

1. IMPORTANCE OF SEAMOUNTS

Although scientific knowledge on seamounts is very sparse, the importance of the ecosystems associated to these elevations has been recently recognized by scientist, management authorities, the fisheries industry and conservationist (Stocks et al., 2012). The reason of its unusually high species richness and biomass relies on two main factors: the habitat complexity generated by its hard substrata—that is absent in the surrounding flat abyssal plains— and the changes in the surrounding water masses circulation, enhancing upwellings, vertical exchange and primary producer's concentration. The combination of these characteristics enriches benthic and pelagic communities around seamounts, being considered as hotspots of biological diversity and production. Moreover, according to the geographic distances and the surrounding currents, these underwater features can act as stepping stones, enabling species exchange and connectivity or, oppositely, enhance the occurrence of endemic taxa induced by faunal isolation.

On the other hand, seamounts commonly present different Vulnerable Marine Ecosystems (VME) as coral gardens, deep-sea sponge aggregations and hydrothermal vents. These ecosystems are known to be of immense importance and value for the deep-sea and the biodiversity they contain, and are currently threaten by anthropic practices.

1.1. Seamounts in Europe

European basins present some of these features, mainly in the Atlantic but also in the Mediterranean waters. In the case of NE Atlantic, most of them lie along the Mid Atlantic Ridge (MAR), between the Charlie-Gibbs Fracture Zone, south from Iceland, and the Hayes Fracture Zone (Azores latitude), although some of them are grouped in clusters. In Mediterranean waters, seamounts are

concentrated mainly in the Spanish EEZ and the central Tyrrhenian Sea.

The fisheries industry is targeting new fishing grounds often situated close to seamounts, taking advantage of their aforementioned values. Due to the deleterious effects on VMEs caused by destructive fishing practices, and the unfavorable ecological characteristics of deep-sea species for exploitation (e.g. long turn-over and low reproductive rates), concerns have been raised amongst the international community. Several actions targeting seamounts –directly or indirectly– have been undertaken at international and regional levels (e.g.: UNGA Resolution 61/105, FAO “International Guidelines for the Management of Deep-Sea Fisheries in the High Seas”, OSPAR “List of threatened and/or declining habitats”, etc.).



Torpedo marmorata – Gorringe Bank © OCEANA

2. THE GORRINGE BANK

The Gorringe Bank, located 160 nautical miles SE off the Portuguese coast, has been object of several studies. Thanks to this previous work, it is known now that the base of the Gorringe Bank lies at 5,000 m depth, and that the peaks of the two main seamounts that form this elevation (Gettysburg and Ormonde) are placed at less than 50 m beneath the sea surface. This is, indeed, what confers to this underwater feature its peculiarity, allowing the occurrence of a wide range of habitats and species going from photosynthetic to abyssal ones, which live in complete darkness.

Between 2005 and 2012, Oceana has carried out 3 expeditions in the Gorringe Bank. In total, more than 52 ROV footage hours (during 21 dives), complemented with more than 10 hours recorded during scuba dives and multiple pictures have been undertaken in Gorringe waters. During these dives, samples of different organisms have been collected for further identification. Mayor achievements involve the collection of comprehensive biological information and the documentation of important habitats and species such as commercial ones and VMEs indicators, never documented before in these area.

2.2. Habitats and species

Oceana has catalogue more than 150 species and 25 habitats, grouping them according to depth zones (deep infralittoral/upper circalittoral, deep circalittoral, upper bathial and deep bathial).

Some of the described habitats hold a protection status under the aforementioned regulations. As an example, habitats with predomination of corals or sponges such as **Rocky walls with *Paramuricea clavata*, and *Phakellia, Poecillastra and Pachastrella* bottoms** are contemplated in the ICES Recommended VMEs categories “2.A.i. Hard-bottom gorgonian and black coral garden” and “3.A. Ostur sponge aggregations”, respectively. Moreover, they are considered endangered and/or declining under the OSPAR categories “Coral gardens” and “Deep-sea sponge aggregations”.

Regarding species, Oceana has spotted highly migratory ones, as marine mammals, and commercial ones as the marlin (*Xiphias gladius*) and the lobster (*Palinurus elephas*). Endemic species from the Macaronesian area as *Abudefduf luridus* and *Chromis limbata* were also recorded. In the case of benthic fauna, several corals present in Gorringe Bank such as *Callogorgia verticillata* and *Villologorgia* sp. are considered as VME indicator species.

Thus, Oceana expeditions have succeeded in the detection and characterization of multiple valuable habitats and species present in Gorringe Bank. With this information, Oceana has provided the Portuguese Government and OSPAR Convention with solid reasons to perform the necessary scientific studies and incorporate the area to the OSPAR MPA Network. Oceana is grateful to the Foundation of the Third Millennium for the support received during this project.

