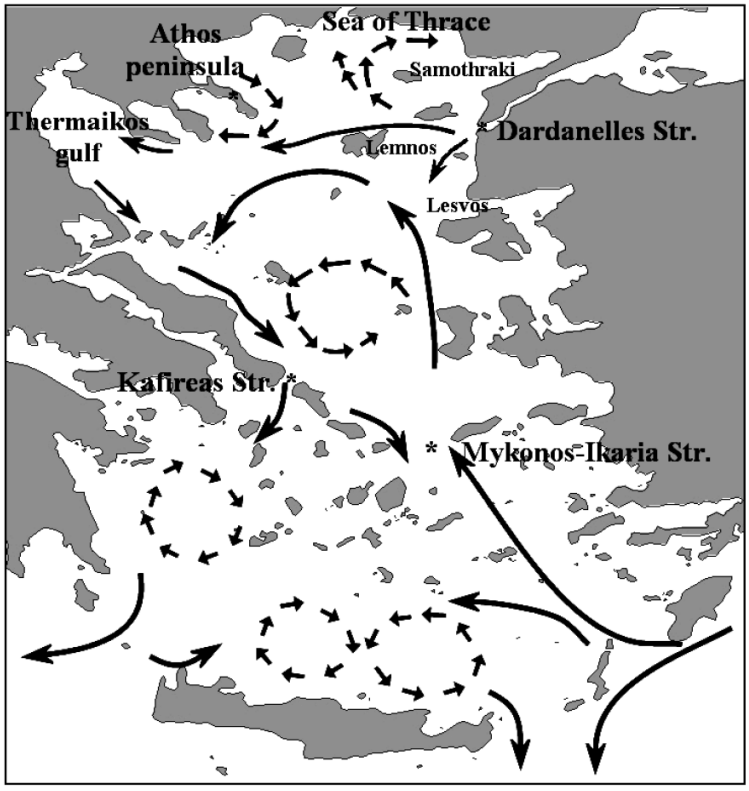


Figure 121. Schematic representation of the Aegean Sea upper circulation (Nittis and Perivoliotis, 2002)



References

Kruzic P., Zibrowius H. & A. Pozar-Domac (2002). Actiniaria and Scleractinia (Cnidaria, Anthozoa) from the Adriatic Sea: First records, confirmed occurrences and significant range extensions of certain species. Italian Journal of Zoology 69:345-53.

Megalofonou P., Yannopoulos C., Damalas D., De Metrio G. & M. Deflorio (2005). Incidental catch and estimated discards of pelagic sharks from the swordfish and tuna fisheries in the Mediterranean Sea. Fish. Bull., 103, 620–634.

Nittis K. & L. Perivoliotis (2002). Circulation and hydrological characteristics of the North Aegean Sea: a contribution from real-time buoy measurements. Mediterranean Marine Science Vol. 3/1, 2002, 21-31

Notarbartolo di Sciara G. & T. Agardy (2009). Identification of potential SPAMIs in Mediterranean Areas Beyond National Jurisdiction. Contract N° 01/2008_RAC/SPA, High Seas. 70p.

Megalofonou P., Damalas D. & G. De Metrio (2009). Biological characteristics of blue shark, Prionace glauca, in the Mediterranean Sea. Journal of the Marine Biological Association of the United Kingdom, 2009, 89(6), 1233–1242.

Panou A., Jacobs J. & D. Panos (1993). The endangered mediterranean monk seal Monachus monachus in the Ionian sea, Greece, Biological Conservation, Volume 64, Issue 2, 1993, Pages 129-140, ISSN 0006-3207, DOI: 10.1016/0006-3207(93)90649-L

Pardo E., Aguilar R., García S., De la Torriente A. & J. Ubero (2011). Documentación de arrecifes de corales de agua fría en el Mediterráneo occidental (Mar de Alborán). Chronica naturae, 1: 20-34 (2011)

Robinson A.R., Golnaraghi M., Leslie W.G., Artegiani A., Hecht A., Lazzoni E., Michelato A., Sansone E., Theocharis A. & U. Unluata (1991). The eastern Mediterranean general circulation: features, structure and variability, Dynamics of Atmospheres and Oceans, Volume 15, Issues 3-5, The Mediterranean Sea, April 1991, Pages 215-240

Vassilopoulou V., Siapatis, A., Papaconstantinou, C & E. Caragitsou (2008). Annotated records of scombroid larvae distribution in northeastern Mediterranean waters. doi: 10.12681/mms.141

29. COLUMBO SEAMOUNT

Description and key species

This underwater volcano is situated on the Santorini-Amorgos volcano complex (see Figure 122). It has a 500m deep caldera which rises up to -17 meters, making it reachable for divers and therefore at threat from tourist exploitation. It is also placed on important international shipping routes which is an additional threat to the area. The seamount is located on an area of high seismic activity (see Figure 123) with an underwater explosion reported in 1650 A.D. Scientists are currently attempting to assess the risk of eruption. On the biological side, the Aegan Sea is an area of high relative abundance of large pelagics and sharks including species such as the bluefin tuna (*Thunnus thynnus*). There is an important longline fishery for swordfish (*Xiphias gladius*) which results in high bycatch rates of blue sharks (*Prionace glauca*). This area is also part of the distribution range of the monk seal (*Monachus monachus*) which can be threatened by the aforementioned maritime traffic and the tourism activity.

Depth Range	Approx. 100-400m
Jurisdictional status	Greece Territorial waters
Location (centroid)	Latitude: 36° 32,581' N Longitude: 25° 30,734' E
MedNet Proposal	YES
MEOW	Aegean Sea

KEY SPECIES
Monachus monachus
Prionace glauca
Thunnus thynnus
Xiphias gladius

Features to be protected according CBD examples
Gas hydrates
Highly migratory fish
Seamount communities

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
Special importance for life-history stages of species				
Importance for threatened, endangered or declining species and/or habitats				X

spp	CITES	CMS	SPA/BD Protocol	IUCN Red List (*)
Monachus monachus	Appendix I	Appendix I and II	Annex II	CR
Prionace glauca			Annex III	NT/VU (Med)
Thunnus thynnus			Annex III	EN/EN (Med)
Xiphias gladius			Annex III	NT (Med)

Vulnerability, fragility, sensitivity, or slow recovery				
Biological productivity				
Biological diversity				
Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 122. Location of the Columbo seamount

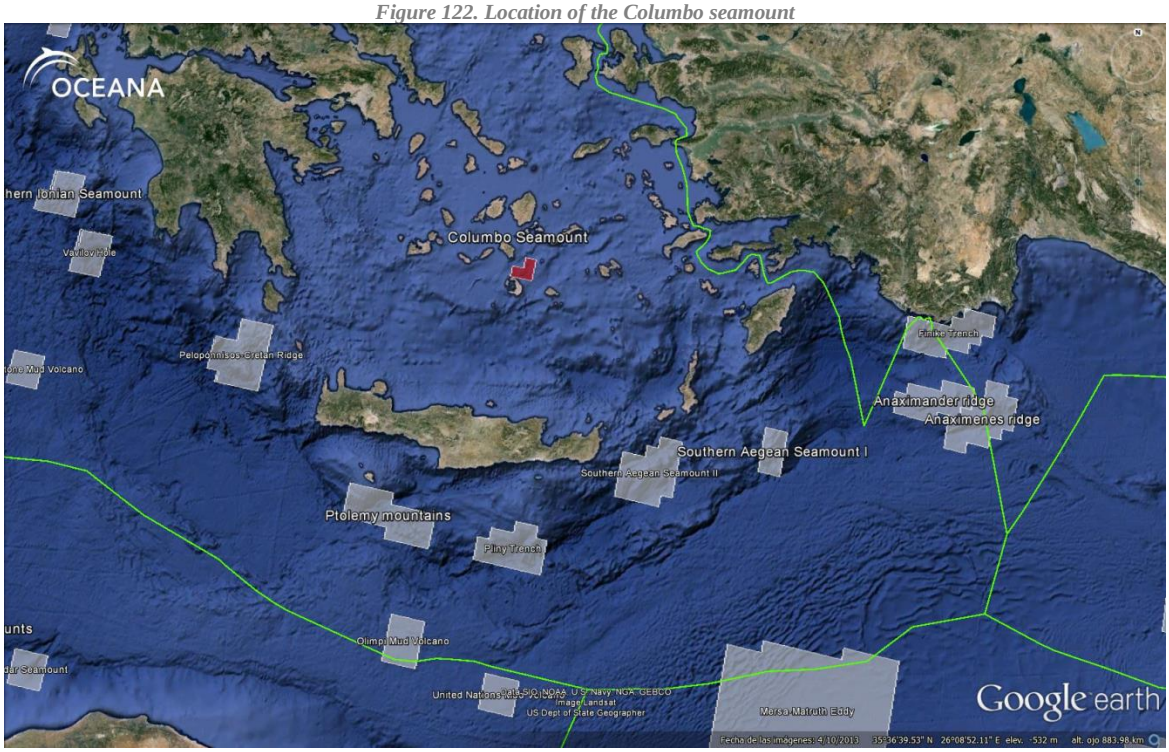
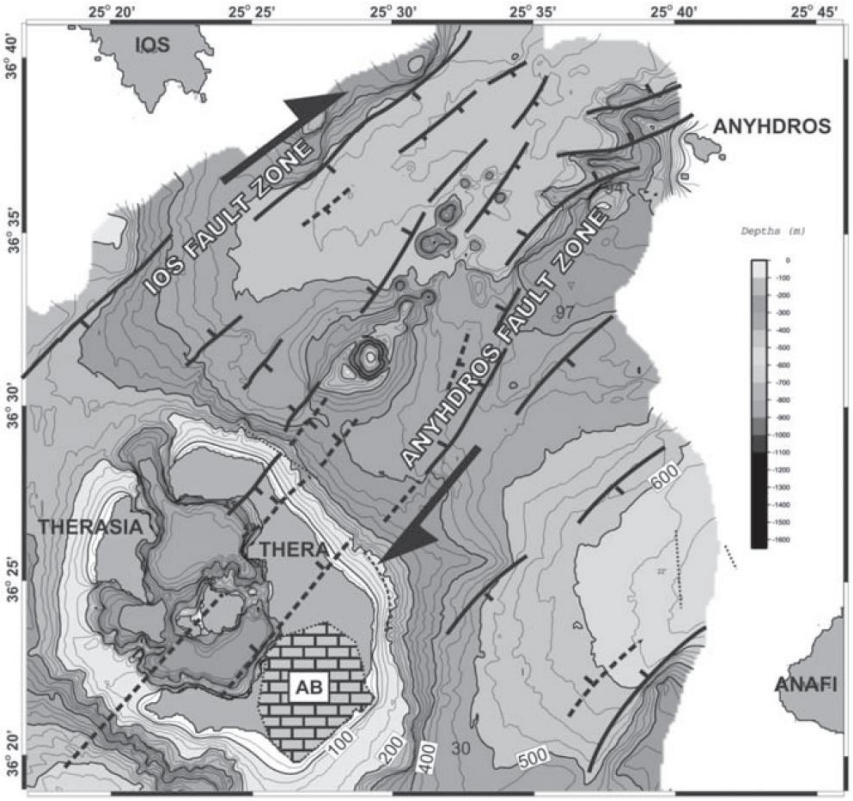


Figure 123. Tectonic map of Santorini – Kolumbo volcanic field. (Sakellariou et al., 2010)



References

Dominey-Howes D.T.M., Papadopoulos G.A. & A.G. Dawson (2000) .Geological and Historical Investigation of the 1650 Mt. Columbo (Thera Island) Eruption and Tsunami, Aegean Sea, Greece. Natural Hazards 21: 83–96, 2000.

Hensch M., Hübscher C., Dehghani A., Dahm T., Hort M., Dimitriadis I. & T. Taymaz (2007). Volcanic hazard risk assessment of Columbo Seamount (Aegean Sea, Greece). Volcanic hazard risk assessment of Columbo Seamount (Aegean Sea, Greece)

Hensch, M., Dahm, T., Hort, M., Huebscher, C., Dehghani, A. (2009). On the interrelation of fluid-induced seismicity and crustal deformation at Columbo Seamount (Aegean Sea, Greece). Geophysical Research Abstracts, Vol. 11, EGU2009-9795, 2009. EGU General Assembly 2009

Hensch M., Hort M., Dahm T., Winter S. & M. Klawonn (2009). The new Hamburg Ocean Bottom Tiltmeter: A First Deployment at Columbo Seamount (Aegean Sea, Greece). Geophysical Research Abstracts, Vol. 11, EGU2009-9848, 2009. EGU General Assembly 2009

Hubscher C., Hensch M., Dahm T., Dehghani A., Dimitriadis I., Hort M. & T. Taymaz (2007). Toward a risk assessment of the Santorini-Amorgos volcanic complex. Rapp. Comm. int. Mer Médit., 38, 2007

Karamanlidis A.A., Paravas V., Trillmich F. & P. Dendrinos (2010). First Observations of Parturition and Postpartum behavior in the Mediterranean Monk Seal (Monachus monachus) in the Eastern Mediterranean. Aquatic Mammals, Volume 36, Number 1, January 2010 , pp. 27-32(6)

Megalofonou P., Damalas D. & G. De Metrio (2009). Biological characteristics of blue shark, Prionace glauca, in the Mediterranean Sea. Journal of the Marine Biological Association of the United Kingdom, 2009, 89(6), 1233–1242.

Megalofonou P., Yannopoulos C., Damalas D., De Metrio G. & M. Deflorio (2005). Incidental catch and estimated discards of pelagic sharks from the swordfish and tuna fisheries in the Mediterranean Sea. Fish. Bull., 103, 620–634.

