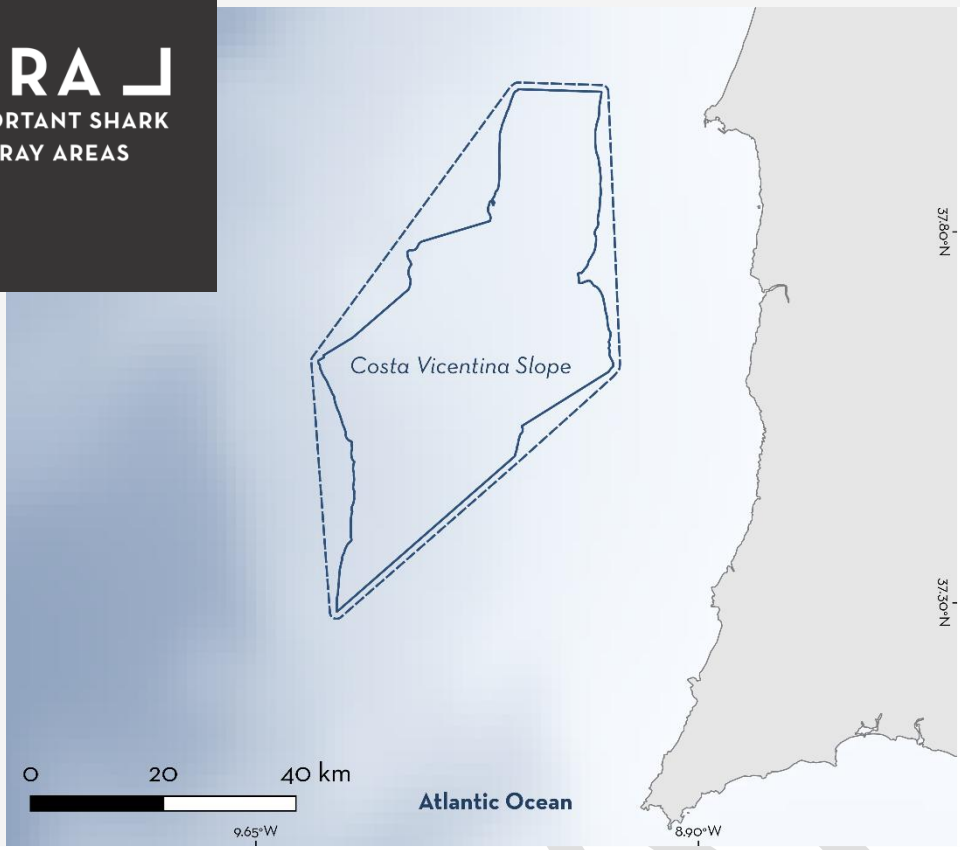
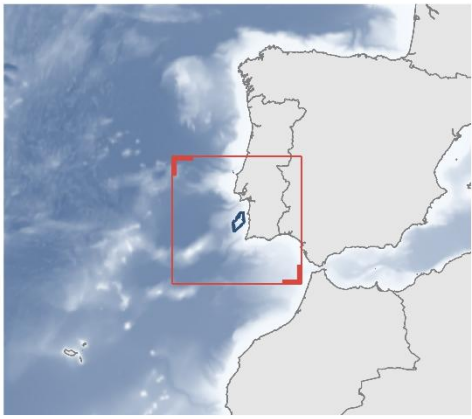
ISRA
IMPORTANT SHARK AND RAY AREAS





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

COSTA VICENTINA SLOPE ISRA

European Atlantic Region

PORTUGAL

220–1,300 metres

1,668.6 km²

SUMMARY

Costa Vicentina Slope is located in southwest Portugal. The area has a narrow continental shelf and a steep slope and is characterised by the presence of submarine canyons with rocky and sandy substrates. It overlaps with the West Iberia Canyons and Banks Ecologically or Biologically Significant Marine Area. Within this area there are: **threatened species** (Velvet Belly Lanternshark *Etmopterus spinax*); **range-restricted species** (Atlantic Sawtail Catshark *Galeus atlanticus*); **reproductive areas** (Portuguese Dogfish *Centroscymnus coelolepis*); and **feeding areas** (e.g., Blackmouth Catshark *Galeus melastomus*).

