



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

ALBARDÃO ISRA

South American Atlantic Region

SUMMARY

Albardão is located in Rio Grande do Sul state, Brazil. This coastal shelf area extends from the shore to the shelf break. The substrate is predominantly composed of unconsolidated sediments. The area is influenced by nutrient-rich freshwater discharge of the Rio de la Plata estuary and the Patos Lagoon mainly during austral winter, and by coastal upwelling of the South Atlantic Central Water during summer. The area overlaps with Southern Brazilian Sea Ecologically or Biologically Significant Marine Area. Within this area there are: **threatened species** (e.g., Bignose Fanskate Sympterygia $\alpha cuta$); **range-restricted species** (e.g., Shortnose Eagle Ray Myliobatis ridens); **reproductive areas** (e.g., Tope Galeorhinus galeus); and the area sustains a **high diversity** of sharks (26 species).

CRITERIA

Criterion A – Vulnerability; Criterion B – Range Restricted; Sub-criterion C1 – Reproductive Areas; Sub-criterion D2 – Diversity

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BRAZIL	
-	-
0-90 metre	S
-	-
36,729 km ²	
-	-



DESCRIPTION OF HABITAT

Albardão is located in Rio Grande do Sul state, Brazil. It is situated in coastal waters extending from the shore to the shelf break. The substrate is predominantly composed of unconsolidated sediments. The region is influenced by Subantarctic Shelf Water transported northward by the Malvinas/Falkland Current and Tropical Water and South Atlantic Central Water (SACW) transported southward by the Brazil Current (Palma et al. 2008). In addition, the region is influenced by nutrient-rich freshwater discharge of the Rio de la Plata estuary and the Patos Lagoon mainly during austral winter, and by coastal upwelling of SACW due to the dominance of northeasterly winds during summer (Möller et al. 2008). These processes provide important nutrient input, and consequently, high primary biological production supporting high abundance and biodiversity, making this area one of the most productive fishing grounds of Brazil (Vooren & Klippel 2005).

The area overlaps with the Southern Brazilian Sea Ecologically or Biologically Significant Marine Area (EBSA; CBD 2025).

This Important Shark and Ray Area is benthic and pelagic and is delineated from surface waters (O m) to a depth of 90 m based on the bathymetry of the area.

ISRA CRITERIA

CRITERION A - VULNERABILITY

Twenty-four Qualifying Species considered threatened with extinction according to the IUCN Red List of Threatened Species regularly occur in the area. Threatened sharks comprise six Critically Endangered species, two Endangered species, and five Vulnerable species; threatened rays comprise four Critically Endangered species, four Endangered species, and three Vulnerable species (IUCN 2024).

CRITERION B - RANGE RESTRICTED

This area holds the regular presence of the Narrownose Smoothhound, Angular Angelshark, Spotback Skate, Eyespot Skate, La Plata Skate, Shortnose Eagle Ray, Spade Sandskate, Brazilian Guitarfish, Rio Skate, Bignose Fanskate, Smallnose Fanskate, and Shortnose Guitarfish as resident range-restricted species. All species occur in the Patagonian Shelf and South Brazil Shelf Large Marine Ecosystems.

Between 2013-2023, these species were regularly recorded by onboard observers on vessels from the commercial coastal gillnet fleet operating along a ~700 km coastline (Saüt et al. 2024; DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025). From October to March, the net was 16 \pm 7 km (average net area = 0.05 \pm 0.01 km²) and 13-14 cm between opposite knots, and from April to September, the net was 9 \pm 4 km (average net area = 0.02 \pm 0.01 km²) and 9-11 cm mesh nets (Fogliarini et al. 2024; Saüt et al. 2024). Of 564 gillnet sets monitored off the Rio Grande do Sul coast, 426 were within this area in 2013 (n = 12), 2014 (n = 69), 2015 (n = 40), 2018 (n = 127), 2019 (n = 80), 2020 (n = 47), 2022 (n = 41), and 2023 (n = 32) (Saüt et al. 2024; DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025). All species were captured in higher numbers within this area compared with adjacent areas. Data comprised the number of individuals and total kilograms per species in each gillnet set, and the total length (TL) was calculated based on the length-weight relationship using parameters for each species available on FishBase (Froese et al. 2013; Froese & Pauly 2024).