Panou A., Jacobs J. & D. Panos (1993). The endangered mediterranean monk seal Monachus monachus in the Ionian sea, Greece, Biological Conservation, Volume 64, Issue 2, 1993, Pages 129-140, ISSN 0006-3207, DOI: 10.1016/0006-3207(93)90649-L

Robinson A.R., Golnaraghi M., Leslie W.G., Artegiani A., Hecht A., Lazzoni E., Michelato A., Sansone E., Theocharis A. & U. Unluata (1991). The eastern Mediterranean general circulation: features, structure and variability, Dynamics of Atmospheres and Oceans, Volume 15, Issues 3-5, The Mediterranean Sea, April 1991, Pages 215-240

Sakellariou D., Sigurdsson H., Alexandri M., Carey S., Rousakis G., Nomikou P., Georgiou P. & D. Ballas (2010). Active tectonics in the Hellenic volcanic arc: the Kolumbo submarine volcanic zone. Bulletin of the Geological Society of Greece, 2010. Proceedings of the 12th International Congress. Patras, May, 2010

30. SOUTHERN AEGAN SEAMOUNT

Description and key species

In the Southern Aegan Sea, this unnamed seamount concentrates (see Figure 124) an important biodiversity and a relatively high abundance of pelagic species, due to its significant oceanic features. Indeed, dense waters form in this area under the influence of the Rhodes Cyclonic Gyre and the Asia Minor Current (AMC). Furthermore, driven by strong upwelling, the waters are rich in cephalopods, clupeids and scombriforms eggs and larvae. These biologically abundant waters attract many species including bluefin tuna (*Thunnus thynnus*), sperm whale (*Physeter macrocephalus*), Cuvier's Beaked whale (*Ziphius cavirostris*), sharks (*Prionace glauca*) and the monk seal (*Monachus monachus*). Other small pelagics as well as swordfish (*Xiphias gladius*) are attracted by the biological productivity of this area. Many of these species are highly migratory which makes this site of high importance for a network of open ocean protected areas.

Depth Range	Approx. 800-3000m
Jurisdictional status	Greece Territorial waters
Location (centroid)	Latitude: 35° 5,687' N Longitude: 27° 57,961' E
MedNet Proposal	YES
MEOW	Aegean Sea

KEY SPECIES
Monachus monachus
Physeter macrocephalus
Prionace glauca
Thunnus thynnus
Xiphias gladius
Ziphius cavirostris

Features to be protected according CBD examples
Gyres
Highly migratory fish
Sharks
Upwelling areas
Whales and other cetaceans

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
Special importance for life-history stages of species				
Importance for threatened, endangered or declining species and/or habitats				X

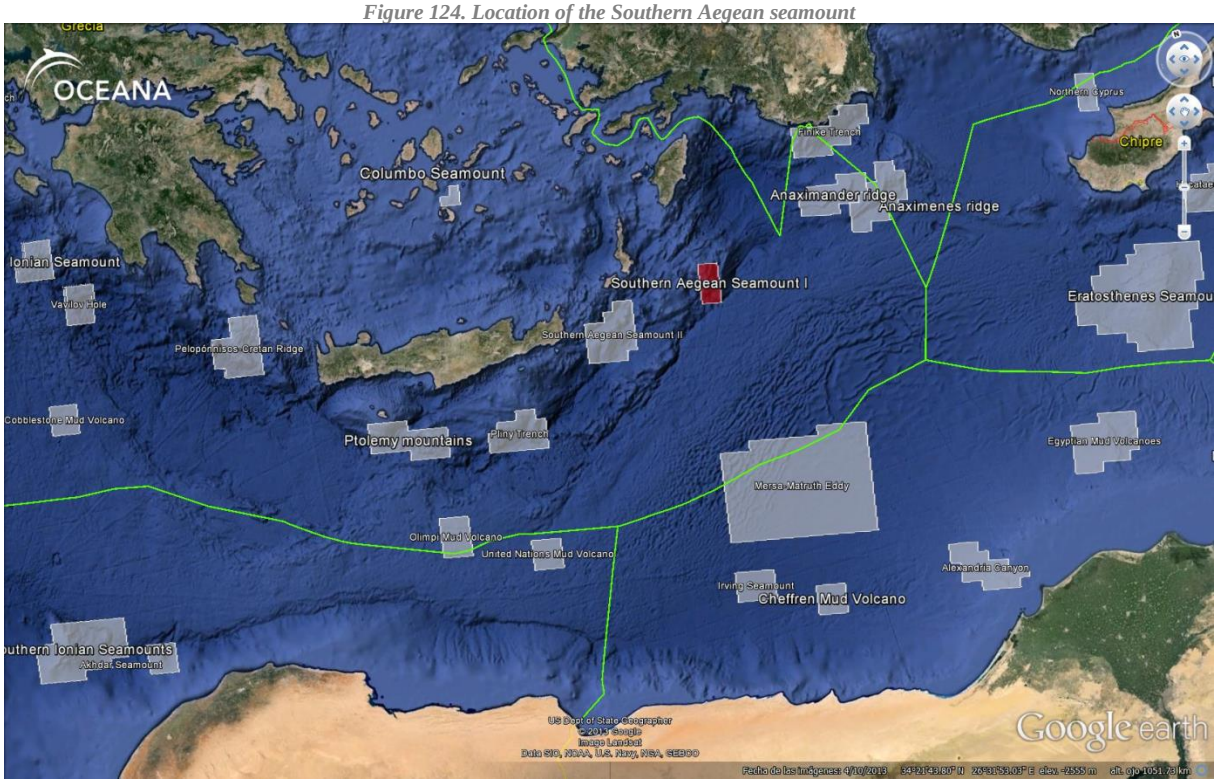
spp	CITES	CMS	SPA/BD Protocol	IUCN Red List (*)
Monachus monachus	Appendix I	Appendix I and II	Annex II	CR
Physeter macrocephalus	Appendix I	Appendix I and II	Annex II	VU/EN (Med)
Prionace glauca			Annex III	NT/VU (Med)
Thunnus thynnus			Annex III	EN/EN (Med)
Xiphias gladius			Annex III	DD
Ziphius cavirostris	Appendix II		Annex II	LC

Vulnerability, fragility, sensitivity, or slow recovery				
Biological productivity	X			
Biological diversity	X			
Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 124. Location of the Southern Aegean seamount



References

Bakun A. & V.N. Agostini (2001). Seasonal patterns of wind-induced upwelling/ downwelling in the Mediterranean Sea. Scientia Marina, ISSN 0214-8358, Vol. 65, Nº. 3, 2001, pags. 243-257

Megalofonou P., Yannopoulos C., Damalas D., De Metrio G. & M. Deflorio (2005). Incidental catch and estimated discards of pelagic sharks from the swordfish and tuna fisheries in the Mediterranean Sea. Fish. Bull., 103, 620–634.

Notarbartolo di Sciara G. & T. Agardy (2009). Identification of potential SPAMIs in Mediterranean Areas Beyond National Jurisdiction. Contract N° 01/2008_RAC/SPA, High Seas. 70p.

Panou A., Jacobs J. & D. Panos (1993). The endangered Mediterranean monk seal Monachus monachus in the Ionian sea, Greece, Biological Conservation, Volume 64, Issue 2, 1993, Pages 129-140, ISSN 0006-3207, DOI: 10.1016/0006-3207(93)90649-L

Robinson A.R., Golnaraghi M., Leslie W.G., Artegiani A., Hecht A., Lazzoni E., Michelato A., Sansone E., Theocharis A. & U. Unluata (1991). The eastern Mediterranean general circulation: features, structure and variability, Dynamics of Atmospheres and Oceans, Volume 15, Issues 3-5, The Mediterranean Sea, April 1991, Pages 215-240

UNEP-MAP-RAC/SPA (2010). Overview of scientific findings and criteria relevant to identifying SPAMIs in the Mediterranean open seas, including the deep sea. By Notarbartolo di Sciara, G. and Agardy, T. Ed. RAC/SPA, Tunis: 71pp

Würtz M. (2010). Mediterranean Pelagic Habitat: Oceanographic and Biological Processes, An Overview. Gland, Switzerland and Malaga, Spain: IUCN

31. CHEFFREN MUD VOLCANO

Description and key species

Located off the Coast of Egypt (see Figure 125), this mud volcano is part of a region with many important geomorphological features (see Figure 126). Mud volcanos are unique structures and used to harbor rare biological communities. The area is situated on the distribution range of the loggerhead turtle (*Caretta caretta*) and the green turtle (*Chelonia mydas*). The The biological information is very scarce, but the presence of peculiar microbial communities has been proven (see Figure 127). The area is covered by gas structures like pockmarks and mud volcanoes (Huguen *et al.*, 2009) (see Figure 128). Cheffren mud volcano maybe also associated with the formation of eddies (Mersa-Matruth anticyclonic eddy) and is located close to the Mid-Mediterranean jet current path. This area is particularly threatened by oil and gas exploration and drilling.

Depth Range	Approx. 2500-3000m
Jurisdictional status	Egypt Territorial waters
Location (centroid)	Latitude: 32° 2,228' N Longitude: 28° 9,851' E
MedNet Proposal	YES
MEOW	Levantine Sea

KEY SPECIES
Caretta caretta *Chelonia mydas*

Features to be protected according CBD examples
Cold seeps Gas hydrates Gyres

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity	X			
Special importance for life-history stages of species				
Importance for threatened, endangered or declining species and/or habitats				

spp	CITES	CMS	SPA/BD Protocol	IUCN Red List (*)
Caretta caretta	Appendix I	Appendix I	Annex II	EN
Chelonia mydas	Appendix I	Appendix I and II	Annex II	EN

Vulnerability, fragility, sensitivity, or slow recovery				
Biological productivity				
Biological diversity				
Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 125. Location of the Cheffren mud volcano

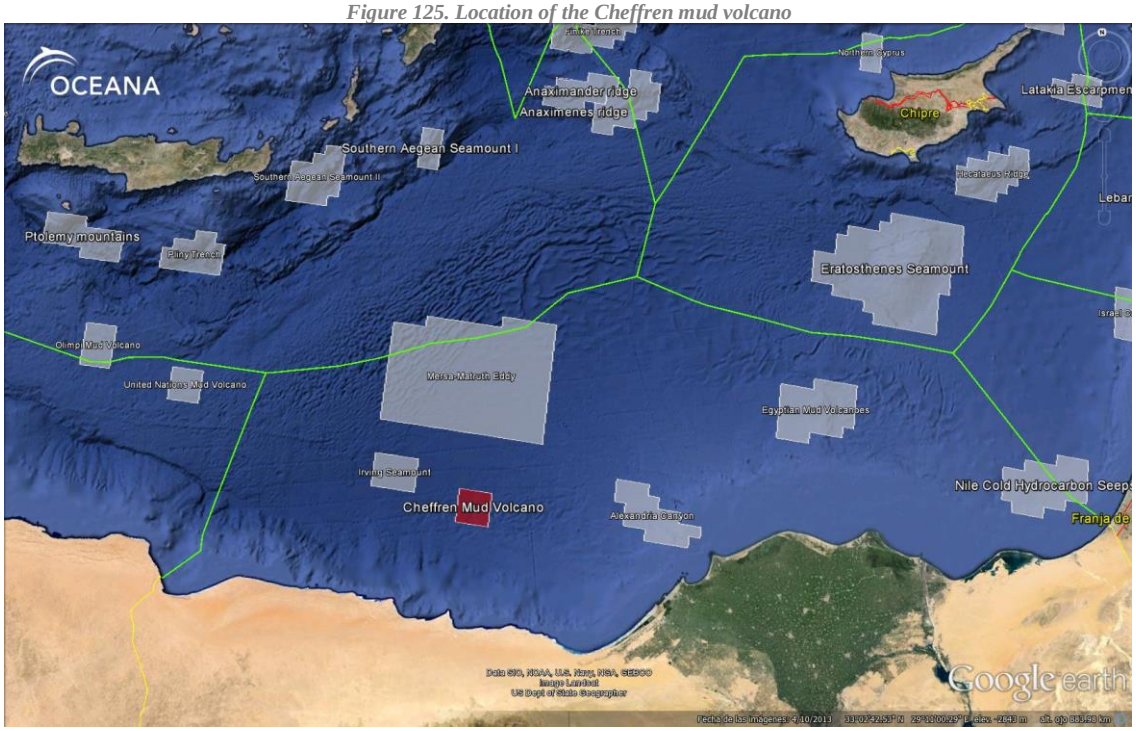


Figure 126. (A) Bathymetric map of the Nile Deep Sea Fan. The circle indicates the position of the Menes Caldera (B) Bathymetric map of the Menes Caldera with its three mud volcano systems. (C) Bathymetric map of the Chefren mud volcano (Omoregie, 2008).

