

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

BOUBYAN ISLAND & ADJACENT RIVERS ISRA

Western Indian Ocean Region

SUMMARY

Boubyan Island & Adjacent Rivers is situated at the head of the Persian/Arabian Gulf, in the Tigris-Euphrates-Karun delta. This area falls within the Kuwaiti, Iraqi, and Iranian Exclusive Economic Zones. It is influenced by the Tigris and Euphrates Rivers, which form a confluence and discharges into the Persian/Arabian Gulf. This subtropical estuarine environment is characterised by intertidal mud, sand, and salt flat habitats. The area overlaps with two Key Biodiversity Areas, an Ecologically or Biologically Significant Marine Area, a Ramsar Site (Wetland of International Importance), and a Marine Reserve. Within this area there are: **threatened species** and **reproductive areas** (Bull Shark *Carcharhinus leucas*).

IRAN	—
IRAQ	—
KUWAIT	—
0-5 metres	—
1,663.81 km ²	—

CRITERIA

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





DESCRIPTION OF HABITAT

Boubyan Island & Adjacent Rivers is situated at the head of the Persian/Arabian Gulf (hereafter referred to as 'The Gulf'), in the Tigris-Euphrates-Karun delta. The area is influenced by the Tigris and Euphrates rivers that spans multiple jurisdictions. The two rivers join to form a confluence, and discharges in the Gulf. The area extends inland incorporating the estuarine systems alongside saltmarshes, to Nasiriyah, Iraq (>100 km from the coast). Boubyan Island is surrounded by subtropical estuarine environments characterised by intertidal mud, sand, and salt flats (Bishop et al. 2011). Alluvial sediment deposits are accumulated from river flows of the adjacent Shatt-al-Arab delta system (UNESCO 2017). Due to dynamic tidal processes and low-lying profile of the island, its terrestrial environments and interior sabhkas (coastal mudflats) are often flooded during high tides (Bishop et al. 2011; UNESCO 2017).

The area overlaps with two Key Biodiversity Areas: Fao and Khawr Abdallah (KBA 2023a, 2023b), the Shatt Al-Arab Delta Ecologically or Biologically Significant Marine Area (CBD 2023), the Mubarak Al-Kabeer Reserve Ramsar Site (Wetland of International Importance) (Ramsar 2023), and the Boubyan Island and Mubarak Al Kabeer Marine Reserve.

This Important Shark and Ray Area is benthopelagic and delineated from inshore and surface waters (0 m) to a depth of 5 m based on the bathymetry of the area.

ISRA CRITERIA

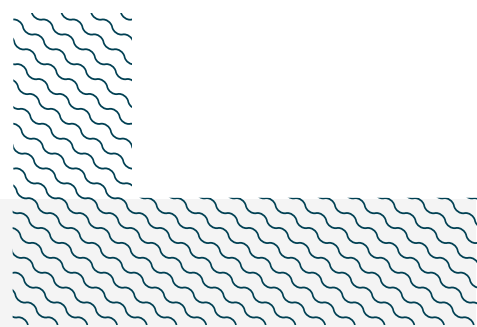
CRITERION A – VULNERABILITY

The one Qualifying Species within the area is considered threatened with extinction according to the IUCN Red List of Threatened Species™. The Bull Shark is assessed as Vulnerable (Rigby et al. 2021).

SUB-CRITERION C₁ – REPRODUCTIVE AREAS

Boubyan Island & Adjacent Rivers is an important reproductive area for one shark species.

