



4. Seamounts and Seamount-like Structures of Sardinia Channel, Strait of Sicily, Ionian Sea and Adriatic Sea

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Disambiguation

In early studies, the Sardinia Channel, the sea region comprised between Sardinia and Sicily and bordered to the south by the northern Tunisian continental shelf, has been termed Sardinia Valley. The Tunisian Plateau was identified as a broad sector of the northern Tunisian upper slope/shelf around Cape Bon (Gennesseaux and Stanley, 1983).

In Budillon *et al.* (2009), the Tunisia Plateau corresponds with a small sector of the northern Tunisian continental shelf, close to the Galite Island. The term Tunisian Plateau actually corresponds to another marine region in Spalding *et al.* (2007), from which it has been adopted in <http://www.marineregions.org/gazetteer.php?p=details&id=21898>, where it is identified with the Gulf of Sidra (Sirte), between Tunisia and Libya.

Moreover at <http://www.marineregions.org/gazetteer.php?p=details&id=4095>, citing the IHO-IOC GEBCO Gazetteer of Undersea Feature Names (2002-10-01), the Tunisian Plateau is described as part of the Strait of Sicily.

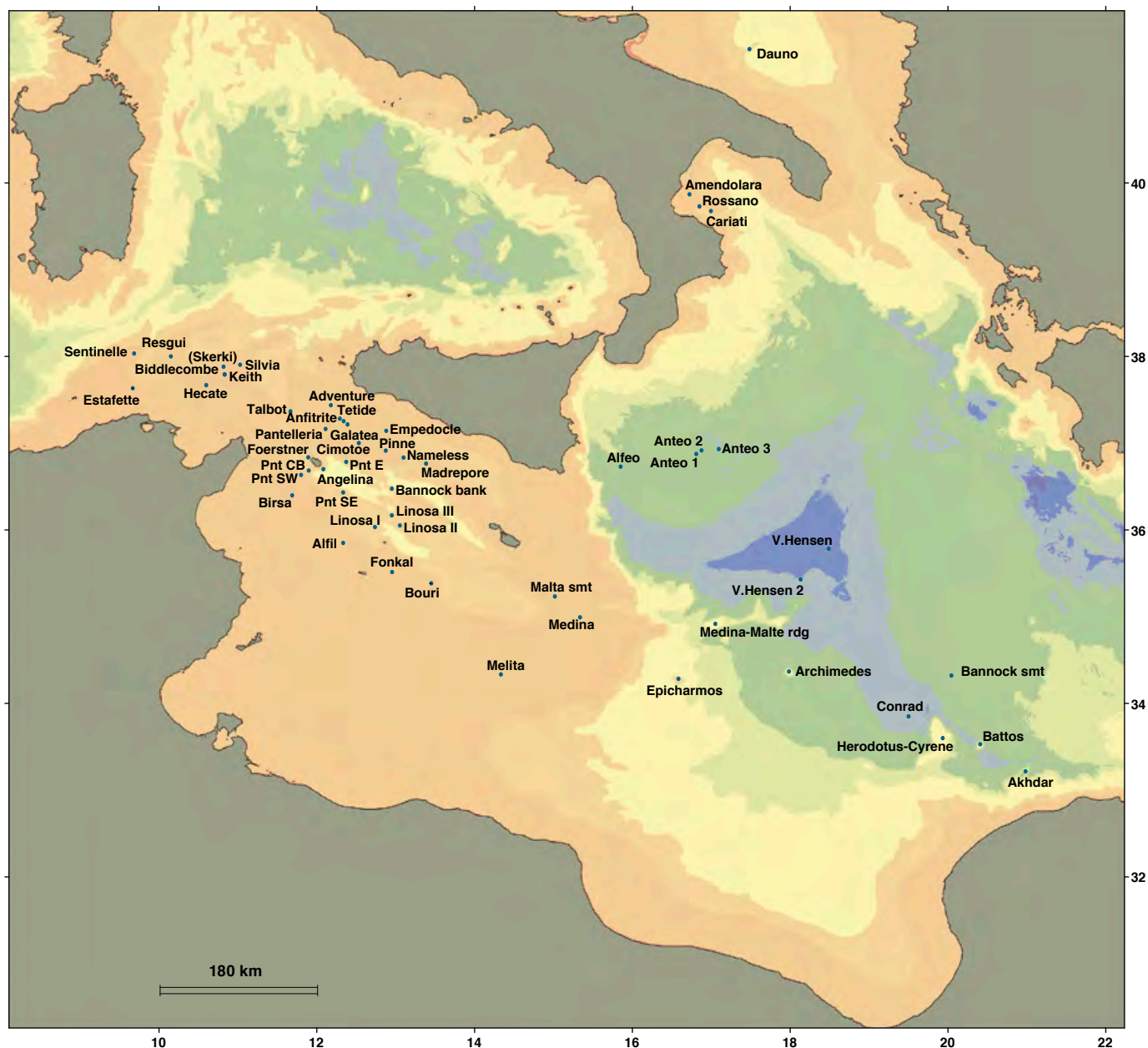
Since the term Tunisia Plateau is also used for Tunisian terrestrial territories, we will stick to the term Sardinia Channel, considering this one the most reliable definition.

Notwithstanding, we will use the term Tunisian Plateau (*sensu* Gennesseaux and Stanley, 1983) for the Estafette, Resgui and Sentinelle Banks.

Table 4: Seamounts and Banks of the Sardinia Channel-Sicily Strait – Ionian Sea – Adriatic Sea.

Seamount name	Lat. °	Long. °	▲ Peak depth (m)	▼ Base depth (m)	Page
SARDINIA CHANNEL					190
Estafette Bank	37.63289	9.66758	80-90	230-240	190
Resgui Bank	38.00062	10.15029	200-210	380-390	191
Sentinelle Bank	38.03398	9.68409	90-100	390-400	192
Skerki-Biddlecombe Patch	37.88133	10.81793	15-20	210-220	193
Skerki-Hecate Bank	37.66874	10.59860	40-50	210-220	193
Skerki-Keith Reef	37.79233	10.83178	0-10	210-220	193
Skerki-Silvia Bank	37.90426	11.02766	20-30	210-220	193
SICILY STRAIT					194
Adventure Bank	37.43741	12.17774	20-30	190-200	194
Alfil Bank	35.84975	12.33391	90-100	240-250	196
Anfitrite Volcano	37.25344	12.33998	ND	ND	194
Angelina Seamount	36.70056	12.08318	600-610?	990-1000?	198
Bannock Bank	36.47550	12.95061	280-290	780-790	199
Birsa Bank	36.39810	11.68780	80-90	190-200	196
Bouri Bank	35.38384	13.45112	90-100	380-390	196
Cimotoe Volcano	37.00126	12.53249	ND	ND	194
Empedocle Seamount (Graham, Nerita, Terribile Banks)	37.16678	12.71730	330-340	190-200	200
Foerstner Volcano	36.83669	11.89143	90-100	340-350	198
Fonkal Bank	35.51400	12.95400	180-190	240-250	196
Galatea Volcano	37.21584	12.38967	ND	ND	194
Linosa I Volcano	36.03317	12.73711	590-600	690-700	202
Linosa II Volcano	36.05154	13.05265	450-460	540-550	202
Linosa III Volcano	36.16757	12.95081	400-410	540-550	202
Madrepore Bank	36.76370	13.38452	270-280	580-590	203
Malta Seamount	35.23324	15.01700	80-90	390-400	204
Medina Bank	34.99230	15.33660	120-130	320-330	204
Melita Bank	34.33418	14.33338	80-90	330-340	204
Nameless - Urania Bank	36.83367	13.09928	80-90	330-340	205
Pantelleria Bank	37.16355	12.11108	13	190-200	194
Pantelleria Central Bank	36.68456	11.89742	620-630	750-760	198
Pantelleria E Seamount	36.78434	12.37238	600-610	990-1000	198
Pantelleria SE Seamount	36.43206	12.33385	200-210	560-570	198
Pantelleria SW Seamount	36.63326	11.80079	120-130	250-260	198
Pinne Bank	36.91394	12.87395	10-20	330-340	205
Talbot Bank	37.36708	11.66642	20-30	190-200	194
Tetide Volcano	37.28298	12.29164	ND	ND	194
IONIAN SEA					206
Akhdar Seamount	33.21668	20.98349	2200-2210	2370-2380	206
Alfeo Seamount	36.72936	15.85085	2550-2560	3080-3090	207
Amendolara Bank	39.86838	16.72344	30-40	125-350	208
Anteo Hill 1	36.87550	16.80930	3190-3200	3250-3260	209
Anteo Hill 2	36.91690	16.87620	3230-3240	3350-3360	209
Anteo Hill 3	36.93170	17.09440	3290-3300	3370-3380	209
Archimedes Seamount	34.36696	17.98400	1740-1750	3100-3110	210
Bannock Seamount	34.32117	20.04370	2720-2730	3190-3200	211
Battos Seamount	33.52980	20.40880	1790	3190-3200	212
Cariati Bank	39.67566	16.99533	220-230	350-360	208
Conrad Spur	33.85053	19.50011	3310-3320	3750-3760	213
Epicharmos Seamount	34.28377	16.58384	250-260	1290-1300	214
Herodotus - Cyrene Seamount	33.59970	19.93370	990-1000	2190-2200	215
Medina - Malta Ridge	34.91705	17.05067	1090-1100	2320-2330	216
Rossano Bank	39.72898	16.84985	170-180	350-360	208
Victor Hensen Hill 1	35.78397	18.48815	3770-3780	4080-4090	218
Victor Hensen Hill 2	35.42920	18.13231	3850-3860	3950-3960	218
ADRIATIC SEA					219
Dauno Seamount	41.54261	17.48397	710-720	850-860	219

Seamounts and Banks of the Sardinia Channel-Sicily Strait – Ionian Sea – Adriatic Sea: general map.



The sea region that we have grouped in this chapter encompasses different geodynamic contexts: the Sardinia Channel, the Libyan Sea, the Strait of Sicily, the Ionian Sea and the southern Adriatic Sea. The Sardinia Channel is located on a submerged segment of the Apenninic–Maghrebides chain, at the junction between the Algero-Provençal Basin and the Tyrrhenian Sea and has been therefore characterized by calc-alkaline magmatism during its lifetime evolution (Mascle *et al.*, 2001).

The Strait of Sicily represents the foreland of the Maghrebian mountain chain, it is paved by thinned continental crust, contains ancient Mesozoic deep carbonate platforms, relatively deep troughs opened during the late Miocene transtensional tectonics, was mostly exposed during the Messinian salinity crisis and volcanism has been very active especially from 1 Ma. Similarly the Libyan Sea is located in the African foreland and, compared to the other more tectonically complex sea regions, is simple, as also demonstrated by the paucity of seamounts.

The Ionian Sea is bordered by the Apulian and Malta Escarpments that formed by rifting in the Mesozoic or even in the Permo-Trias (250 Ma), as passive margins of the Tethys ocean. Nature and age of the crust are still debated between oceanic and thinned continental, anyway currently most of the oceanic crust has been consumed in the NW-directed subduction. The SE-ward advance of the Calabrian-Peloritan block drove shortening and thrusting in the Tertiary thick cover of sediments leading to the build up of a large accretionary wedge. A broad belt of undulating seafloor and anticlinal ridges, caused by large-scale compression, created various seamounts, most of them controlled by a dense network of active faults.

The southern Adriatic Sea formed as a passive margin during the rifting of the Pangea Supercontinent about 270–250 Ma, but nowadays, after the convergence/collision between Africa and Europe began to rebuilding the Mediterranean, represents the foreland of the Apennines and Dinarides and in its eastern part hosts also the foredeep of the Dinarides. It is overlain by continental crust (Stanley and Wezel, 1985).

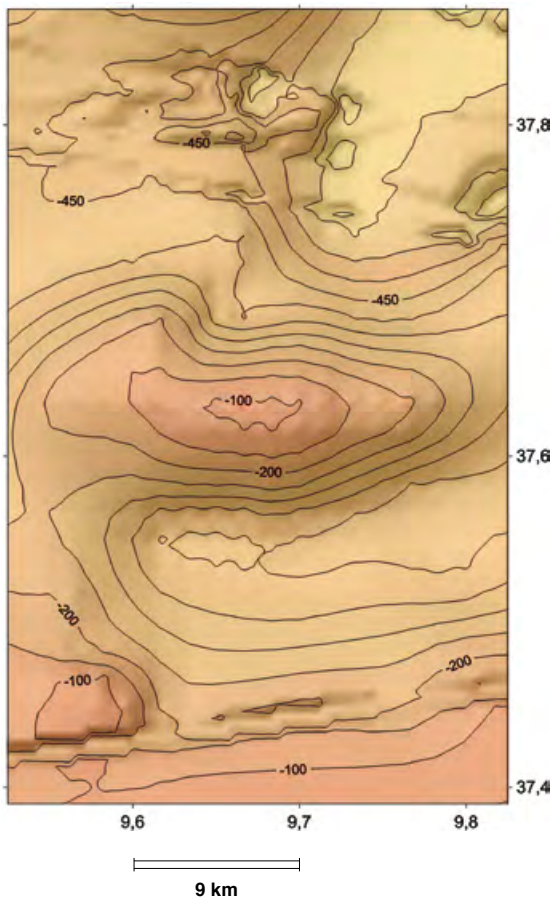
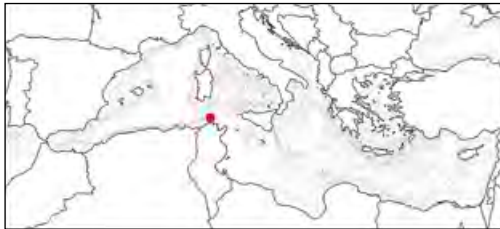
SARDINIA CHANNEL

STRUCTURE:

Estafette Bank

■ **Location:** 37.63289°N – 9.66758°E

▲ **Peak depth (m):** 80-90 ▽ **Base depth (m):** 230-240



DESCRIPTION:

Geology

The Estafette Bank is located over the Tunisian legal continental shelf and is comprised of well-cemented sandstones and limestones (Dangeard, 1928). This area was previously called the Tunisian Plateau and described as a broad NE-SW trending sector comprising a series of parallel structural axes, which likely are an extension of the similarly oriented structures located in northern Tunisia and Algeria (Auzende, 1971; Genesseeaux and Stanley, 1983). The Tunisian Plateau is believed to have developed at the end of the major compressional phase when the northern African plate came into contact with the European island arc, formed by the crystalline basement of the Petite and Grande Kabylie (Genesseeaux and Stanley, 1983). This sector of the shelf is interpreted to be a possible remnant of this ancient arc. Bathymetric profiles reveal the alignment of the Estafette Bank with the Resgui Bank along the same tectonic trend and that no extrusive volcanics or igneous basement series are present here.

Life on and around the Seamount

The red coral (*Corallium rubrum*) is still present on the Estafette Bank, even if coral beds have been intensively exploited since the last three decades. As a result, the red coral populations are declining and conservative management actions must be taken (Bruckner, 2009).

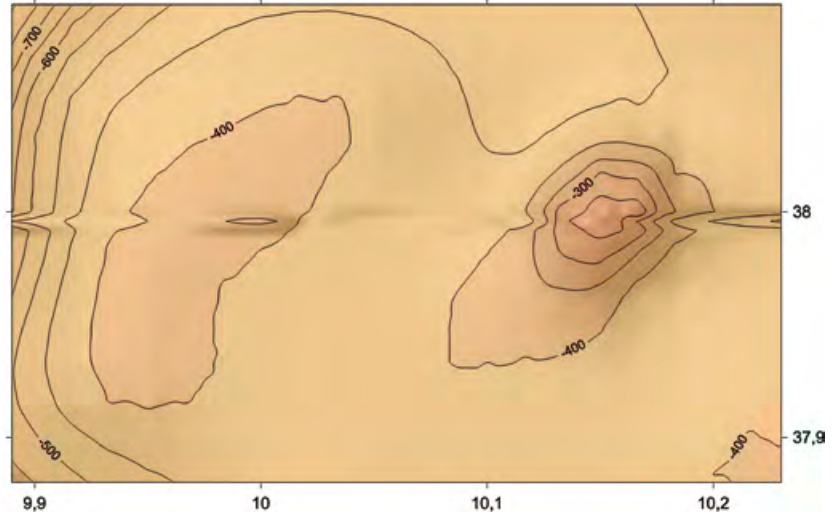
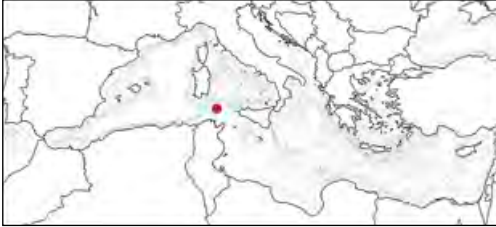
The Dolphin fish (*Coryphaena hippurus*) is the most represented species in the catches obtained from traditional fishing technique using Fish Aggregating Devices (FADs), which have been carried out also close to the Estafette Bank area (Morales-Nin *et al.*, 2000). The main landing ports of the swordfish (*Xiphias gladius*) fisheries are Tabarka and Bizerte (Hattour, 1996) and the main swordfish and bluefin tuna fishing areas are located off the northern Tunisian coast, likely also near the Estafette Bank: In this area a white marlin specimen (*Tetrapterus belone* - Istiophoridae) has been caught (Hattour, 2006; Hattour, 2009).

