

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

## ABKOUHI-BIAHI ISRA

### Western Indian Ocean Region

#### SUMMARY

Abkouhi-Biahi is part of the Iranian Exclusive Economic Zone in the eastern Gulf of Oman. It mainly comprises the continental shelf waters of east Hormozgan Province and a marginal amount of the western boundary of Sistan-and-Baluchestan Province. The area is characterised by an estuary and rocky and sandy substates. Within this area there are: **threatened species** (e.g., Sharptooth Lemon Shark *Negaprion acutidens*); **range restricted species** (Sharpnose Guitarfish *Glaucostegus granulatus*); **reproductive areas** (Sharptooth Lemon Shark); and **undefined aggregations** (Sharpnose Guitarfish).

#### CRITERIA

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

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<b>IRAN</b>	—
—	—
<b>0-80 metres</b>	—
—	—
<b>859.21 km<sup>2</sup></b>	—
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## DESCRIPTION OF HABITAT

Abkouhi-Biahi is part of the Iranian Exclusive Economic Zone in the eastern Gulf of Oman. The area mainly comprises the continental shelf waters of east Hormozgan Province and a marginal amount of the western boundary of Sistan-and-Baluchestan Province. The Rapch Estuary at the east of the area is the only Iranian estuary along the Iranian coastline of the Gulf of Oman without mangroves (Naderloo et al. 2023).

Nutrient-rich Arabian Sea upwelling currents that mainly influence the Omani coast at the southern Gulf of Oman also affect Iranian coastal habitats, including this area, leading to planktonic blooms (IFSRI 2009; Ershadifar et al. 2022).

This Important Shark and Ray Area is benthopelagic and is delineated from inshore and surface waters (0 m) to 80 m based on 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 Sharpnose Guitarfish (Kyne et al. 2022) and the Endangered Sharptooth Lemon Shark (Simpfendorfer et al. 2021).

### CRITERION B – RANGE RESTRICTED

This area holds the regular presence of Sharpnose Guitarfish as a resident range-restricted species. Sharpnose Guitarfish represented 6% (n = 54) of rays caught by demersal gillnets during the monitoring of landings in 2022-2023 (M Rezaie-Atagholipour unpubl. data 2022-2023). Also during that period, a mean of >100 individuals per day were observed in catches during artisanal surveys from fisheries operating in the area, while in other parts of Iran, much smaller numbers of individuals were observed (M Rezaie-Atagholipour unpubl. data 2022-2023). During interviews, 45 of 85 fishers working at the landing site confirmed the landed species were captured in the area, with fishing grounds reaching 18.5 km seaward. This species occurs in the Arabian Sea Large Marine Ecosystem (LME) and the Bay of Bengal LME.

### SUB-CRITERION C1 – REPRODUCTIVE AREAS

Abkouhi-Biahi is an important reproductive area for one shark species. During shark and ray surveys once a year in 2022 and 2023, sharks were examined at the landing sites of fishers operating in the area, and 85 fishers were interviewed to collect ecological information (M Rezaie-Atagholipour unpubl. data 2022-2023).

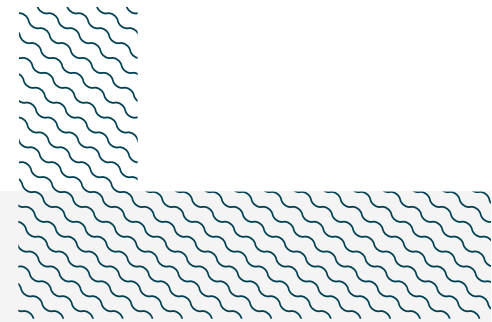
During interview-based surveys in 2023, a fisher shared a photo of his boat full of small Sharptooth Lemon Sharks (>20 specimens) from Rapch (Karati) Estuary in the eastern part of the area, which were estimated to have a size of <50 cm total length (TL). Four other 60-70 cm TL juveniles were also observed landed together in a nearby landing site (Bandar-e-Darak) in 2019 (HR Bargahi pers. obs 2023). Subsequent interviews with four other fishers in 2023 confirmed that similar catches regularly occur in estuarine habitat of the area from April to July. Size-at-birth of this species is 45-

80 cm TL (Ebert et al. 2021) and therefore the observations above were assumed to represent neonates and/or young-of-the-year.

## SUB-CRITERION C5 - UNDEFINED AGGREGATIONS

Abkouhi-Biahi is an important area for undefined aggregations for one species of ray.

During landing site surveys, the number of landed Sharpnose Guitarfish in one of the landing sites inside the area (Biâhi) was considerable (i.e., a mean of >100/day recorded during three days of surveys in 2022 and 2023, with a range of 5-10 individuals per boat; M Rezaie-Atagholipour unpubl. data 2022-2023), while in other landings sites in the area (Googsar, Abkouhi, and Bahal), no more than seven individuals were observed per day (range = 1-7). A sample of 31 individuals was randomly examined with a sex ratio of 7 female: 1 male. All examined males were mature (based on their clasper stage), and all examined females were >117 cm TL (range, 117-178 cm TL). Therefore, based on the size-at-maturity of this species (i.e., ~98 cm TL for males; Last et al. 2016), the animals were assumed to be mature. Further information is needed to understand the function of these aggregations.



