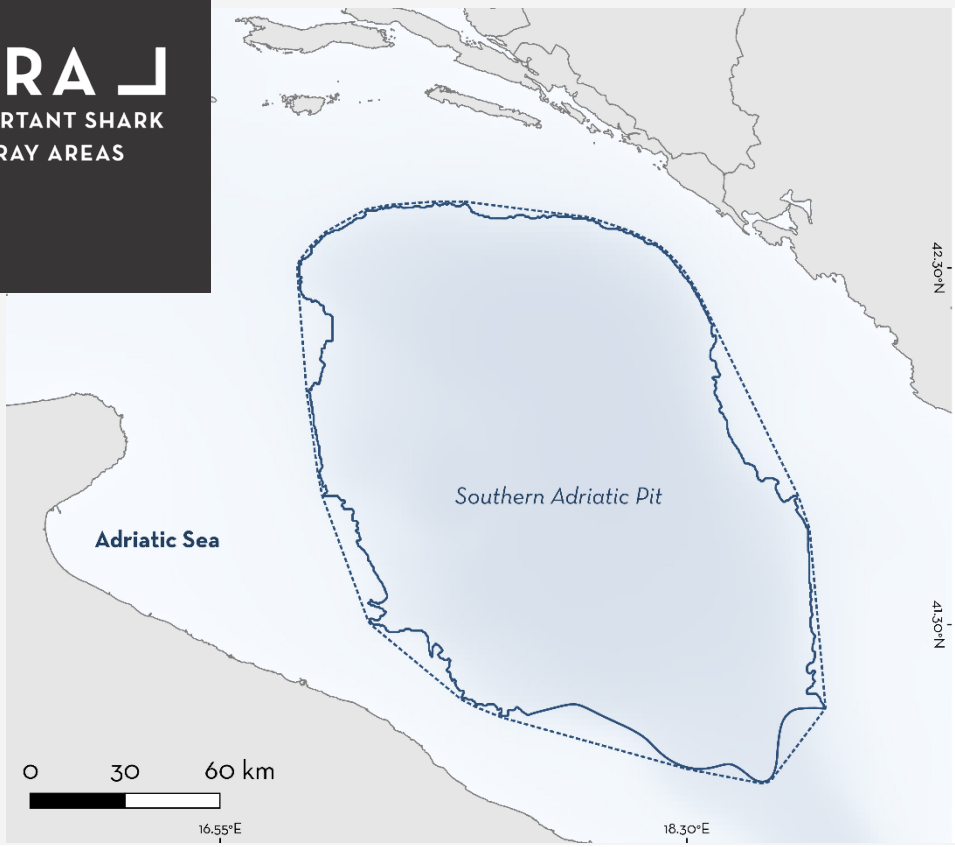
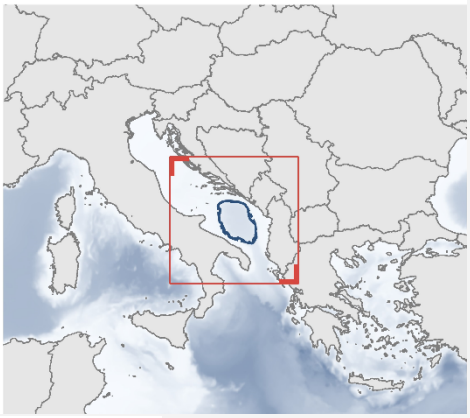
ISRA
IMPORTANT SHARK AND RAY AREAS





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

SOUTHERN ADRIATIC PIT ISRA

Mediterranean and Black Seas Region

SUMMARY

Southern Adriatic Pit is located in the southern Adriatic Sea, a sub-basin of the Mediterranean Sea. It is characterised by steep slopes reaching a maximum depth >1,000 m. Water exchange with the Mediterranean Sea takes place through the Strait of Otranto. This area covers the epipelagic and mesopelagic zones of the water column from the surface to a depth of 800 m. The area overlaps with the South Adriatic Ionian Straight Ecologically or Biologically Significant Marine Area (EBSA). Within the area there are: **threatened species**; **reproductive areas**; and **areas important for movement** (Blue Shark *Prionace glauca*).