STRUCTURE:

Resgui Bank

■ **Location:** 38.00062°N – 10.15029°E

▲ **Peak depth (m):** 200-210 ▴ **Base depth (m):** 380-390



DESCRIPTION:

9 km

Geology

Gennesseaux and Stanley (1983):

"The Tunisian Shelf is bordered seaward by a broad ENE-WSW borderland (to 100 km in width) that consists of a low relief surface ranging in depth from about 200 to 500 m. This province, termed Tunisian Plateau, comprises Galite Island and Galite bank, Skerki Bank, Sentinelle Bank, and Resgui Bank; the plateau is also cut by a large SSW to NNE trending submarine valley (named Sentinelle valley). Well-cemented series, particularly sandstones and limestones, form positive relief features prominent on the Plateau (Sentinelle, Skerki, and other banks). This region does not comprise extrusive volcanics or igneous basement series, except those mapped on Galite Island."

Life on and around the Seamount

No information about the benthic communities of the Resgui Bank has been found in the scientific literature.

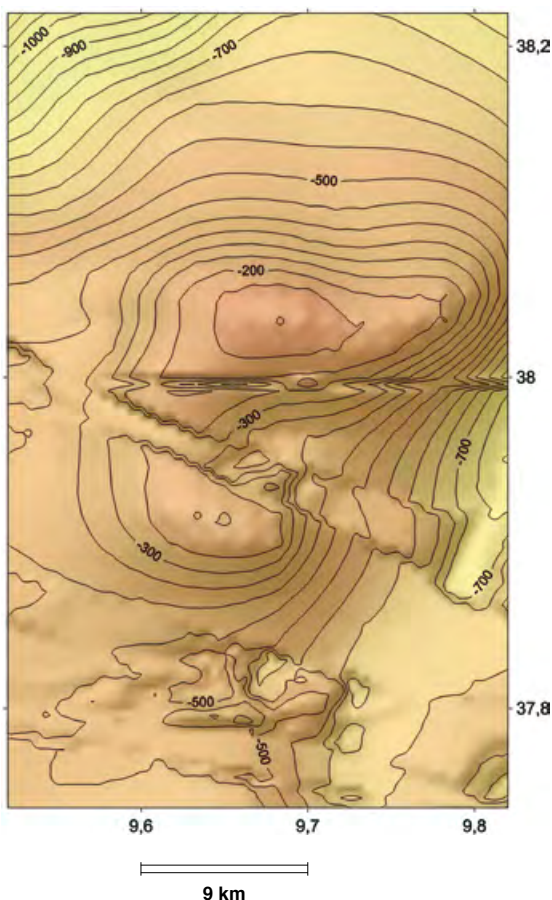
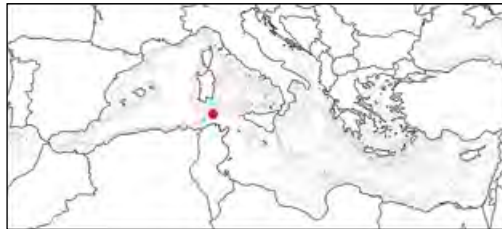
Large groups of striped dolphins (*Stenella coeruleoalba*) mixed with the common dolphins (*Delphinus delphis*) were regularly sighted in this area during the ferries cetacean monitoring surveys. Marine mammal observers of the Tunisian NGO "Association Tunisienne de Taxonomie" and the Italian NGO "KETOS" had reported also the presence of fin whales (*Balaenoptera physalus*) and sperm whales (*Physeter catodon*) on the eastern area off this Bank (Aïssi *et al.*, 2015).

STRUCTURE:

Sentinelle Bank

■ Location: 38.03398°N – 9.68409°E

▲ Peak depth (m): 90-100 ▴ Base depth (m): 390-400



DESCRIPTION:

Geology

The Tunisian Shelf is bordered seaward by a broad ENE-WSW shelf (up to 100 km in width) that consists of a low relief surface ranging in depth from about 200 to 500 m (Genesseaux and Stanley, 1983). This province, termed Tunisian Plateau, comprises the Galite Island and Bank, the Skerki Bank, the Sentinelle Bank and the Resgui Bank. The plateau is also cut by a large SSW to NNE trending submarine valley (Sentinelle Valley). This distinct valley is V-shaped and deeply incised up to 600 m. The south western sector of the Sentinelle Valley receives the sedimentary contribution of the Bizerte Canyon, which cuts the Tunisian Plateau and the south margin of the Sentinelle Bank (Mascle *et al.*, 2001). The canyon head is shelf-disconnected from the Tunisian margin and extends over an area of about 1000 km² at an average depth of about 500 m. Thus, it is not fed by the fluvio-deltaic systems, but it drains the large submarine plateau area (Budillon *et al.*, 2009).

Life on and around the Seamount

The deeper bottoms around the Sentinelle Bank are made of a silty-sandy substratum, which is populated down to a depth of 450 m by *Funiculina quadrangularis*, where mud is more abundant, the substratum is populated by the sea-star *Brisingella coronata* below 450 m (Maurin, 1968).

Trawl catches in the area are mainly composed by anglerfishes *Lophius piscatorius* and *Lophius budegassa*, hake *Merluccius merluccius*, rabbitfishes *Chimaera monstrosa*, the dogfishes *Galeus melastomus* and *Etmopterus spinax*. The short-nose greeneye *Chlorophthalmus agassizi* is also common. This area is described as a *Nephrops norvegicus* fishing ground, nevertheless it yields also red shrimps *Aristaeomorpha foliacea* and *Aristeus antennatus*. Moreover, *Plesionika antigai*, *Plesionika martia*, *Parapenaeus longirostris*, *Penaeopsis serrata* are also common in the trawl catches.

First records in the Mediterranean Sea of the coffinfish *Chaunax pictus* and *Chaunax suttuksi*, deep bottom-dwelling fishes with poor swimming ability (family Chaunacidae), have been registered in this area (Ragonese and Giusto, 1997; Ragonese *et al.*, 2001).

In the Mediterranean, the spiny scorpionfish *Trachyscorpia cristulata echinata* is considered as a characteristic species of the bottoms influenced by the Atlantic current (Fredj and Maurin, 1987; Massutí *et al.*, 1993). The first sighting was also reported in this area by Ragonese and Giusto (1999).

The Sentinelle Bank is characterized as the main fishing ground for swordfish belonging to Tunisian waters. Small dolphins were sighted in this area like striped dolphins. The area encompasses the critically endangered Mediterranean monk seal (*Monachus monachus*) distribution in the Tunisia waters (Ouerghi *et al.*, 2011).

STRUCTURE:

Skerki Bank

Hecate Bank (HCT) ■ Location: 37.66874°N – 10.59860°E
 ▲ Peak depth (m): 40-50 ▼ Base depth (m): 210-220

Keith Reef (KTH) ■ Location: 37.79233°N – 10.83178°E
 ▲ Peak depth (m): 0-10 ▼ Base depth (m): 210-220

Silvia Bank (SLV) ■ Location: 37.90426°N – 11.02766°E
 ▲ Peak depth (m): 20-30 ▼ Base depth (m): 210-220

Biddlecombe Patch (BDL) ■ Location: 37.88133°N – 10.81793°E
 ▲ Peak depth (m): 15-20 ▼ Base depth (m): 210-220



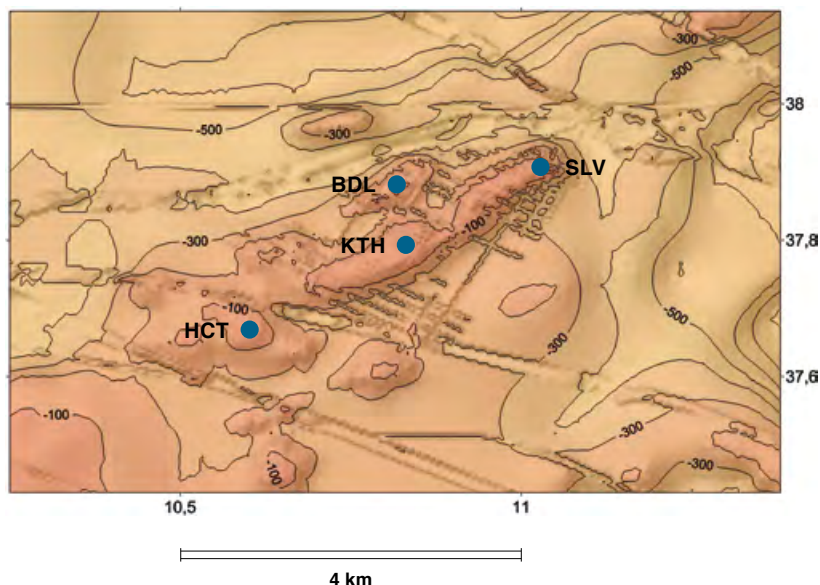
DESCRIPTION:

Geology

The Skerki Bank is an almost 50 km-long NE-SW oriented ridge, which is located about 60 nautical miles off the island of Marettimo (Egadi Islands), between Sicily and Tunisia. The bank is located at the boundary between the Sardinia Channel and the Strait of Sicily. The Sardinia Channel represents a submerged sector of the Apennine–Maghrebian chain which separates the Plio-Pleistocene Tyrrhenian from the Miocene Algero-Provençal oceanic basins. This sector of the orogen was not completely fragmented during the opening of the basins (Masclé *et al.*, 2001).

The Skerki Bank is formed by well-cemented sandstones and limestones (Dangeard, 1928). Its north-western slope hosts a sequence of highs that may represent an extension of the bank and be interpreted as Quaternary reefs and diapiric structures (Maldonado and Stanley, 1976).

The Skerki Bank consists of four different elevations: the Hecate Bank in the SW, which extends for about 5 km in a succession of ridges, canyons and boulders. Immediately after, the Keith Reef extends for about 3.5 km between 10 and 20 m water depth and is also called “point zero”, because one of its boulders reaches 0.30 m from the sea surface. To the NW of the Keith Reef, the Biddlecombe Plateau is characterized by very steep slopes. Finally, the NE termination of the structure is represented by the Silvia Bank, an extended plateau of white rocks, characterized by a series of deep ridges, up to 2 km-long, with peaks 18 to 24 m-high.



Life on and around the Seamount

As the Skerki Bank elevates from 200 m to very shallow water depths and it is effected by very strong currents, it represents a favourable habitat for many of the infralittoral and circalittoral benthic as well as pelagic species (notably among bony fishes *Epinephelus marginatus*, *Epinephelus costae*, *Seriola dumerili*, *Dentex dentex*, etc.). In the past the Bank was an important area for the red coral (*Corallium rubrum*) fishing.

The Skerki Bank is also an important feeding area for Procellariiforms (Notarbartolo di Sciara and Agardy, 2009).

STRAIT OF SICILY

STRUCTURE:

Adventure, Pantelleria and Talbot Banks

Adventure Bank (ADV) **Location:** 37.43741°N – 12.17774°E

▲ **Peak depth (m):** 20-30 ▴ **Base depth (m):** 190-200

Pantelleria Bank (PNT) **Location:** 37.16355°N – 12.11108°E

▲ **Peak depth (m):** 13 ▴ **Base depth (m):** 190-200

Talbot Bank (TLB) **Location:** 37.36708°N – 11.66642°E

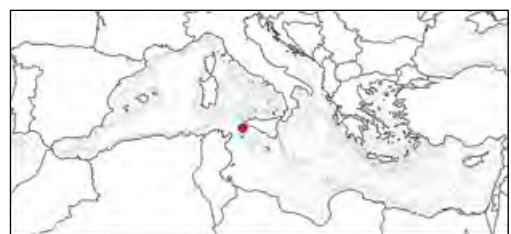
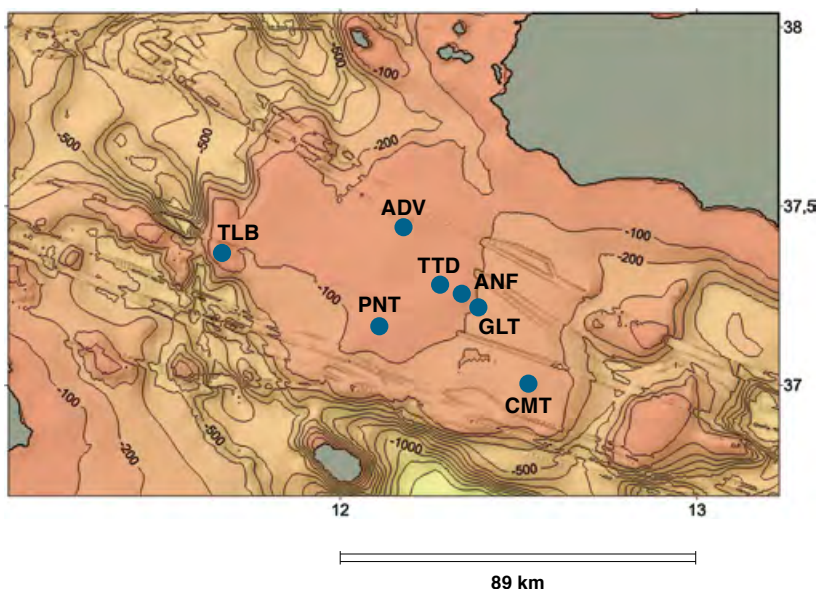
▲ **Peak depth (m):** 20-30 ▴ **Base depth (m):** 190-200

Anfritite volcano (ANF) **Location:** 37.25344°N – 12.33998°E

Cimotoe volcano (CMT) **Location:** 37.00126°N – 12.53249°E

Galatea volcano (GLT) **Location:** 37.21584°N – 12.38967°E

Tetide volcano (TTD) **Location:** 37.28298°N – 12.29164°E



DESCRIPTION:

Geology

The Adventure Bank is the largest shallow platform found in the Strait of Sicily; it formed as a horst structure comprised of Tertiary and Mesozoic deposits, covered by unconsolidated sediments. First seismic images of the Adventure Bank were provided in Maldonado and Stanley (1976). Well-defined terraces are present on the bank margins at about 107 m and at 140 m water depths. The terrace at 140 m forms a gently dipping seaward slope, which may represent a foreshore surface. The bank has been directly affected by the Quaternary oscillations of sea level, with the result of alternating subaerial erosion and marine deposition (Maldonado and Stanley, 1976). Submarine volcanic centres located nearby (such as Anfritite, Cimotoe, Galatea and Tetide) are mainly represented by scarcely evolved Na-alkaline products (alkali basalts and hawaiites) and transitional basalts, some of them being interpreted to have formed in the Plio-Pleistocene, while others registered activity also in historical times (Calanchi *et al.*, 1989).

Life on and around the Seamount

On the south-east of the Adventure Bank edifice there is the Talbot Bank, a flat bottom rise of volcanic origin. Here, the cliff rocks are covered by colonies *Eunicella singularis* and on the shallower bottom specimens of *Anemonia sulcata* are densely settled.

ROV data obtained during various oceanographic surveys conducted on the top of the Adventure Bank reported flat sandy bottoms alternated to sparse coralligenous bioconcretions (Bo, pers. comm.; Greenpeace, 2012) between 30 and 60 m water depth. The biocoenosis is dominated by a dense forest of the candelabrum-shaped alcyonacean *Eunicella singularis* extending on the shallow water plateau together with a dense canopy of the brown algae *Laminaria* sp. Large massive sponges such as *Axinella polypoides*, *Raspailia viminalis*, *Spongia lamella*; large individuals of horny sponges (Ircinidae) such as *Calyx nicaensis* and very large individuals of *Cliona viridis*; very large populations of soft corals, among them the very little known *Veretillum cynamorium* were observed. Other species found in areas where currents are very low: *Alcyonium acaule* and *Alcyonium spinulosum*. On the rocky outcrops *Paramuricea clavata* is present, together with sparse colonies of *Leptogorgia sarmentosa* (Bo, pers. comm.).

South of the Adventure Bank, the Pantelleria Bank is a massive volcanic edifice which collapsed, creating large cracks and N-S oriented canyons along the margins. The eastern portion of the Pantelleria Bank lies in a shallower domain characterised by dense *Posidonia oceanica* meadows (Picchetti *et al.*, 2010).

The Adventure Bank may be considered one of the main spawning grounds off the southern coast of Sicily also for demersal species such as *Octopus vulgaris* (Garofalo *et al.*, 2010). Deep-water pink shrimp (*Parapaeneus longirostris*) concentrate on the Adventure Bank, together with the European hake (*Merluccius merluccius*) and the red mullet (*Mullus barbatus*). Stable spatial patterns of recruits and nursery areas for the European hake are known for the eastern side of the Adventure Bank from 100-200 m depth and for the greater fork beard (*Phycis blennioides*) along the western and eastern sides between 200-400 m depth (Russo *et al.*, 2014, Fiorentino *et al.*, 2003).

The circulation pattern in the area is controlled by the Atlantic-Ionian Stream (AIS), which favours the establishment of a "permanent" upwelling on the left of its path by a large cyclonic eddy (Adventure bank Vortex, ADV). The presence of the ADV and the frequent wind-induced upwelling along the southern shore of Sicily are related to the spawning behaviour of the anchovy in this area (Patti *et al.*, 2003).

Various shark species such as blue sharks (*Prionace glauca*), sixgill sharks (*Hexanchus griseus*), long-nose spurdog (*Squalus blainvillei*) and white sharks (*Carcharodon carcharias*) are also present, the latter being relatively abundant in the area, also the endemic and critically endangered *Leucoraja melitensis* was found to occur here (Serena *et al.*, 2011).

