

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

SIRT GULF ISRA

Mediterranean and Black Seas Region

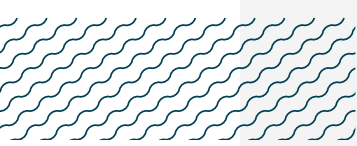
SUMMARY

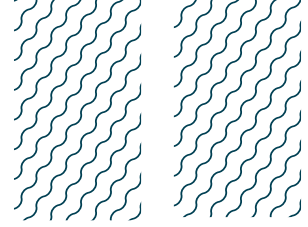
Sirt Gulf lies along the coast of Libya in the southern Mediterranean Sea. The area is characterised by sandy bays interspersed with small rocky areas, and seagrass beds. It is bordered by salt marshes and terrestrial coastal protected areas. Sirt Gulf is known as a hotspot for biodiversity and contains five Key Biodiversity Areas and overlaps with an Ecologically or Biologically Significant Marine Area. Within this area there are: **threatened species** (e.g., Smoothback Angelshark *Squatina oculata*); and important **reproductive areas** (e.g., Angelshark *Squatina squatina*).

CRITERIA

Criterion A - Vulnerability; Sub-criterion C1 - Reproductive Areas

—	—
LIBYA	—
—	—
0-500 metres	—
—	—
40,477.93 km²	—
—	—





DESCRIPTION OF HABITAT

Sirt Gulf is a large coastal area in Libya in the southern Mediterranean Sea. The area is characterised by sandy habitats, but also includes seagrass meadows, photophyllous algae, rocky substrates, detrital substrates, and cliffs along the coast (Hamza et al. 2011). The shallow areas of the gulf reach 30°C in the boreal summer, and salinity is relatively high (38-39), due to the arid climate resulting in high evaporation rates and low freshwater input.

The area overlaps with five Key Biodiversity Areas (Tawuoryhe Sebkhah, Gulf of Sirte, Geziret Garah, Benghazi, and Jabal al Akhdar) (KBA 2023), and the Gulf of Sirte Ecologically or Biologically Significant Marine Area (EBSA) (CBD 2023).

This Important Shark and Ray Area is benthic and is delineated from inshore waters (0 m) to 500 m depth based on the maximum depth range of the Qualifying Species and the bathymetry of the area.

ISRA CRITERIA

CRITERION A – VULNERABILITY

Two 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 Smoothback Angelshark (Morey et al. 2019a) and Angelshark (Morey et al. 2019b).

SUB-CRITERION C₁ – REPRODUCTIVE AREAS

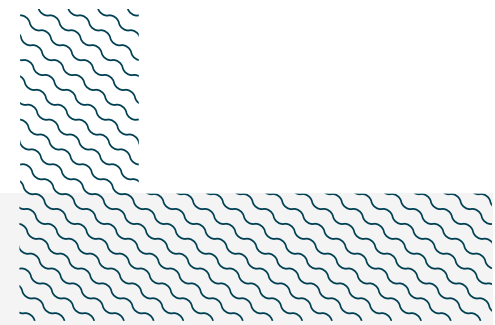
Sirt Gulf is an important reproductive area for two shark species.

Among few other areas in the Mediterranean Sea, the coastal waters of Libya, and in particular Sirt Gulf, was recently identified as an important area for angel sharks (Al-Mabruk et al. 2019; Giovos et al. 2019). Between 2020-2021, angel shark individuals were recorded along the Libyan coastline during nearly every landing survey conducted in ports and fish markets of major coastal cities. Most sharks were captured in trammel nets and trawls. Data were also collected based on fisher sightings as part of regular surveys and interview questionnaires conducted by the Angel Shark Project: Libya (S. Al-Mabruk unpubl. data 2023).

In total, 54 Smoothback Angelshark were recorded. Of these, 52% (n = 28) were confirmed within the Sirt Gulf, while the remaining individuals (n = 26) were scattered along the rest of the Libyan coast (i.e., east and west of Sirt Gulf). Most records were from the months of December to February. All life stages were regularly recorded, including five juveniles ranging from 50–60 cm total length (TL) (S. Al-Mabruk unpubl. data 2023). Size-at-birth for the species is 23–27 cm TL (Capapé et al. 2002). These records of juvenile sharks suggest that they may be using the area as a nursery area until they reach a larger size. A similar observation has been reported from the Canary Islands, where nursery areas for the Angelshark have been confirmed, based on juveniles using areas for at least a year until they reach a similar size and leave the area (Jimenez-Alvarado et al. 2020; Meyers et al. in prep). Of all recorded and sexed individuals, 46% were females at various life stages. This species is known to undertake inshore-offshore migrations as part of its reproductive cycle. Thus, individuals at different life stages may be using the shallower areas of the Sirt Gulf to reproduce and then move back into the deeper areas. Moreover, one adult pregnant female was recorded aborting pups after capture

and landing in Misrata port. Juvenile sharks were recorded near the coastal waters of Sirt City, indicating that, similar to other parts of the range, these shallow coastal areas are likely used as breeding and as potential nursery areas (Meyers et al. 2017).

