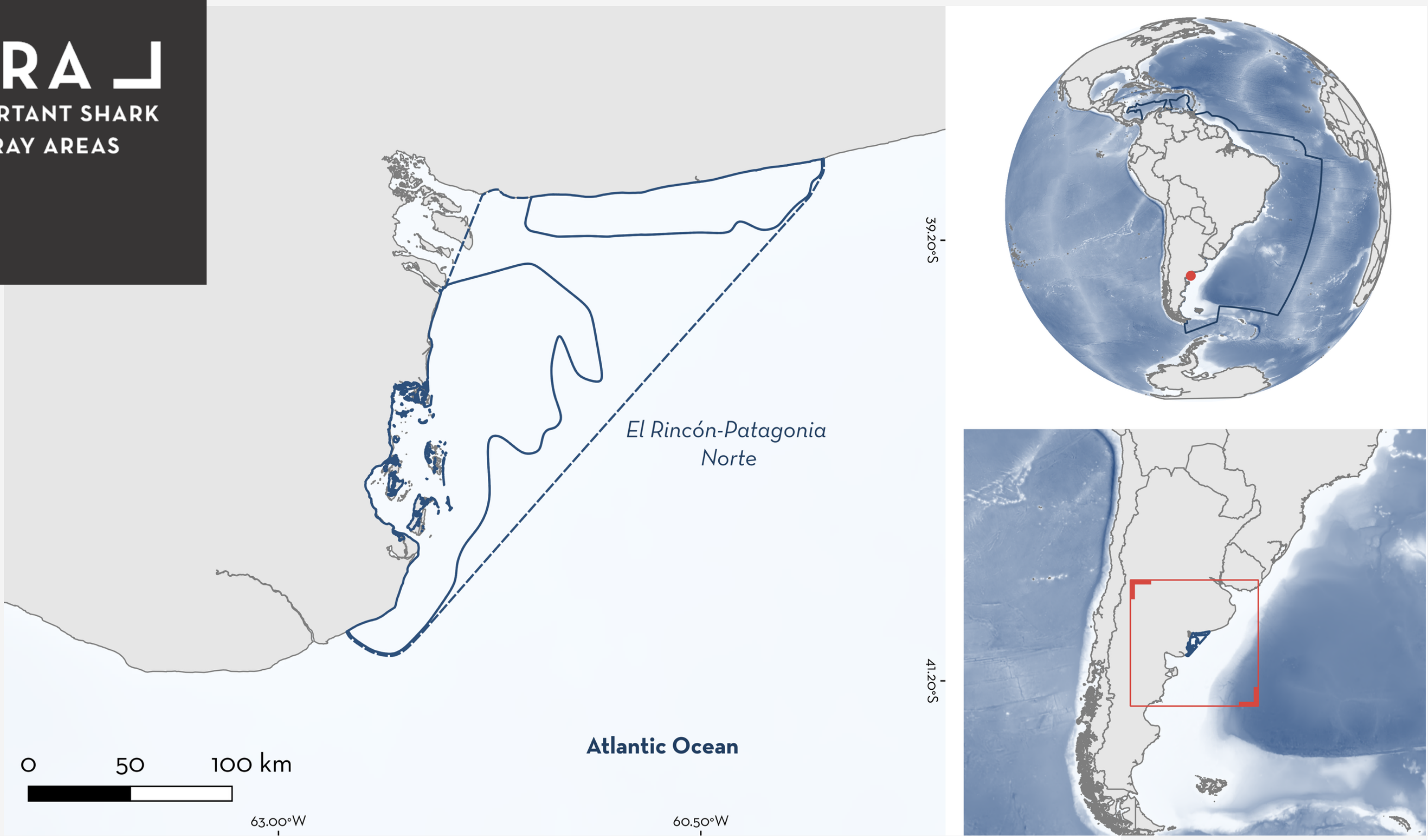
ISRA
IMPORTANT SHARK AND RAY AREAS



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

EL RINCÓN-PATAGONIA NORTE ISRA

South American Atlantic Region

ARGENTINA

0-25 metres

13,966 km²

SUMMARY

El Rincón-Patagonia Norte is located in Buenos Aires Province, Argentina. It encompasses Anegada Bay, part of Blanca Bay, and the Claromecó coast. The area is characterised by estuarine waters with seasonal variations in its spatial extent driven by tidal forcing and wind action. It is influenced by the discharge of several rivers and high productivity. The area overlaps with three Marine Protected Areas. Within the area there are: **threatened species** (e.g., Broadnose Sevengill Shark *Notorynchus cepedianus*); **range-restricted species** (e.g., Angular Angelshark *Squatina guggenheim*); **reproductive areas** (e.g., Smallnose Fanskate *Sympterygia bonapartii*); and **undefined aggregations** (Narrownose Smoothhound *Mustelus schmitti*).

CRITERIA

Criterion A – Vulnerability; Criterion B – Range Restricted;
Sub-criterion C1 – Reproductive Areas; Sub-criterion C5 – Undefined Aggregations

DESCRIPTION OF HABITAT

El Rincón-Patagonia Norte is located in Buenos Aires Province, Argentina. It encompasses Anegada Bay, part of Blanca Bay, and the Claromecó coast. The area is characterised by estuarine waters (salinity <30–33.3 ‰) with its influence extending across shallow waters (<20 m depth). There are seasonal variations in its spatial extent which are driven mainly by tidal changes and wind action (Acha et al. 2004; Lucas et al. 2005). Sea surface temperatures in the area exhibit a pronounced seasonal cycle, with austral summer maxima ~18°C and winter minima reaching 8.2°C (Lucas et al. 2005). The area is influenced by the combined discharge of the Río Negro (average annual discharge of 945 m^3 s^1) and the Río Colorado (99 m^3 s^1) (Lucas et al. 2005). During autumn and winter, the estuarine