STRUCTURES:

Alfil, Birsa, Bouri and Fonkal Banks

Alfil Bank **Location:** 35.84975°N – 12.33391°E
Peak depth (m): 90-100 **Base depth (m):** 240-250

Birsa Bank **Location:** 36.39810°N – 11.68780°E
Peak depth (m): 80-90 **Base depth (m):** 190-200

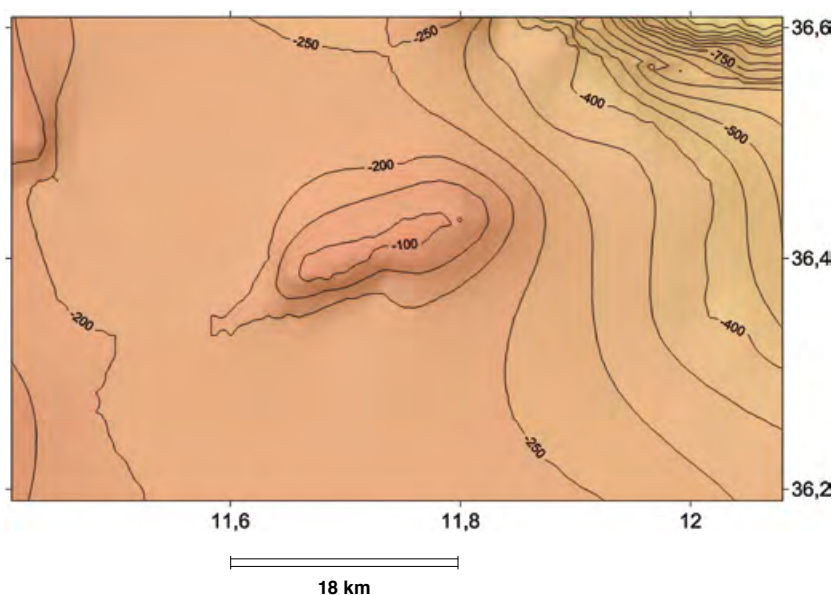
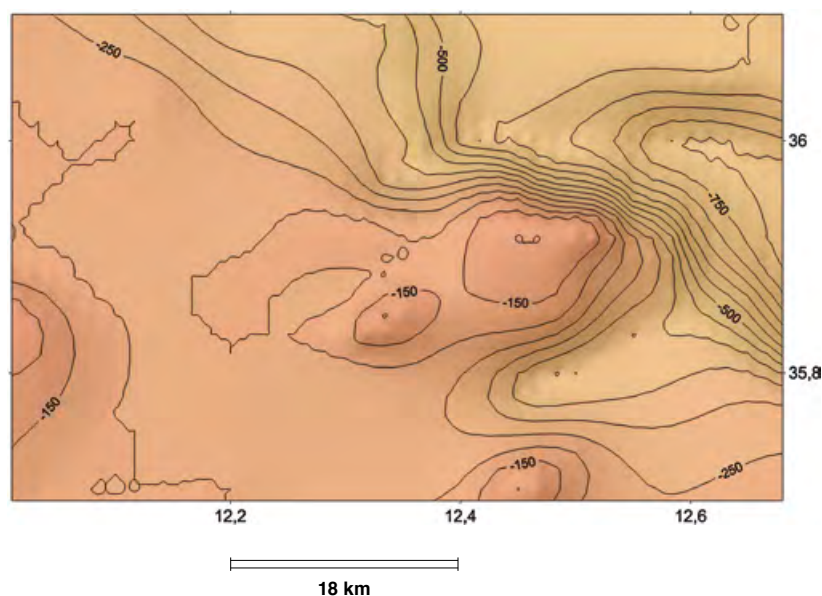
Bouri Bank **Location:** 35.38384°N – 13.45112°E
Peak depth (m): 90-100 **Base depth (m):** 380-390

Fonkal Bank **Location:** 35.51400°N – 12.95400°E
Peak depth (m): 180-190 **Base depth (m):** 240-250

DESCRIPTION:

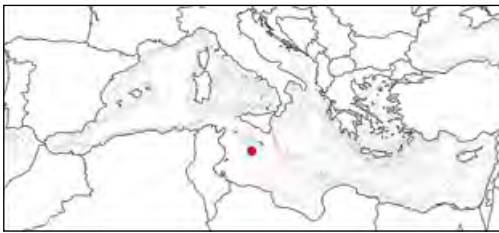
Geology

This group of banks is located along an ideal NW-SE transect located to the north of the Lampedusa Island on the Tunisian continental shelf. The shelf is relatively continuous from Cape Bon (Tunisia) to about 100 km SE of the Lampedusa Island and comprises numerous NW-SE-elongated banks (Calanchi *et al.*, 1989). There are no specific studies carried out on these structures, but it is known that the shelf here is faulted and strongly affected by erosion due to exposure during the sea level oscillations. The main geologic features of the Strait of Sicily have been produced during the Neogene-Quaternary continental rifting (Argnani, 1990). The seismic reflection profiles show that recent faulting is responsible for the topographic expression of the banks, which are covered by coarse sediment. The seafloor of the Bouri Bank is likely composed of erupted volcanic products which have an alkaline to peralkaline affinity, and consist mainly of alkali basalts and hawaiites (Civile *et al.*, 2010).

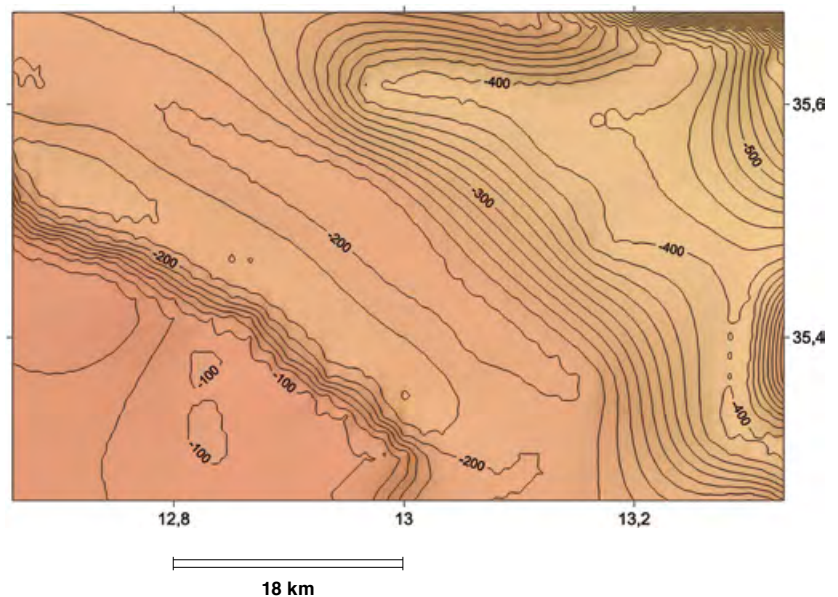
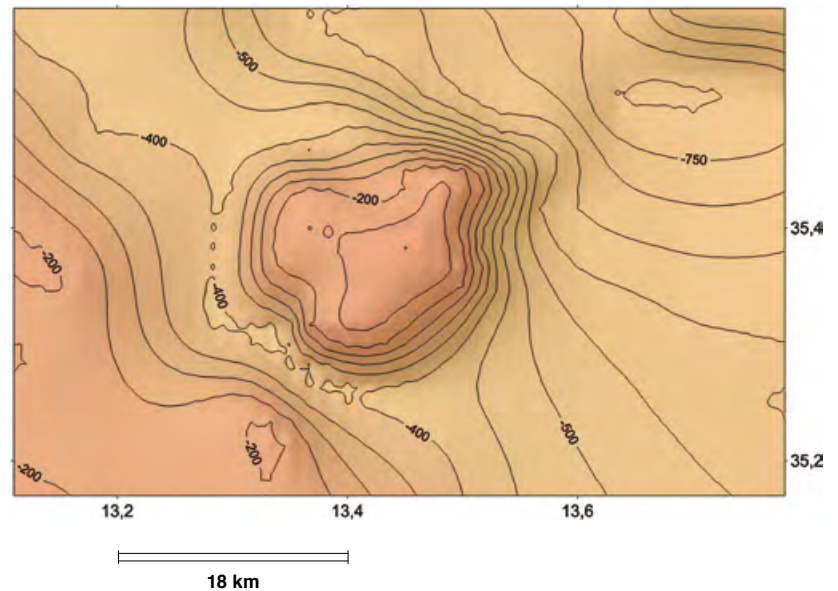


Life on and around the Seamount

According to Freiwald *et al.* (2009) *Lophelia pertusa* and *Madrepora oculata* communities are present in the area close to the Linosa through and South of Malta at depth more than 380 m. Schembri *et al.* (2007) and Taviani *et al.* (2011) have found on sites south of Malta, not so far from the Bouri Bank, buildings of 'white corals' *Lophelia* and *Madrepora*, where a variety of species co-occur including solitary scleractinians (*Desmophyllum dianthus*, *Caryophyllia* spp., *Dendrophyllia cornigera*), antipatharians (*Leio-
pathes glaberrima*), alcyonaceans (as *Corallium rubrum*, in the Sicily Channel at the known deepest range, around 600 m water depth (Costantini *et al.*, 2010), bivalves, serpulids, sponges, cirripeds and coral-predatory gastropods. Specimens of the rare barnacle *Pachilasma giganteum* were also samples from this area (Schembri *et al.*, 2007). Large populations of *Madrepora oculata* and vast forest of *Leio-
pathes glaberrima* together with *Villogorgia bebrycoides* and *Acanthogorgia hirsuta* have been reported between 200-500 m depth also by recent ROV surveys highlighting a major impact of fishing activities on the benthic communities (Bo and Deidun *et al.*, 2015).



Sightseeing of fin whales (*Balaenoptera physalus*) and common dolphins (*Delphinus delphis*) are frequent in this sea area (Vella, 2010; Vella and Vella, 2012). Loggerhead sea turtles (*Caretta caretta*) are present around the Bouri Bank (Casale *et al.*, 2008). The sea around Lampedusa Island encompasses blue fin tuna breeding area (*Thunnus thynnus*) (OCEANA, 2011), as well as winter feeding grounds for fin whales (*Balaenoptera physalus*) have been identified by Canese *et al.* (2006) in this area. Neritic habitats around Lampedusa Island are important for the migration and foraging of the loggerhead turtle (*Caretta caretta*) adult males (Casale *et al.*, 2013a). A connection between this area and the North Atlantic has been demonstrated by Casale *et al.* (2013b) for loggerhead turtle migration.

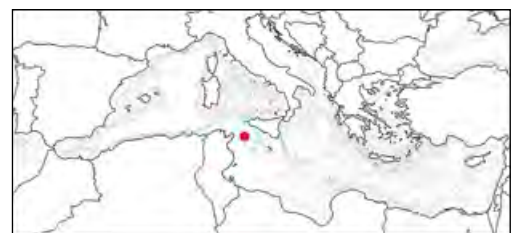
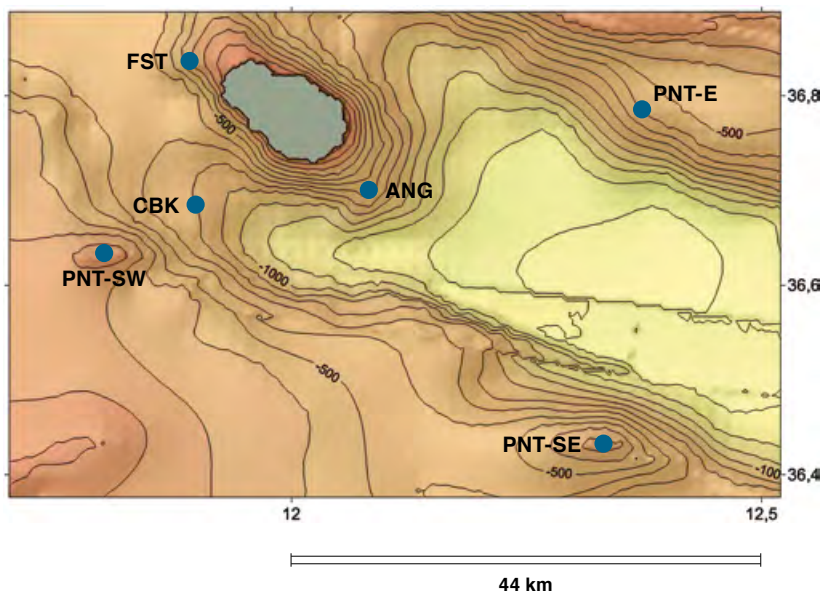


STRUCTURE:

Angelina Seamount, Foerstner Volcano and Pantelleria Seamounts

Angelina Smt (ANG)	Location: 36.70056°N – 12.08318°E
▲ Peak depth (m): 600-610?	▼ Base depth (m): 990-1000?
Foerstner Volcano (FST)	Location: 36.83669°N – 11.89143°E
▲ Peak depth (m): 90-100	▼ Base depth (m): 340-350
Pantelleria Central Bank (CBK)	Location: 36.68456°N – 11.89742°E
▲ Peak depth (m): 620-630	▼ Base depth (m): 750-760
Pantelleria E Smt (PNT-E)	Location: 36.78434°N – 12.37238°E
▲ Peak depth (m): 600-610	▼ Base depth (m): 990-1000
Pantelleria SE Smt (PNT-SE)	Location: 36.43206°N – 12.33385°E
▲ Peak depth (m): 200-210	▼ Base depth (m): 560-570
Pantelleria SW Smt (PNT-SW)	Location: 36.63326°N – 11.80079°E
▲ Peak depth (m): 120-130	▼ Base depth (m): 750-760

The Southwest Seamount, located on the Tunisian margin of the Strait of Sicily, is a 400 m-high, 3 km-wide, 11 km-long NW-SE oriented structure, with very steep NE and SW flanks (slope gradients up to 27°). Its linear and elongated shape suggests a volcano-tectonic origin. Another volcanic structure is present 12 km to the NE of the Southwest Seamount, and it is called the Central Bank in Martorelli *et al.* (2011). This structure is 3.6 km-long, 1.8 km-wide and about 150 m-high.



Life on and around the Seamount

A wide sector of the seafloor adjacent to a seamount located SW of Pantelleria Island is characterized by numerous biogenic build-ups colonized by deep-water corals (*Madrepora oculata*). Angiolillo *et al.* (2012) have found on the northeastern coasts of Pantelleria Island from 80 to 94 m water depth, specimens of *Ellisella paraplexauroides* (Anthozoa: Alcyonacea: Ellisellidae). Moreover Giusti *et al.* (2012) have found specimens of *Viminella flagellum* (Alcyonacea: Ellisellidae) from 130 to 250 m water depth. In the same areas were reported shallow water assemblages of *Paramuricea clavata*, *Eunicella cavolinii* and *Corallium rubrum* together with deep assemblages of *Villogorgia bebrycoides* and numerous specimens of *Bebrycia mollis*, *Swiftia pallida*, black corals and *Dendrophyllia cornigera* (Bo, pers. comm.). ROV surveys in the area reported large tanatocoenoses of *Dendrophyllia cornigera* colonized by *Acanthogorgia hirsuta*, *Bebrycia mollis* and *Swiftia pallida*; evidences of disturbance caused by trawling activities were found on the seafloor within this ecosystem (Bo, pers. comm.) The decapod crustacean *Anapagurus smythi* (Paguridae) have been found in the area at 150 m depth by Pipitone and Arculeo (2003).

No information about the pelagic communities of these structures has been found in the scientific literature.

DESCRIPTION:

Geology

Around the Pantelleria Island, in the Strait of Sicily, several volcanic structures are present: the Angelina Seamount, the Foerstner volcano, the Pantelleria Est and Pantelleria Southeast Seamounts, and the Central Bank which is located between the Pantelleria Island and the Pantelleria Southwest Seamount.

The Angelina Seamount is a small volcanic body partially outcropping at the seafloor and located off the southeastern coast of the Pantelleria Island. The seamount gradually deepens toward the SE along the axis of the Pantelleria Graben, where is buried beneath an undisturbed succession of Plio-Quaternary sediments (Civile *et al.*, 2010; Lodolo *et al.*, 2012).

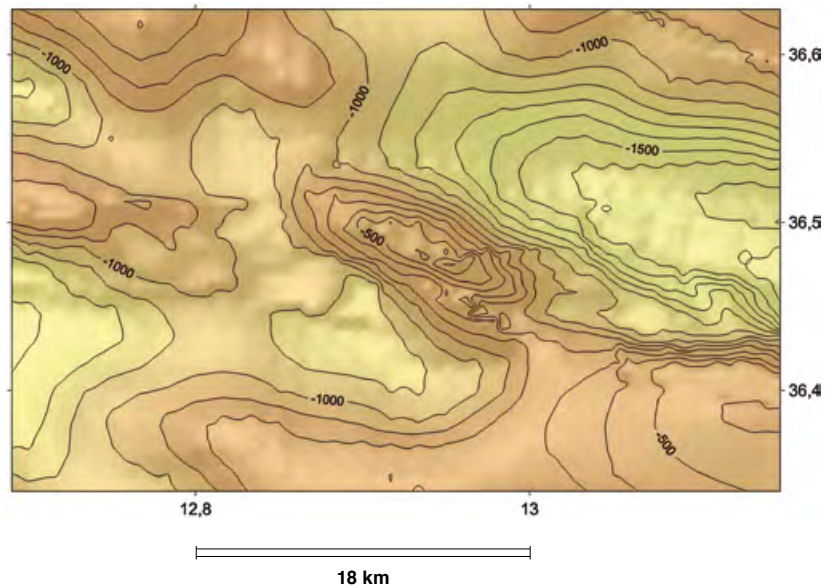
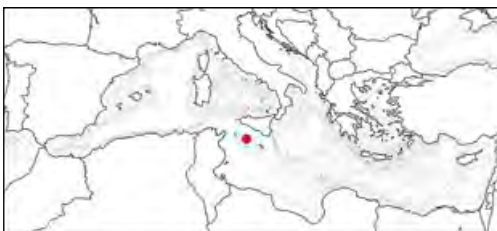
Bosman *et al.* (2007) identified about 30 submarine eruptive centres, located in the bathymetric range of ~ 250-800 m to the NW of the island and characterized by well-preserved morphologies. The likely vent area of the most recent 1891 submarine eruption has been identified with the Foerstner volcano, a 90 m-high small cone (Conte *et al.*, 2014). Two vents were identified: a main vent at 250 m and a smaller vent at 350 m water depth. The deeper vent produced a considerable amount of pillow flow lobes, indicating a dominantly effusive eruption style. The Foerstner volcano exhibited submarine fire fountaining, as evidenced also by the deposition of spatter-like deposits and lava balloons (Corti *et al.*, 2006; Kelly *et al.*, 2014).