ALBANIA
ITALY
MONTENEGRO

0–800 metres

20,347 km²

CRITERIA

Criterion A – Vulnerability; Sub-criterion C1 – Reproductive Areas; Sub-criterion C4 – Movement

DESCRIPTION OF HABITAT

Southern Adriatic Pit is located in the southern Adriatic Sea, a sub-basin of the Mediterranean Sea. The Mediterranean climate dominates the southern Adriatic Sea, with warm, dry summers and mild, wet winters. The oceanography of the southern Adriatic is complex, with a range of dynamic habitat features. Fronts and eddies are common in the area, creating areas of upwelling that are rich in nutrients and support high levels of primary productivity (Ljubimir et al. 2017; Jasprica et al. 2022). Water masses circulating through the southern Adriatic are the Adriatic surface water, Ionian surface water, Levantine intermediate water, and Adriatic deep water (McKinney 2007).

Southern Adriatic Pit occupies the southern-central area of the Adriatic Sea. Open sea zooplankton (i.e., krill), mesopelagic zooplankton, and deep zooplankton (Hure et al. 2018; Guglielmo et al. 2019) support the marine food web.

The area overlaps with the South Adriatic Ionian Straight Ecologically or Biologically Significant Marine Area (EBSA; CBD 2023).

This Important Shark and Ray Area is pelagic and is delineated from surface waters (0 m) to 800 m based on distribution of the Qualifying Species in this area. Although the Southern Adriatic Pit includes epipelagic, mesopelagic, and bathypelagic waters, only the epipelagic and mesopelagic zones are considered here given the ecological preferences of the Qualifying Species.

ISRA CRITERIA

CRITERION A – VULNERABILITY

The one Qualifying Species within the area is considered threatened with extinction according to the IUCN Red List of Threatened Species™. The Blue Shark is assessed as Critically Endangered in a Mediterranean regional assessment (Sims et al. 2016) and Near Threatened globally (Rigby et al. 2019).

SUB-CRITERION C1 – REPRODUCTIVE AREAS

Southern Adriatic Pit is an important reproductive area for one shark species.

Blue Sharks have a regular and predictable seasonal presence in the area, based on tracking data and captures in fisheries where it represents the most frequently captured pelagic shark in the southern Adriatic Sea (Ćetković et al. 2022; Carbonara et al. 2023; Coispa unpubl. data 2023).

Six young-of-the-year individuals, with sizes <100 cm total length (TL), were recorded in the area during surveys conducted in 2019, 2020, and 2022, during September and October (Coispa unpubl. data 2023). Additionally, the area is located next to documented reproductive areas for Blue Shark in southeast Adriatic waters, where records of >20 neonate Blue Sharks of ~50 cm TL and young-of-the-year (<100 cm TL) have been recorded over the past decade (Ćetković et al. 2019, 2022). The known size-at-birth of the species is 35–50 cm TL (Ebert & Dando 2021).

SUB-CRITERION C4 – MOVEMENT AREAS

Southern Adriatic Pit is an important movement area for one shark species. Blue Shark is a highly migratory species and regularly or predictably uses specific areas in the southern Adriatic during

movements, contributing to the connectivity of important areas. Blue Shark tagging through the WWF Safeshark and Medbycatch projects has shown that individuals utilise the Southern Adriatic Pit and migrate through the Strait of Otranto reaching the Strait of Sicily and eastern Ionian waters. Tagging data of 26 Blue Sharks (10 juveniles <160 cm TL and 16 sub-adults and adults >160 cm TL) show horizontal and vertical movements within the area, and diurnal movement between the surface down to a maximum of 800 m depth (Coispa unpubl. data 2023). Within the southern Adriatic, tagged Blue Sharks showed an affinity for the pelagic waters of the Southern Adriatic Pit, with several animals moving extensively in the area before undertaking their southward migrations (Coispa unpubl. data 2023).

Acknowledgments

Pierluigi Carbonara (Fondazione Coispa ETS), Laura Pintore (WWF Italy), Silvia Aveta (WWF Italy), Giulia Prato (WWF Italy), Simone Niedermueller (WWF Mediterranean), Ilija Ćetković (Institute of Marine Biology, University of Montenegro), Fabrizio Serena (IRBIM-CNR), and Peter M. Kyne (IUCN SSC Shark Specialist Group – ISRA Project) contributed and consolidated information included in this factsheet. We thank all participants of the 2023 ISRA Region 3 – Mediterranean and Black Seas 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. 2023. Southern Adriatic Pit ISRA Factsheet. Dubai: IUCN SSC Shark Specialist Group.