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### Suggested citation

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## QUALIFYING SPECIES

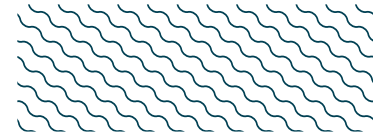
Scientific Name	Common Name	IUCN Red List Category	Global Depth Range (m)	ISRA Criteria/Sub-criteria Met									
				A	B	C1	C2	C3	C4	C5	D1	D2	
<b>SHARKS</b>													
<i>Negaprion acutidens</i>	Sharptooth Lemon Shark	EN	0-90	X		X							
<b>RAYES</b>													
<i>Glaucostegus granulatus</i>	Sharpnose Guitarfish	CR	0-120	X	X						X		

## SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
<b>SHARKS</b>		
<i>Carcharhinus sorrah</i>	Spottail Shark	NT
<i>Chiloscyllium arabicum</i>	Arabian Carpetshark	NT
<i>Iago omanensis</i>	Bigeye Houndshark	LC
<i>Loxodon macrorhinus</i>	Sliteye Shark	NT
<i>Rhizoprionodon acutus</i>	Milk Shark	VU
<i>Rhizoprionodon oligolinx</i>	Grey Sharpnose Shark	NT
<i>Sphyrna lewini</i>	Scalloped Hammerhead	CR
<b>RAYS</b>		
<i>Aetobatus flagellum</i>	Longhead Eagle Ray	EN
<i>Aetobatus ocellatus</i>	Spotted Eagle Ray	EN
<i>Aetomylaeus milvus</i>	Ocellate Eagle Ray	EN
<i>Aetomylaeus wafickii</i>	Wafic's Eagle Ray	NE
<i>Brevitrygon walga</i>	Scaly Whipray	NT
<i>Glaucostegus halavi</i>	Halavi Guitarfish	CR
<i>Glaucostegus obtusus</i>	Widenose Guitarfish	CR
<i>Gymnura poecilura</i>	Longtail Butterfly Ray	VU
<i>Himantura leoparda</i>	Leopard Whipray	EN
<i>Himantura uarnak</i>	Coach Whipray	EN
<i>Maculabatis arabica</i>	Pakistan Whipray	CR
<i>Maculabatis gerrardi</i>	Whitespotted Whipray	EN
<i>Maculabatis randalli</i>	Arabian Banded Whipray	LC
<i>Neotrygon caerulopunctata</i>	Bluespotted Maskray	LC
<i>Pastinachus ater</i>	Broad Cowtail Ray	VU
<i>Pastinachus sephen</i>	Cowtail Ray	NT
<i>Rhinoptera jayakari</i>	Oman Cownose Ray	EN
<i>Taeniurops meyeri</i>	Blotched Fantail Ray	VU
<i>Torpedo sinuspersici</i>	Gulf Torpedo	DD
<i>Urogyrnus asperrimus</i>	Porcupine Ray	EN

IUCN Red List of Threatened Species Categories are available by searching species names at [www.iucnredlist.org](http://www.iucnredlist.org) Abbreviations refer to: CR, Critically Endangered; EN, Endangered; VU, Vulnerable; NT, Near Threatened; LC, Least Concern; DD, Data Deficient; NE, Not Evaluated.

## SUPPORTING INFORMATION



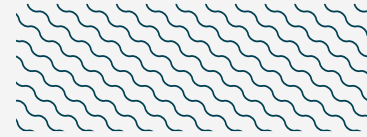
There are additional indications that the area may be important for another two shark and three ray species. More evidence is needed to confirm the importance of the area for these species.

Arabian Carpetshark comprised 8% (n = 362) of shark and ray catch composition in the area from fleets whose fishing activities had been recorded using GPS between 2009–2019 (HR Bargahi unpubl. data 2023).

During interviews, fishers were shown illustrations of Scalloped Hammerheads, among other species illustrations, on identification cards. Four of the nine fishers interviewed in Abkouhi village next to Rapch (Karati) Estuary reported that they catch Scalloped Hammerheads <100 cm TL inside the estuary every year from April to June (M Rezaie-Atagholipour unpubl. data 2022–2023). Due to Scalloped Hammerhead's specific habit of using estuaries and mangroves as nursery grounds (e.g., Duncan and Holland 2006; Yates et al. 2015), and also four juvenile Scalloped Hammerheads with a mean size of 90 cm TL that were previously observed in the same estuary (HR Bargahi pers. obs. 2023), it is assumed that the species mentioned by fishers were Scalloped Hammerhead. Due to the size-at-birth of Scalloped Hammerhead (31–57 cm TL; Ebert et al. 2021), individuals with a size <100 cm TL were assumed to be in early life stages (i.e., young-of-the-year).

Based on research trawl and landing site surveys (A Rastgoo unpubl. data 2017; M Rezaie-Atagholipour unpubl. data 2022–2023), Scaly Whipray represented 4% (n = 37) of landed rays caught by demersal gillnets and 16% (n = 147) of rays incidentally captured in trawl surveys; Arabian Banded Whipray represented 54% (n = 524) of landed rays caught by demersal gillnets and 40% (n = 371) of rays incidentally captured in trawl surveys; and Cowtail Ray represented 9% (n = 85) of landed rays caught by demersal gillnets and 4% (n = 41) of rays incidentally captured in trawl surveys.

During landing site surveys in 2022 and 2023, the number of landed pregnant Cowtail Rays in one of the landing sites inside the area (Abkouhi village) was considerable. The landing site was surveyed for six days in both years, and handled Cowtail Rays aborting near-term embryos were regularly observed every time the landing sites were surveyed. In a single day, 38 Cowtail Rays were examined from the landings, of which 18 (47%) were females, and 50% of these females (n = 9) were pregnant. The fishers stated they caught the rays 0.1 to 18.5 km seaward of the village beach.



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