Narrownose Smoothhound were captured in 183 sets (n = 6,062 individuals) in 2013, 2014, 2018, 2019, 2020, 2022, and 2023 (Saüt et al. 2024; DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025). The highest number of individuals per set was 600 (average = 13.5 [average outside this area = 2.7]).

Angular Angelshark were captured in 340 sets (10,961 individuals) in 2013, 2014, 2015, 2018, 2019, 2020, 2022, and 2023 (Saüt et al. 2024; DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025). The highest number of individuals per set was 576 (average = 24.5 [average outside this area = 13.8]).

Spotback Skate were captured in 117 sets (n = 465 individuals) in 2015, 2018, 2019, 2020, 2022, and 2023 (Saüt et al. 2024; DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025). The highest number of individuals per set was 15 (average = 1.1 [average outside this area = 0.9]).

Eyespot Skate were captured in 70 sets (n = 438 individuals) in 2015, 2018, 2019, 2020, 2022, and 2023 (Saüt et al. 2024; DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025). The highest number of individuals per set was 40 (average = 0.8 [average outside this area = 0.2]).

La Plata Skate were captured in 37 sets (n = 123 individuals) in 2014, 2015, 2022, and 2023 (Saüt et al. 2024; DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025). The highest number of individuals per set was 21 (average = 0.3 [average outside this area = 0.2]).

Shortnose Eagle Ray were captured in 18 sets (n = 170 individuals) in 2018, 2019, 2020, 2022, and 2023 (Saüt et al. 2024; DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025). The maximum individuals per set was 32 (average = 0.4 [average outside this area = 0.02]).

Spade Sandskate were captured in 20 sets from the gillnet fleet (n = 669 individuals) in 2020, 2022, and 2023 (Saüt et al. 2024; DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025). The highest number of individuals per set was 288 (average = 1.5 [average outside this area = 0]).

Brazilian Guitarfish were captured in 218 sets (n = 1,612 individuals) in 2013, 2014, 2015, 2018, 2019, 2020, 2022, and 2023 (Saüt et al. 2024; DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025). The highest number of individuals per set was 51 (average = 3.6 [average outside this area = 3.4]). Of 242 neonates/YOY (<38 cm TL) captured in Rio Grande do Sul, 180 were also within this area in 2018, 2019, and 2022, indicating the importance of this area for reproductive purposes compared to adjacent areas. In December 2018, one bottom trawl pulled manually from a motorboat captured 2,134 Brazilian Guitarfish within the area, totalling ~10,000 kg (Gowert & Oddone 2023). Besides the slightly higher density of the species within this area, the number of neonates/YOY indicate that the species uses this area for reproductive purposes.

Rio Skate were captured in 89 sets from the gillnet fleet (n = 268 individuals) in 2018, 2019, 2020, and 2023 (Saüt et al. 2024; DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025). The highest number of individuals per set was 24 (average = 0.6 [average at Rio Grande do Sul and Santa Catarina coast = 0.6]).

Bignose Fanskate were captured in 158 sets (n = 831 individuals), in 2018, 2019, 2020, 2022, and 2023 (Saüt et al. 2024; DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025). The highest number of individuals per set was 38 (average = 1.9 [average outside this area = 0.6]).

Smallnose Fanskate were captured in 53 sets (n = 218 individuals) in 2018, 2019, 2020, and 2022 (Saüt et al. 2024; DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025). The highest number of individuals per set was 19 (average = 0.5 [average outside this area = 0.6]). Between 2009-2012, from 4,312 egg cases collected on the beach between the tide line and the dunes in a ~1 km range, 75 were from Smallnose Fanskates (Cordeiro & Oddone 2019). Between 2016-2017, from 3,620 collected on the same beach in a ~6 km range, 138 were from Smallnose Fanskates (Cordeiro & Oddone 2019).