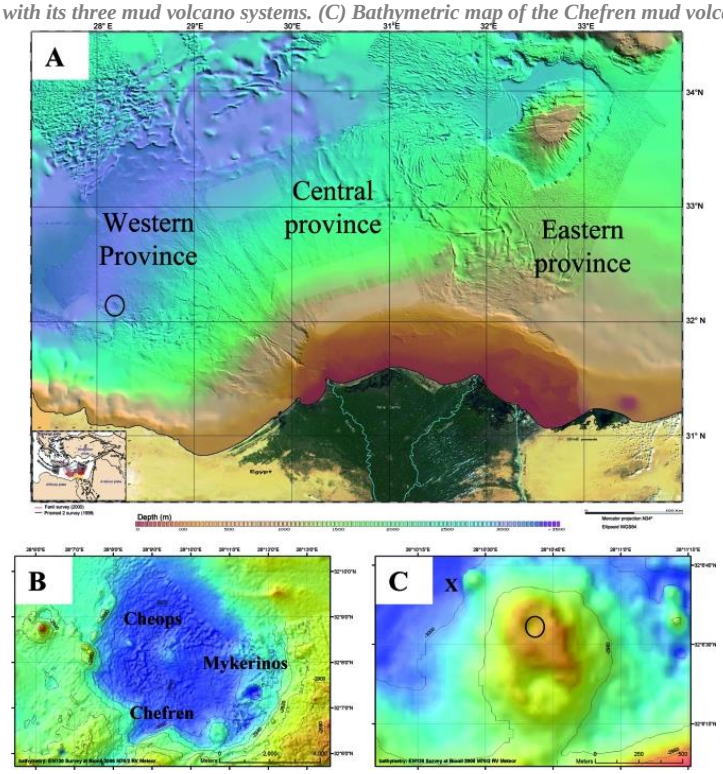


Figure 127. Microbial mat system of the brine-impacted seep at the rim of the Chefren mud volcano(Omoregie, 2008)

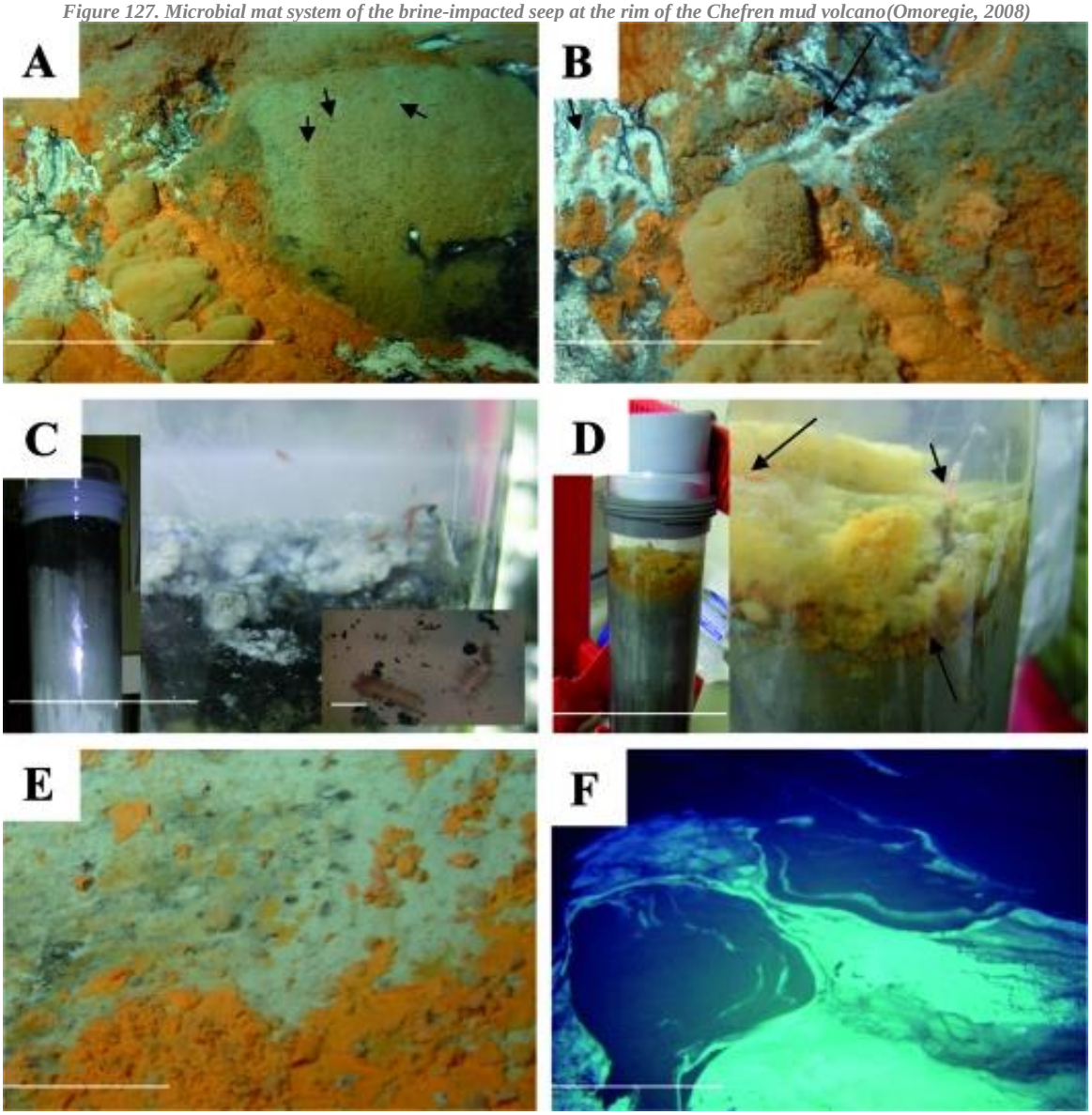
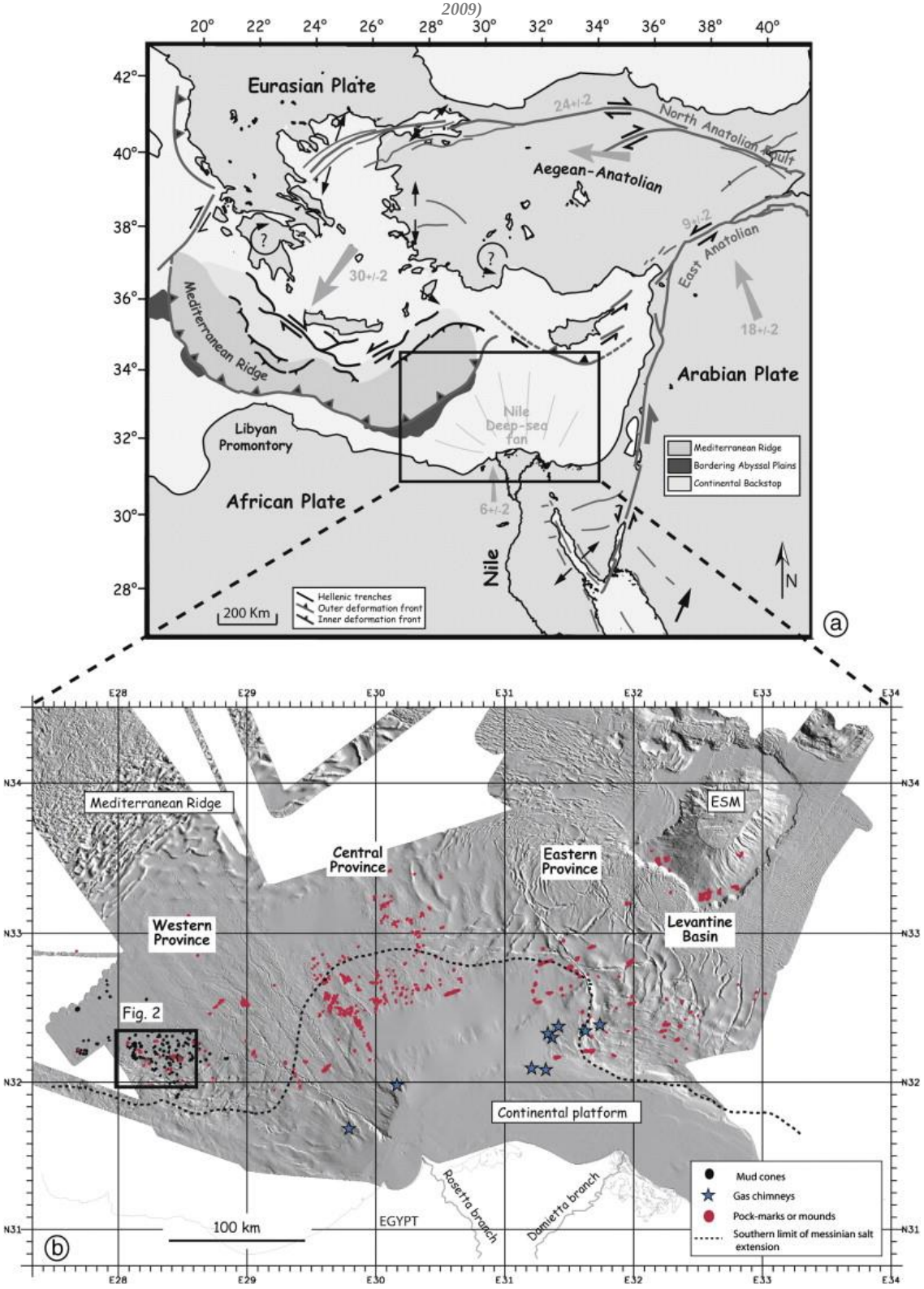


Figure 128. Morphostructural provinces and different types of fluid escape structures in the Eastern Mediterranean basin (Huguen, 2009)



References

Broderick A.C., Coyne M.S., Fuller W.J., Glen F. & B.J. Godley (2007). Fidelity and over-wintering of sea turtles. Proc. R. Soc. B (2007) 274, 1533–153.8 doi:10.1098/rspb.2007.0211

Dimitrov L.I. (2002). Mud volcanoes—the most important pathway for degassing deeply buried sediments. Earth-Science Reviews 59 (2002) 49-76

Huguen C., Foucher J.P., Mascle J., Ondréas H., Thouement M., Gontharet S., Stadnitskaia A., Pierre A., Bayon G., Loncke L., Boetius A., Bouloubassi I., de Lange G., Caprais J.C., Fouquet Y., Woodside J., Dupré S. and the NAUTINIL Scientific Party (2009). Menes caldera, a highly active site of brine seepage in the Eastern Mediterranean sea: "In situ" observations from the NAUTINIL expedition (2003). Marine Geology, 261 (1-4): 138–152.

Omoregie, E. O., Mastalerz V., de Lange G., Straub K. L., Kappler A., Roy H., Stadnitskaia A., Foucher J. P., and Boetius A. (2008). Biogeochemistry and community composition of iron- and sulfurprecipitating microbial mats at the Chefren mud volcano (Nile Deep Sea fan, Eastern Mediterranean), Appl. Environ. Microbiol., 74, 3198–3215, 2008.

Robinson A.R., Golnaraghi M., Leslie W.G., Artegiani A., Hecht A., Lazzoni E., Michelato A., Sansone E., Theocharis A. U. Unluata (1991). The eastern Mediterranean general circulation: features, structure and variability, Dynamics of Atmospheres and Oceans, Volume 15, Issues 3-5, The Mediterranean Sea, April 1991, Pages 215-240

Roussenov V., Stanev E., Artale V. & N. Pinardi (1995). A seasonal modelof the Mediterranean Sea general circulation. Journal of Geophysical Research, Vol. 100. No. C7 pp 13,515-13,538, July 15 1995

32. ANAXIMANDER AND ANAXIMENES RIDGES

Description and key species

Off the South coast of Turkey (see Figure 129), the area includes two large underwater elevations which rise from depth of around 2000-2500m to depths of 1200m (Anaximander) and 700m (Anaximenes). These ridges are linked with several mud volcanos (see Figure 130) hosting a recently finding new species of lamellibrachiid vestimentiferan, (*Lamellibrachia anaximandri*) and many other organisms (Olu-Le Roy *et al.*, 2004) including a new mollusc community associated with a cold seep (Salas & Woodside, 2002). Their particular geomorphology and size make them an important place which potentially supports high biodiversity. Due to the existing upwelling, these waters are rich in cephalopods, clupeid and scombriform (eggs and larvae). However, the biological information on deep-water benthic communities is very scarce. It is known a high relative abundance of large migratory fish and cetaceans in the area which is also used by the bluefin tuna (*Thunnus thynnus*) as spawning ground (see Figure 131). Other pelagic species such as swordfish (*Xiphias gladius*) is targeted by longliners with a high percentage of shark (*Prionace glauca*) bycatch (see Figure 132). In fact, Anaximander seamount have been described as an important spawning area for *Xiphias gladius* in the Mediterranean (Tserpes *et al.*, 2008), although it seems to be also a feeding area for beaked whales (Woodsie *et al*., 2006).

Depth Range	Approx. 700-2500m
Jurisdictional status	Greece /Turkey Territorial waters
Location (centroid)	Latitude: 35° 24,471' N Longitude: 29° 51,705' E
MedNet Proposal	YES
MEOW	Aegean Sea and Levantine Sea

KEY SPECIES
Cetacea
Prionace glauca
Thunnus thynnus
Xiphias gladius
Ziphius cavoristris
Lucinoma kazani

Features to be protected according CBD examples	
Carbonate mounds	Seamount communities
Cold seeps	Upwelling areas
Gas hydrates	Whales and other cetaceans
Highly migratory fish	

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
Special importance for life-history stages of species				
Spawning ground for bluefin tuna				
Importance for threatened, endangered or declining species and/or habitats			X	

spp	CITES	CMS	SPA/BD Protocol	IUCN Red List (*)
Cetacea	Appendix II			
Prionace glauca			Annex III	NT/VU (Med)
Thunnus thynnus			Annex III	EN/EN (Med)
Xiphias gladius			Annex III	NT (Med)
Ziphius cavirostris	Appendix II		Annex II	LC

Vulnerability, fragility, sensitivity, or slow recovery				
Biological productivity				
Biological diversity				
Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 129. Location of the Anaximander and Anaximenes ridges

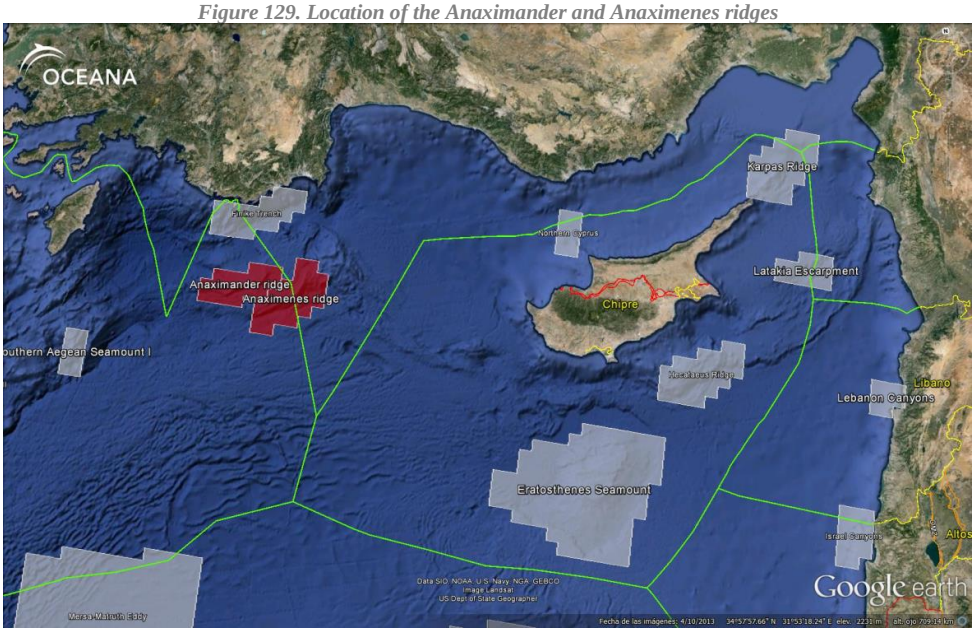


Figure 130. a Location of the Anaximander Mountains region (AM), the Olimpi mud volcano field (OMV), and the Nile deep-sea fan including the Isis mud volcano (Isis MV) in the Eastern Mediterranean Sea. Main tectonic features are displayed as well. b Bathymetric map of the Anaximander Mountains region illustrating extensions of the Anaximander, Anaximenes, and Anaxagoras seamounts (SM), as well as positions of major mud volcanoes (MV, dots). The Amsterdam MV is located on the southeastern flank of the Anaximenes seamounts (Pape et al, 2010)