STRUCTURE:

Bannock Bank

■ Location: 36.47550°N – 12.95061°E

▲ Peak depth (m): 280-290 ▽ Base depth (m): 780-790



DESCRIPTION:

Geology

The Bannock Bank is undoubtedly the most outstanding topographic relief of the Strait of Sicily, rising almost 500 m from the sea floor. Despite its significant relief, it has a modest extent characterized by a 18 km-long and 7 km-wide elliptical shape. The major axis is oriented approximately NW-SE, parallel to the Pantelleria Graben (Civile *et al.*, 2009; Lodolo *et al.*, 2012). Its slopes are very steep and symmetrical, while the top shows a flat morphology and is about 1 km-wide and 3 km-long. This seamount is interpreted as the top part of an extended outpouring of magma probably generated along NW-SE oriented tectonic structures. Notwithstanding, the crustal nature of the Bannock Bank is most probably non-volcanic, as testified by its morphology, by its acoustic *facies*, and by the absence of magnetic anomalies (Lodolo *et al.*, 2012).

Life on and around the Seamount

Zibrowius and Taviani (2005) produced an inventory of the benthic species including both fossil (probably latest Pleistocene) and recent organisms which were associated with deep sea corals and other calcareous sediments. The major benthic macrofauna producing consistent skeletons are represented by Scleractinia, Octocorallia, Brachiopoda, and Polychaeta Serpulidae ("calcareous tubeworms"). On the sample site corresponding to the Bannock Seamount they have found the scleractinians *Ceratotrochus magnaghii*, *Stenocyathus vermiformis* with associated polychaetes (Serpulidae) as *Filogranula cf. gracilis*, *Hyalopomatus variorugosus*, *Metavermilia multicristata*, *Placostegus tridentatus*, *Protula* sp., *Semivermilia agglutinata*, *Vermiliopsis monodiscus*, *Vermiliopsis* sp. as well as the sessile suspension feeding holothurian *Psolidium complanatum* (Echinodermata).

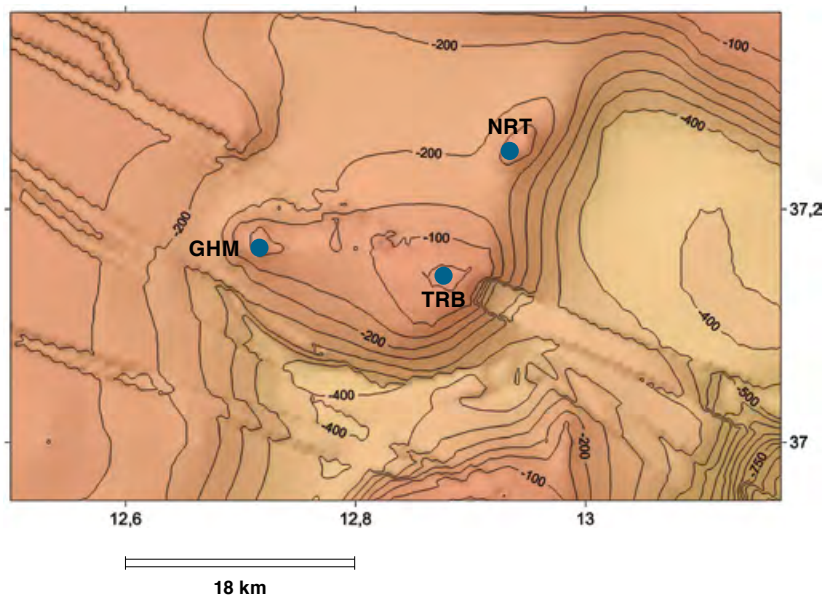
No information about the pelagic communities of the Bannock Bank has been found in the scientific literature.

STRUCTURE:**Empedocle Seamount (Graham, Nerita and Terribile Banks)**

Graham Bank (GHM) **Location:** 37.16678°N – 12.71730°E
▲ Peak depth (m): 6.9 **▼ Base depth (m):** 330-340

Nerita Bank (NRT) **Location:** 37.25028°N – 12.93506°E
▲ Peak depth (m): 16.5 **▼ Base depth (m):** 330-340

Terribile Bank (TRB) **Location:** 37.14468°N – 12.87612°E
▲ Peak depth (m): 20 **▼ Base depth (m):** 330-340

**DESCRIPTION:****Geology**

The Empedocle Seamount is a wide undersea relief with an irregular N-NW opened horseshoe shape, rising from the 250-500 m deep seafloor and dominating the Sicilian continental shelf off Sciacca. The Graham Bank (6.9 m water depth), on top of the Ferdinandea volcanic building, together with the Nerita Bank (16.5 m) and the Terribile Bank (20 m) form the Empedocle Seamount (Falzone *et al.*, 2009). The Graham Bank, also known as Ferdinandea Island in Italy, was discovered, when it last erupted and appeared above sea level on August 1st 1831, in front of an astonished local group of fishermen (Argnani and Vigliotti, 2003). The echo of this event attracted international scientists, among them the Italian naturalist Carlo Gemmellaro, sent from the Accademia Gioenia of Catania, who baptized the island in honour of Ferdinando II, the king of the Regno delle Due Sicilie (Argnani and Vigliotti, 2003). But it was Humphrey Senhouse, the captain of the Royal Navy flag Ship St Vincent who claimed the island to be owned by the United Kingdom and named it after Sir James Graham, the First Lord of the Admiralty. An international dispute over its sovereignty between Regno delle Due Sicilie, UK and France then began, which was still unresolved when the island disappeared again in early 1832, due to the erosion exerted by the waves. Two coalescing cones, elongated NW-SE and with their apexes located 600 m apart, have a common basis on the Ferdinandea building. The cone responsible for the 1831 eruption is part of this device and it is 160-m-high with a diameter of 500 m at its base; in the NW the second cone shows a frustoconical shape and a larger

crater, which fed lava flows that have invaded the floor at a water depth > 200 m. In the center there are remains of another crater rim and its northeastern side houses an active field of fumaroles. The most recent signs of volcanic activity are dated 2000 and 2002. The Empedocle volcano belongs to a volcanic system, which includes a dozen of NW-SE aligned buildings in a radius of 5 km. These buildings are of varying sizes, with diameters between 50 and 1,500 m. The eruption, that caused the emergence of the Ferdinandea Island, happens when a basaltic magma comes into contact with shallow waters, which vaporize and induce explosions in what is called a Surtsey style (Argnani and Vigliotti, 2003). The explosions cause the fragmentation of both magma and mother rocks which fragments build up the volcano itself. It is the lack of cohesion in the detrital component which makes this kind of building impermanent and susceptible to be dismantled by the action of the sea waves.

Life on and around the Seamount

Very recently 3 ROV divers explored the Graham Bank between 8 and 160 m water depth, discovering an impressive variety of species and habitats (Greepeace, 2012). The Graham Bank presents a higher species richness of arborescent anthozoan species, including *Acanthogorgia hirsuta*, *Bebryce mollis*, *Villogorgia bebyroides*, *Eunicella cavolinii*, *Paramuricea clavata*, *Viminella flagellum* and various black coral species, found in the depth range from 70 to 200 m depth. Along a gentle slope of volcanic sand, vast meadows of cerianthids were reported (Bo, pers. comm.). Deep patches of the precious red coral *Corallium rubrum* have been observed in the area (Bo, pers. comm.).

Although some inter-annual variability in the distribution of the greater forkbeard (*Phycis blennoides*), the hake (*Merluccius merluccius*) and the deep water pink shrimp (*Parapenaeus longirostris*) nursery areas was evident. The presence of meso-scale oceanographic processes on the western side of the Empedocle Seamount makes it a stable nursery for these valuable commercial species between 100 m and 200 m depth (Camilleri *et al.*, 2008).

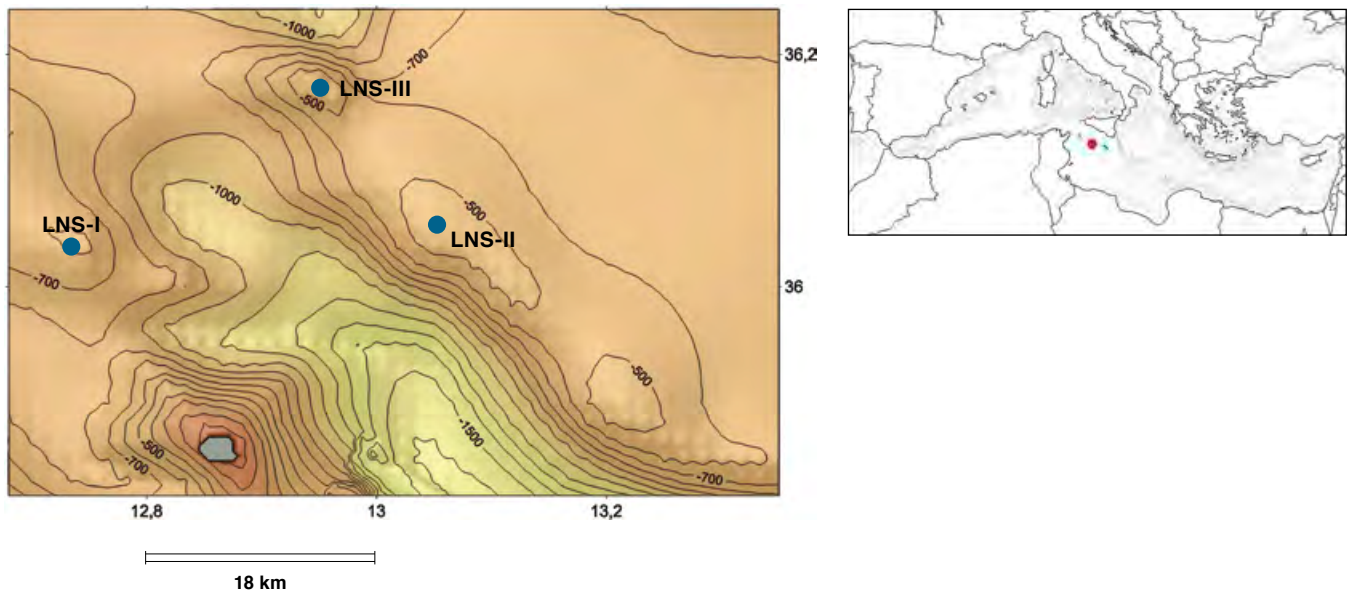
No information about the pelagic communities around the Empedocle Seamount has been found in the scientific literature

STRUCTURE:**Linosa Volcanoes**

Linosa I volcano (LNS-I) **Location:** 36.03317°N – 12.73711°E
▲ Peak depth (m): 590-600 **▼ Base depth (m):** 690-700

Linosa II volcano (LNS-II) **Location:** 36.05154°N – 13.05265°E
▲ Peak depth (m): 450-460 **▼ Base depth (m):** 540-550

Linosa III volcano (LNS-III) **Location:** 36.16757°N – 12.95081°E
▲ Peak depth (m): 400-410 **▼ Base depth (m):** 540-550

**DESCRIPTION:****Geology**

The rifting, active since the Tortonian in the Strait of Sicily, is responsible for the creation of a series of “pull-apart” basins, filled by Plio-Pleistocene sediment, and strongly influenced the Neogene-Quaternary volcanism (alkaline, peralkalin and subalkalic) of the volcanoes that make up the Islands of Pantelleria and Linosa, as well as that of several smaller submarine centres (Romagnoli, 2004). Most of the submarine volcanic bodies, which are the product of the volcanic centres, were discovered for serendipity during geophysical surveys conducted for other purposes, and hence their areal distribution and geometry are only partially known (Lodolo *et al.*, 2012). The third largest positive magnetic anomaly in the area, centered at 36°10'N-12°58'E, is relatively isolated and rounded, and coincides with a morphological relief, called Linosa III Seamount by Calanchi *et al.* (1989). A morphological and tectonic map of the Sicily Strait, showing the position of the Linosa Volcanoes (Linosa I, II and III), has been published in the report “Progetto Ibleo – Rischio vulcanico” by Colantoni (2011).

Life on and around the Seamount

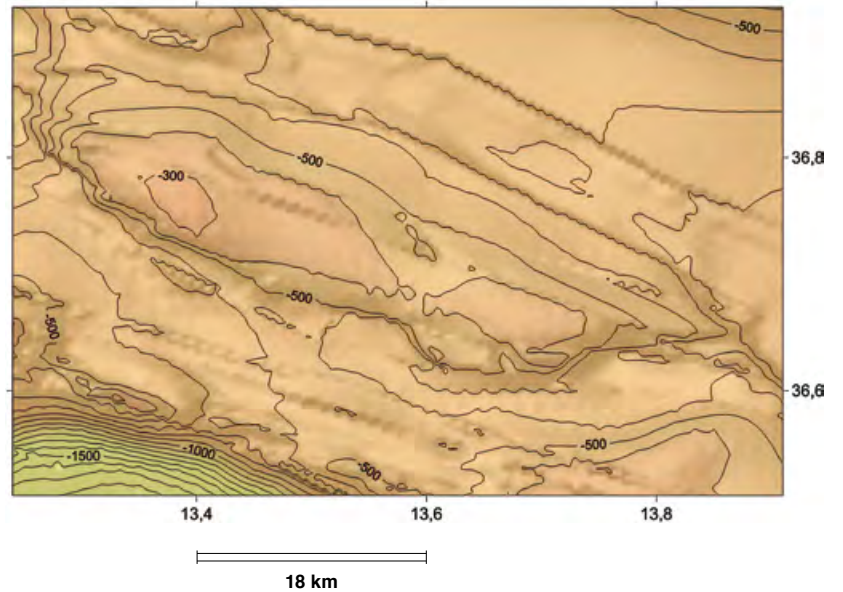
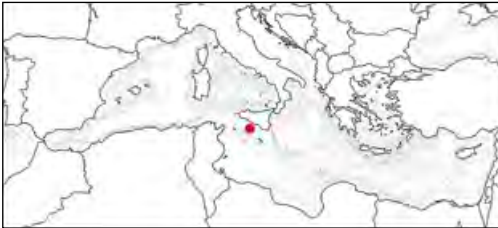
No information about the benthic and pelagic communities of Linosa Volcanoes has been found in the scientific literature.

STRUCTURE:

Madrepore Bank

■ Location: 36.76370°N – 13.38452°E

▲ Peak depth (m): 270-280 ▴ Base depth (m): 580-590



DESCRIPTION:

Geology

There is no specific geological or geographical information related to this structure, which can be found at: <http://www.ngdc.noaa.gov/gazetteer/>

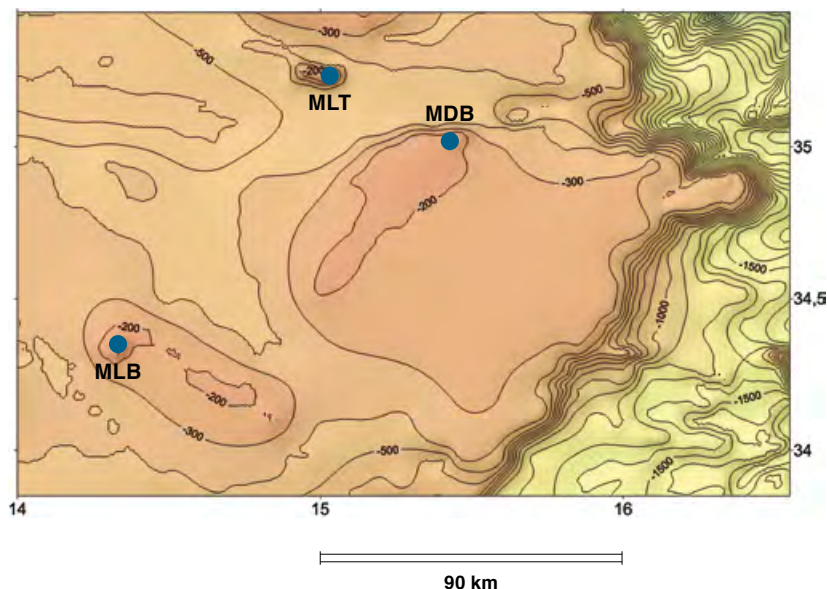
Life on and around the Seamount

No information about the benthic and pelagic communities of the Madrepore Bank has been found in the scientific literature.