signal covers approximately 300 km along the coast between Río Negro on the south limit of the area and Blanca Bay. In spring and summer, the estuarine influence extends up to 400 km, first northward to Blanca Bay and then eastward along the coast to Claromecó (Lucas et al. 2005; Jaureguizar et al. 2016). The total estuarine area fluctuates between 10,000 km^2 in autumn–winter and 15,000 km^2 in spring–summer, although it can contract during La Niña years to less than 5,000 km^2 (Lucas et al. 2005). The area is highly productive and serves as a key spawning and nursery ground for various teleost fish species (Rodriguez et al. 2013; Alemany et al. 2021).

This area overlaps with the Bahía Blanca, Bahía Falsa and Bahía Verde, Pehuen Co-Monte Hermoso, and Bahía San Blas Marine Protected Areas (UNEP-WCMC & IUCN 2025a, b, c).

This Important Shark and Ray Area is benthic and pelagic and is delineated from inshore and surface waters (0 m) to 25 m based on the bathymetry of the area.

ISRA CRITERIA

CRITERION A – VULNERABILITY

Three Qualifying Species considered threatened with extinction according to the IUCN Red List of Threatened Species regularly occur in the area. These are the Critically Endangered Narrownose Smoothhound (Pollom et al. 2020), the Endangered Angular Angelshark (Oddone et al. 2019), and the Vulnerable Broadnose Sevengill Shark (Finucci et al. 2020).

CRITERION B – RANGE RESTRICTED

El Rincón-Patagonia Norte holds the regular and predictable presence of the Narrownose Smoothhound, Angular Angelshark, and Smallnose Fanskate as resident range-restricted species. These species are reported from the area in research fisheries surveys and artisanal fisheries monitoring (Massa 2013; Elisio et al. 2017; Jaureguizar et al. 2020; Alemany et al. 2021; Brun et al. 2024; Santana et al. 2025). Records of the three species from this area are highest compared to other areas along the Argentinian coast highlighting its importance.