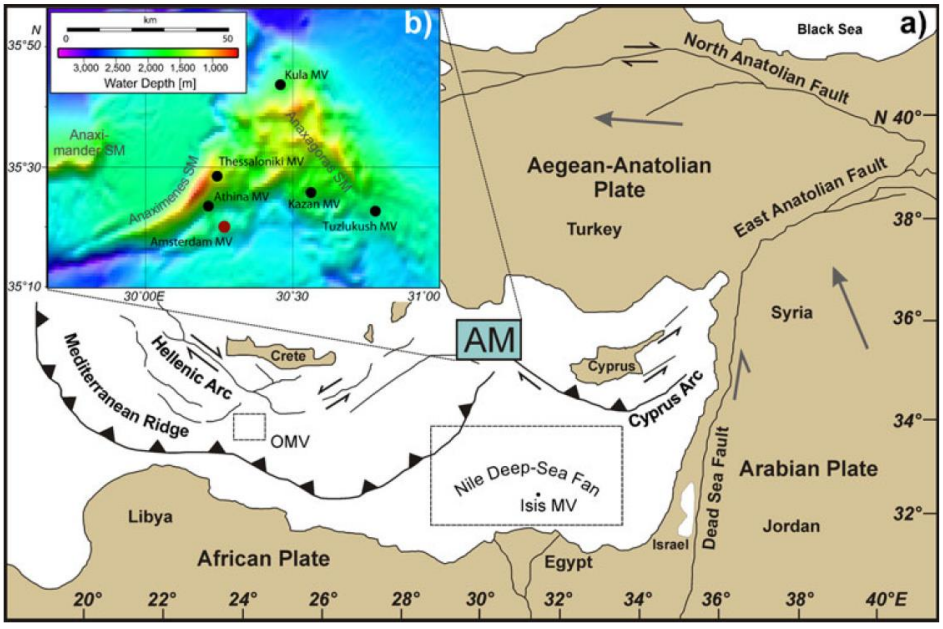


Figure 131. Spawning areas of Thunnus thynnus identified through analysis of VMS data used in the 2010 GBYP aerial survey program for surveying spawning biomass in the Mediterranean. These areas are consistent with current scientific knowledge of the main spawning locations. (ICCAT, 2010)

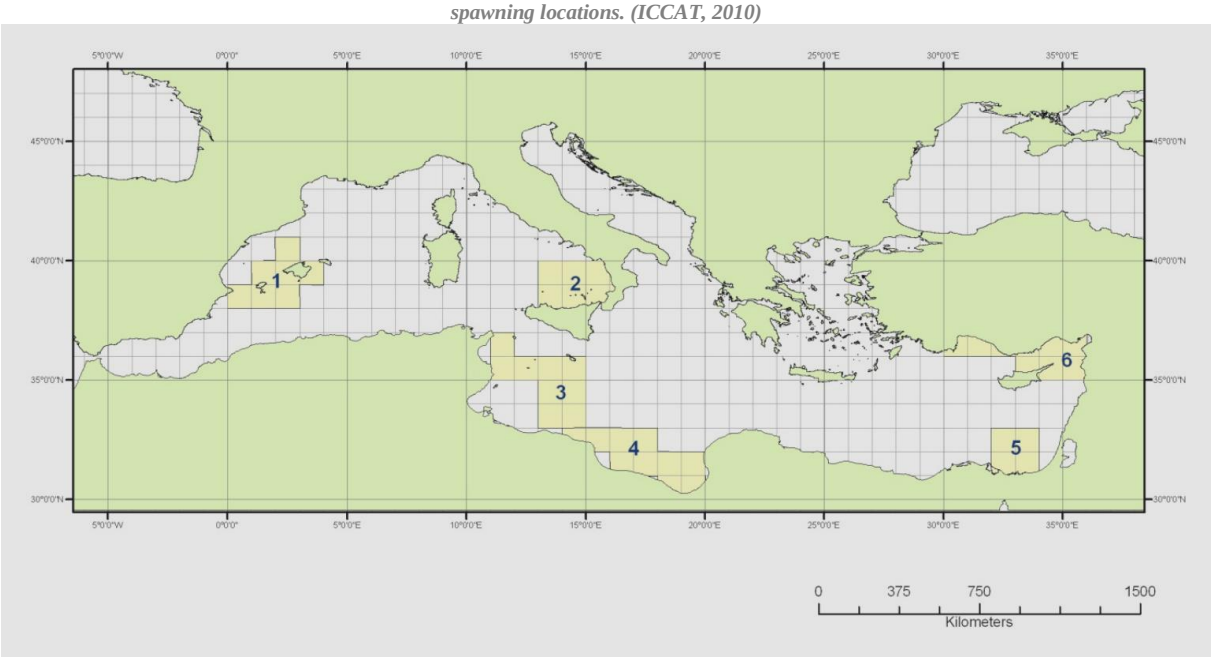
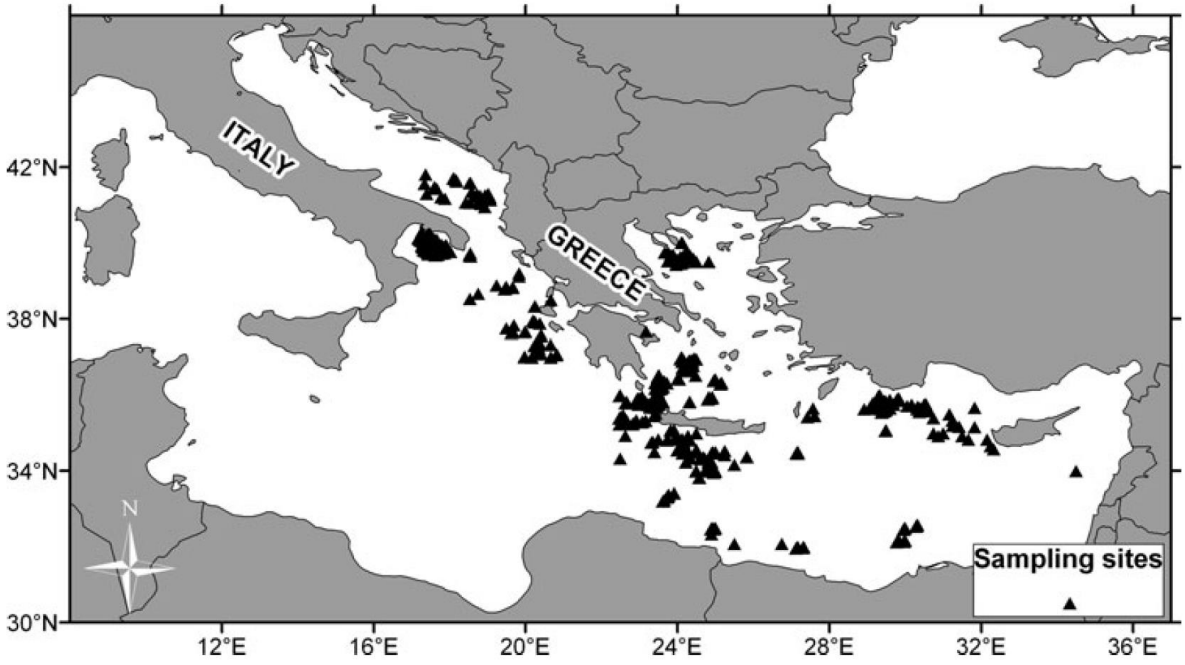


Figure 132. Map showing the areas used for sampling blue shark, Prionace glauca from the swordfish longline fishery, during 1998–2003 in the Mediterranean Sea (Adriatic Sea, Ionian Sea, Aegean Sea and Levantine basin). Sampling sites are indicated as black triangles (Megalofonou et al, 2009).



References

ICCAT. Anon. (2010). Report of the 2010 ICCAT Bluefin Tuna Data preparatory meeting. Madrid, Spain – June 14 to 19, 2010. International Commission for the Conservation of Atlantic Tunas

Megalofonou P., Damalas D. & G. De Metrio (2009). Biological characteristics of blue shark, Prionace glauca, in the Mediterranean Sea. Journal of the Marine Biological Association of the United Kingdom, 2009, 89(6), 1233–1242.

Notarbartolo di Sciara G. & T. Agardy (2009). Identification of potential SPAMIs in Mediterranean Areas Beyond National Jurisdiction. Contract N° 01/2008_RAC/SPA, High Seas. 70p.

Olu-Le Roy K., Sibuet M., Gofas S., Fiala-Medioni A., Foucher J.P. & J. Woodside (2004). Cold seep communities in the deep eastern Mediterranean Sea: composition, symbiosis and spatial distribution on mud volcanoes. Deep-Sea Research Part I Oceanographic Research Papers 51, 1915–1936.

Pape T., Kasten S., Zabel M., Bahr A., Abegg F., Hohnberg H-J. & G. Bohrmann (2010). Gas hydrates in shallow deposits of the Amsterdam mud volcano, Anaximander Mountains, Northeastern Mediterranean Sea. Geo-Marine Letters Volume 30, Numbers 3-4, 187-206, DOI: 10.1007/s00367-010-0197-8

Robinson A.R., Golnaraghi M., Leslie W.G., Artegiani A., Hecht A., Lazzoni E., Michelato A., Sansone E., Theocharis A. & U. Unluata (1991). The eastern Mediterranean general circulation: features, structure and variability, Dynamics of Atmospheres and Oceans, Volume 15, Issues 3-5, The Mediterranean Sea, April 1991, Pages 215-240

Salas C. & J. Woodside (2002). Lucinoma kazani n. sp. (Mollusca: Bivalvia): evidence of a living benthic community associatedwith a coldseep in the Eastern Mediterranean Sea. Deep-Sea Research I 49: 991–1005

Southward E.C., Andersen A.C. & S. Hourdez (2011). Lamellibrachia anaximandri n. sp., a new vestimentiferan tubeworm (Annelida) from the Mediterranean, with notes on frenulate tubeworms from the same habitat. Zoosystema 33 (3): 245–279. doi: http://dx.doi.org/10.5252/z2011n3a1

Tserpes G., Peristeraki P. & V.D. Valavanis (2008). Distribution of swordfish in the eastern Mediterranean, in relation to environmental factors and the species biology. Hydrobiologia 612, 241–250.

Woodside J.M., David A., & S.K. Hooker (2006). Gouge marks on deep-sea mud volcanoes in the eastern Mediterranean: Caused by Cuvier's beaked whales). Deep-sea Research I, 53 (11): 1762-1771.

33. ERATOSTHENES SEAMOUNT

Description and key species

Located in the middle of the Levantine Sea, off South coast of Cyprus (see Figure 133), it is one of the largest features in the Mediterranean Sea (~80x100 km). It rises to a depth of 690 meters (highest point of plateau) from a surrounding abyss of over 2000m. It is likely linked to mesoscale currents and its benthic biodiversity, with vermetid worms, is probably dependant on cold seeps occurrence (chemosynthetic communities). The benthic domain harbors fragile habitats such as black corals and stony corals (*Caryophyllia calveri*, *Desmophyllum dianthus* - first live records from the Levant Basin which significantly extended the species' depth ranges). Also slow maturing fish species occurs there such as the Mediterranean slimehead (*Hoplostethus mediterraneus*). In addition to the demersal community, green and loggerhead turtles (*Chelonia mydas* and *Caretta caretta*) frequently use the area in their migratory path. This seamount is also highly significant because numerous demersal targeted species are catched there such as deep water shrimps (*Aristaeomorpha foliacea*, *Aristeus antennatus*). Given the occurrence of Vulnerable Marine Ecosystems, the area was designated as a Fishing Restricted Area (FRA) by GFCM to avoid impact of deep-sea bottom trawling fisheries. All these fragile habitats are currently threatened by oil and gas drilling industry[9].