CRITERIA

DESCRIPTION OF HABITAT

Costa Vicentina Slope is located in southwest Portugal. It is found off the coast of Algarve and Setubal regions and extends from Sines in the north to Bordeira in the south. The area is characterised by the presence of submarine canyons with rocky and sandy substrates (Cunha et al. 2013). This is a transitioning area between the Mediterranean Sea and Atlantic Ocean biogeographic zones. The continental shelf within the area is relatively narrow descending quickly into the deeper Atlantic Ocean basin. The oceanographic conditions are marked by significant upwelling events, which are crucial for nutrient cycling and primary productivity. These upwelling events are most intense during the boreal summer, with a relaxation in autumn and high variability in spring and winter (Goela et al. 2016). These conditions, along with the presence of oceanic fronts and eddies, contribute to the aggregation of multiple species of fish, birds, and cetaceans and influence spawning events. The mixing of Atlantic Intermediate Water and Mediterranean Water flowing through the Strait of Gibraltar, provides relatively warm (~13°C) and salty (~36.3 ppt) water at intermediate depths (~900 m; Tanhua et al. 2013; Aldama-Campino & DööS 2020).

The area overlaps with the West Iberia Canyons and Banks Ecologically or Biologically Significant Marine Area (EBSA; CBD 2025).

This Important Shark and Ray Area is benthic, pelagic and subsurface and is delineated from 220–1,300 m based on the depth range of the species in the area.

ISRA CRITERIA

CRITERION A – VULNERABILITY

One Qualifying Species considered threatened with extinction according to the IUCN Red List of Threatened Species regularly occur in the area. This is the Vulnerable Velvet Belly Lanternshark (Finucci et al 2021).

CRITERION B – RANGE RESTRICTED

This area holds the regular presence of the Atlantic Sawtail Catshark as a resident range-restricted species. This species occurs in summer, autumn, and winter in the area and were regularly

encountered in research surveys and caught in commercial bottom trawlers operating in south and southwest Portugal (Graça Aranha 2025; Graça Aranha et al. 2025). Catch data were collected between June 2020–May 2022 from twelve fishing trips targeting shrimps (*Aristaeomorpha foliacea*, *Aristeus antennatus*, and *Aristaeopsis edwardsiana*), prawns (*Parapenaeus longirostris* and *Penaeus monodon*), and Norway Lobster (*Nephrops norvegicus*; Graça Aranha 2025; Graça Aranha et al. 2025). This was the area with the largest number of Atlantic Sawtail Catshark (n = 336) and the area with the highest catch per unit effort (CPUE = 3.8 individuals/hour) recorded in south and southwest Portugal (CPUE = 1.0 individuals/hour in the south; Graça Aranha et al. 2025). This species occurs primarily in the Iberian Coast Large Marine Ecosystem (LME) and marginally in the Canary Current and Mediterranean Sea LMEs.

SUB-CRITERION C1 – REPRODUCTIVE AREAS

Costa Vicentina Slope is an important reproductive area for one shark species.

Reproductive data for Portuguese Dogfish was collected across Portuguese waters from commercial longliners and during research surveys (trawls and longlines) in and 2006–2007 (Moura et al. 2014). This was part of a global assessment of reproductive processes for the species.

Of 253 females recorded in Portugal, 43 (17%) were pregnant and 58 (23%) post-natal with the majority being recorded in this area and in south Portugal (Moura et al., 2014). This area and Iceland had the largest proportion of pregnant females in all the northeast Atlantic Ocean (Moura et al. 2014). In Portuguese waters, this species presents two reproductive peaks each year, with mating occurring in October–November and in March–April, and birth potentially occurring in March and August (Figueiredo et al. 2008). Contemporary data collected from research surveys and commercial bottom trawlers operating in south and southwest Portugal between 2020–2022 confirm the presence of mature females (Graça Aranha 2025; Graça Aranha et al. 2025).

SUB-CRITERION C2 – FEEDING AREAS

Costa Vicentina slope is an important feeding area for three shark species.