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												
Prionace glauca	Blue Shark	CR*	0–1,000	X		X			X			

*Assessed as CR in a Mediterranean regional assessment but considered NT globally.

SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
SHARKS		
Alopias superciliosus	Bigeye Thresher	VU
Alopias vulpinus	Common Thresher	VU
Carcharodon carcharias	White Shark	VU
Cetorhinus maximus	Basking Shark	EN
Hexanchus griseus	Bluntnose Sixgill Shark	NT
Isurus oxyrinchus	Shortfin Mako	EN
RAYS		
Mobula mobular	Spinetail Devil Ray	EN
Pteroplatytrygon violacea	Pelagic Stingray	LC

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.

REFERENCES

Carbonara P, Prato G, Niedermüller S, Alfonso S, Neglia C, Donnaloia M, Lembo G, Spedicato MT. 2023. Mitigating effects on target and by-catch species fished by drifting longlines using circle hooks in the South Adriatic Sea (Central Mediterranean). *Frontiers in Marine Science* 10: 1124093. https://doi.org/10.3389/fmars.2023.1124093

Ćetković I, Pešić A, Joksimović A, Tomanić J, Ralević S. 2019. Morphometric measurements of newborn blue shark *Prionace glauca* (Linnaeus, 1758) and characteristics of its potential parturition areas in coastal waters of Montenegro (Southeastern Adriatic). *Acta Adriatica* 60: 61–68. https://doi.org/10.32582/aa.60.1.6

Ćetković I, Pešić A, Ikica Z, Milošević D, Mrdak D. 2022. Occurrence of rare and endangered elasmobranchs in by-catch of Montenegrin fisheries (South-Eastern Adriatic Sea). *Cahiers de Biologie Marine* 63(3): 247–256.

Convention on Biological Diversity (CBD). 2023. South Adriatic Ionian Straight Ecologically or Biologically Significant Areas (EBSAs). Available at: https://chm.cbd.int/database/record?documentID=204126 Accessed May 2023.

Guglielmo R, Bergamasco A, Minutoli R, Patti FP, Belmonte G, Spanò N, Zagami G, Bonanzinga V, Giuglielmo L, Granata A. 2019. The Otranto Channel (South Adriatic Sea), a hot-spot area of plankton biodiversity: Pelagic polychaetes. *Scientific Reports* 9: 19490. https://doi.org/10.1038/s41598-019-55946-6

Hure M, Mihanović H, Lučić D, Ljubešić Z, Kružić P. 2018. Mesozooplankton spatial distribution and community structure in the South Adriatic Sea during two winters (2015, 2016). *Marine Ecology* 39: e12488. https://doi.org/10.1111/maec.12488

Jasprica N, Čalić M, Kovačević V, Bensi M, Radić ID, Garić R, Batistić M. 2022. Phytoplankton distribution related to different winter conditions in 2016 and 2017 in the open southern Adriatic Sea (eastern Mediterranean). *Journal of Marine Systems* 226: 103665. https://doi.org/10.1016/j.jmarsys.2021.103665

Ljubimir S, Jasprica N, Čalić M, Hrustić E, Radić ID, Car A, Batistić M. 2017. Interannual (2009–2013) variability of winter-spring phytoplankton in the open South Adriatic Sea: Effects of deep convection and lateral advection. *Continental Shelf Research* 143: 311–321. http://dx.doi.org/10.1016/j.csr.2017.05.007

McKinney FK. 2007. *The Northern Adriatic ecosystem - Deep time in a shallow sea.* New York: Columbia University Press.

Rigby CL, Barreto R, Carlson J, Fernando D, Fordham S, Francis MP, Herman K, Jabado RW, Liu KM, Marshall A et al. 2019. *Prionace glauca. The IUCN Red List of Threatened Species* 2019: e.T39381A2915850. https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T39381A2915850.en

Sims D, Fowler SL, Ferretti F, Stevens J. 2016. *Prionace glauca* (Mediterranean assessment). *The IUCN Red List of Threatened Species* 2016: e.T39381A16553182.