Depth Range	Approx. 650-2000m
Jurisdictional status	Cyprus Territorial waters
Location (centroid)	Latitude: 33° 38,884' N Longitude: 32° 33,804' E
MedNet Proposal	YES
MEOW	Levantine Sea

KEY SPECIES	
Aristaeomorpha foliacea	*Chelonia mydas*
Aristeus antennatus	*Desmophyllum dianthus*
Bathypterois spp	*Etmopterus spinax*
Caretta caretta	*Galeus melastomus*
Caryophyllia calveri	*Hoplostethus mediterraneus*
Chalinura mediterranea	*Plesionika martia*

Features to be protected according CBD examples
Gyres
Sea turtles
Seamount communities

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
The biggest seamount in the Mediterranean Sea				
Special importance for life-history stages of species				
Importance for threatened, endangered or declining species and/or habitats				X

spp	**CITES**	**CMS**	**SPA/BD Protocol**	**IUCN Red List (*)**
Caretta caretta	Appendix I	Appendix I	Annex II	EN
Caryophyllia calveri	Appendix II			
Chelonia mydas	Appendix I	Appendix I and II	Annex II	EN
Desmophyllum dianthus	Appendix II			

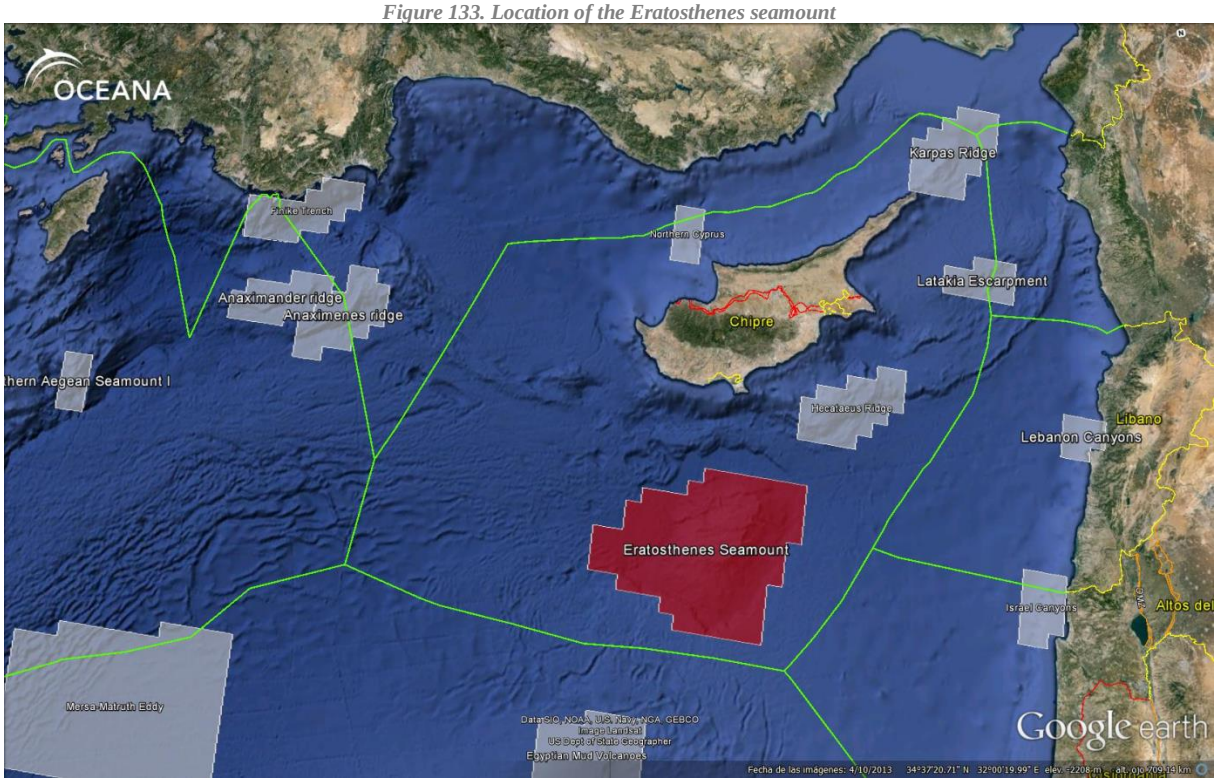
[9] Exploring and drilling for hydrocarbons must be stopped in unique and fragile mediterranean deep sea. URL: http://oceana.org/en/eu/media-reports/press-releases/exploring-and-drilling-for-hydrocarbons-must-be-stopped-in-unique-and-fragile-mediterranean-deep

Vulnerability, fragility, sensitivity, or slow recovery	X			
Hoplostethus mediterraneus occurence				
Biological productivity				
Significant for commercial species				
Biological diversity				
Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 133. Location of the Eratosthenes seamount



References

Christiansen B., Denda A. & H. Christiansen (2012). Structure and Function of Pelagic and Benthic Communities of the Eastern Mediterranean in Relation to Physical Drivers and Bottom Topography. First Results of Zooplankton and Fish Studies. Cruise Maria S. Merian 14/1. University of Hamburg

Galil B. & H. Zibrowius (1998). First benthos samples from Eratosthenes Seamount, eastern Mediterranean. Senckenbergiana maritima. 20.3.1998, Volume 28, Issue 4-6, pp 111-121

Gerosa G. & P. Casale (1999). Interaction of Marine Turtles with Fisheries in the Mediterranean. Marine Turtle Newsletter 94:19-21. 59 pp. UNEP; Regional Activity Centre for Specially Protected Areas (RAC/SPA); Tunis, Tunisia. ISBN : 9973-9926-6-0

GFCM. 2006. Recommendation GFCM/30/2006/3 on the establishment of fisheries restrictive areas in order to protect the deep sea sensitive habitats.

Robinson A.R., Golnaraghi M., Leslie W.G., Artegiani A., Hecht A., Lazzoni E., Michelato A., Sansone E., Theocharis A. & U. Unluata (1991). The eastern Mediterranean general circulation: features, structure and variability, Dynamics of Atmospheres and Oceans, Volume 15, Issues 3-5, The Mediterranean Sea, April 1991, Pages 215-240

Rogers A.D. & M. Gianni (2010). The Implementation of UNGA Resolutions 61/105 and 64/72 in the Management of Deep-Sea Fisheries on the High Seas. Report prepared for the Deep-Sea Conservation Coalition. International Programme on the State of the Ocean, London, United Kingdom, 97pp

.

34. NILE COLD HYDROCARBON SEEPS

Description and key species

Located in offshore North Sinai, the occurrence of gas hydrocarbon seeps (see Figure 135) harboring chemosymbiotic communities has been documented (see Figure 136). In this area of cold seeps, new species of mollusc and polychaetes have been recently described, like the vestimentiferan *Lamellibranchia anaximandri* (Southward *et al.*, 2011) or the Amphinomid *Cryptonome conclava* (Borda *et al.*, 2012). The area is influenced by the Libyo-Egyptian current which commonly hosting pelagic species, in fact, it is one of the most important habitats for marine turtles (*Caretta caretta*, *Chelonia mydas*). The coasts of the Sinai Peninsula are commonly used as nesting areas by those species. However, despite to be endangered species, a high pressure from human activities (bycatch, black market) exists which are jeopardizing the population. The area is also likely habitat for the common dolphin (*Delphinus delphis*). Furthermore, this region is also a known spawning area for bluefin tuna (*Thunnus thynnus*) (see Figure 137). The area has been designated as FRA under GFCM because of the cold seeps occurrence (Vulnerable Marine Ecosystems), and according to that bottom trawling activities are forbidden. However, according to the last assessment of the FRAs, there is a lack of enforcement in the area.

Depth Range	Approx. 100-800m
Jurisdictional status	Egypt and Israel Territorial waters
Location (centroid)	Latitude: 31° 42,314' N Longitude: 33° 40,139' E
MedNet Proposal	YES
MEOW	Levantine Sea

KEY SPECIES
Caretta caretta
Chelonia mydas
Delphinus delphis
Lamellibranchia anaximandri
Cryptonome spp.
Thunnus thynnus

Features to be protected according CBD examples
Cold seeps
Highly migratory fish
Sea turtles
Whales and other cetaceans

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				X
Cold seeps occurrence				
Special importance for life-history stages of species				X
Spawning ground for bluefin tuna and nesting areas in the coast for marine turtles				
Importance for threatened, endangered or declining species and/or habitats				X

spp	CITES	CMS	SPA/BD Protocol	IUCN Red List (*)
Caretta caretta	Appendix I	Appendix I	Annex II	EN
Chelonia mydas	Appendix I	Appendix I and II	Annex II	EN
Delphinus delphis	Appendix II	Appendix I and II	Annex II	LC/EN (Med)
Thunnus thynnus			Annex III	EN/EN (Med)

Vulnerability, fragility, sensitivity, or slow recovery				X
Chemosymbiotic communities as Vulnerable Marine Ecosystems				
Biological productivity				
Biological diversity				
Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 134. Location of the Nile Cold Hydrocarbon seeps

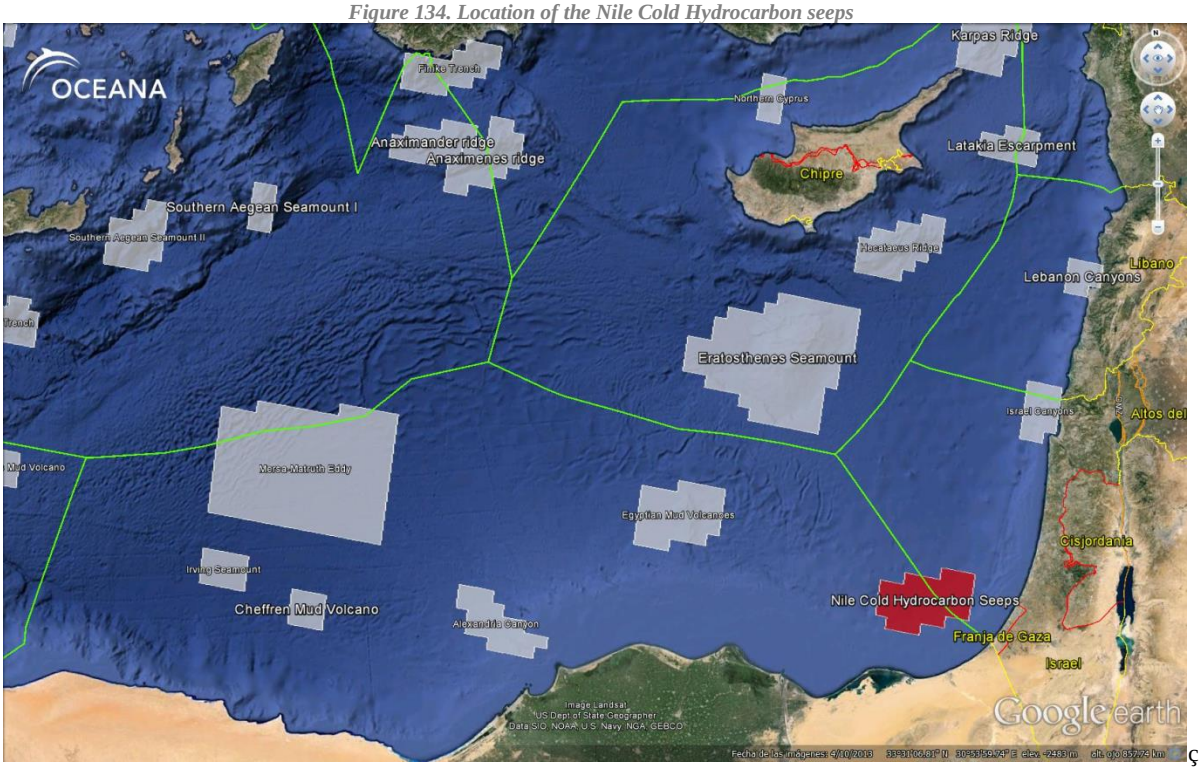


Figure 135. Seep buildup emiting gas bubbles in the Nile delta. The chemoherm cone is about 0.5m in diameter at its base

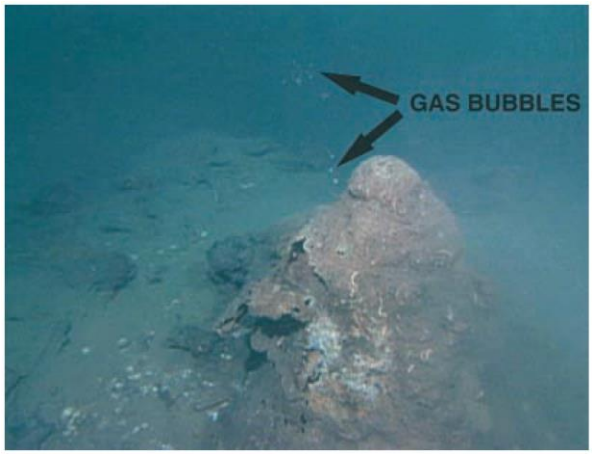


Figure 136. Living polychaete and clam communities off the Nile delta

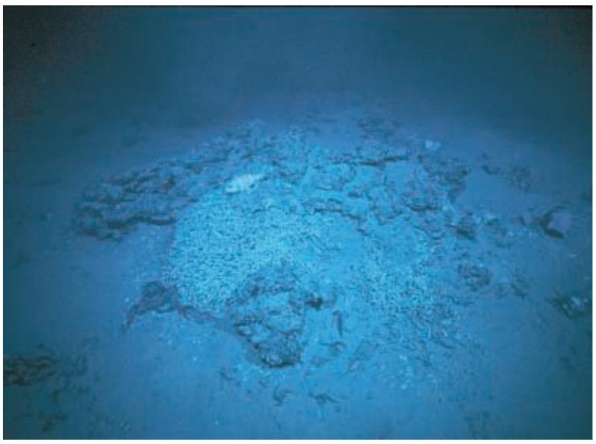


Figure 137. Spawning areas of Thunnus thynnus identified through analysis of VMS data used in the 2010 GBYP aerial survey program for surveying spawning biomass in the Mediterranean. These areas are consistent with current scientific knowledge of the main spawning locations. (ICCAT, 2010)