Bull Shark have been reported from the area as far back as the 1870s (Moore 2018), with historical records suggesting their presence in Iraq even further to the 2nd century (Moore & McDavitt 2009). Neonates, young-of-the-year (YOY), and juveniles make up the majority of these records estimated through comparison with the species from South Africa (size-at-birth in the area is estimated to be 75–83 cm total length [TL]; Moore 2018). There are also modern records that indicate the area is still important in supporting Bull Sharks at these life-stages. Forty-two individuals caught in this area were recorded in fish markets in Kuwait (26 in 2008 and 16 in 2011; Moore 2018). Of these, four individuals can be considered neonates based on their size (76–83 cm TL) and the presence of an umbilical scar, two could be considered YOY ranging from 90–99 cm TL, and a further 35 individuals could be considered juveniles ranging from 100–160 cm TL (size-at-maturity for females is estimated to be between 180 cm and 257 cm TL in the Western Indian Ocean; Moore et al. 2012; Jabado et al. 2016; Pirog et al. 2019). Bull Sharks use freshwater/estuarine environments as nursery areas, and this is one of few freshwater inputs/estuaries for ~9,000 km of northwest Indian Ocean coastline until East Africa. Female Bull Sharks normally give birth in these freshwater/estuarine systems, and the young remain for up to five years (Çiçek et al. 2023). The regional importance of this area is highlighted by this area being the only known location in the Gulf that supports Bull Sharks at early life-stages.



Acknowledgments

Alec BM Moore (Bangor University), Dareen Almojil (New York University Abu Dhabi), 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 7 – Western Indian Ocean 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. Boubyan Island & Adjacent Rivers ISRA Factsheet. Dubai: IUCN SSC Shark Specialist Group.

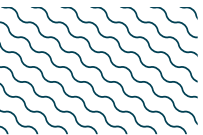
QUALIFYING SPECIES

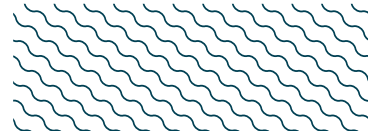
Scientific Name	Common Name	IUCN Red List Category	Global Depth Range (m)	ISRA Criteria/Sub-criteria Met									
				A	B	C1	C2	C3	C4	C5	D1	D2	
SHARKS													
<i>Carcharhinus leucas</i>	Bull Shark	VU	0-256	X		X							

SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
SHARKS		
<i>Carcharhinus leiodon</i>	Smoothtooth Blacktip Shark	EN
<i>Chiloscyllium arabicum</i>	Arabian Carpetshark	NT
<i>Sphyrna mokarran</i>	Great Hammerhead	CR
RAYS		
<i>Aetobatus flagellum</i>	Longhead Eagle Ray	EN
<i>Brevitrygon walga</i>	Scaly Whipray	NT
<i>Glaucostegus granulatus</i>	Sharpnose Guitarfish	CR
<i>Maculabatis randalli</i>	Arabian Banded Whipray	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.



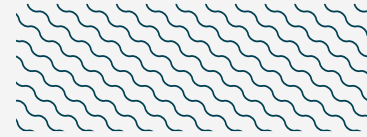


SUPPORTING INFORMATION

There are additional indications that Boubyan Island & Adjacent Rivers is an important area for range restricted species. These species were recorded in monthly trawl and gillnet surveys from February 2004 and March 2005 (Bishop et al. 2016). Data collected includes: 22 Arabian Carpetshark individuals (5% of all specimens and 38% of shark species); 137 Scaly Whiprays that were the second most abundant species in the catches (30% of all shark and ray catches) and were present at all sampled stations around Boubyan island; and six Sharpnose Guitarfish (1.3% of total catch) with Sharpnose Guitarfish also being reported anecdotally in shallow waters around the island in around 2003 (I Campbell pers. comm. 2023); and 34 Arabian Banded Whiprays representing 7% of all catches (Bishop et al. 2016). Further contemporary information is required to determine the regularity and predictability of these species in the area.

This area may also be important for the range-restricted Smoothtooth Blacktip Shark which only occurs in the Arabian Sea Large Marine Ecosystem. Smoothtooth Blacktip Shark may also use this area for reproductive purposes. Northern Kuwait is the only known location where pregnant individuals have been recorded (two in April 2011). The near-term pregnant females were present in spring (April). Immature individuals and mature males are also found in spring. Neonates are present in northern Kuwait for the first few months of their life in summer (August) (Moore et al. 2011; ABM Moore pers. obs.). Further information is required to demonstrate the regularity/predictability of the observations, alongside higher resolution spatial information.