The Narrownose Smoothound is the most captured shark and ray species in the area (Colautti et al. 2010; Cortés et al. 2011; Llompart et al. 2013; Massa 2013; Jaureguizar et al. 2020; Alemany et al. 2021). Based on scientific trawls surveys, this species reproduces by forming aggregations of more than 358 individuals/km^2 and uses the area as a mating and pupping ground (Cortés et al. 2011; Elisio et al. 2017; Jaureguizar et al. 2020; Santana et al. 2025). Up to 3,413 individuals (no sex or size was recorded) were landed in a single day in 2023 at Claromecó within the area by artisanal fishers using bottom gillnets (560 and 4,600 m long) (J Cuevas unpubl. data 2025). In 2024, up to 14.56 t/km^2, were captured in research surveys using trawl nets (Brun et al. 2024). Additionally, historical data from

1994–2005 from trawl surveys conducted in the area during spring captured estimated densities of up 30.6 t/km^2 of Narrownose Smoothound (Massa 2013). El Rincón and the Río de la Plata to the north had the highest and a similar proportion of landings until 2005 (Colonello et al. 2024). However, landings increased in the latter due to the redistribution of fishing effort following the implementation of management measures (Colonello et al. 2024). Despite this, scientific surveys conducted in El Rincón indicate that it still presents one of the highest abundances of the species in the region (Colautti et al. 2010; Cortés et al. 2011; Llompart et al. 2013; Massa 2013; Jaureguizar et al. 2020; Alemany et al. 2021). The Narrownose Smoothound is distributed across the Patagonian Shelf and South Brazil Shelf Large Marine Ecosystems (LMEs).

The Angular Angelshark is regularly found in the area. Between 2022–2024, aggregations of up to 255 individuals have been landed in a single day at Claromecó within the area by artisanal fishers using bottom gillnets (500–2,300 m long) (J Cuevas unpubl. data 2025). Additionally, historical data from 1994–2005 from trawl surveys conducted in the area during spring captured estimated densities of up 2.62 t/km^2 of Angular Angelshark (Massa 2013). The Angular Angelshark is distributed across the Patagonian Shelf and South Brazil Shelf LMEs.

The Smallnose Fanskate was captured in the area in higher densities (up to 14.56 t/km^2) compared to other surveyed areas (3.49–6.41 t/km^2) along the coast of Argentina during research fisheries surveys using trawling nets in 2024 (Brun et al. 2024). Additionally, historical data from 1994–2005 from trawl surveys conducted in the area during spring captured estimated densities of up 8.45 t/km2 of Smallnose Fanskate (Massa 2013). The Smallnose Fanskate is distributed across the Patagonian Shelf and South Brazil Shelf LMEs.

SUB-CRITERION C1 – REPRODUCTIVE AREAS

El Rincón-Patagonia Norte is an important reproductive area for two shark species.

Records since the 1990s indicate that this area is regularly used by Narrownose Smoothhound and Broadnose Sevengill Shark neonates and young-of-the-year (YOY) as well as Narrownose Smoothhound adults aggregating for reproductive purposes.

Research surveys using trawl nets between November and December 1994 (n [number of bottom trawls] = 78), 1998 (n = 47), 1999 (n = 48), 2003 (n = 63), 2005 (n = 78), 2008 (n = 74), 2011 (n = 58) and 2012 (n = 56), were conducted in the area and surrounding areas. A total of 362 sites were surveyed using a net 200 mm inner mesh-size with a vertical height of 5 m and a horizontal opening of 20 m, during 15 or 30 min periods (Elisio et al. 2017; Jaureguizar et al. 2020; Santana et al. 2025). Information on the total number of individuals, sex, and size was collected. Additionally, data on the relative abundance (individuals/km^2) of the different reproductive stages of adult females of Narrownose Smoothhound were recorded at each sampling site (Elisio et al. 2017; Jaureguizar et al. 2020; Santana et al. 2025). Due to the nature of the surveys, sampling was not conducted in coastal areas that were inaccessible to the research boat.

Between 1994–2012, a total of 17,741 Narrownose Smoothhounds were captured in the area (9,402 males and 8,339 females) (Jaureguizar et al. 2020). The average distribution for that period during the spring of neonates (<30 cm total length [TL]) was ~14 individuals/km^2 (ind/km^2), while YOY (<40 cm TL) average distribution was ~108 ind/km^2 (Jaureguizar et al. 2020). Size-at-birth for the species is between ~24–36 cm TL with animals maturing at 45–80 cm TL (Ebert et al. 2021). During 2011, the frequency distribution for neonates was ~34 ind/km^2, and ~62 ind/km^2 for YOY. In 2012, it was ~11 ind/km^2 for neonates and ~47 ind/km^2 for YOY (Jaureguizar et al. 2020). Neonates and YOY are resident year-round in the area in inshore shallow waters (<25 m) with low salinity (Colautti et al.