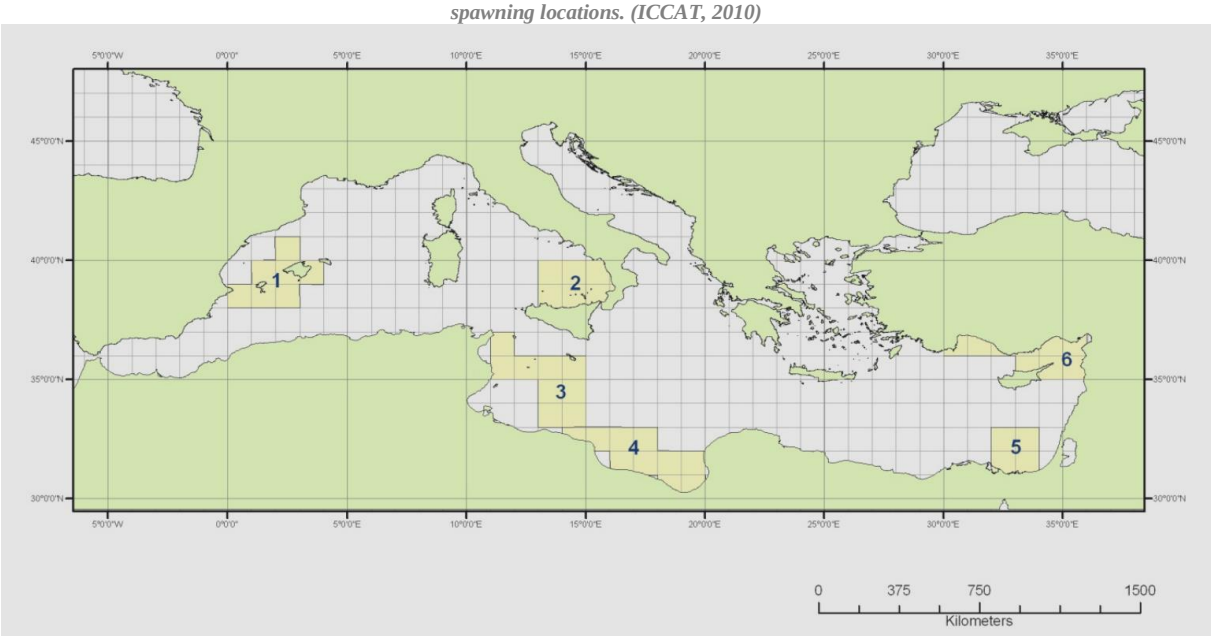
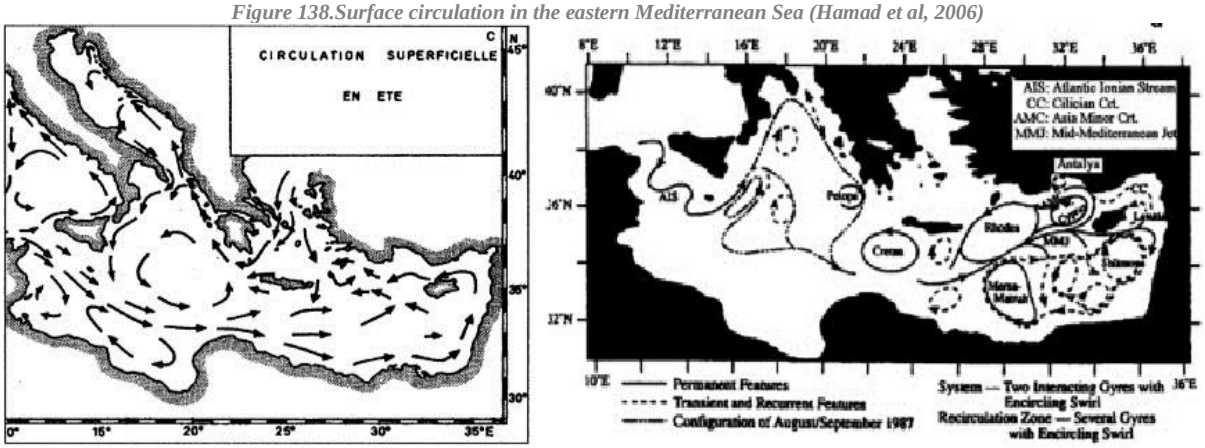


Figure 138.Surface circulation in the eastern Mediterranean Sea (Hamad et al, 2006)



References

Borda E., Kudenov J.D., Bienhold C. & G.W. Rouse (2012). Towards a revised Amphinomidae (Annelida, Amphinomida): description and affinities of a new genus and species from the Nile Deep-sea Fan, Mediterranean Sea. Zoologica Scripta, 41, 307–325.

Clarke M., Campbell A.C., Hameid W.S. & S. Ghoneim (2000). Preliminary report on the status of marine turtle nesting populations on the Mediterranean coast of Egypt. Biological Conservation, Volume 94, Number 3, July 2000 , pp. 363-371(9)

Coleman D. & R.D. Ballard (2001). A highly concentrated region of cold hydrocarbon seeps in the southeastern Mediterranean Sea. Geo-Marine Letters. Volume 21, Number 3, 162-167, DOI: 10.1007/s003670100079

Gerosa G. & P. Casale (1999). Interaction of Marine Turtles with Fisheries in the Mediterranean. Marine Turtle Newsletter 94:19-21. 59 pp. UNEP; Regional Activity Centre for Specially Protected Areas (RAC/SPA); Tunis, Tunisia. ISBN : 9973-9926-6-0

GFCM. 2014. Final report of Working Group on Marine Protected Areas. Subcommittee on Marine Environment and Ecosystems-Scientific Advisory Committee GFCM.GFCM. (2006). Recommendation GFCM/30/2006/3 on the establishment of fisheries restrictive areas in order to protect the deep sea sensitive habitats.

Hamad N., Millot C. & I. Taupier-Letage (2006). The surface circulation in the eastern basin of the Mediterranean Sea. Scientia Marina 70(3) 457-503

ICCAT. Anon. 2010. Report of the 2010 ICCAT Bluefin Tuna Data preparatory meeting. Madrid, Spain – June 14 to 19, 2010. International Commission for the Conservation of Atlantic Tunas

Notarbartolo di Sciara G. & T. Agardy (2009). Identification of potential SPAMIs in Mediterranean Areas Beyond National Jurisdiction. Contract N° 01/2008_RAC/SPA, High Seas. 70p.

Robinson A.R., Golnaraghi M., Leslie W.G., Artegiani A., Hecht A., Lazzoni E., Michelato A., Sansone E., Theocharis A. & U. Unluata (1991). The eastern Mediterranean general circulation: features, structure and variability, Dynamics of Atmospheres and Oceans, Volume 15, Issues 3-5, The Mediterranean Sea, April 1991, Pages 215-240

Southward E.C., Andersen A.C. & S. Hourdez (2011). Lamellibrachia anaximandri n. sp., a new vestimentiferan tubeworm (Annelida) from the Mediterranean, with notes on frenulate tubeworms from the same habitat. Zoosystema 33 (3): 245–279. doi: http://dx.doi.org/10.5252/z2011n3a1

35. LEBANON CANYONS

Description and key species

This area includes three important features of the Levantine Sea: the Beirut Escarpment, the Saint-George canyon and the Junieh Canyon (see Figure 139). According to the submarine canyons dynamic, it is highly probable that they intervene in the mesoscale circulation in the Levantine Sea. It is also important to note that there is a relatively high abundance of sharks in this region. However, this area is particularly significant because it is considered as nursery ground for the common guitarfish (*Rhinobatos rhinobatos*). Regarding cetaceans, the common bottlenose dolphin (*Tursiops truncatus*) has been recorded in the area (see Figure 140). There is a lack of basic knowledge in the area, although due to the existence of several canyons, cold water corals and other vulnerable marine ecosystems are likely to occur. However, marine environment is constantly threatened by oil/gas drilling activity.

Depth Range	Approx. 100-2000m
Jurisdictional status	Lebanon Territorial waters
Location (centroid)	Latitude: 33° 59,894' N Longitude: 35° 27,410' E
MedNet Proposal	YES
MEOW	Levantine Sea

KEY SPECIES
Cetacea LARGE PELAGICS - fisheries *Rhinobatos rhinobatos* *Tursiops truncatus*

Features to be protected according CBD examples
Canyons Sharks Whales and other cetaceans

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
Special importance for life-history stages of species				X
Nursery ground for common guitarfish				
Importance for threatened, endangered or declining species and/or habitats				X

C_EBSAworkshop_keySPP				
spp	**CITES**	**CMS**	**SPA/BD Protocol**	**IUCN Red List (*)**
Cetacea	Appendix II			
Rhinobatos rhinobatos			Annex III	EN/EN (Med)
Tursiops truncatus	Appendix II	Appendix II	Annex II	LC/VU (Med)

Vulnerability, fragility, sensitivity, or slow recovery				
Biological productivity				
Biological diversity				
Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 139. Location of the Lebanon canyons

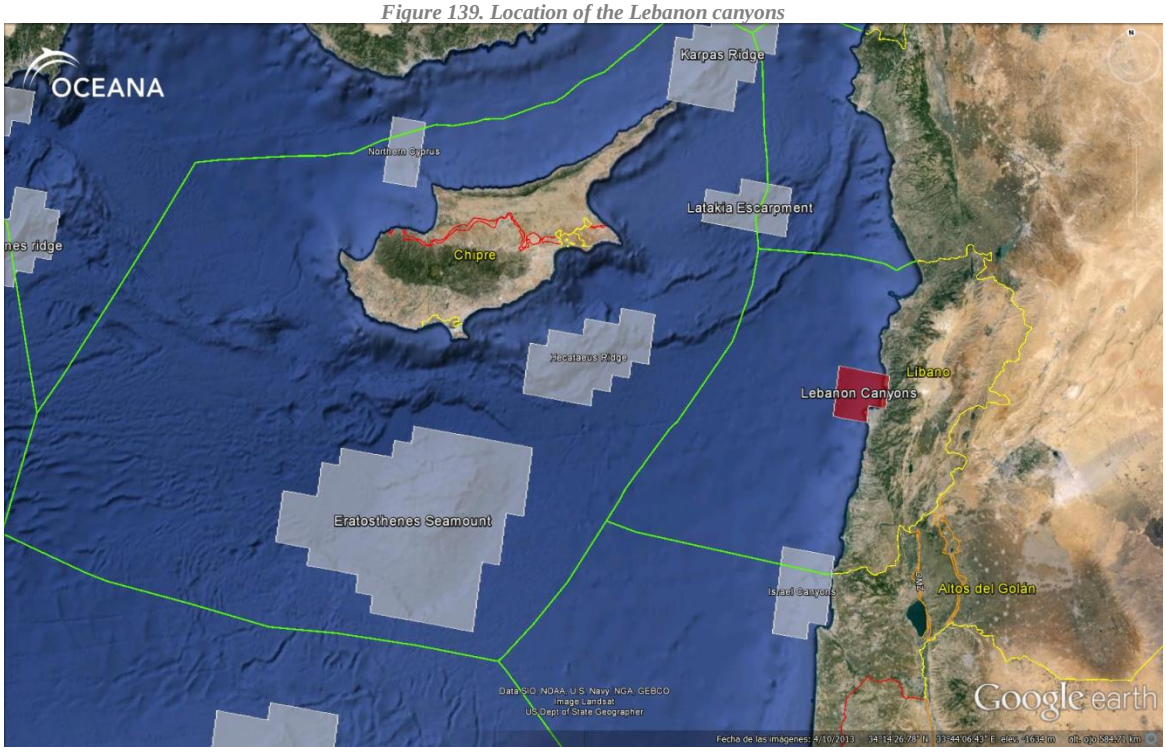
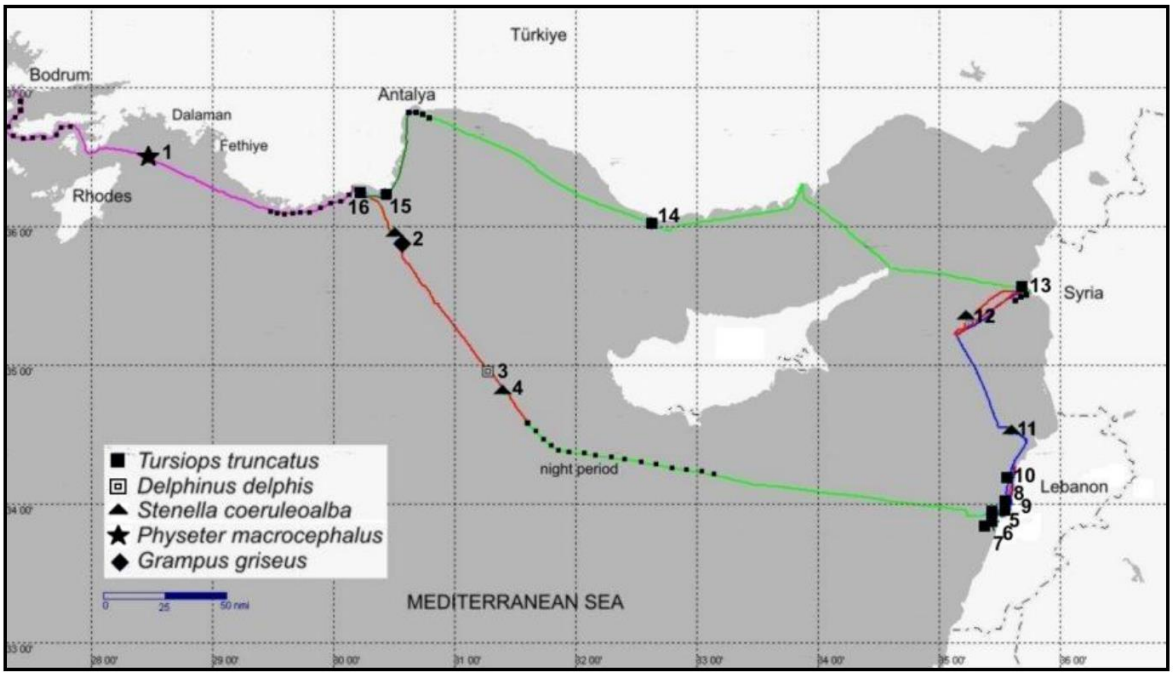


Figure 140. Cetacean sightigns in the Levantine Sea (Dede et al, 2012)



References

Dede A., Saad A., Fakhri M & B. Öztürk (2012). Cetacean sightings in the Eastern Mediterranean Sea during the cruise in summer 2008. J. Black Sea/Mediterranean Environment Vol. 18, No. 1: 49-57 (2012)

Notarbartolo di Sciara G & T. Agardy (2009). Identification of potential SPAMIs in Mediterranean Areas Beyond National Jurisdiction. Contract N° 01/2008_RAC/SPA, High Seas. 70p.

Robinson A.R., Golnaraghi M., Leslie W.G., Artegiani A., Hecht A., Lazzoni E., Michelato A., Sansone E., Theocharis A. & U. Unluata (1991). The eastern Mediterranean general circulation: features, structure and variability, Dynamics of Atmospheres and Oceans, Volume 15, Issues 3-5, The Mediterranean Sea, April 1991, Pages 215-240

36. LATAKIA ESCARPMENT

Description and key species

Located in the Levantine Sea, between Syria and Cyprus (see Figure 141), the Latakia escarpment is the eastern morphological continuity of the Cyprus arc (see Figure 142). Affected by the recurrently generated Latakia eddy (see Figure 143 and Figure 144), this area is particularly important because of its function as spawning ground for bluefin tuna (*Thunnus tynnus*) (see Figure 145). The Latakia Eddy is mainly cyclonic with higher intensities in summer and fall with occasional weekly or monthly inversions of circulation from cyclonic to anticyclonic triggered by the interaction between the Mid-Mediterranean Jet (MMJ) and the northward coastal meandering current. Other endangered species, such as the loggerhead turtle (*Caretta caretta*) and the green turtle (*Chelonia mydas*) can be also found. The sea bottom has an important geological diversity including rocky outcrops, sedimentary deposits and mud volcanoes (Hübscher et al., 2009).