Nine individuals of the Angelshark were recorded from surveys, five of which were females. Three sharks were adults and six subadults. In addition to these nine sharks, two pregnant females, one captured near Sirt city, were captured carrying pups which were aborted onboard fishing vessels. Moreover, a young-of-the-year (YOY) was accidentally captured in the shallow coastal area near Sirt. In addition to the information gathered during the landing and market surveys, citizen science data was collected via social media channels and verified by the Angel Shark Project: Libya. A total of 55 records of Angelshark were submitted. All records were either of dead or captured individuals within the Sirt Gulf by trawls, spearfishing, and trammel nets. These records include all size classes, including two dead YOY and one pregnant female with aborted pups (S. Al-Mabruk unpubl. data 2023).



Acknowledgments

Esmail Shakman (Tripoli University; Libyan Society of Artisanal Fishery Friends), Sara A. A Al-Mabruk (Angel Shark Project: Libya), Khaled Etayeb (Tripoli University), Abdalha Ben Abdalha (Tripoli University), Mahmoud Salih (Tubruk University), Akram Turki (Marine Biology Research Centre), Mohamed Elhajaji (Libyan Society of Artisanal Fishery Friends; Marine Biology Research Centre), Elmaki Elagil (Environmental Ministry), Eva K. M. Meyers (Angel Shark Project: Libya; Leibniz Institute for the Analysis of Biodiversity Change), Ioannis Giovos (Angel Shark Project: Libya; iSea, Environmental Organisation for the Preservation of the Aquatic Ecosystems), Jenny R. Bortoluzzi (IUCN SSC Shark Specialist Group - ISRA Project), and Ryan Charles (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 Sea 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. Sirt Gulf ISRA Factsheet. Dubai: IUCN SSC Shark Specialist Group.

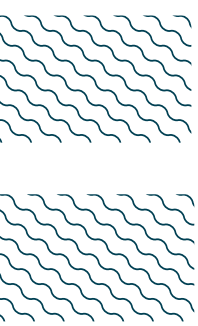
QUALIFYING SPECIES

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
SHARKS											
<i>Squatina oculata</i>	Smoothback Angelshark	CR	20-500	X		X					
<i>Squatina squatina</i>	Angelshark	CR	0-150	X		X					

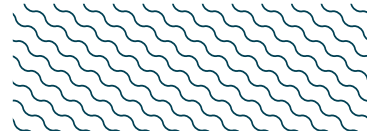
SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
SHARKS		
<i>Alopias superciliosus</i>	Bigeye Thresher	VU
<i>Alopias vulpinus</i>	Common Thresher	VU
<i>Carcharhinus brevipinna</i>	Spinner Shark	VU
<i>Carcharhinus limbatus</i>	Blacktip Shark	VU
<i>Carcharhinus plumbeus</i>	Sandbar Shark	EN
<i>Carcharodon carcharias</i>	White Shark	VU
<i>Isurus oxyrinchus</i>	Shortfin Mako	EN
<i>Lamna nasus</i>	Porbeagle	VU
<i>Mustelus mustelus</i>	Common Smoothhound	EN
<i>Mustelus punctulatus</i>	Blackspotted Smoothhound	VU
<i>Scyliorhinus stellaris</i>	Nursehound	VU
<i>Squalus acanthias</i>	Spiny Dogfish	VU
<i>Squatina aculeata</i>	Sawback Angelshark	CR
<i>Sphyrna lewini</i>	Scalloped Hammerhead	CR
RAYS		
<i>Aetomylaeus bovinus</i>	Duckbill Eagle Ray	CR
<i>Glaucostegus cemiculus</i>	Blackchin Guitarfish	CR
<i>Gymnura altavela</i>	Spiny Butterfly Ray	EN
<i>Raja radula</i>	Rough Ray	EN
<i>Rhinobatos rhinobatos</i>	Common Guitarfish	CR
<i>Torpedo marmorata</i>	Marbled Torpedo Ray	VU
<i>Torpedo torpedo</i>	Ocellate Torpedo	VU

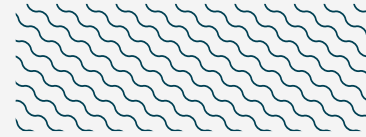
IUCN Red List of Threatened Species Categories are available by searching species names at www.iucnredlist.org. Abbreviations refer to: CR, Critically Endangered; EN, Endangered; VU, Vulnerable; NT, Near Threatened; LC, Least Concern; DD, Data Deficient.



SUPPORTING INFORMATION



There are additional indications that Sirt Gulf is important for aggregations and reproduction of Sandbar Sharks. Records of aborted embryos were collected over different years (2013, 2017) mainly from March to May from fisher interviews and landing site surveys (NASAR 2017; E. Shakman pers. obs. 2023; A. Ben Abdalha pers. obs. 2023; E. Shakman et al. unpubl. data 2023). Additionally, four tons of *Carcharhinus* spp. including Sandbar Sharks were recorded at one landing site in 2020.



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