STRUCTURE:

Medina Bank, Melita Bank and Malta Seamount

Medina Bank (MDB)	■ Location: 34.99230°N – 15.33660°E
▲ Peak depth (m): 120-130	▼ Base depth (m): 320-330
Melita Bank (MLB)	■ Location: 34.33418°N – 14.33338°E
▲ Peak depth (m): 80-90	▼ Base depth (m): 330-340
Malta Smt (MLT)	■ Location: 35.23324°N – 15.01700°E
▲ Peak depth (m): 80-90	▼ Base depth (m): 390-400



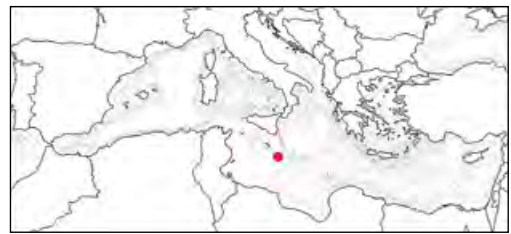
DESCRIPTION:

Geology

The Medina Bank is located southeast of Malta, in the easternmost part of the Strait of Sicily. The bank is 6 to 8 km-wide and 22 km-long and the top surface consists of a series of ridges and valleys with reliefs 10-30 to 100 m-high (Yevsyukov, 1993). The structure is sediment starved probably as a consequence of erosion by bottom currents (Maldonado and Stanley, 1976). The Medina Bank is bisected by an E-W trending graben, along the northern side of this, a poorly-defined ridge is termed the West Medina Bank (Bishop and Debono, 1996). At the southern edge of the summit area, the largest ridge is present, and is about 17 km-long. Along the northern edge of the summit area, there is a large ~ 18 km-long canyon, apparently of tectonic origin. Near the summit of the bank, several terraces of various length and width are also visible (Yevsyukov, 1993).

The Melita Bank began to form in Cretaceous times. During the Miocene-Quaternary rifting phase, several normal faults produced local uplifted blocks and grabens within the structure. The Melita Bank was also affected by volcanic activity (Finetti, 1985).

The Malta Seamount, which is located within the Malta-Medina Graben between the continental shelf of Malta and the Medina Bank, is a large horst. The prolonged rifting of the Strait of Sicily formed several NNW-SSE oriented narrow trenches up to 1500 m-deep, which are sometimes called graben. Relatively low-frequency magnetic anomalies on the Malta Seamount and the southern flank of the Medina Bank may represent deep seated volcanic features (Bishop and Debono, 1996; Klett, 2001).



Life on and around the Seamount

Although some interannual variability in the distribution of the greater forkbeard (*Phycis blennoides*), the hake (*Merluccius merluccius*) and the deep water pink shrimp (*Parapenaeus longirostris*) nursery areas have been suggested. The presence of meso-scale oceanographic processes on the western side of the Medina Bank makes it a stable nursery for these valuable commercial species, between 100 m and 200 m water depth. Highest concentrations of mature females are found especially during fall in the south-western break of the Medina Bank south of Malta (Camilleri *et al.*, 2008). South of Malta, buildings of *Lophelia pertusa* and *Madrepora oculata* have been recorded in several sites (Schembri *et al.*, 2007; Taviani *et al.*, 2011; Deidun *et al.*, 2015). Coral habitats support a variety of species such as solitary scleractinians (*Desmophyllum dianthus*, *Caryophyllia* spp., *Dendrophyllia cornigera*), antipatharians (*Leiopathes glaberrima*), alcyonaceans (as *Corallium rubrum*), bivalves, serpulids, sponges, the large barnacle (*Pachylasma giganteum*), coral-predatory gastro-pods, the large limids (*Acesta excavata*) and giant oysters (*Neopycnodonte zibrowii*).

These elongate topographic highs serve as barriers to water masses that flow across the Strait of Sicily. In the vicinity of and to the south of Medina Bank, low-frequency and clockwise-rotating currents are present suggesting the existence of eddies (Null *et al.*, 1992). Shallow areas, notably the Medina Bank, maintain an average depth of less than 300 m in the sea joining the Sicilian and Libyan continental shelves. The current pattern across the vertical section between Sicily and Libya is rather complex, due i) to the presence of large continental shelves and deep trenches, ii) to the variability of atmospheric disturbances and finally iii) to the vertical density structure which couples with the wind stress producing barotropic and baroclinic responses of the current. In the vicinity of Malta the stream funnels out to a more southward direction with a reduced average flow of 10 cm s⁻¹. Further south, in the mid section corresponding to the deep trench separating the Sicilian and Libyan continental shelves, the steady flow of Modified Atlantic Water in the upper layer is predominantly eastward, with an intensification to values of 10 cm s⁻¹ during winter and spring, especially in the vicinity of the Medina Bank. During autumn this steady eastward flow is spread further to the south.

STRUCTURE:

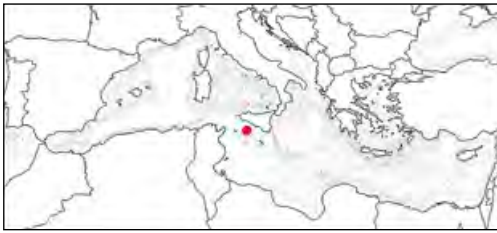
Nameless - Urania and Pinne Banks

Nameless Bank (NML) ■ Location: 36.83367°N – 13.09928°E

▲ Peak depth (m): 80-90 ▽ Base depth (m): 330-340

Pinne Bank (PNB) ■ Location: 36.91394°N – 12.87395°E

▲ Peak depth (m): 10-20 ▽ Base depth (m): 330-340



DESCRIPTION:

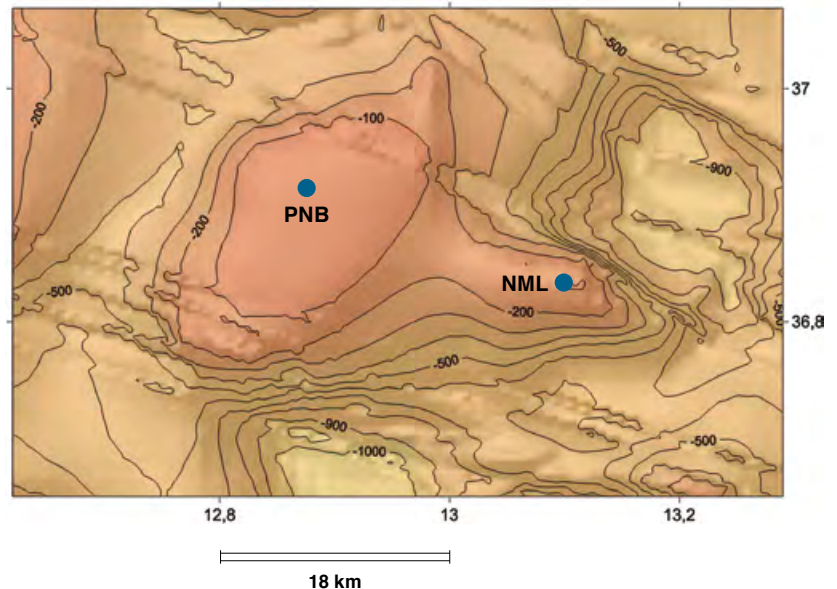
Geology

The Nameless Bank (Banco Senza Nome) is located about 40 km to the SE of the Graham Bank at the same latitude of Pantelleria. It is a Cenozoic carbonate platform split into two asymmetric sectors by a narrow valley at a water depth of 200 m. The largest plateau is 4 km in diameter. The Nameless Bank is a fault-bounded seamount exposing sedimentary rocks (Eocene – Lower Oligocene? limestones) as well as basaltic rocks on its eastern sector (Calanchi *et al.*, 1989; Rotolo *et al.*, 2006). Volcanic rocks from Nameless Banks have geochemical characteristics similar to Pantelleria and Linosa Islands, broadly resembling HIMU-OIB (High U/Pb Mantle - Oceanic Island Basalt) (Carminati *et al.*, 2010).

The Pinne Bank is a cone, located in the Phlegrean fields and known for four historic eruptions during the First Punic War, circa 253 BC., in October 1846, in 1867 and the last in September 1911 (Civile *et al.*, 2008; Civile *et al.*, 2010).

Life on and around the Seamount

On the Nameless bank, Zibrowius and Taviani (2005) recovered a variety of coral-oyster-sponge frame-stones, together with skeletal hash. *Desmophyllum dianthus*, *Lophelia pertusa* and *Madrepora oculata* skeletal remains are largely represented in deep coral substrates, while single valves and clusters of a subfossil giant oysters (length >20 cm) constitute another type of very special substrate. This deep-sea oysters have been described as a new deep-sea taxon (*Neopycnodonte zibrowii*); it has been regularly dredged below 200 m in the western Mediterranean Sea and Strait of Sicily, but was never studied in detail. Another peculiar substrate is formed by sub fossil micriticised sponges and spongal hardgrounds as large lamellar and non-lamellar sponges.



These carbonate substrates were colonised by various organisms such as Porifera (*Stylocordyla pellita*, *Sphinctrella gracilis* and *Siphonidium ramosum*), Actinaria (*Protanthea simplex*, *Fagesia loveni*) and Antipatharia, Scleractinia (*Stenocyathus vermiformis*, *Thalamophyllia gastii* and *Lophelia pertusa*), Octocorallia (*Scleranthelia musiva*, *Dendrobrachia fallax*), Brachiopoda, Polychaeta Serpulidae, Mollusca (among others, subfossil valves of the large limid *Acesta excavata*) and the sessile suspension feeding holothurian *Psolidium complanatum*. Most taxa, however, were represented only with their skeletal parts and only a fraction was found alive at the time of the sampling. Therefore, the inventory includes both fossil and recent organisms.

A single live individual of *Coralliophila squamosa* (morphotype *runderatus*) was found on the volcanic bedrock at about 500 m off the Nameless-Urania Bank (Taviani *et al.*, 2009).

Living red coral (*Corallium rubrum*) colonies were observed by ROV in water depths between 400 and 654 m (Freiwald *et al.*, 2009; Taviani *et al.*, 2010) on submarine volcanic edifices where the species fringes in overhangs and 'caves' often in close association with living colonial and solitary scleractinians (*L. pertusa*, *M. oculata*, and *D. dianthus*), antipatharians and alcyonaceans. Two specimens of the carnivorous sponge *Asbestopluma hypogea* were found on the Urania Bank, one of which associated to *Madrepora oculata*, the other to rock (Aguilar *et al.*, 2011).

According to Camilleri *et al.* (2008) stable recruitment areas of *Phycis blennoides* are located around the Nameless bank (Fiorentino *et al.*, 2003).

No information about the pelagic communities of the Nameless and Pinne Banks has been found in the scientific literature.

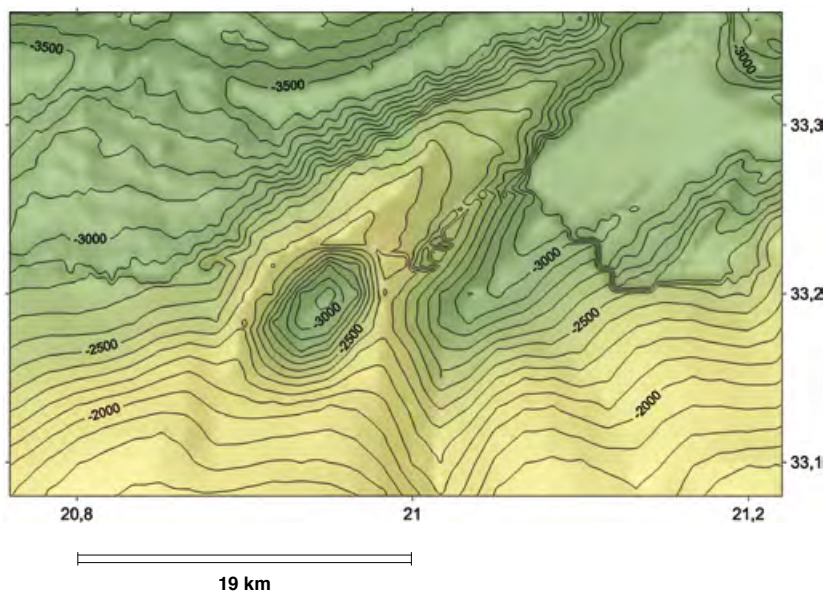
IONIAN SEA

STRUCTURE:

Akhdar Seamount

■ Location: 33.21668°N – 20.98349°E

▲ Peak depth (m): 2200-2210 ▼ Base depth (m): 2370- 2380



DESCRIPTION:

Geology

The Akhdar Seamount lies in the eastern part of the southern Ionian Sea very close to the continental slope of the Libyan margin and to the Western Mediterranean Ridge. It can be interpreted as a spur of African continental crust (Hieke *et al.*, 2009), which represents also a relief of the downgoing African plate. The fate of these type of seamounts is to be digested into the Ionian subduction zone. Seamounts travelling with the downgoing plate leave a clear indentation track in the accretionary wedge, as the downgoing plate subducts below the Mediterranean Ridge. The Mediterranean Ridge accretionary prism is the result of the ongoing convergence of Africa against the Aegean block (Aegean Sea and Hellenic Arc) (Chamot-Rooke *et al.*, 2005). The Akhdar track, which is located nearby the seamount, is oriented N35°E $\pm$ 10 and is oblique to both the trend of the deformation front and the expected backstop-Cyrenaica relative motion (Kreemer and Chamot-Rooke, 2004).

Life on and around the Seamount

No information about the Akhdar Seamount benthic communities has been found in the scientific literature.

All the seamounts located offshore the Libyan coast remain poorly documented. Nonetheless there have been sightings of the critically endangered Mediterranean species like monk seal (*Monachus monachus*), green turtles (*Chelonia mydas*) and loggerhead sea turtles (*Caretta caretta*). Furthermore, this region is also described as fishing and likely spawning area for bluefin tuna (*Thunnus thynnus*). The area is particularly threatened by oil and gas prospecting and production. Furthermore there are large amounts of gas hydrates that could also interest the oil and gas industry (OCEANA, 2014; Hamza *et al.*, 2003).

STRUCTURE:

Alfeo Seamount

■ Location: 36.72936°N – 15.85085°E

▲ Peak depth (m): 2550-2560 ▼ Base depth (m): 3080-3090

DESCRIPTION:

Geology

The Alfeo Seamount is a NNE oriented structure located in the western Ionian Sea at the foot of the Malta Escarpment and, in this respect, represents an exception to the overall Malta Escarpment trend (Argnani, 2009). It consists of Jurassic limestone (Dogger), covered by Plio-Pleistocene sediment (Ben Avraham *et al.*, 1983). The pelagic Mesozoic sediments dredged on its scarps (Rossi and Borsetti, 1977) suggest that Alfeo can be considered a seamount already separated by the Hyblean plateau at the early stage of the passive margin formation (Argnani, 2009). An important fault alignment of low angle thrust faults, related to the subduction zone of the Ionian oceanic crust, extends to the eastern of the Alfeo Seamount (Polonia *et al.*, 2012).

Life on and around the Seamount

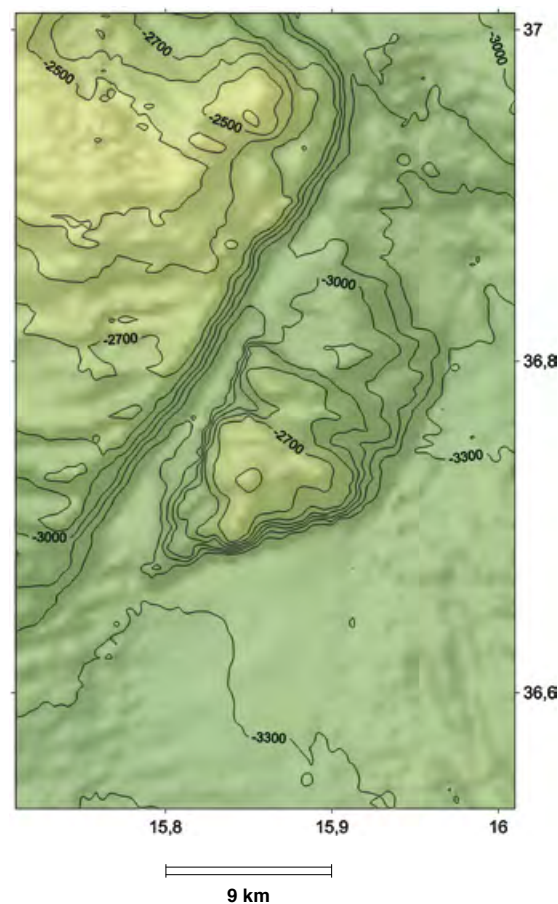
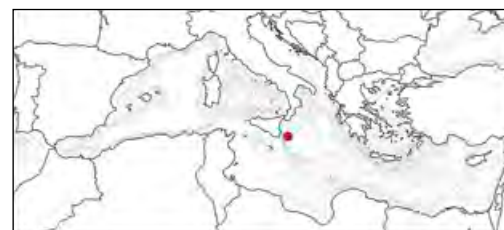
Data collected during the DESEAS survey carried out in two areas of the Ionian Sea were used to describe the structure and spatial distribution of the fish assemblages at depths between 600 and 4000 m. Concerning the 800-1300 m depth interval, in the western Ionian Sea, the most abundant species were: *Mora moro* followed by *Nezumia sclerorhynchus* and *Galeus melastomus*. The greatest biomass contributions were made by *M. moro*, *G. melastomus* and *Dalatias licha*. In the eastern Ionian Sea the most abundant species were *G. melastomus*, *M. moro* and *Lampanyctus crocodilus* in density and *Hexanchus griseus*, *M. moro* and *G. melastomus* in biomass.