Depth Range	Approx. 900-1500m
Jurisdictional status	Cyprus and Siria Terrotorial waters
Location (centroid)	Latitude: 35° 3,402' N Longitude: 34° 57,356' E
MedNet Proposal	YES
MEOW	Levantine Sea

KEY SPECIES
Caretta caretta
Chelonia mydas
Thunnus thynnus

Features to be protected according CBD examples
Highly migratory fish
Sea turtles
Gyre
Mud volcanoes
Submarine canyons

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
Special importance for life-history stages of species				
Importance for threatened, endangered or declining species and/or habitats				

spp	CITES	CMS	SPA/BD Protocol	IUCN Red List (*)
Caretta caretta	Appendix I	Appendix I	Annex II	EN
Chelonia mydas	Appendix I	Appendix I and II	Annex II	EN
Thunnus thynnus			Annex III	EN/EN (Med)

Vulnerability, fragility, sensitivity, or slow recovery				
Biological productivity				
Biological diversity				
Naturalness				

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 141. Location of the Latakia escarpment

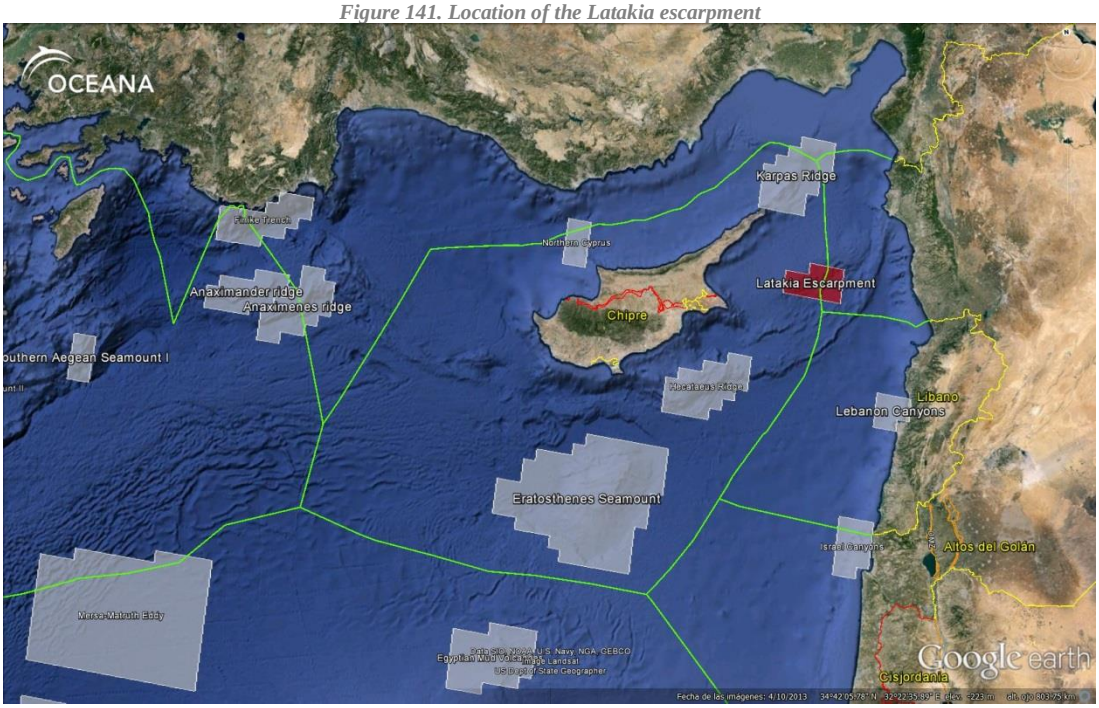


Figure 142. Detailed bathymetry of the Cyprus Basin, Latakia Ridge, Tartus Ridge and Gelendzhik Rise (Hall et al, 2005)

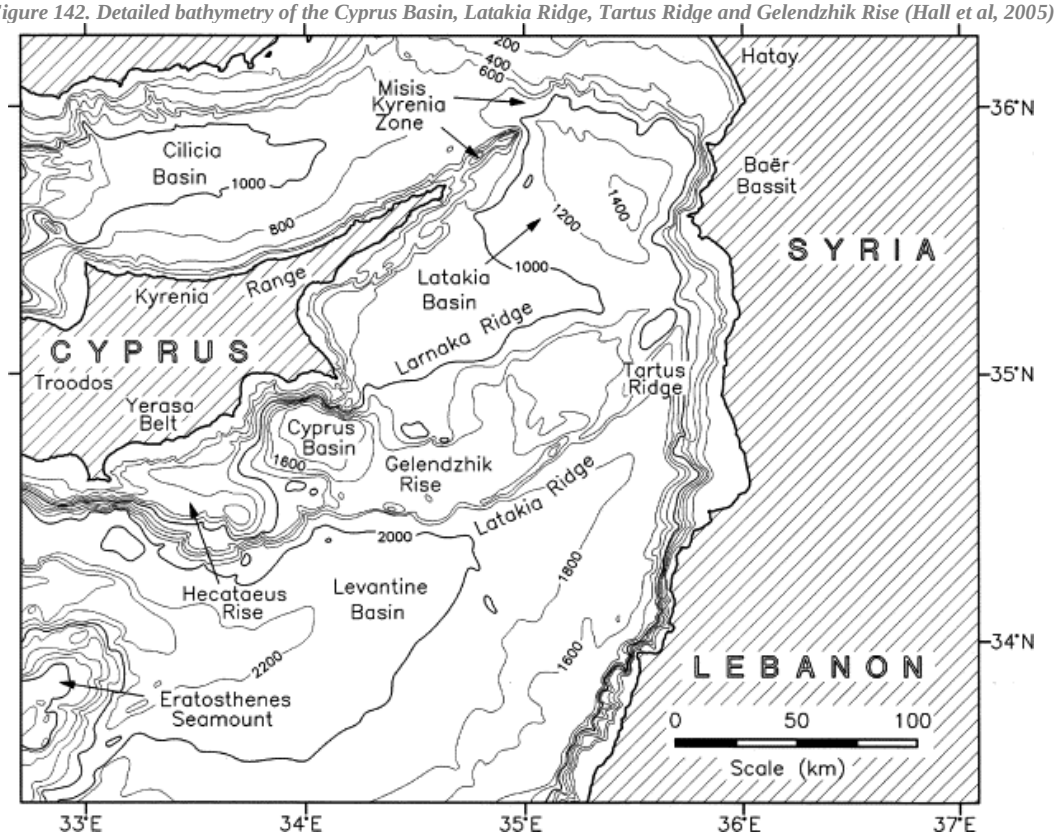


Figure 143. Schematic general circulation in the Eastern Mediterranean Sea (Robinson et al, 1991)

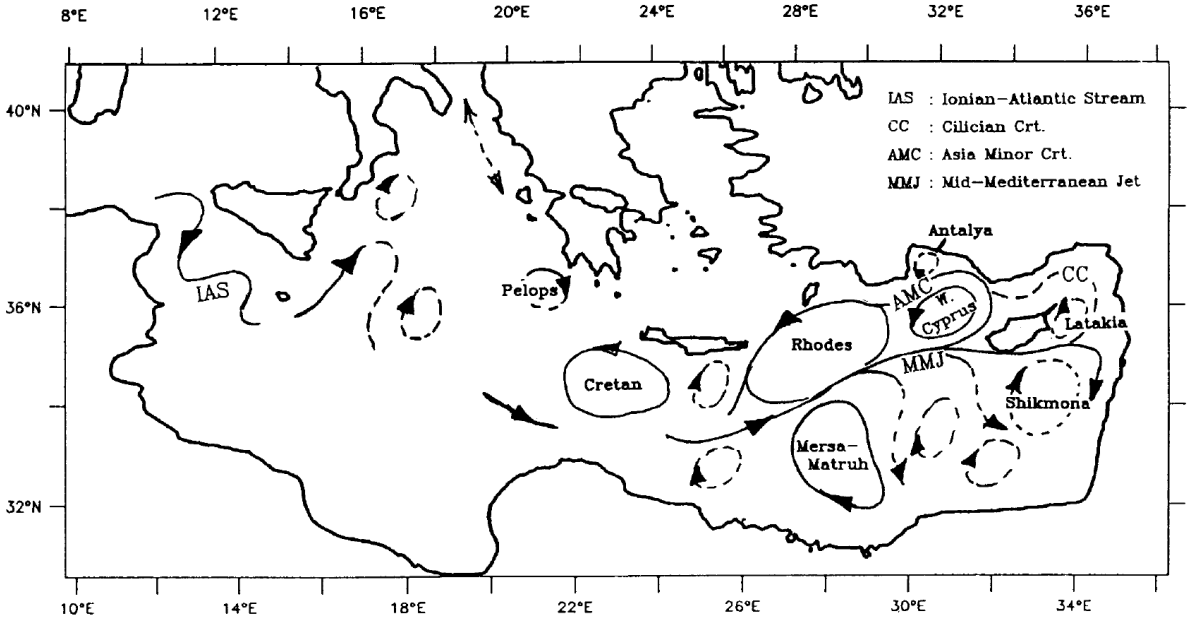


Figure 144. Locations of the major sub-basin eddies: Pelops Eddy (PE), Libyan Eddies (LE1 and LE2), Ierapetra Eddy (IE), Egyptian Eddy (EE), Eratosthenes Seamount Eddy (ESE) and Latakia Eddy (LE)

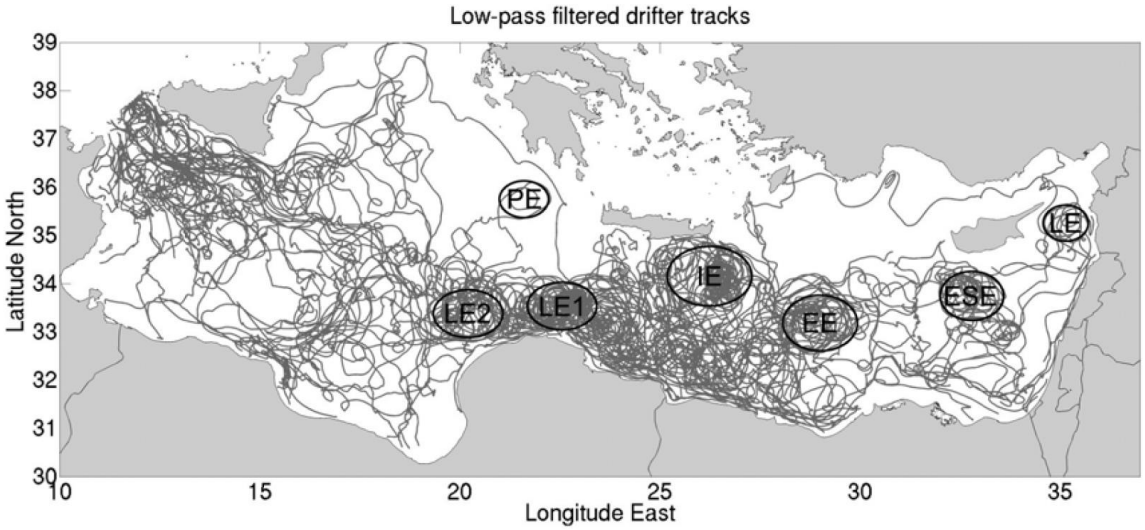
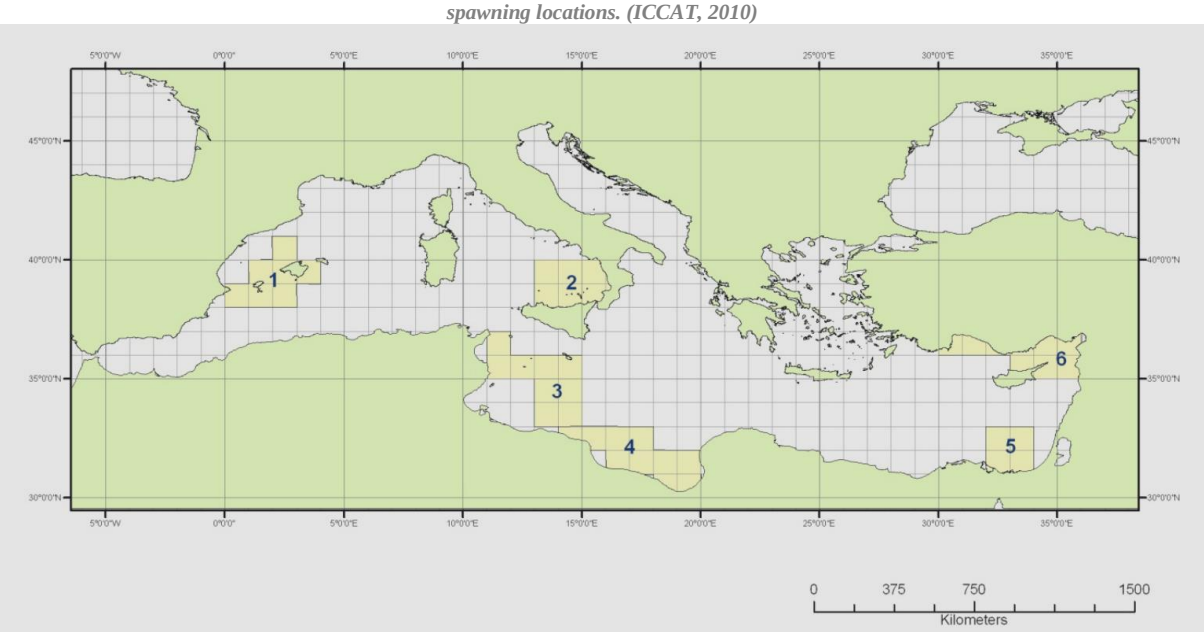


Figure 145. Spawning areas of Thunnus thynnus identified through analysis of VMS data used in the 2010 GBYP aerial survey program for surveying spawning biomass in the Mediterranean. These areas are consistent with current scientific knowledge of the main spawning locations. (ICCAT, 2010)



References

Almagor G & A. Karnieli (1996). Sediment transport over the continental slope offshore nothern Israel: an analysis by means of electron microscopy. Sedimentary Geology 103. 63-83

Hall J., Calon T.J., Aksu A.E & S.R. Meade (2005). Structural evolution of the Latakia Ridge and Cyprus Basin at the front of the Cyprus Arc, Eastern Mediterranean Sea. Marine Geology, 221 (1-4), pp. 261-297

Gerin R., Poulain P.M., Taupier-Letage I., Millot C., Ben Ismail S. & C. Sammari (2009). Surface circulation in the Eastern Mediterranean using drifters (2005–2007). Ocean Sci., 5, 559–574. www.ocean-sci.net/5/559/2009/

Hübscher C., Tahchi E., Klaucke I., Maillard A. & H. Sahling (2009). Salt tectonics and mud volcanism in the Latakia and Cyprus Basins, Eastern Mediterranean. Tectonophysics, 470: 173-182.