2010; Cortés et al. 2011; Molina et al. 2017; Jaureguizar et al. 2016, 2020). El Rincón-Patagonia Norte is one of the areas with the highest abundance of Narrownose Smoothhound neonates and YOY, along with the Río de la Plata, on the Argentine Shelf (Cortés et al. 2011). Although both areas exhibit similar early life stages densities and proportions within the population, abundance estimates (ind/km^2) are higher in El Rincón-Patagonia Norte (Colutati et al. 2010; Jaureguizar et al. 2016). Pupping in the area takes place during the spring and early summer months, when Narrownose Smoothhound give birth and almost immediately mate and ovulate, initiating a new pregnancy (Elisio et al. 2017). Pupping was inferred by the presence of full term pregnant and post-partum females present in the area during 2005, 2011, and 2012 (Santana et al. 2025). The pupping events are associated with the formation of high-density reproductive aggregations in the area (Elisio et al. 2017). Although Narrownose Smoothhound adults segregate by sex during the year, during the mating season, large reproductive aggregations take place in the area, from Claromecó to Faro Segunda Barranca during the spring (Cortés et al. 2011; Elisio et al. 2017; Jaureguizar et al. 2020). These reproductive aggregations involve adults of both sexes and have more than 358 ind/km^2 (Elisio et al. 2017). In spring 2003, 94% of the reproductive aggregations were recorded within the area, followed by 95% in 2005, 100% in 2008, 90% in 2011, and 100% in 2012 (Elisio et al. 2017). These findings indicate that reproductive aggregations in this area have remained consistent over time (Elisio et al. 2017). The reproductive aggregations become larger when the water temperature is higher (>16°C) and depths are shallower (<25 m) (Elisio et al. 2017).

Between 1998–2001, Broadnose Sevengill Shark neonates and YOY were recorded when landed in a shark recreational fishery using rod and reel between October–April in Anegada Bay within the area (Lucifora et al. 2005a). Sharks were measured and relative abundance was estimated as catch-per-unit-of-effort (CPUE) representing the number of sharks caught per boat per fishing trip per day (Lucifora et al. 2005a). Broadnose Sevengill Sharks (n = 136; 43 males and 93 females) were landed, and their size ranged between 45.2–253 cm TL. A total of 19 neonates (ranging between 45.2–53 cm TL with healed umbilical scars) and YOY (<70 cm TL) were captured (14%) (Lucifora et al. 2005a). Low numbers may reflect a sampling bias as anglers tended to release neonates (Lucifora et al. 2005a). Size-at-birth for the species was 34–45 cm TL (Ebert et al. 2021). Neonates were present from January–March, representing 9.1–15.5% of the catch across the years, and a pupping season during spring and summer has been suggested (Lucifora et al. 2005a). Length frequency distribution showed four modes, one for neonates and the largest due to the large female's presence (Lucifora et al. 2005a). Juveniles (<100 cm TL) dominated the catches all months (63.6–80% of the catch) especially during October and November (Lucifora et al. 2005a).