On the lower slope, at 1500-2000 m, *Bathypterois mediterraneus* was the dominant species in number. It was mostly found in the Ionian Sea (54% on the western side, 11% on the eastern).

At depths of 2200-2800 m, *B. mediterraneus* was the most abundant species followed by *Chalinura mediterranea*, *Coryphaenoides guentheri* and *Cataetys laticeps*. The dominant species in biomass was *Centroscymnus coelolepis* followed by *C. laticeps*. On the abyssal plane (3300-4000 m) the dominant species was *C. mediterranea* both in number and weight (D'Onghia *et al.*, 2004a).

The DESEAS and other bottom trawl surveys also provided information about the deep-sea decapod crustaceans distribution by depth. The most abundant species sampled close to the bottom at depths deeper than 1500 m were: *Aristeus antennatus*, *Acantheephyra eximia*, *Acantheephyra pelagica*, *Nematocarcinus exilis*, *Polychaetes typhlops* and *Chaceon mediterraneus* (Company *et al.*, 2004).

No information about the Alfeo Seamount pelagic communities has been found in the scientific literature.

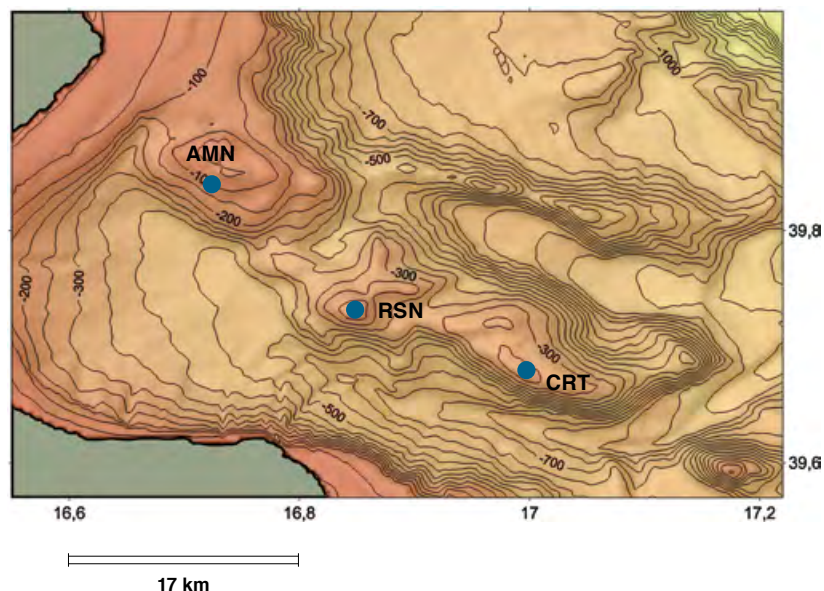


STRUCTURE:**Amendolara Bank**

Amendolara Bank (AMN) **Location:** 39.86838°N – 16.72344°E
▲ Peak depth (m): 30-40 **▼ Base depth (m):** 125-350

Rossano Bank (RSN) **Location:** 39.72898°N – 16.84985°E
▲ Peak depth (m): 170-180 **▼ Base depth (m):** 350-360

Cariati Bank (CRT) **Location:** 39.67566°N – 16.99533°E
▲ Peak depth (m): 220-230 **▼ Base depth (m):** 350-360

**DESCRIPTION:****Geology**

The Amendolara Bank, located in the Gulf of Taranto, which is the embayment of the northern Ionian Sea, is a submarine extension of the frontal thrust Apenninic belt (Ferranti *et al.*, 2012). Together with the smaller Rossano Banks and Cariati Banks, it forms the summit area of the Amendolara Ridge, which stretches for over 80 km SE from the coast and is due to active fault-related fold growth. The NW-SE trending ridge has grown during Late Pliocene-Quaternary (Ferranti *et al.*, 2012). Evidence of recent deformation is represented by tectonically-stacked packages, and by widespread debris flows and slumps. The three banks are ~15 to 20 km-long and are floored by the folded sediments and locally by lower Pleistocene or older bedrock. The three steep blind segments, which are the deep expression of the folded or tilted sediments in the banks, are rooted at ~ 10 km depth into a low-angle dipping detachment ramp extending to ~ 20 km-depth. This deeper ramp is responsible for the overall NE-tilt of the ridge (Ferranti *et al.*, 2012).

There are several myths linked to this bank, but the most intriguing is the one which identifies the bank with the Island of Ogygia where the nymph Calypso detained Ulysses for 7 years according to Homer's *Odyssey*.

Life on and around the Seamount

This bank is very well reknown among fishermen and scuba divers for the abundance of fish and the beauty of the seabed. Macrobenthic flora was described by Perrone (1985). A rich algal community and mollusc fauna were dredged from the top of the Amendolara Bank (Cecere and Perrone, 1988).

No information about the pelagic communities of these structures has been found in the scientific literature.

STRUCTURE:

Anteo Hills

ANT-1 ■ Location: 36.87550°N – 16.80930°E

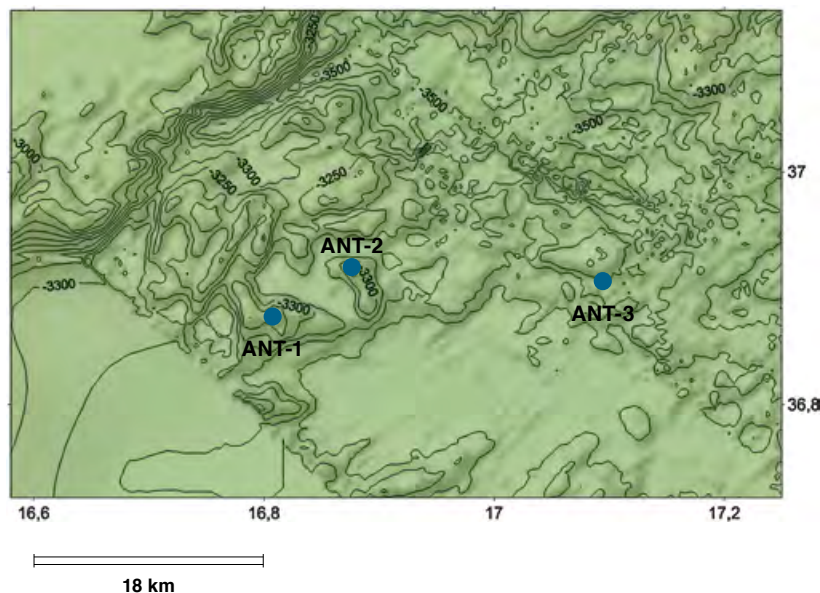
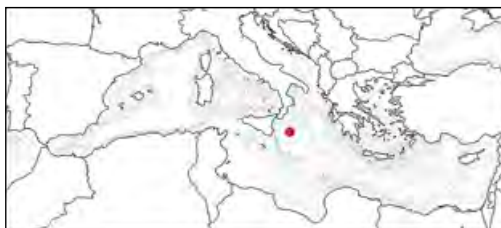
▲ Peak depth (m): 3190-3200 ▴ Base depth (m): 3250-3260

ANT-2 ■ Location: 36.91690°N – 16.87620°E

▲ Peak depth (m): 3230-3240 ▴ Base depth (m): 3350-3360

ANT-3 ■ Location: 36.93170°N – 17.09440°E

▲ Peak depth (m): 3290-3300 ▴ Base depth (m): 3370-3380



DESCRIPTION:

Geology

The Anteo Hills are located in the western Ionian Sea and they represent the most SSE-ward advanced units of the Calabrian Arc. The Anteo Hills consist of Jurassic limestone, covered by Plio-Pleistocene sediment (Rossi and Borsetti, 1977). They have been interpreted as horsts to be related with the onshore Ragusa region of Eastern Sicily (Rossi and Borsetti, 1977).

Life on and around the Seamount

Carbonate crusts have been found to be overgrown with solitary corals (*Caryophyllia sarsiae* and *Desmophyllum dianthus*) and serpulid tubes (*Neovermilia falcigera*). In cavities enrichment of large shells (paper nautilus *Argonauta* sp. and gastropods) have been observed.

Data collected during the DESEAS survey carried out in areas close to the Anteo Hills were used to describe the structure and spatial distribution of the fish assemblages at depths between 600 and 4000 m. At depths of 2200-2800 m, *Bathypterois mediterraneus* was the most abundant species of the fish assemblage, followed by *Chalinura mediterranea*, *Coryphaenoides guentheri*, *Cataetys laticeps* and *Centroscymnus coelolepis*, this last is the dominant species in biomass followed by *C. laticeps*. On the abyssal plane (3300-4000 m) the dominant species were *C. mediterranea*, *C. laticeps*, *B. mediterraneus* both in number and weight. At this depth the benthic fish assemblage is reduced both in species composition and biomass. The benthopelagic species recorded at depths deeper than 2000 m were: *Chauliodus sloani*, *Stomias boa* and *Lampanyctus crocodilus* (D'Onghia *et al.*, 2004a; D'Onghia *et al.*, 2004b).

The most abundant deep-sea decapod crustaceans species sampled close to the bottom at depths deeper than 2500 m were: *Aristeus antennatus*, *Acantheephyra eximia*, *Acantheephyra pelagica*, *Nematocarcinus exilis* and *Chaceon mediterraneus* (Company *et al.*, 2004).

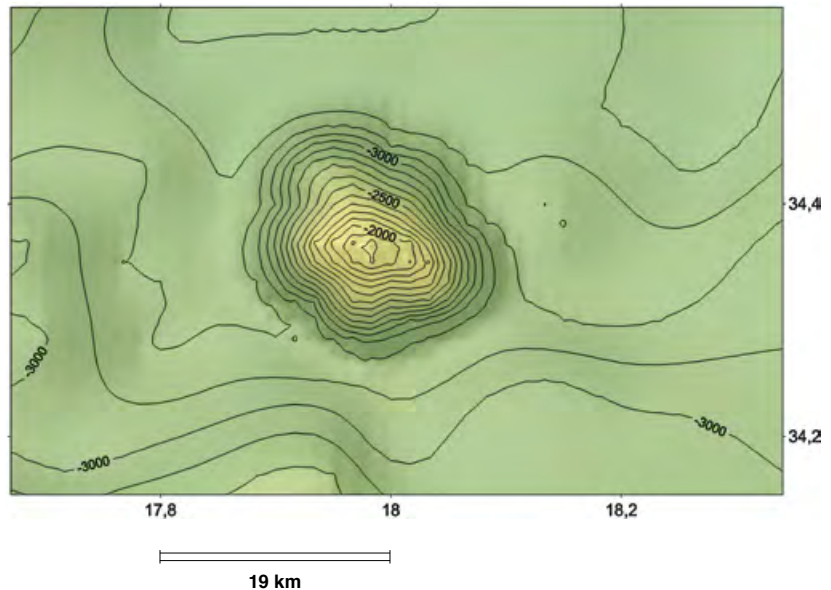
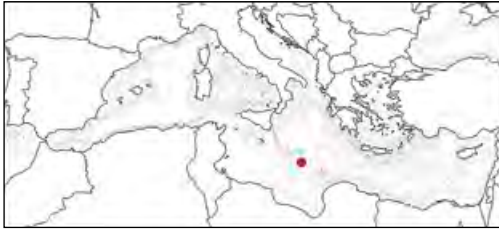
No information about the pelagic communities of the Anteo Hills has been found in the scientific literature.

STRUCTURE:

Archimedes Seamount

■ Location: 34.36696°N – 17.98400°E

▲ Peak depth (m): 1740-1750 ▴ Base depth (m): 3100-3110



DESCRIPTION:

Geology

The Archimedes Seamount is a pronounced structure with a regular circular planform and conic shape, located in the southern Ionian Sea (Ben-Avraham *et al.*, 1983). The Archimedes Seamount has a height of almost 1400 m above the seafloor and features very steep slopes. For this reason it can be considered among the most outstanding structures in this sea region and comparable in size to the Epicharmos Seamount (Ben-Avraham *et al.*, 1987). In cross section, the seamount appears to be slightly tilted to the south. The upper slopes show high angles of 17°-22°, decreasing down to 8°-10° at the foot of the slope. The slopes are complicated by tilted steps and valleys with depths up to several tens of meters (Evsyukov, 1997).

Life on and around the Seamount

Data collected during the DESEAS survey carried out in two areas of the Ionian Sea were used to describe the structure and spatial distribution of the fish assemblages at depths between 600 and 4000 m.

The most abundant species in the 800-1300 m depth interval was *Mora moro* followed by *Nezumia sclerorhynchus* and *Galeus melastomus*. The greatest biomass contributions were made by *M. moro*, *G. melastomus* and *Dalatias licha*. In the eastern Ionian Sea the most abundant species were *G. melastomus*, *M. moro* and *Lampanyctus crocodilus* in density and *Hexanchus griseus*, *M. moro* and *G. melastomus* in biomass.

On the lower slope, at 1500-2000 m, *Bathypterois mediterraneus* was the dominant species in number. It was mostly found in the Ionian Sea (54% on the western side, 11% on the eastern).

In the 2200-2800 m depth interval, *B. mediterraneus* was the most abundant species followed by *Chalinura mediterranea*, *Coryphaenoides guentheri* and *Cataetyx laticeps*. The dominant species in biomass was *Centroscymnus coelolepis* followed by *C. laticeps*. On the abyssal plane (3300-4000 m) the dominant species was *C. mediterranea* both in number and weight (D'Onghia *et al.*, 2004a).

The DESEAS and other bottom trawl surveys also provided information about the deep-sea decapod crustaceans distribution by depth. The most abundant species sampled close to the bottom at depths deeper than 1500 m were: *Aristeus antennatus*, *Acantheephyra eximia*, *Acantheephyra pelagica*, *Nematocarcinus exilis*, *Polychaetes typhlops*, *Gennadas elegans*, *Sergestes arachnoides*, *Sergia robusta* and *Chaceon mediterraneus* (Company *et al.*, 2004).

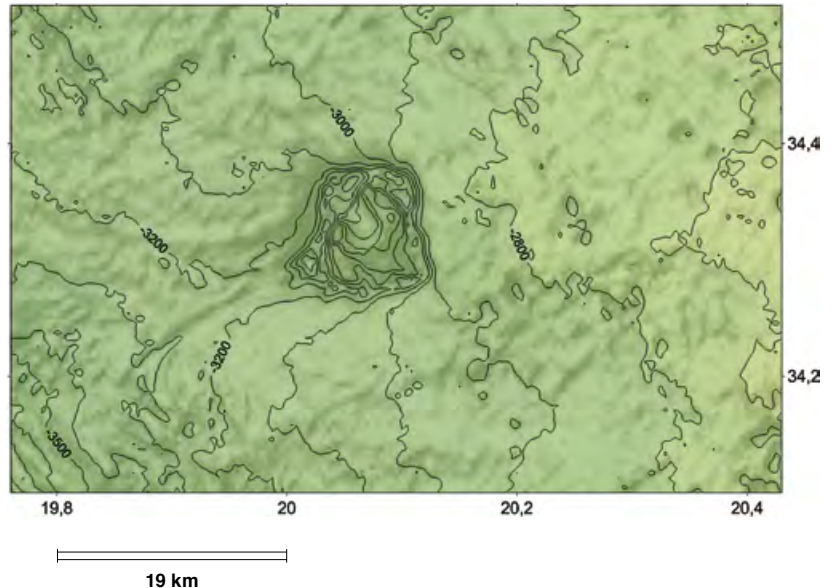
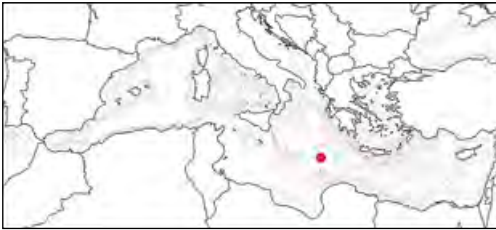
No information about the pelagic communities of the Archimedes Seamount has been found in the scientific literature.

STRUCTURE:

Bannock Seamount

■ Location: 34.32117°N – 20.04370°E

▲ Peak depth (m): 2720-2730 ▼ Base depth (m): 3190-3200



DESCRIPTION:

Geology

Ridges and troughs caused by folding in the accretionary prism are well developed across the front of the Western Mediterranean Ridge, because of the ductile nature of the thick Messinian evaporite layers present there. The ridges and troughs are dragged in the direction of relative convergence and curve upslope along transverse tracks which show the path of recently subducted topographic highs or seamounts (probably non volcanic because they lack magnetic anomalies). The longest of these tracks ends at the Bannock Basin where the summit of a subducting seamount is currently exposed (von Huene *et al.*, 1997). This observation led to the discovery that the very deep Bannock Basin encircles the crest of a seamount, which we will call the Bannock Seamount. The seamount plowed through the accreted section and disrupted the Messinian evaporites above the decollement surface. Its flanks may act as conduits for fluids trapped beneath the evaporites. These fluids are similar to the brine pools that vent in the Bannock Basin. Perhaps the escape of substantial volumes of fluids and the resultant dissolution of the evaporites has helped to remove the huge volume of material that once occupied the space where the seamount now stands (Dominguez *et al.*, 1998). The Bannock Seamount track is 42 km-long and has a bearing of $N60^{\circ}E \pm 5^{\circ}$, which is approximately normal to the local trend of the wedge toe but significantly more eastwards (Kreemer and Chamot-Rooke, 2004).