Although the average of individuals per set is slightly smaller than outside of this area, the eggcases indicate the species also use this area for reproductive purposes.

Shortnose Guitarfish were captured in 35 sets (n = 80 individuals) in 2018, 2019, 2020, 2022, and 2023 (Saüt et al. 2024; DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025). The highest number of individuals per set was 8 (average = 0.18 [average outside this area = 0.06).

SUB-CRITERION C1 - REPRODUCTIVE AREAS

Albardão is an important reproductive area for seven shark and three ray species.

Between 2013-2023, these species were regularly recorded by onboard observers on vessels from the commercial coastal gillnet fleet operating along a ~700 km coastline (Saüt et al. 2024; DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025). From October to March, the net was 16±7 km (average net area = 0.05 ± 0.01 km²) and 13-14 cm between opposite knots, and from April to September, 9±4 km (average net area = 0.02 ± 0.01 km²) and 9-11 cm mesh nets (Fogliarini et al. 2024; Saüt et al. 2024). Of 564 gillnet sets monitored off the Rio Grande do Sul coast, 426 were within this area in 2013 (n = 12), 2014 (n = 69), 2015 (n = 40), 2018 (n = 127), 2019 (n = 80), 2020 (n = 47), 2022 (n = 41), and 2023 (n = 32) (Saüt et al. 2024; DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025). Data comprised the number of individuals and total kilograms per species in each gillnet set, and the TL was calculated based on the length-weigh relationship using parameters available on Fishbase (Froese et al. 2014; Froese & Pauly 2024). Neonate/YOY were inferred from sizes estimated from weight measurements.

During the early 1980s, juvenile and neonate Sandbar Shark were frequently recorded in beach fisheries (seine and gillnet) south of Cassino Beach, within this area, leading to its identification as an important nursery ground for the species (ICMBio 2018). Due to the disappearance of juvenile and adult records in nearly all areas where the species formerly occurred in Brazil–especially in the southern region, where it was most frequently observed–a population decline of at least 80% over the past three generations was estimated (ICMBio 2018). Only neonates and YOY Sandbar Sharks were captured by contemporary gillnets within this area (DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025), supporting its continued importance for reproductive purposes. Of 48 neonates/YOY captured off the Rio Grande do Sul coast by gillnets, 46 individuals (47-63 cm TL) were captured in nine hauls in this area in 2018, 2022, and 2023 (DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025). Size-at-birth for Sandbar Shark is 40-76 cm TL (Ebert et al. 2021).

All neonate/YOY Tope (<52 cm TL) captured off the Rio Grande do Sul coast by gillnets were from this area (n = 22) in March 2015 and September 2018 (DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025). Size-at-birth for Tope is 26-40 cm TL (Ebert et al. 2021). The size of Tope within this area ranged 33.5–100.5 cm TL (n = 74). In southern Brazil, copulation occurs in winter along the upper slope (180-350 m), where mature males and females aggregate. Pregnant females then migrate to the continental shelf (50-350 m) to feed, complete gestation, and give birth in coastal waters (ICMBio 2018). In the 1980s, a resident population of Tope reproduced in coastal waters off Rio Grande do Sul during spring; however, this population was no longer observed during a scientific survey conducted in 2005 (ICMBio 2018). Therefore, even if the number of neonates recorded in this area is not as high as in other species, and other life stages have not been observed (as adults occur in deeper waters), the area is still important for the reproduction of the species.

In November 1989, one beach seine within the area captured 16 Narrownose Smoothhounds, all neonates/YOY based on size measurements (23–29 cm TL) (Vooren & Klippel 2005). Size-at-birth for the species is 24–36 cm TL (Ebert et al. 2021). All 525 neonates/YOY (<47 cm TL) captured in the

gillnet fleet off the Rio Grande do Sul and Santa Catarina coast, were captured within this area, in 2018, 2019, 2020, 2022, and 2023 (n = 480 individuals from February to March) (Saüt et al. 2024; DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025).

