

Blue lines indicate the area meeting the ISRA Criteria; dashed lines indicate the suggested buffer for use in the development of appropriate place-based conservation measures

## GORRINGE RIDGE ISRA

### European Atlantic Region

#### SUMMARY

Gorringe Ridge is located in Portuguese waters, ~250 km off the coast. The area comprises two seamounts (Gettysburg and Ormonde) and is characterised by kelp forests, coral and sponge assemblages, sandy and rocky substrates, and nutrient-enriched upwelling zones. The area overlaps with the Madeira-Tore Ecologically or Biologically Significant Marine Area and with the Banco Gorringe Special Area of Conservation. Within this area there are: **threatened species**, **reproductive areas**, and **distinctive areas** (Marbled Torpedo Ray *Torpedo marmorata*).

#### CRITERIA

**Criterion A - Vulnerability; Sub-criterion C1 - Reproductive Areas; Sub-criterion D1 - Distinctiveness**

— —  
**PORTUGAL**

— —  
**0-400 metres**

— —  
**200.7 km<sup>2</sup>**





## DESCRIPTION OF HABITAT

Gorringe Ridge is a prominent underwater geological feature located in Portuguese waters, ~250 km off the coast. It sits in the Azores-Gibraltar fracture zone and represents a tectonically active structure influenced by the ongoing convergence between the Eurasian and African plates. The area comprises two seamounts (Gettysburg and Ormonde), both of which rise sharply from the abyssal plain. These seamounts are primarily composed of ultramafic and mafic rocks, with rugged topographies characterised by steep slopes, deep valleys, and sharp ridges. Gorringe Ridge is characterised by the presence of sandy and rocky substrates, cold-water corals, sponge beds, and macroalgal forests dominated by *Laminaria ochroleuca* and *Saccorhiza polyschides* (Oceana 2010, 2014).

The geological complexity of the ridge influences local hydrodynamics, affecting oceanographic processes and nutrient cycling. Oceanographically, the ridge interacts with major water masses, including the North Atlantic Central Water, Mediterranean Outflow Water, and Antarctic Intermediate Water. The complex bathymetry of the ridge generates internal waves and turbulence, enhancing vertical mixing. These processes contribute to periodic upwelling that bring nutrient-rich deep waters to the surface, fostering high primary productivity. Additionally, the interaction between ocean currents and the ridge's topography lead to the formation of mesoscale eddies and frontal systems, which influence water column stratification and biological distributions.

The area overlaps with the Madeira-Tore Ecologically or Biologically Significant Marine Area (EBSA; CBD 2025) and with the Banco Gorringe Special Area of Conservation (UNEP-WCMC & IUCN 2025).

This Important Shark and Ray Area is benthic and is delineated from surface waters (0 m) to 400 m based on the bathymetry of the area.

## ISRA CRITERIA

### CRITERION A - VULNERABILITY

One Qualifying Species considered threatened with extinction according to the IUCN Red List of Threatened Species regularly occurs in the area. This is the Vulnerable Marbled Torpedo Ray (Finucci et al. 2021).

### SUB-CRITERION C<sub>1</sub> - REPRODUCTIVE AREAS

Gorringe Ridge is an important reproductive area for one ray species.

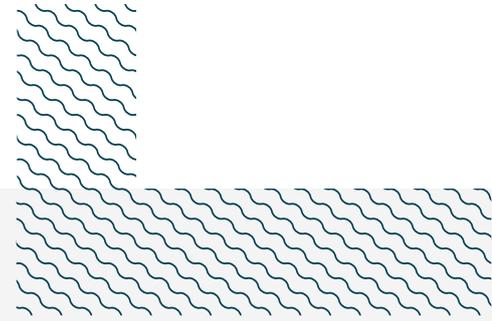
Aggregations of Marbled Torpedo Ray have been regularly recorded during underwater visual census (UVC) surveys across multiple years (Gonçalves et al. 2002; Oceana 2010, 2014). In 2024, additional surveys confirmed that these aggregations consist predominantly of pregnant females (Cabral et al. 2025). This indicates that the area functions as a breeding ground. Earlier underwater surveys conducted in 1998 and 1999 recorded aggregations of Marbled Torpedo Rays, but sex was not assessed (Gonçalves et al. 2002). While precise counts were not recorded during earlier expeditions, reports consistently describe 'massive aggregations' (Gonçalves et al. 2004) or 'very large groups' (Oceana 2010, 2014) and photographs indicate that aggregations were composed of dozens to potentially hundreds of individuals. During 2024, nine UVC surveys using diver-operated stereo-video were conducted comprising ~9.5 hours of video footage (Cabral et al. 2025). Analysis

revealed the presence of aggregations of hundreds of Marbled Torpedo Ray at depths between 38–50 m (Cabral et al. 2025). MaxN (maximum number of individuals of a species observed in a single frame) was 73 with the majority being pregnant females based on their distended abdomens (Cabral et al. 2025). Pregnancy was assessed during two specific surveys where individuals were observed closely and lifted from the substrate. Additionally, pregnancy was confirmed with ultrasounds. Although there is no documented proof of pregnancy in the individuals observed during earlier years, the high numbers observed in 2024 indicate that this is highly plausible given that no males were recorded. This is the only location in Portugal waters where large number of pregnant females have been recorded.

## SUB-CRITERION D1 – DISTINCTIVENESS

Gorringe Ridge is an important area for distinctive behaviour of one ray species.

Aggregations of Marbled Torpedo Rays have been recorded during UVC surveys conducted in 1999, 2010, 2014, and 2024 (Gonçalves et al. 2002, 2004; Oceana 2010, 2014; Cabral et al. 2025). These aggregations present a unique behaviour where they comprise of hundreds of individuals stacked in layers of up to five individuals (Cabral et al. 2025). Additionally, these stacked aggregations are mostly composed by pregnant females. This type of structured aggregations and the sizes of these aggregations have not been reported for the species nor for other electric ray species anywhere, highlighting the distinctive behaviour that occurs in Gorringe Ridge.



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### **Suggested citation**

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## QUALIFYING SPECIES

Scientific Name	Common Name	IUCN Red List Category	Global Depth Range (m)	ISRA Criteria/Sub-criteria Met									
				A	B	C1	C2	C3	C4	C5	D1	D2	
RAYS													
Torpedo marmorata	Marbled Torpedo Ray	VU	0-1,480	X		X						X	

*IUCN Red List of Threatened Species Categories are available by searching species names at [www.iucnredlist.org](http://www.iucnredlist.org) Abbreviations refer to: CR, Critically Endangered; EN, Endangered; VU, Vulnerable; NT, Near Threatened; LC, Least Concern; DD, Data Deficient.*



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