Life on and around the Seamount

The Bannock Basin was discovered in the '80s (Camerlenghi and McCoy, 1990). It described as an anoxic environment with hypersaline conditions (de Lange *et al.*, 1990). The brines are thought to originate from dissolution of late-stage outcropping or underlying (Messinian) evaporitic salt layers. The transition from normal seawater to brine water occurs at 3330 dbar in the Bannock Basin. At this transition, salinity increases sharply, whereas the concentration of dissolved oxygen drops rapidly to zero across a depth interval of only a few metres. Unusual microbial populations, including a new division of Archaea (MSBL1) inhabit the hypersaline brine. High salinities tend to reduce biodiversity, but when brines come into contact with fresher water the natural haloclines formed frequently contain gradients of other chemicals, including permutations of electron donors and acceptors, that may enhance microbial diversity, activity and biogeochemical cycling. Here, a 2.5 m-thick chemocline with a steep NaCl gradient at 3300 m water depth, between Bannock anoxic hypersaline brine and overlying sea water, supports some of the most biomass-rich and active microbial communities in the deep sea, dominated by Bacteria rather than Archaea. Significantly higher metabolic activities were measured in the chemocline than in the overlying sea water and underlying brine (Daffonchio *et al.*, 2006).

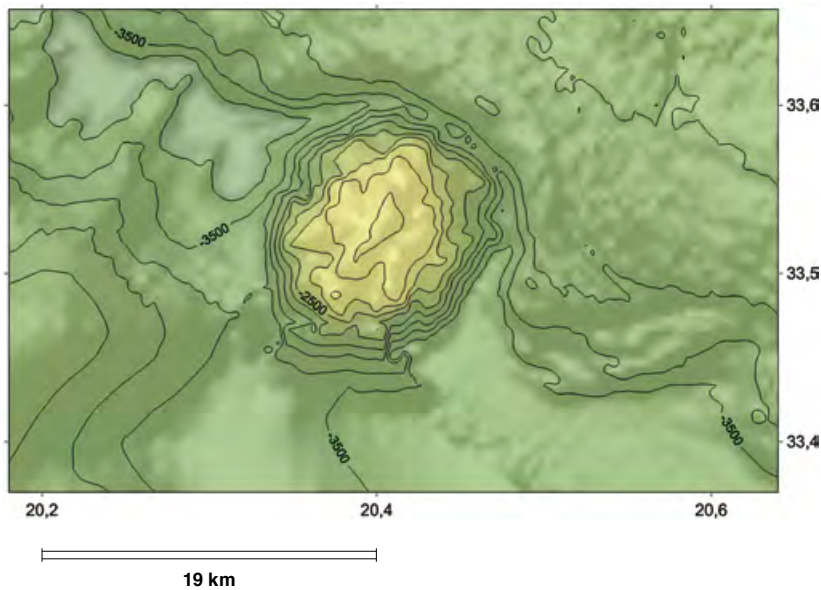
No information about the pelagic communities of the Bannock Seamount has been found in the scientific literature.

STRUCTURE:

Battos Seamount

■ **Location:** 33.52980°N – 20.40880°E

▲ **Peak depth (m):** 1790 ▢ **Base depth (m):** 3190-3200



DESCRIPTION:

Geology

The Battos Seamount is a prominent morpho-tectonic feature. It is about 1400 m-high located very close, if not attached, to the Western Mediterranean Ridge, downslope in respect to the Akhdar Seamount. Like the majority of the Sirte Abyssal Plain reliefs, this seamount lies in continuity with the African continental slope. Although nothing is known about its nature, Hieke *et al.* (2009) insist in claiming its non volcanic origin. As seamounts travelling with the downgoing plate leave clear indentation tracks in the accretionary wedge, these tracks are interpreted as flow of relative motion between the overriding and downgoing plates. The Battos Seamount formed a track with a bearing of $55^{\circ} \text{ N} \pm 5^{\circ}$. All tracks indicate the local convergence direction. The orientation of the Battos track is oblique to both the trend of the deformation front and the expected backstop-Cyrenaica relative motion (Kreemer and Chamot-Rooke, 2004).

Life on and around the Seamount

No information about the Battos Seamount benthic communities has been found in the scientific literature.

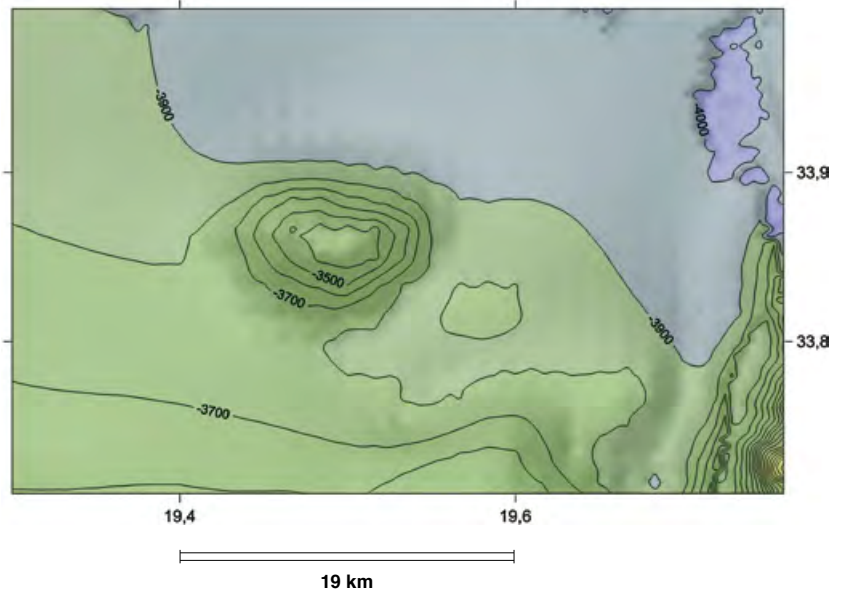
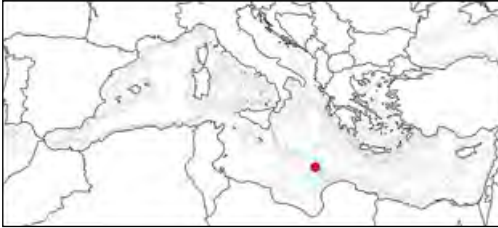
The southern Ionian Seamounts off the Libyan coast remain poorly documented, but there have been sightings of the critically endangered Mediterranean monk seal (*Monachus monachus*) and the endangered green turtle (*Chelonia mydas*). Furthermore, this region is also described as fishing and likely spawning area for bluefin tuna (*Thunnus thynnus*). The southern Ionian Seamounts are particularly threatened by oil and gas prospecting and drilling. Furthermore there are large amounts of gas hydrates that could also interest the oil and gas industry (OCEANA, 2014).

STRUCTURE:

Conrad Spur

■ Location: 33.85053°N – 19.50011°E

▲ Peak depth (m): 3310-3320 ▼ Base depth (m): 3750-3760



DESCRIPTION:

Geology

The Conrad Spur was first observed during a survey onboard R/V "Robert D. Conrad" in 1984 (Hieke *et al.*, 2009) and it was termed in honour of the ship. At that time, the feature was considered to be an isolated elevation rising from the surrounding flat seafloor, very close to the Cyrene Seamount in the southern Ionian Sea. Later on, by using more advance sonar technologies, the shape of the Conrad Spur, at the rim of the Sirte Abyssal Plain, was better defined by the 3860 m isobath. A sharp crest line starts at 3860 m water depth in the NNE and rises generally to 3740 m in the SSW until it meets the slope of the Sirte Rise. The relief is complicated by a chain of at least three separate summits. The NW flank is steeper than the SW one. A nearly W-E oriented incision of isobaths in the NNE part marks a sharp bend of the axis of the structure with a WSW-ENE orientation. The Conrad Spur is the continuation of a pre-Messinian tectonic structure of the Sirte Rise (Hieke *et al.*, 2009). West of the Conrad Spur, another seafloor elevation rises up to at least 3,350 m water depth, but its shape is unknown. This elevation has been preliminarily named "Elevation *3,350 m".

Life on and around the Seamount

The Southern Ionian Seamounts off the Libyan coast are 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 described as fishing and likely spawning area for bluefin tuna (*Thunnus thynnus*). 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 (OCEANA, 2014).

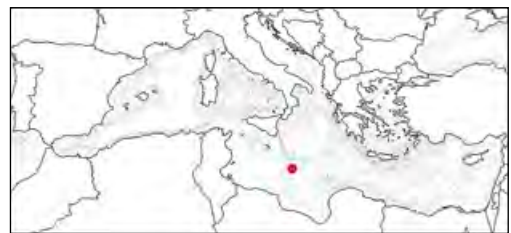
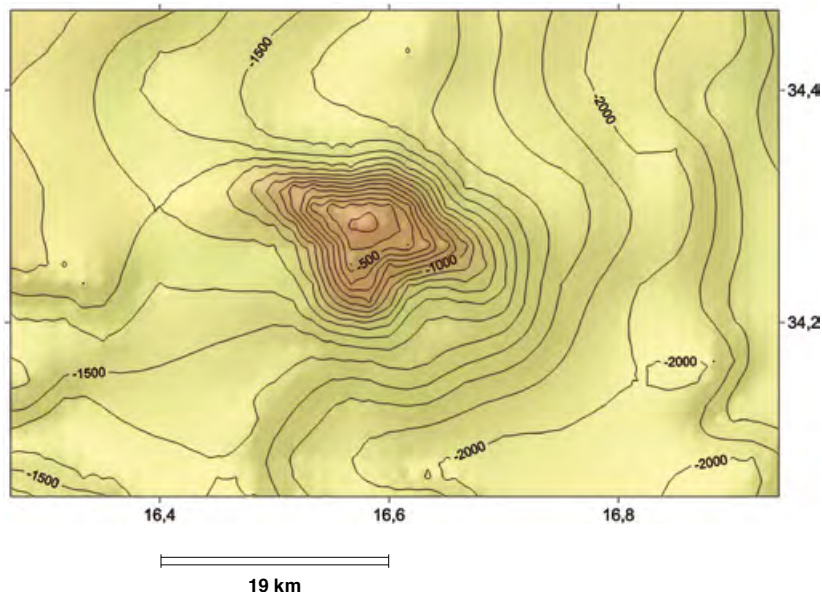
No information about the benthic communities on the Conrad Spur has been found in the scientific literature.

STRUCTURE:

Epicharmos Seamount

■ **Location:** 34.28377°N – 16.58384°E

▲ **Peak depth (m):** 250-260 ▢ **Base depth (m):** 1290-1300



DESCRIPTION:

Geology

The Epicharmos Seamount is located about 25 km SE of the Malta Escarpment in the western Ionian Sea and is quite a tall and squared structure. The seamount has a rough NNW-SSE oriented triangular shape with dimensions of 6 x 9 x 12 km. Detailed bathymetric profiles (Yevsyukov, 1993) revealed two summits: the northeastern flat and squared area lies at a depth less than 267 m, while the northwestern summit is at a water depth of 736 m. The average slopes are about 12-15°. Bathymetric profiles also show a southward tilt of the structure. The flat northeastern sector of the seamount is bounded to the south by two large parallel ridges. The northeastern ridge is 300 to 600 m-high and the southwestern ridge is 150 to 200 m-high (Yevsyukov, 1993; Evsyukov, 1997). The southwestern flank of the Epicharmos Seamount has a height of 1250 to 1350 m and an inclination of 22-28° and it is complicated by canyons with downcuts up to 50-70 m, and slump bodies are present at its base. Three morphologically prominent ridges appear to divide into three sectors the slope of the northeastern flank. Narrow steps (200 to 300-m-wide) occur at various depths, and also here slump bodies appear to be present at the foot of the slope.

Life on and around the Seamount

Data collected during the DESEAS survey carried out in two areas of the Ionian sea were used to describe the structure and spatial distribution of the fish assemblages at depths between 600 and 4000 m. Concerning the 800-1300 m depth interval in the western Ionian Sea the most abundant species was *Mora moro* followed by *Nezumia sclerorhynchus* and *Galeus melastomus*. The greatest biomass contributions were made by *M. moro*, *G. melastomus* and *Dalatias licha*. In the eastern Ionian Sea the most abundant species were *G. melastomus*, *M. moro* and *Lampanyctus crocodilus* in density and *Hexanchus griseus*, *M. moro* and *G. melastomus* in biomass (D'Onghia *et al.*, 2004a).

The DESEAS and other bottom trawl surveys also provided information about the deep-sea decapod crustaceans distribution by depth. The most abundant species sampled close to the bottom at depths deeper than 1500 m were: *Aristeus antennatus*, *Acanthephyra eximia*, *Acanthephyra pelagica*, *Nematocarcinus exilis*, *Polychaetes typhlops*, *Gennadas elegans*, *Sergestes arachnoides*, *Sergia robusta* and *Chaceon mediterraneus* (Company *et al.*, 2004).

No information about the pelagic communities around the Epicharmos Seamount has been found in the scientific literature.

STRUCTURE:

Herodotus - Cyrene Seamount

■ Location: 33.59970°N – 19.93370°E

▲ Peak depth (m): 990-1000 ▼ Base depth (m): 2190-2200

DESCRIPTION:

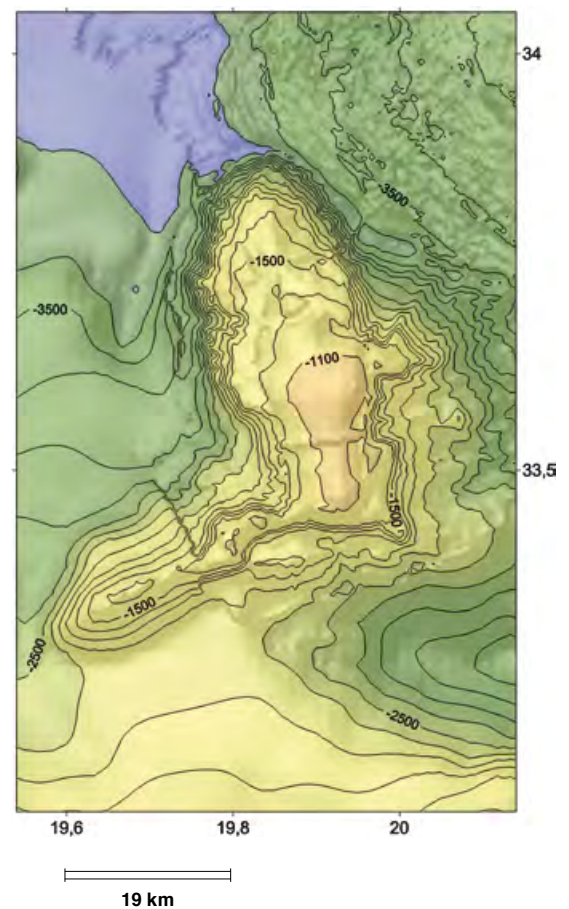
Geology

The Herodotus or Cyrene Seamount is located in the southeastern part of the Sirte Abyssal Plain, on rifted, thinned continental crust, and culminates at a water depth of about 1000 m. The flat seafloor surrounding the Cyrene Seamount is in average 3861-m-deep, there is only a slightly deeper sharp furrow at 3866 m water depth. Its shape is determined by three slope orientations: SSW-NNE, SW-NE and NNW-SSE. Ben-Avraham *et al.* (1987) suggest that a major active transcurrent fault system runs with WNW-ESE orientation along the North African passive margin and passes just north of the Cyrene Seamount. There, a marginal suture along the Egyptian/Cyrenaica coast continues in a regional fault trending NW towards Sicily (Hieke *et al.*, 2009). Zarudski (1972) interpreted the magnetic anomalies over the seamount as due to the crystalline basement rather than intrusive igneous rocks. Divergences and dredgings (Biju-Duval *et al.*, 1982) recovered a thick sediment succession made of Cretaceous limestones, Cenomanian and Turonian breccias, Senonian pelagic sediments, and pillow lavas. The upper part of the structure is a massive (500 to 600 m-thick), calcareous-dolomitic complex of unknown age. Upper Miocene and Pliocene sedimentary rocks were found at the base of the slope. Dissolution along normal faults, tectonic striations and carbonate crusts were observed during submersible dives (Biju-Duval *et al.*, 1983).

Life on and around the Seamount

The Herodotus Seamount area is affected by the Ierapetra eddy and Mersa-Matruth gyre. Nutrients upwellings characterize these structures, leading the generation of primary production and bacterial biomass much higher than in the surrounding oligotrophic waters. Temporary presence for reproduction of migratory species and several species of cetaceans (mainly sperm whales, Cuvier's beaked whales, striped and common dolphins) and sea turtles (Masclé *et al.*, 2010) has been reported.