During 2011–2012, interviews were conducted with 20 sport fishers, fishing guides (using rod and reel), and artisanal fishers (using gillnets) to examine seasonal catch patterns of adult and neonate Broadnose Sevengill Sharks, along with other shark-related topics (Irigoyen & Trobbiani 2016). All fishers from the area reported neonates as frequent captures near the coast between March–May (Irigoyen & Trobbiani 2016). Furthermore, a historical compilation of data for Broadnose Sevengill Sharks (n = 2,588 occurrences) derived from published and unpublished literature, social media, biodiversity repositories, commercial fishing and research campaigns was carried out between 2010–2021 along the coast of Argentina (De Wysiecki 2024). Only records with date, TL, and coordinates (n = 1,981) were used to determine the distribution of neonates (n = 405) ranging in size from 34–50 cm TL (De Wysiecki 2024; De Wysiecki et al. 2025). El Rincón-Patagonia Norte had at least 10 neonate records from October–April and considered a possible nursery for the species (De Wysiecki 2024; De Wysiecki et al. 2025). Finally, between 2010–2025, a tag-and-release program was carried out among recreational fishers using rod and reel along the Argentine coast. Participants measured, tagged, and released their catches while recording catch data and locations (J Cuevas unpubl. data 2025). In January 2025, two Broadnose Sevengill Shark neonates (35–45 cm TL) and two YOY (45–60 cm TL) were captured in the area (J Cuevas unpubl. data 2025).

SUB-CRITERION C5 – UNDEFINED AGGREGATIONS

El Rincón-Patagonia Norte is an important area for undefined aggregations of one shark species.

Between 2010–2025, aggregations of Narrownose Smoothhound were captured and monitored by artisanal and sport fishers.

Between 2010–2025, a citizen science program involving recreational fishers monitored and tagged captured sharks before release along the coast of Argentina. Fishers used rod and reel (with one hook per line) while fishing from kayaks, the shore, or small boats (J Cuevas unpubl. data 2025). Aggregations were defined as individuals caught by a single fisher at the same location within a single fishing day (maximum of ~8 h). Collected information included: species, sex, TL, type of bait, site, locality, coordinates, tag number assigned to the animal, and photos or videos (J Cuevas unpubl. data 2025). In addition, between 2022–2024, data on aggregations were gathered yearly (each November) during scientific monitoring of landings from artisanal fishing boats (5–13 m long) using bottom gillnets. Fishing nets were deployed for 24 hours each fishing day at Claromecó, within the area (J Cuevas unpubl. data 2025). Total capture per boat was weighed at the species level, and then converted to number of individuals, and sex proportion taken at port (J Cuevas unpubl. data 2025). Aggregations were defined as the number of individuals captured per day and boat.

Between 2022–2024, 15 aggregations of Narrownose Smoothhound were recorded in the area in November from scientific monitoring of landings. Artisanal boats were operating with bottom gillnets of sizes between 1,000–2,600 m long, set at a depth 2–25 m within the area (J Cuevas unpubl. data 2025). In 2022, eight aggregations were captured with between 10–900 individuals. In 2023, nine aggregations were recorded, with between 165–3,413 individuals, while in 2024, two aggregations were captured, with between 15–694 individuals (J Cuevas unpubl. data 2025). Additionally, adult aggregations have been reported in the area from trawl surveys conducted between 1994–2012 with groups of male individuals reaching more than 385 individuals/km^2 (Elisio et al. 2017; Jaureguizar et al. 2020). Undefined adult aggregations were observed within the area and in adjacent waters and consisted of either all-male groups or mixed-sex groups without signs of reproduction (Elisio et al. 2017). These aggregations occurred in winter (10% of recorded sets in 2004) but were more frequent in spring, with occurrences of 42% in 2003, 22% in 2005, 16% in 2008, 14% in 2011, and 27% in 2012 (Elisio et al. 2017). Further information is required to confirm the nature and function of these aggregations.

Acknowledgments

María Lourdes Estalles (Dirección Nacional de Áreas Marinas Protegidas- Administración de Parques Nacionales), Paula Cedrola (Dirección Nacional de Áreas Marinas Protegidas- Administración de Parques Nacionales), Agustín M De Wysiecki (Centro para el Estudio de Sistemas Marinos, CESiMar-CONICET- CENPAT), Gustavo Enrique Chiaramonte (Estación Hidrobiológica de Puerto Quequén-División Ictiología, Museo Argentino de Ciencias Naturales "Bernardino Rivadavia" [MACN-CONICET]), Andrés J Jaureguizar (Universidad Provincial del Sudoeste- UPSO; Comisión de Investigaciones Científicas- CIC), Juan Manuel Molina (Universidad Nacional del Sur; Instituto Argentino de Oceanografia), Sebastian Moriggia (Instituto Argentino de Oceanografia; Comisión de Investigaciones Científicas- CIC), Juan Cuevas (Wildlife Conservation Society), Lucas Albornoz (Wildlife Conservation Society), Cecilia Palacio (Wildlife Conservation Society), Mirta García (Universidad de La Plata), and Marta D Palacios (IUCN SSC Shark Specialist Group – ISRA Project) contributed and consolidated information included in this factsheet. We thank all participants of the 2025 ISRA Region 05 – South American Atlantic workshop for their contributions to this process.