From gillnet operations monitored between 2013–2023, 2,272 neonates /YOY (<75 cm TL) Scalloped Hammerheads were captured off the Rio Grande do Sul and Santa Catarina coast, of which, 1,953 were within this area. Size-at-birth for the species is 49–63 cm TL (Ebert et al. 2021). Almost all (n = 1,852) were captured between October-March, indicating a seasonal signal in their reproductive cycle. The only year in which neonates/YOY were not captured was 2013, as sampling occurred only in August. The size of Scalloped Hammerheads within this area ranged 27–140 cm TL (n = 1,990) (Saüt et al. 2024; DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025).

Of 1,380 Smooth Hammerheads neonates/YOY (<82 cm TL) captured in the broader Rio Grande do Sul and Santa Catarina coast, 1,241 were within this area from October-March (not captured only in the years 2013 and 2015) (Saüt et al. 2024; DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025). Size-at-birth is 49-63 cm TL (Ebert et al. 2021). The size of Smooth Hammerheads within this area ranged 48.1–185.9 cm TL (n = 1,287) (Saüt et al. 2024; DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025).

Angular Angelsharks neonates/YOY (<39 cm TL) were captured off the Rio Grande do Sul and Santa Catarina coast by gillnets. Of 1,138 neonates/YOY captured in the whole region, 1,133 were within this area in 2014, 2019, 2020, 2022, and 2023 (Saüt et al. 2024; DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025). Size-at-birth for Angular Angelsharks is 24–30 cm TL (Ebert et al. 2021).

All neonates/YOY Hidden Angelsharks (<39 cm TL) captured off the Rio Grande do Sul coast by gillnets were from this area (n = 135), from February-June, in 2014, 2019, and 2020 (DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025). Size- at- birth for Hidden Angelsharks is 28–30 cm TL (Ebert et al. 2021). Neonates/YOY were captured. Hidden Angelsharks were captured in 62 hauls within this area (n = 309 individuals; 28.6–81.6 cm TL). In Brazil, parturition occurs between January and February, which aligns with the period when neonates/YOY were recorded. From June 1980 to November 1992, a broader area in southern Brazil was surveyed during 13 cruises using otter trawls, and 19 pregnant females were captured and dissected to analyse reproductive organs and embryos (Sunyem & Vooren 1997). The Hidden Angelshark completes its entire life cycle on the southern Brazilian continental shelf, but has a long reproductive cycle, evidenced by the rarity of neonate sightings and low incidence of pregnancy (ICMBio 2018).

Brazilian Guitarfish neonates/YOY (<38 cm TL) were captured by gillnet off the Rio Grande do Sul coast (Saüt et al. 2024; DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025). Of 242 captured in the broader region, 180 were within this area in 2018, 2019, and 2022. Size-at-birth of Brazilian Guitarfish is 22–29 cm TL (Vooren & Klippel 2005). Additionally, in December 2018, one bottom trawl, pulled manually from a motorboat, captured 2,134 Brazilian Guitarfish within the area, totalling ~10,000 kg (Gowert & Oddone 2023). The only two individuals sampled were pregnant females (Gowert & Oddone 2023).

Of 250 neonates/YOY Brazilian Cownose Rays (<56 cm TL) captured in the Rio Grande do Sul and Santa Catarina coast gillnet fleet, 204 were within this area (n = 190 from December-March) (DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025). Neonates/YOY were captured in 2018, 2019, and 2020. Brazilian Cownose Rays were captured in 41 sets within this area (n = 328 individuals; 20.7-90 cm TL).

Rio Skates were captured in 89 sets from the gillnet fleet (n = 268 individuals) in 2018, 2019, 2020, and 2023 (Saüt et al. 2024; DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025). Between 2009–2012, from 4,312 egg cases collected on the beach between the tide line and the dunes in a ~1 km

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range, 3,050 (70.7%) were from Rio Skates (Cordeiro & Oddone 2019). Between 2016-2017, from 3,620 eggs collected on the same beach in a ~6 km range, 1,681 (46.4%) were from Rio Skates (Cordeiro & Oddone 2019). Besides, the slightly higher density within this area, the presence of egg cases indicates that the species uses this area for reproductive purposes.

