

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

## GULF OF FONSECA ISRA

### Central and South American Pacific Region

#### SUMMARY

Gulf of Fonseca is a transboundary shallow sedimentary estuarine ecosystem under the jurisdiction of El Salvador, Honduras, and Nicaragua. The area includes 33 islands and 30 Marine Protected Areas. The key coastal habitats are wetlands and mangrove forests, which have supported the declaration of the area as a Wetland of International Importance (Ramsar site). Its ecological importance is linked to the size of the estuarine complex, mangrove zone, and its proximity to areas with high concentrations of nutrients (seasonal upwellings and seamounts). Within this area there are: **threatened species** (e.g., Scalloped Hammerhead *Sphyrna lewini*); **range-restricted species** (Pacific Chupare *Styracura pacifica*); **reproductive areas** (Scalloped Hammerhead); and **undefined aggregations** (Pacific Cownose Ray *Rhinoptera steindachneri*).

#### CRITERIA

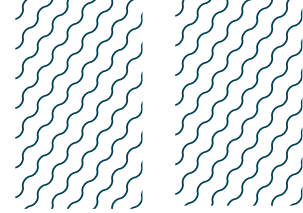
**Criterion A - Vulnerability; Criterion B - Range Restricted; Sub-criterion C1 - Reproductive Areas; Sub-criterion C5 - Undefined Aggregations**

— —  
**EL SALVADOR**  
**HONDURAS**  
**NICARAGUA**  
 — —

— —  
**0-35 metres**  
 — —

— —  
**2,124 km<sup>2</sup>**  
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## DESCRIPTION OF HABITAT

Gulf of Fonseca is a coastal ecosystem shared by El Salvador (La Unión Department), Honduras (Valle and Choluteca Departments), and Nicaragua (Chinandega Department). Situated within the Pacific Central-American Large Marine Ecosystem (LME), the area is a large semi-enclosed bay covering 2,124 km<sup>2</sup> and includes 33 islands and 30 Marine Protected Areas (15 in El Salvador, nine in Honduras, and six in Nicaragua) (BCIE 2022). The gulf is a tropical estuarine system of shallow waters (average depth ~15 m) made up of interrelated ecosystems (estuaries, mangroves, marshes, swamps, and continental coastlines), with a ~40 km opening to the Pacific Ocean (Valle-Levinson & Bosley 2003).

The gulf receives water from six main river catchments (two of which are transboundary) and other smaller rivers and creeks. The most important are the Choluteca River in Honduras and the Goascorán river between El Salvador and Honduras which has large seasonal variability in discharge rates. This variability triggers complex water circulation inside the gulf characterised by a seasonal reversal behaviour. During the dry season, from November to April, there is inverse estuarine circulation (near-surface water entering the gulf and near-bottom waters leaving the gulf) where salinity increases into the estuary. In contrast, during the wet season, from May to October, the increased river discharge rate reduces the salinity in the estuary, and the circulation reverses to a typical estuary (near-surface outflow and near-bottom inflow). The water circulation pattern has an important impact on the water quality inside the gulf, holding buoyant materials inside the gulf and limiting the flushing capacity of the system during the dry season. The Gulf of Fonseca has a semidiurnal tidal movement with an average tidal range of 2.5 m (Valle-Levinson & Bosley 2003).

The key coastal habitats in the area are wetlands and mangrove forests. Its ecological importance is linked to the size of the estuarine complex, mangrove zone, and its proximity to areas with high concentrations of nutrients (seasonal upwellings and seamounts), providing spawning, nursery, and feeding areas for a broad range of fishes and mollusc species. The area was declared a Wetland of International Importance (Ramsar site) in 1999 (SISR 2021).

This Important Shark and Ray Area is delineated from inshore and surface waters (0 m) to a depth of 35 m based on the depth in which artisanal fisheries operate in the area and which capture the Qualifying Species.

## 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 Scalloped Hammerhead (Rigby et al. 2019), and the Vulnerable Pacific Chupare (Kyne et al. 2020).

### CRITERION B - RANGE RESTRICTED

Gulf of Fonseca holds the regular presence of the Pacific Chupare as a resident range-restricted species. The species occurs year-round in the area and is regularly caught in local fisheries (E. Augustinus unpubl. data 2019). The species occurs primarily in the Pacific Central-American Coastal LME but also occurs in the Galapagos Islands (Kyne et al. 2020).