This factsheet has undergone review by the ISRA Independent Review Panel prior to its publication.

This project was funded by the Shark Conservation Fund, a philanthropic collaborative pooling expertise and resources to meet the threats facing the world's sharks and rays. The Shark Conservation Fund is a project of Rockefeller Philanthropy Advisors.

Suggested citation

IUCN SSC Shark Specialist Group. 2025. El Rincón-Patagonia Norte ISRA Factsheet. Dubai: IUCN SSC Shark Specialist Group.

[redacted]

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												
Mustelus schmitti	Narrownose Smoothhound	CR	2–195	X	X	X				X		
Notorynchus cepedianus	Broadnose Sevengill Shark	VU	0–570	X		X						
Squatina guggenheim	Angular Angelshark	EN	7–150	X	X							
RAYS												
Sympterygia bonapartii	Smallnose Fanskate	NT	0–500		X							

SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
SHARKS		
Carcharhinus brachyurus	Copper Shark	VU
Carcharias taurus	Sandtiger Shark	CR
Galeorhinus galeus	Tope	CR
Mustelus fasciatus	Striped Smoothhound	CR
Sphyrna zygaena	Smooth Hammerhead	VU
Squalus acanthias	Spiny Dogfish	VU
RAYS		
Atlantoraja castelnaui	Spotback Skate	CR
Atlantoraja cyclophora	Eyespot Skate	EN
Discopyge tschudii	Apron Numbfish	LC
Myliobatis goodei	Southern Eagle Ray	VU
Pseudobatos horkelii	Brazilian Guitarfish	CR
Rioraja agassizii	Rio Skate	VU
Sympterygia acuta	Bignose Fanskate	CR
Zapteryx brevirostris	Shortnose Guitarfish	EN
CHIMAERAS		
Callorhinchus callorynchus	American Elephantfish	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 El Rincón-Patagonia Norte is an important reproductive area for two shark species, a feeding area for three shark species, and an undefined aggregation area for three species.

Reports from sport and artisanal fishers (16 out of 25 interviews) in 2011–2012 indicated that neonates and advanced embryos inside females of Copper Sharks were frequent observations in this area. Large Copper Shark females give birth in shallow channels of San Blas Bay and Blanca Bay within the area (Irigoyen & Trobbianni 2016). Additionally, between 2018–2024, two neonates and three YOY were recorded in the area from photographic records shared by recreational fisher with sizes of individuals ranging between 25–30 cm TL for neonates, and 40–50 cm TL for YOY (J Cuevas unpubl. data 2025). Captures of neonates and YOY occurred primarily during September, October, and December. Females with distended abdomens and aborted near term embryos on the beach were also recorded during artisanal fishery landing monitoring during November in 2022, 2023, and 2024 (J Cuevas pers. obs. 2025). Further information is required to determine the importance of the area for the reproduction of the species.

In addition, there are several historical records of non-pregnant Sandtiger Shark females engaging in mating activities (fresh mating scars) indicating the area is likely important for the reproduction of the species (Lucifora et al. 2002). However, further information is required to determine the contemporary importance of the area for the reproduction of the species.

In Anegada Bay, stomach content analysis indicated that juvenile and adult Copper Sharks are feeding in the area during the summer months (Lucifora et al. 2005b). Strong ontogenetic shifts in prey consumption indicate that individuals feed locally and seasonally as they grow (Lucifora et al. 2005b). Further information is required to determine the importance of the area for the feeding of the species.