Boubyan Island & Adjacent Rivers could also be an important reproductive area for Great Hammerhead (ABM Moore unpubl. data 2008). Four individuals which could be classed as neonates (72-76 cm TL) were recorded in Kuwait fish market in April 2008, along with 17 other young/immature individuals (103-214 cm TL). In addition, there are photographs of a very large female (>400 cm TL) dead on shore in Kuwait Bay, April 2009, indicative of possible pupping (D Almojil unpubl. data 2009). Further information is required to determine the regularity and predictability of these observations.



REFERENCES

- Bishop JM, Chen W, Alsaffar AH, Al-Foudari HM. 2011.** Indirect effects of salinity and temperature on Kuwait's shrimp stocks. *Estuaries and Coasts* 34: 1246–1254.
- Bishop JM, Moore ABM, Alsaffar AH, Abdul Ghaffar AR. 2016.** The distribution, diversity and abundance of elasmobranch fishes in a modified subtropical estuarine system in Kuwait. *Journal of Applied Ichthyology* 32: 75–82. <https://doi.org/10.1111/jai.12980>
- Çiçek E, Jawad L, Eagderi S, Esmaeili HR, Mouludi-Saleh AT, Sungur S, Fricke R. 2023.** Freshwater fishes of Iraq: a revised and updated annotated checklist—2023. *Zootaxa* 5357: 1–49.
- Convention on Biological Diversity (CBD). 2023.** Shatt Al-Arab Delta. Ecologically or Biologically Significant Areas (EBSAs). Available at: <https://chm.cbd.int/database/record?documentID=204004> Accessed October 2023.
- Jabado RW, Al Ghais SM, Hamza W, Robinson DP, Henderson AC. 2016.** Biological data from sharks landed within the United Arab Emirates artisanal fishery. *African Journal of Marine Science* 38(2): 217–232. <https://10.2989/1814232X.2016.1190789>
- Key Biodiversity Areas (KBA). 2023a.** Key Biodiversity Areas factsheet: Fao. Available at: <https://www.keybiodiversityareas.org/site/factsheet/32111> Accessed October 2023.
- Key Biodiversity Areas (KBA). 2023b.** Key Biodiversity Areas factsheet: Khawr Abdallah. Available at: <https://www.keybiodiversityareas.org/site/factsheet/8062> Accessed October 2023.
- Moore ABM. 2018.** Identification of critical habitat in a data-poor area for an Endangered aquatic apex predator. *Biological Conservation* 220: 161–169. <https://doi.org/10.1016/j.biocon.2018.02.013>
- Moore ABM, McDavitt M. 2009.** Arabian sharks and rays: Traditional use & cultural importance. *Shark Focus* 34: 6.
- Moore ABM, White WT, Ward RD, Naylor GJ, Peirce R. 2011.** Rediscovery and redescription of the smoothtooth blacktip shark, *Carcharhinus leiodon* (Carcharhinidae), from Kuwait, with notes on its possible conservation status. *Marine and Freshwater Research* 62: 528–539. <https://doi.org/10.1071/MF10159>
- Moore ABM, Ward RD, Peirce R. 2012.** Sharks of the Persian (Arabian) Gulf: a first annotated checklist (Chondrichthyes: Elasmobranchii). *Zootaxa* 3167: 1–16.
- Pirog A, Magalon H, Poirout T, Jaquemet S. 2019.** Reproductive biology, multiple paternity and polyandry of the bull shark *Carcharhinus leucas*. *Journal of Fish Biology* 95: 1195–206. <https://doi.org/10.1111/jfb.14118>
- Ramsar. 2023.** Mubarak Al-Kabeer Reserve. Ramsar Sites Information Service. Available at: <https://rsis.ramsar.org/ris/2239> Accessed September 2023.
- Rigby CL, Espinoza M, Derrick D, Pacoureaux N, Dicken M. 2021.** *Carcharhinus leucas*. *The IUCN Red List of Threatened Species* 2021: e.T39372A2910670. <https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T39372A2910670.en>
- UNESCO. 2017.** The Ahwar of Southern Iraq: Refuge of Biodiversity and the Relict Landscape of the Mesopotamian Cities. Available at <https://whc.unesco.org/en/list/1481/> Accessed August 2023.