Ecological data were collected between June 2020–May 2022 from commercial benthic trawlers and research surveys operating off south and southwest Portugal (Graça Aranha 2025; Graça Aranha et al. 2025). Twelve fishing trips were sampled with vessels targeting shrimps, prawns, and Norway Lobster (Graça Aranha 2025; Graça Aranha et al. 2025). Stable isotope analysis and RNA/DNA ratios were conducted from a small fraction of recorded individuals to evaluate the trophic ecology and feeding activity in the area (Graça Aranha 2025; Graça Aranha et al. 2025). Stable isotope analysis included sampling of prey (shrimps *A. foliacea* and *A. edwardsiana* and the lobster *Nephrops norvegicus*) targeted by fisheries. The RNA/DNA values provide a short-term measure of nutritional condition (1–3 days; Buckley et al. 1999).

The analysis of RNA/DNA indicated that an assemblage of sixthree shark species, Velvet Belly Lanternshark, Atlantic Sawtail Catshark, and Blackmouth Catshark fed in the area in the days immediately before their capture (Graça Aranha et al. 2023; Graça Aranha 2025). Given that deepwater sharks are generally slow swimmers compared to other species (Treberg et al. 2003; Condon et al. 2012; Pinte et al. 2020), and that RNA/DNA ratios are indicative of recent feeding activity (Buckley 1980; Clemmesen 1987), this evidence indicates that there is an assemblage of shark species actively using the area for feeding. Shrimps and lobsters consumed by this assemblage of species supported by historical stomach content analysis and contemporary stable isotope analysis are targeted by fisheries (Graça Aranha et al. 2023). This area is the second main fishing ground in Portugal for these crustacean species with intense trawling activity year-round three times larger than in adjacent areas (Borges et al. 2001; Bueno-Pardo et al. 2017).

Between 2020–2022, 121 Velvet Belly Lanternshark were recorded in this area with individuals measuring 16–44 cm TL and caught at depths <800 m (Graça Aranha 2025; Graça Aranha et al. 2025). Stable isotope analysis of 34 individuals indicate they are mesopredators and RNA/DNA ratios suggest they were recently feeding in the area (Graça Aranha 2025). Stomach content analysis of 459 individuals (49% with full stomachs) collected between 1998–2004 and 2015 revealed that they feed mainly on caridean shrimps (IRI = 28%), euphausiids (*Meganyctiphanes norvegica*), and bony fishes (mainly gadoids; Saldanha et al. 1995; Neiva et al. 2006; Muñoz 2015).

Between 2020–2022, 336 Atlantic Sawtail Catshark were recorded in this area with individuals measuring 4.5–46.5 cm TL and caught at depths 220–752 m (Graça Aranha 2025; Graça Aranha et al. 2025). Stable isotope analysis of 33 individuals indicate they are mesopredators feeding mostly on crustaceans (~40 of average diet contribution) targeted by the trawl fishery and bony fishes. RNA/DNA ratios suggest they were recently feeding in the area (Graça Aranha 2025).

In 2018, and between 2020–2022, 349 Blackmouth Catshark were recorded in this area with individuals measuring 12.4–74 cm TL and caught at depths of 220–1,244 m (Graça Aranha 2025; Graça Aranha et al. 2023, 2025). Stable isotope analysis of 44 individuals revealed that this species is a mesopredator feeding mostly on shrimps, and lobsters targeted by fisheries that represent ~52% of their diet and squids (Graça Aranha et al. 2023, Graça Aranha 2025). RNA/DNA ratios suggest they were feeding in the area (Graça Aranha et al. 2023, Graça Aranha 2025). Stomach content analysis of 285 individuals (~75% of stomachs full) collected in 1990, 1996, 1997 and 2003, 2020-2021 revealed that they feed mainly on myctophidae, the shrimp *Robustosergia robusta*, caridean decapods and the squid *Histioteuthis meleagroteuthis* (Saldanha et al. 1995; Santos & Borges 2001; Neves et al. 2007; Oliveira 2021).