ICCAT. Anon. 2010. Report of the 2010 ICCAT Bluefin Tuna Data preparatory meeting. Madrid, Spain – June 14 to 19, 2010. International Commission for the Conservation of Atlantic Tunas

Menna M., Poulain P-M, Zodiatis G. & I. Gertman (2012). On the surface circulation of the Levantine sub-basin derived from Lagrangian drifters and satellite altimetry data. Deep-Sea Research I 65 (2012) 46–58

Mosher D.C., Shipp C., Moscardelli L., Chaytor J., Baxter C., Lee H & R. Urgeles (Eds.) (2010). Submarine Mass Movements and Their Consequences. 4th International Symposium

Notarbartolo di Sciara G. & T. Agardy (2009). Identification of potential SPAMIs in Mediterranean Areas Beyond National Jurisdiction. Contract N° 01/2008_RAC/SPA, High Seas. 70p.

Robinson A.R., Golnaraghi M., Leslie W.G., Artegiani A., Hecht A., Lazzoni E., Michelato A., Sansone E., Theocharis A. & U. Unluata (1991). The eastern Mediterranean general circulation: features, structure and variability, Dynamics of Atmospheres and Oceans, Volume 15, Issues 3-5, The Mediterranean Sea, April 1991, Pages 215-240

.

37. KARPAS RIDGE

Description and key species

The site is located in the Northern Levantine Sea, North East of Cyprus and close to Turkey and Syria (see Figure 146). This area is under the influence of the Latakia Eddy (see Figure 147). As for the Latakia escarpement proposal, this area is of high interest because it is one of the most important spawning grounds for bluefin tuna (*Thunnus thynnus*). Furthermore, it is also within the distribution range of loggerhead and green turtle (*Caretta caretta* and *Chelonia mydas*). This area is under intense fishing pressure because of the relatively high presence of large pelagic fish. Sea bottom hosts amixed bottoms including rock outcrops, muddy beds, shell fragments, cobbles, etc. and important communities of seagrass (*Posidonia oceanica*) and algae (*Cystoseira crinita, Sargassum vulgare, Padina pavonica, Flabelia petiolata,* etc.) with the presence of diverse polychaetes, sponges, bryozoans, sipunculids, etc. (Açik *et al.*, 2005; Çinar, 2005; Kocak *et al.*, 2002).

Depth Range	Approx. 200-1000m
Jurisdictional status	Cyprus, Siria, turkey Territorial waters
Location (centroid)	Latitude: 35° 54,859' N Longitude: 34° 56,379' E
MedNet Proposal	YES
MEOW	Levantine Sea

KEY SPECIES
Caretta caretta
Chelonia mydas
Large pelagics - fisheries
Thunnus thynnus
Posidonia oceanica
Cystoseira crinita
Sarcotragus sp.

Features to be protected according CBD examples[10]
Gyres
Highly migratory fish
Sea turtles
Seagrass meadows

Assessment of the area against CBD EBSA Criteria

CBD EBSA Criteria (Annex I to decision IX/20)	**Ranking of criterion relevance**			
	No information	**Low**	**Medium**	**High**
Uniqueness or rarity				
Special importance for life-history stages of species				X
Spawning grounds for Bluefin tuna, but also other scombrids.				
Importance for threatened, endangered or declining species and/or habitats				

spp	CITES	CMS	SPA/BD Protocol	IUCN Red List (*)
Caretta caretta	Appendix I	Appendix I	Annex II	EN
Chelonia mydas	Appendix I	Appendix I and II	Annex II	EN
Cystoseira crinita			Annex II	
Thunnus thynnus			Annex III	EN/EN (Med)
Posidonia oceanica			Annex II	LC

Vulnerability, fragility, sensitivity, or slow recovery	X			
Biological productivity			X	

[10] UNEP/CBD/EWS.MPA/1/2. Examples of features that would meet the scientific criteria for identifying ecologically or biologically significant marine areas or species. UNEP/CBD/EWS.MPA/1/2. Appendix to Annex II.

Coastal occurrence of highly productive seagrass and algae beds				
Biological diversity	X			
Naturalness			X	

(*) IUCN Red List categories: Extinct (EX); Extinct in the wild (EE); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD)

Maps and Figures

Figure 146. Location of the Karpas ridge

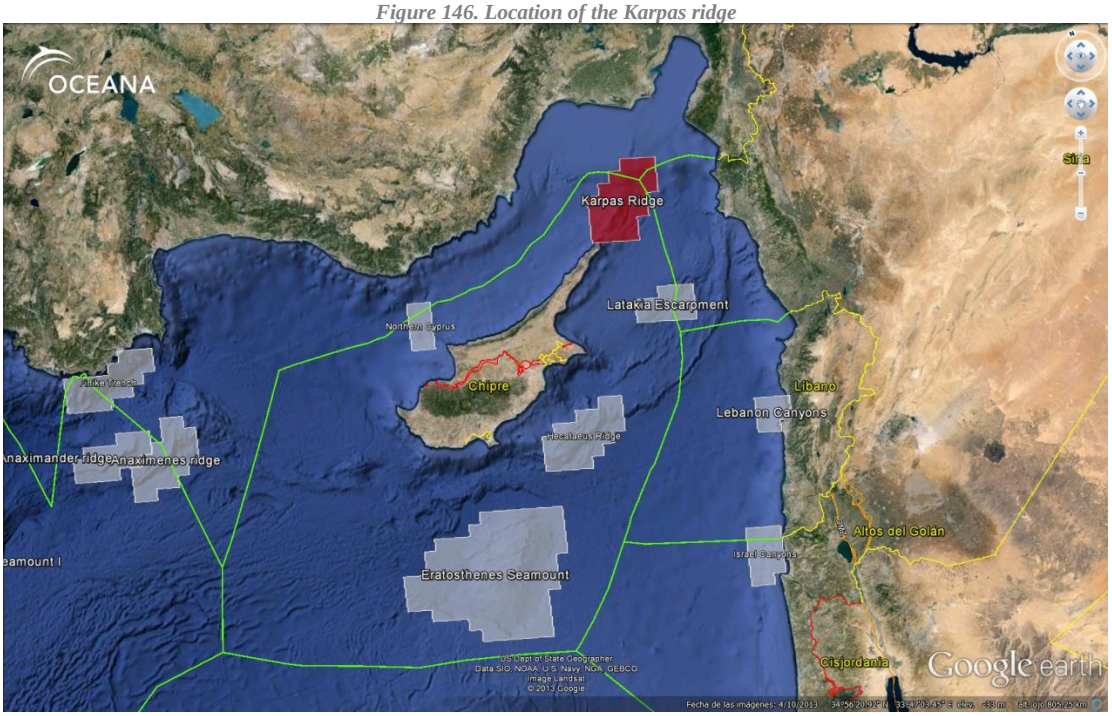
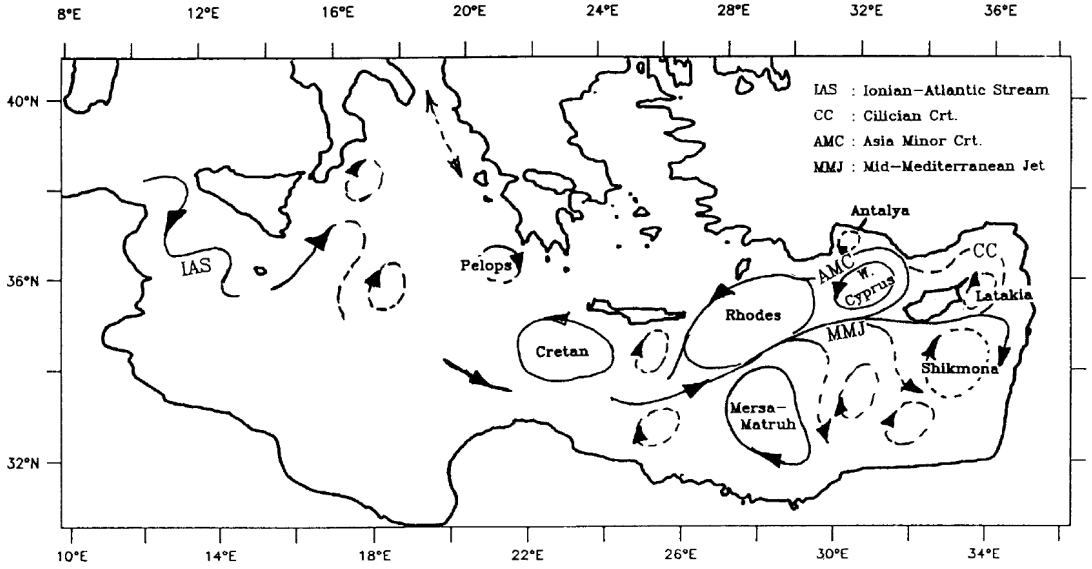


Figure 147. Schematic general circulation in the Eastern Mediterranean Sea (Robinson et al, 1991)



References

Açik S., Murina G.V., Çinar M.E., & Z. Ergen (2005).Cyprus Sipunculans from the coast of northern Cyprus (eastern Mediterranean Sea). Zootaxa 1077: 1–23.

Çinar M.E. (2005) Polychaetes from the coast of northern Cyprus (eastern Mediterranean Sea), with two new records for the Mediterranean Sea. Cah. Biol. Mar, 46:143-159.

ICCAT. Anon. 2010. Report of the 2010 ICCAT Bluefin Tuna Data preparatory meeting. Madrid, Spain – June 14 to 19, 2010. International Commission for the Conservation of Atlantic Tunas

Kocak F., Balduzzi A., & H.A. Benli (2002). Epiphytic bryozoan community of Posidonia oceanica (L.) Delile meadow in the northern Cyprus (Eastern Mediterranean). Indian Journal of Marine Sciences, 31 (3): 235-238.

Notarbartolo di Sciara G. & T. Agardy (2009). Identification of potential SPAMIs in Mediterranean Areas Beyond National Jurisdiction. Contract N° 01/2008_RAC/SPA, High Seas. 70p.

Robinson A.R., Golnaraghi M., Leslie W.G., Artegiani A., Hecht A., Lazzoni E., Michelato A., Sansone E., Theocharis A. & U. Unluata (1991). The eastern Mediterranean general circulation: features, structure and variability, Dynamics of Atmospheres and Oceans, Volume 15, Issues 3-5, The Mediterranean Sea, April 1991, Pages 215-240

Annex. Other material

- Information submitted to GFCM for FRA designation of the Balearic Seamounts (STANDARD FORMAT FOR THE SUBMISSION OF PROPOSALS FOR GFCM FISHERIES RESTRICTED AREAS (FRA) IN THE MEDITERRANEAN)
  http://151.1.154.86/GfcmWebSite/SAC/SubCommittees/2010/FRAMontes_Baleares.pdf
- De Mol et alCold-water coral colonization of Alboran Sea knolls, Western Mediterranean Sea

REPORTS:

- Oceana MedNet: 100 reasons to reach 10%
  http://oceana.org/sites/default/files/reports/OCEANA_MEDNet_ING_16012012_0.pdf
- Balearic Seamounts 2010
  http://oceana.org/sites/default/files/reports/OCEANA_Seamounts_Balearic_Islands_ENG.pdf
- Balearic Seamounts 2011
  http://oceana.org/sites/default/files/reports/OCEANA_Montanas_submarinas_baleares_Canal_mallorca_2011_0.pdf
- Mediterranean areas of ecological importance
  http://oceana.org/sites/default/files/reports/propuesta_areas_marinas_importancia_ecologica.pdf
- Bionomic study of Cabrera
  http://oceana.org/sites/default/files/reports/oceana_estudio_bionomico_cabrera.pdf

POSTERS

- IMPORTANCE OF SEAMOUNT-LIKE FEATURES FOR CONSERVING MEDITERRANEAN MARINE HABITATS AND THREATENED SPECIES. 40th CIESM Congress 2013
  http://oceana.org/sites/default/files/reports/OCEANA_Cartel_CIESM_web.pdf
- DEEP-SEA CORALLIGENOUS BEDS OBSERVED WITH ROV ON FOUR SEAMOUNTS IN THE WESTERN MEDITERRANEAN
  http://oceana.org/sites/default/files/reports/Poster_Coraligeno_2009.pdf

VIDEOS

Further information from Oceana expeditions (images, footage, maps, etc.) is available upon request

OCEANA

Plaza de España - Leganitos, 47
28013 Madrid (Spain)
Tel.: + 34 911 440 880
Fax: + 34 911 440 890
europe@oceana.org
www.oceana.org

Rue Montoyer, 39
1000 Brussels (Belgium)
Tel.: + 32 (0) 2 513 22 42
Fax: + 32 (0) 2 513 22 46
brussels@oceana.org