SUB-CRITERION D2 - DIVERSITY

Albardão sustains a high diversity of Qualifying Species (26 species). This exceeds the regional diversity threshold (25 species) for the South American Atlantic region. The regular presence of Qualifying Species has been documented mainly through onboard observers on vessels from the commercial coastal gillnet fleet between 2013-2023 and the pair trawl fleet (Saüt et al. 2024; DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025)

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QUALIFYING SPECIES

Scientific Name	Common Name	IUCN Red List Category	Global Depth Range	ISRA Criteria/Sub-criteria Met									
	(m)		(m)	A	В	C1	C2	C3	C4	C5	Dı	D2	
SHARKS													
Carcharhinus plumbeus	Sandbar Shark	EN	0-280	Х		Х							
Carcharias taurus	Sandtiger Shark	CR	0-232	Х									
Galeorhinus galeus	Торе	CR	O-826	Х		Х						-	
Mustelus fasciatus	Striped Smoothhound	CR	0-500	Х								-	
Mustelus schmitti	Narrownose Smoothhound	CR	2-195	Х	Х	Х						-	
Notorynchus cepedianus	Broadnose Sevengill Shark	VU	0-570	Х								-	
Rhizoprionodon lalandii	Brazilian Sharpnose Shark	VU	0-149	Х								X	
Rhizoprionodon porosus	Caribbean Sharpnose Shark	VU	0-500	Х								-	
Sphyrna lewini	Scalloped Hammerhead	CR	0-1043	Х		Х						-	
Sphyrna zygaena	Smooth Hammerhead	VU	0-500	Х		Х						-	
Squalus acanthias	Spiny Dogfish	VU	0-1,978	Х								-	
Squatina guggenheim	Angular Angelshark	EN	7-150	Х	Х	Х							
Squatina occulta	Hidden Angelshark	CR	10-350	Х		Х						-	



Scientific Name	Common Name	IUCN Red List	UCN Global ed List Range tegory (m)	ISRA Criteria/Sub-criteria Met								
		Category		A	В	C1	C2	C3	C4	C5	Dı	D2
RAYS				1				I				1
Atlantoraja castelnaui	Spotback Skate	CR	0-300	Х	Х							
Atlantoraja cyclophora	Eyespot Skate	EN	0-320	Х	Х							
Atlantoraja platana	La Plata Skate	EN	0-320	Х	Х							
Gymnura altavela	Spiny Butterfly Ray	EN	0-150	Х								
Myliobatis goodei	Southern Eagle Ray	VU	O-181	Х								
Myliobatis ridens	Shortnose Eagle Ray	CR	5-47	Х	Х							
Psammobatis rutrum	Spade Sandskate	LC	30-150		Х							Х
Pseudobatos horkelii	Brazilian Guitarfish	CR	0-150	Х	Х	Х						
Rhinoptera brasiliensis	Brazilian Cownose Ray	VU	0-20	Х		Х						
Rioraja agassizi	Rio Skate	VU	5-600	Х	Х	Х						
Sympterygia acuta	Bignose Fanskate	CR	O-188	Х	Х							
Sympterygia bonapartii	Smallnose Fanskate	NT	0-500		Х							
Zapteryx brevirostris	Shortnose Guitarfish	EN	0-140	Х	Х							



SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
SHARKS		
Scyliorhinus haeckelii	Freckled Catshark	DD

IUCN Red List of Threatened Species Categories are available by searching species names at <u>www.iucnredlist.org</u> 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 Albardão is an important reproductive area for one shark and one ray species.

Striped Smoothhound were captured in 11 sets from the gillnet fleet (n = 42 individuals), in 2013, 2018, 2019, 2020, and 2022 (Saüt et al. 2024; DS Monteiro, LG Cardoso, LG Fischer unpubl. data 2025). Of 26 neonates/YOY (<56 cm TL), captured in Rio Grande do Sul and Santa Catarina coast, 24 were captured within this area (n = 23 in August 2013 and n = 1 in February 2013). Only neonates/YOY Spiny Butterfly Rays (<57.2 cm TL) were captured within this area (n = 37 individuals, mean ~54.3 cm TL).

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