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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
SHARKS												
Centroscymnus coelolepis	Portuguese Dogfish	NT	128–3,675			X						
Etmopterus spinax	Velvet Belly Lanternshark	VU	70–2,000	X			X					
Galeus atlanticus	Atlantic Sawtail Catshark	NT	328–790		X		X					
Galeus melastomus	Blackmouth Catshark	LC	55–2,000				X					

SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
SHARKS		
Centroselachus crepidater	Longnose Velvet Dogfish	NT
Dalatias licha	Kitefin Shark	VU
Deania calceus	Birdbeak Dogfish	NT
Deania profundorum	Arrowhead Dogfish	NT
Etmopterus pusillus	Smooth Lanternshark	LC
Oxynotus paradoxus	Sailfin Roughshark	VU
Scymnodon ringens	Knifetooth Dogfish	VU
RAYS		
Dipturus nidarosiensis	Norway Skate	NT
Dipturus oxyrinchus	Longnosed Skate	VU

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

SUPPORTING INFORMATION

There are additional indications that this area is important for reproduction of one shark species and for feeding of three shark species.

Reproductive data for Portuguese Dogfish was collected across Portuguese waters from commercial longliners and during research surveys (trawls and longlines) in 1994–1995, 1997, 2003, 2006–2007 (Moura et al. 2014). Of 33 females recorded, two (6%) were pregnant (Moura et al., 2014). This area included the largest proportion of pregnant females in all the northeast Atlantic (Moura et al. 2014). Further, five individuals measuring 28–32 cm total length (TL) were recorded. These individuals were neonate/young-of-the-year as their size was close to the reported size-at-birth for the species (28–34 cm TL; Ebert et al. 2021). This area and Rockall and Hatton banks in the United Kingdom were the only locations in the northeast Atlantic where these early life stages were recorded (Moura et al. 2014). Additional contemporary data collected from research surveys and commercial bottom trawlers operating in south and southwest Portugal between 2020–2022 confirm the presence of four mature females (Graça Aranha 2025). Additional information is needed to confirm the reproductive importance of the area.

Between 2020–2022, 52 Birdbeak Dogfish were recorded in this area with individuals measuring 67–101 cm TL and caught at depths >800 m (Graça Aranha et al. 2023; Graça Aranha 2025; Graça Aranha et al. 2025). Stable isotope analysis of six individuals indicate they are mesopredators and feed mostly on shrimps, squids, and lobsters (Graça Aranha et al. 2023, Graça Aranha 2025). RNA/DNA ratios suggest they were recently feeding in the area (Graça Aranha et al. 2023; Graça Aranha, 2025).

In 2018 and between 2020–2022, 43 Arrowhead Dogfish were recorded in this area with individuals measuring 27–87 cm TL and caught at depths 648–1,244 m (Graça Aranha 2025; Graça Aranha et al. 2025). Stable isotope analysis of 30 individuals indicate they are mesopredators and feed mostly on prawns, squids, and lobsters (Graça Aranha et al. 2023, Graça Aranha 2025). RNA/DNA ratios suggest they were recently feeding in the area (Graça Aranha, 2025). Stomach content analysis conducted in Moroccan water revealed that the prawn *P. longirostris* (a species targeted by crustacean bottom trawlers in the south of Portugal) is part of their diet (Nafia et al. 2023).

In 2018 and between 2020–2022, 230 Knifetooth Dogfish were recorded in this area (Graça Aranha et al. 2023; Graça Aranha 2025; Graça Aranha et al. 2025) with individuals measuring 32–100 cm TL and caught at depths of 648–1244 m (Graça Aranha et al. 2023; Graça Aranha 2025; Graça Aranha et al. 2025). Stable isotope of 45 individuals revealed that this species individuals feed mostly on octopuses, shrimps, and fishes and is classified as a mesopredator and top predator (Graça Aranha et al. 2023, Graça Aranha 2025). RNA/DNA ratios suggest they were recently feeding in the area (Graça Aranha 2025). Stomach content analysis of 28 individuals collected in 2020–2021 revealed that they feed mainly on fish and crustaceans (Oliveira 2021). Additional information is needed to confirm the feeding importance of the area for these three species.

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