In Anegada Bay, stomach content analysis indicated that juvenile and adult Sandtiger Sharks are feeding in the area during the summer months (Lucifora et al. 2002). The peak abundance of adult Sandtiger Sharks coincides with an increase in the availability of its primary prey species, including the teleosts *Micropogonias* (Lucifora et al. 2002). Further information is required to determine the importance of the area for the feeding of the species.

In Anegada Bay, stomach content analysis indicated that Broadnose Sevengill Sharks prey on marine mammals, primarily La Plata River Dolphins *Pontoporia blainvillei* (Lucifora et al. 2005a). The local availability of small dolphin calves has led to the suggestion that the habitat use patterns of Broadnose Sevengill Shark are influenced by the distribution of its primary prey (Lucifora et al. 2005a). Further information is required to determine the importance of the area for the feeding of the species.

Between 2010–2024, 21 aggregations of Copper Sharks were captured by recreational fishers within the area with aggregation sizes ranging between 3–13 individuals (J Cuevas unpubl. data 2025). Captured, tagged, and released individuals ranged between 80–217 cm TL. Aggregations occurred primarily between November–January in 2014 (n = 2), 2018 (n = 2), 2021 (n = 2), 2022 (n = 6), 2023 (n = 4), and 2024 (n = 5) (J Cuevas unpubl. data 2025). Additionally, between 2022–2023, three aggregations of Copper Sharks were recorded in the area in November from scientific monitoring of landings. Artisanal boats were operating with bottom gillnets of sizes between 350–1,750 m long set at a depth between 2–25 m within the area (J Cuevas unpubl. data 2025). In 2022, two aggregations were captured, with sizes ranging from 3–4 individuals. In 2023, one aggregation was recorded, with eight individuals (J Cuevas unpubl. data 2025). Within the area the presence of pregnant females, neonates, and YOY have been observed by recreational and artisanal fishers (De Wysiecki 2024; De Wysiecki et al. 2025), and stomach contents indicate that juveniles and adults Copper Shark are feeding in the area during the summer months (Lucifora et al. 2005b). Further information is required to determine the importance of the area for the aggregations of the species.

Between 2010–2024, 46 aggregations of Tope were captured by recreational fishers within the area with aggregation sizes ranging between 4–43 individuals (J Cuevas unpubl. data 2025). Captured, tagged, and released individuals ranged in size between 41–155 cm TL. Aggregations occurred primarily in October (n = 12), November (n = 25), and December (n = 8) across the years (J Cuevas unpubl. data 2025). Additionally, between 2022–2024, 28 aggregations of Tope were recorded in the area in November (n = 27) and December (n = 1) from scientific monitoring of landings. Artisanal boats were operating with bottom gillnets of sizes between 560–2,600 m long set at a depth 2–25 m within the area (J Cuevas unpubl. data 2025). In 2022, nine aggregations were captured using 560–800 m long gillnets, with sizes ranging from 8–183 individuals. In 2023, ten aggregations were recorded using 1,150–2,600 m long gillnets, ranging from 43–500 individuals, while in 2024, nine aggregations were captured using 2,300 m long gillnets, with between 75–528 individuals (J Cuevas unpubl. data 2025). This species is known to form schools that are partially segregated by size and sex in other regions of the world (Walker et al. 2008). In the area, Tope coastal aggregations appear to be linked to their annual migratory movements between Uruguay and Puerto San Julián (Santa Cruz Province, Argentina) between September–January (De Wysiecki 2024; De Wysiecki et al. 2025), however, further information is required to determine the importance of the area for the aggregations of the species.

Between 2022–2024, 22 aggregations of Angular Angelshark were recorded in the area in November from scientific monitoring of landings. Artisanal boats were operating with bottom gillnets of sizes between 500–2,300 m long set at a depth 2–25 m within the area (J Cuevas unpubl. data 2025). In 2022, nine aggregations were captured using 500 m long gillnets, with between 22–211 individuals. In 2023, five aggregations were recorded using 1,750 m long gillnets, with between 33–218 individuals, while in 2024, eight aggregations were captured using 2,300 m long gillnets, with between 55–255 individuals (J Cuevas unpubl. data 2025). Further information is required to determine the importance of the area for the aggregations of the species

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