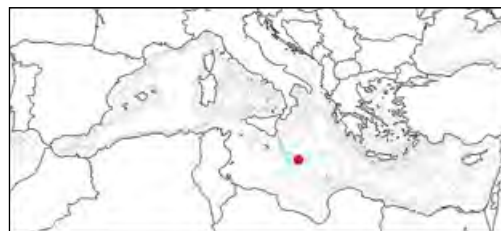
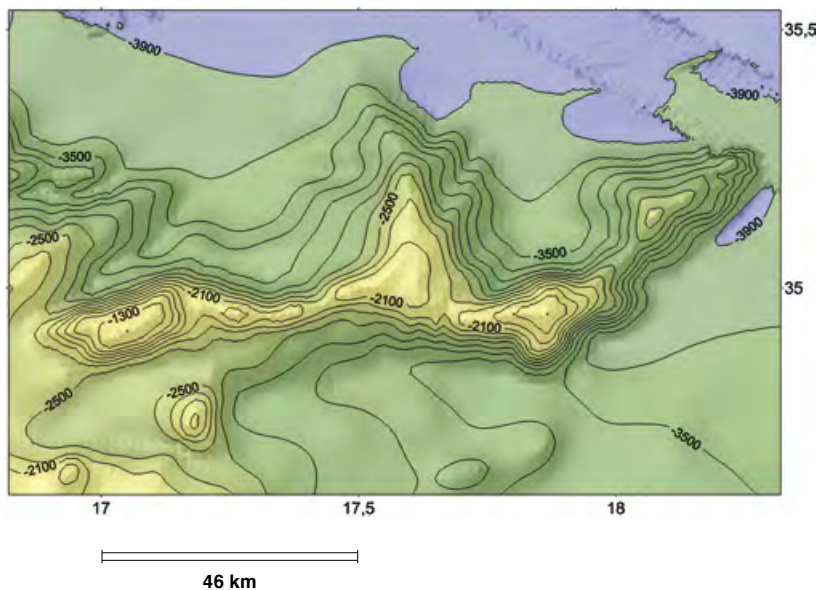
No information about the benthic communities on the Herodotus Seamount has been found in the scientific literature.



STRUCTURE:**Medina - Malta Ridge**

▣ **Location:** 34.91705°N – 17.05067°E

▲ **Peak depth (m):** 1090-1100 ▴ **Base depth (m):** 2320-2330

**DESCRIPTION:****Geology**

The Medina-Malta Ridge is located in the southern Ionian Sea and bounds to the South the foreland of the Calabrian prism, which is represented by the 4000 m-deep Ionian Abyssal Plain, a triangular basin about 5000 km² in area (Hieke *et al.*, 2003). The Medina-Malta Ridge is a very long (about 140 km) and complex horst structure affected by volcanism (Finetti, 1982). Recent normal faults, probably post-Messinian in age, have been also suggested to be present (Hieke *et al.*, 2003). The Medina-Malta Ridge looks like a rhomboid in shape, with horizontal axes of 60 and 140 km. The ridge actually consists of two linear structures separated by a saddle. Each branch hosts different seamounts.

The western branch is 85 km-long and ENE-WSW oriented. The eastern triangular seamount, lying on top of it, is the largest in this branch and the shallowest in the ridge. This bottom topographic feature is called the Medina Seamount. To the north of this seamount prominent magmatic extrusions form the so-called Marconi Seamount (Finetti, 1985; Peterson, 1994).

The eastern branch is 65 km-long and NE-SW oriented. The southwestern seamount is the largest one in the Medina-Malta Ridge and displays a 550 m-high ridge on its top.

The Medina-Malta Ridge shows average 15°-22° slopes in the southern flank and 6°-9° in the northern one. The seamounts on top of it are bounded by 35°-40° dipping fault scarps, which seem to constrain the normal fault-block origin.

The ridge, as a whole, is cut by 200 to 400 m-deep gullies showing lengths ranging from 3-5 to 10-12 km. The entire structure is buried below Pliocene-Quaternary sediments, more than 100 m-thick. Sediments can reach 400 m in thickness in the saddle separating the two links of the ridge (Evsyukov, 1997; Hieke *et al.*, 1998).

The Medina-Malta Ridge displays the highest free-air gravity anomaly values (> 50 mgal) in the area, connecting with the VHS 2 (Gallais *et al.*, 2011). These high values suggest the presence of excess mass at depth and basement involvement in the structure. The increase of the heat flow measurements at the northern edge of the ridge also suggests that a transition in the nature of the basement occurs here, from oceanic to continental domain (Gallais *et al.*, 2011). The seafloor morphology of the Medina-Malta Ridge is in fact characterized by "en echelon" features, which are consistent with a rifted margin (Gallais *et al.*, 2011).

Life on and around the Seamount

The DESEAS and other bottom trawl surveys provided information about the deep-sea decapod crustaceans distribution by depth. The most abundant species sampled close to the bottom at depths deeper than 1500 m were: *Aristeus antennatus*, *Acantheephyra eximia*, *Acantheephyra pelagica*, *Nematocarcinus exilis*, *Polychaetes typhlops*, *Gennadas elegans*, *Sergestes arachnoides*, *Sergia robusta* and *Chaceon mediterraneus* (Company *et al.*, 2004).

The structure and spatial distribution of the fish assemblages have been described from data collected during the DESEAS surveys carried out at depths between 600 and 4000 m, in two areas of the Ionian Sea.

In the western Ionian Sea, the most abundant species in the 800-1300 m depth interval were *Mora moro*, *Nezumia sclerorhynchus* and *Galeus melastomus*. The greatest biomass contributions were made by *M. moro*, *G. melastomus* and *Dalatias licha*. In the eastern Ionian Sea the most abundant species were *G. melastomus*, *M. moro* and *Lampanyctus crocodilus* in density and *Hexanchus griseus*, *M. moro* and *G. melastomus* in biomass.

On the lower slope, at 1500-2000 m, *Bathypterois mediterraneus* was the dominant species in number. It was mostly found in the Ionian Sea (54% on the western side, 11% on the eastern).

At depths of 2200-2800 m, *B. mediterraneus* was the most abundant species followed by *Chalinura mediterranea*, *Coryphaenoides guentheri* and *Cataetys laticeps*. The dominant species in biomass was *Centroscymnus coelolepis* followed by *C. laticeps*. On the abyssal plane (3300-4000 m) the dominant species was *C. mediterranea* both in number and weight (D'Onghia *et al.*, 2004).

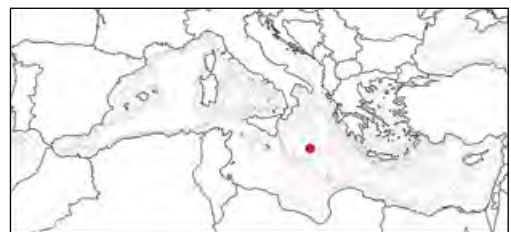
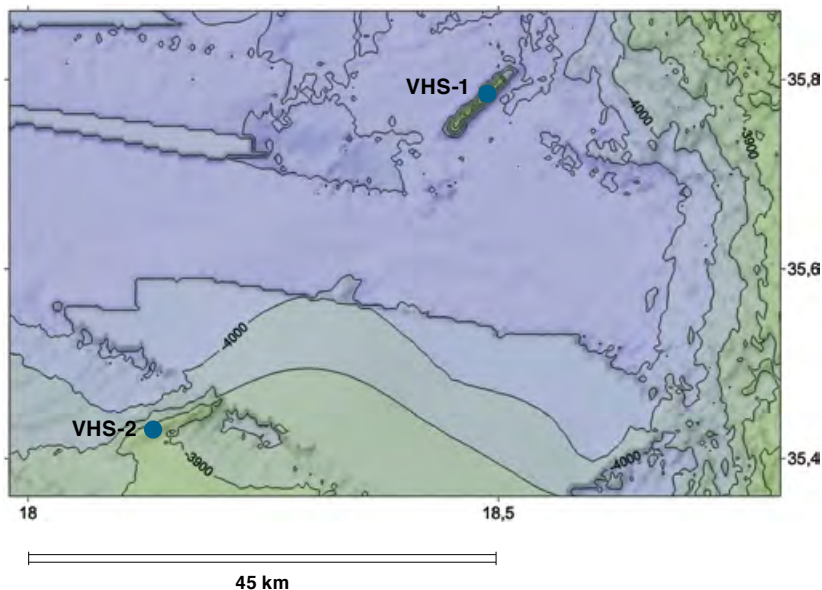
The Medina-Malta Ridge area is a likely suitable habitat for cetaceans (Vella and Vella, 2012), in particular deep diving species such as sperm whales (*Physeter catodon*) and Cuvier's beaked whales (*Ziphius cavirostris*).

STRUCTURE:

Victor Hensen Hills

Victor Hensen Hill 1 (VHS-1) **Location:** 35.78397°N – 18.48815°E
▲ Peak depth (m): 3770-3780 **▼ Base depth (m):** 4080-4090

Victor Hensen Hill 2 (VHS-2) **Location:** 35.42920°N – 18.13231°E
▲ Peak depth (m): 3850-3860 **▼ Base depth (m):** 3950-3960



which was in turn named after Christian Andreas Victor Hensen (1835-1924), a German zoologist and physiologist, whose oceanographic studies established the discipline of "Biological Oceanography".

DESCRIPTION:

Geology

The Victor Hensen Seahill 1 (VHS-1) and the Victor Hensen Seahill 2 (VHS-2) rise above the southeastern Ionian Abyssal Plain (Hieke and Wanninger, 1985; Hieke *et al.*, 2003). The VHS-1 is a roughly 10 km-long and 2 km-wide SW-NE elongated tectonic structure (Gallais *et al.*, 2011). The Ionian Abyssal Plain (IAP), which hosts a 5 km-thick Meso-Cenozoic sedimentary cover, is traditionally interpreted to be floored by thin oceanic crust. Some authors invoke the structural continuity between the seamounts of the Medina-Malte Ridge (known to be of continental affinity from Finetti, 1982; Hieke and Wanninger, 1985) and the Victor Hensen Seamounts as an argument in favor of a thinned continental crust underlying the IAP (Hieke *et al.*, 2003). While there is consensus about the origin of the VHS-2 where no Messinian sediments are observed, and which is interpreted to be caused by extensional tectonics mainly in pre-Messinian times (Hieke and Wanninger, 1985; Gallais *et al.*, 2011), the VHS-1 nature is still a matter of debate. Hieke *et al.* (2006) consider it a horst structure, while Gallais *et al.* (2011) recently suggested to interpret it as a purely diapiric salt structure.

The narrow SW-NE oriented structure composed by the Medina-Malta Ridge and the Victor Hensen Hills is at least 155 km-long and crosses with a strikingly distinct trend the Ionian Abyssal Plain towards the Western Mediterranean Ridge. The Medina-Victor Hensen alignment causes important lateral changes in the thickness of sediments in the Ionian Abyssal Plain (Hieke *et al.*, 1998; Hieke *et al.*, 2009). The seamount was named after the research vessel MV Victor Hensen,

Life on and around the Seamount

The most abundant deep-sea decapod crustaceans species sampled close to the bottom at depths deeper than 2500 m were: *Aristeus antennatus*, *Acantheephyra eximia*, *Acantheephyra pelagica*, *Nematocarcinus exilis* and *Chaceon mediterraneus* (Company *et al.*, 2004).

The structure and spatial distribution of the fish assemblages at depths between 600 and 4000 m have been described from data collected during the deep bottom surveys carried out in areas close to the Anteo Hills and Victor Hensen Hills. On the abyssal plane (3300-4000 m) the dominant species were *Chalinura mediterranea*, *Cataetys laticeps*, *Bathypterois mediterraneus* both in number and weight. At this depth the benthic fish assemblage is reduced both in species composition and biomass. The benthopelagic species recorded at depths deeper than 2000 m were: *Chauliodus sloani*, *Stomias boa* and *Lampanyctus crocodilus* (D'Onghia *et al.*, 2004a; D'Onghia *et al.*, 2004b).

No information about the pelagic communities of the Victor Hensen Hills has been found in the scientific literature.

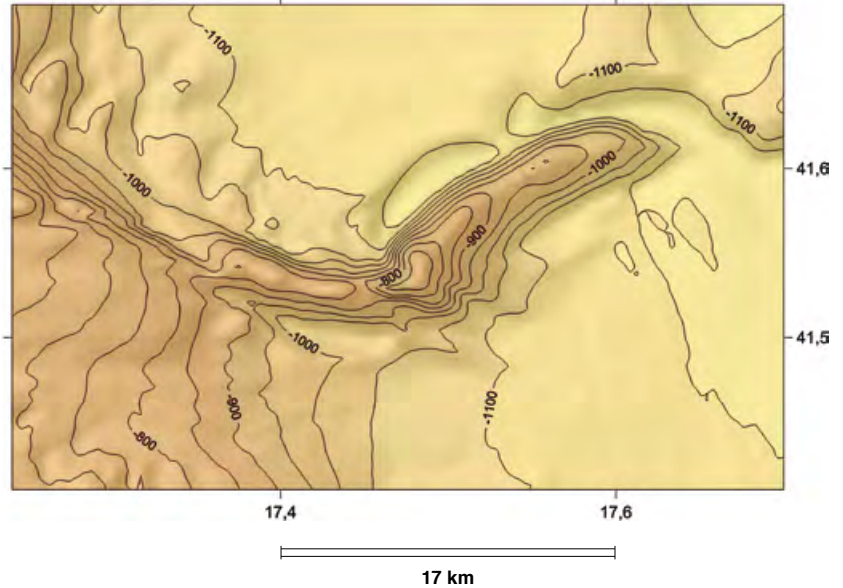
ADRIATIC SEA

STRUCTURE:

Dauno Seamount

■ Location: 41.54261°N – 17.48397°E

▲ Peak depth (m): 710-720 ▴ Base depth (m): 850-860



DESCRIPTION:

Geology

The Dauno Seamount is a distinct 20 km-long structural high stretching in NE-SW direction in a water depth range 700-1100 m with a relief of 400 m in the southern Adriatic Sea. It can be interpreted as the eastern morphological expression of the W-E-trending "Gondola deformation belt", the main structural feature of the SW Adriatic Margin (Trincardi *et al.*, 2007).

Two main bottom-flowing water masses impact today the SW Adriatic Margin: the Levantine Intermediate Water (LIW) and the North Adriatic Deep Water (NAdDW). The LIW enters the South Adriatic on the eastern side and flows out southward along the slope in intermediate depths (200-600 m). The NAdDW forms in the North Adriatic shelf and densifies through winter cooling and evaporation associated with local wind forcing (Bora events). This cold and dense water mass (29.8 kg/m^3) moves southward along the Italian coast passing around the Gargano promontory and cascading obliquely across the SW-Adriatic slope, where strongly interacts with its topography. This dense water mass flows south through the Otranto Strait and passes along the Apulian Plateau into the Ionian Sea and Levantine Basin. When seasonally present, the NAdDW fills the basin up to 700-400-m water depth and is overlain by the permanent LIW that enters the sub-basin from the south through the deep Otranto Strait and follows the contours of the Adriatic sub-basin in an anticlockwise direction. Major seabed features that were visually inspected in the search for white coral communities are concentrated along the southwestern Adriatic margin, the Bari Canyon, the Gondola Slide, and the Dauno Seamount.

.../...

Life on and around the Seamount

There are no specific studies carried out on the Dauno Seamount, but in the nearby Bari Canyon, the highly bioturbated soft bottom is intensely colonized by *Bonellia* sp., sabellid worms, and the stalked hadromerid sponge *Rhizaxinella pyrifer*. Dispersed hard substrates derived from either in situ hardgrounds or transported crusts from higher up the wall were partly colonized by a sponge-*Madrepora*-serpulid assemblage mixed with bryozoans, ascidians, and brachiopods. The important role of the Bari Canyon's deep sponge grounds composed of the massive sponges *Poecillastra compressa* and *Pachastrella monilifera* and thriving between 300 and 500 m depth was recently highlighted (Bo *et al.*, 2012). Thanks to their erect growth habit, these sponges contribute to create complex three-dimensional habitats and attract numerous species of mobile invertebrates (mainly echinoderms) and fish and contemporaneously represent a secondary substrate for a specialized associated fauna, such as zoanthids (Bo *et al.*, 2012). From 600 m water depth downwards, the canyon wall becomes near vertical. This cliff yields the largest colonies of *Madrepora oculata* and, to a lesser degree, of *Lophelia pertusa*. Like candelabras, the coral colonies developed fan-shaped and downward-facing growth forms. In general, the fossil and living white coral community becomes more prominent in the shallower section. Coral rubble and fossilized, sediment-smothered coral framework is inhabited by large quantities of ophiuroids. The Gondola Slide area from 710-674 m water depth is characterized by slump blocks or olistoliths, which are derived from the upper shelf and still contain the original sedimentary sequences with Late Pleistocene *Pseudamussium peslutrae* beds in situ — but they have slid down into bathyal depths. The nearly flat seabed consists of moribund sand waves stabilized by hard-grounds, which are colonized by both colonial and solitary scleractinians. The largest olistoliths in the slide area is 870 m-long and 91 m-high. It is covered by thick hardgrounds that serve as substrate for a large white coral reef rich in sponges. The Dauno Seamount yielded no white coral communities. Some rocky outcrops are colonized by solitary scleractinians, like *Desmophyllum dianthus* (Freiwald *et al.*, 2009).

At 720-786 m depth, on the blocks at the base of the south western Adriatic escarpment, at the same depth of the Dauno Seamount, Angeletti *et al.* (2014) found colonies of *D. dianthus*, but more uncommonly *L. pertusa*, *M. oculata* and *Stenocyathus vermiformis*. Benthic fauna associated with scleractinians include byssate bivalves (*Asperarca nodulosa*, *Bathyarca philippiana*, *Spondylus gussonii*) and brachiopods (*Novocrania anomala*), commonly associated with large sponges (*P. monilifera* and *P. compressa*) and decapods (*Alpheus platydactylus* and *Munida* sp.). Subfossil coral frames (i.e. *L. pertusa* and *M. oculata*) appear fouled by various species of serpulids and hydrozoans.

No information about the pelagic communities around the Dauno Seamount has been found in the scientific literature.

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