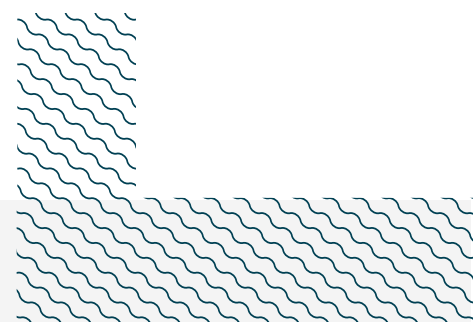
## SUB-CRITERION C<sub>1</sub> – REPRODUCTIVE AREAS

Gulf of Fonseca is an important reproductive area for one shark species. Neonate and juvenile Scalloped Hammerheads are regularly caught in the Gulf of Fonseca throughout the year (Box et al. 2012). According to anecdotal information from fishers, large individuals are rarely caught.

Scalloped Hammerheads are the dominant shark species captured in this area. The average size landed in the community of El Sope, Honduras, between October 2009 and October 2011, was 50.4 ± 0.5 cm total length (TL) (n = 271) (Box et al. 2012). In the communities of Playa Grande and Gran Novillo in Honduras, all Scalloped Hammerheads landed in September were young-of-the-year averaging 64.3 cm TL (n = 20) (Ochoa et al. 2018). Landings in the community of Zapote, Amapala, show an average size of 46.9 cm TL (n = 58) (Núñez n.d.). The size-at-birth for Scalloped Hammerheads has been reported to be between 40–61.6 cm TL (Anislado-Tolentino & Robinson-Mendoza 2001). Furthermore, fisheries landing data from 26 surveyed artisanal vessels (April–October 2009), show Scalloped Hammerhead in the catch with an average size of 50.2 cm TL (n = 5) in April and 67.2 cm TL (n = 11) in October (OSPESCA 2011).

## SUB-CRITERION C<sub>5</sub> – UNDEFINED AGGREGATIONS

Gulf of Fonseca is an important area for aggregations of one ray species. Hundreds of Pacific Cownose Rays are regularly observed in very shallow areas close to mangroves by fishers during February in Chismuyo Bay, Honduras (Raul Alvarenga pers. comm. 2017). The purpose of these aggregations is currently unknown. The presence of Pacific Cownose Rays in the Gulf of Fonseca is also reported in la Fondeadita, El Salvador (Chicas-Batres et al. 2012).



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### Acknowledgments

Ely Augustinus (Ilili), Gabriela Ochoa (Ilili), Grettel Hernández (Universidad Nacional Autónoma de Nicaragua, UNAN-León), and Amanda Batlle Morera (IUCN SSC Shark Specialist Group - ISRA Project) contributed and consolidated information included in this factsheet. We thank the participants of the 2022 ISRA Region 12 – Central and South American Pacific workshop for their contributions to this process.

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### Suggested citation

IUCN SSC Shark Specialist Group. 2023. Gulf of Fonseca ISRA Factsheet. Dubai: IUCN SSC Shark Specialist Group.

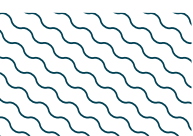
## QUALIFYING SPECIES

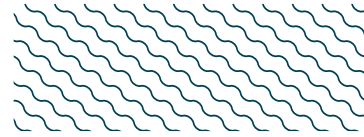
Scientific Name	Common Name	IUCN Red List Category	Global Depth Range (m)	ISRA Criteria/Sub-criteria Met									
				A	B	C1	C2	C3	C4	C5	D1	D2	
<b>SHARKS</b>													
<i>Sphyrna lewini</i>	Scalloped Hammerhead	CR	0-1,043	X		X							
<b>RAYs</b>													
<i>Rhinoptera steindachneri</i>	Pacific Cownose Ray	NT	0-65								X		
<i>Styracura pacifica</i>	Pacific Chupare	VU	0-30	X	X								

## SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
<b>SHARKS</b>		
<i>Carcharhinus leucas</i>	Bull Shark	VU
<i>Carcharhinus limbatus</i>	Blacktip Shark	VU
<i>Ginglymostoma unami</i>	Pacific Nurse Shark	EN
<i>Rhizoprionodon longurio</i>	Pacific Sharpnose Shark	VU
<i>Sphyrna corona</i>	Scalloped Bonnethead	CR
<i>Sphyrna media</i>	Scoophead Shark	CR
<i>Sphyrna tiburo</i>	Bonnethead Shark	EN
<b>RAYS</b>		
<i>Aetobatus laticeps</i>	Pacific Eagle Ray	VU
<i>Gymnura crebripunctata</i>	Mazatlán Butterfly Ray	NT
<i>Hypanus longus</i>	Longtail Stingray	VU
<i>Mobula thurstoni</i>	Bentfin Devil Ray	EN
<i>Narcine vermiculatus</i>	Vermiculate Numbfish	LC
<i>Pseudobatos leucorhynchus</i>	Whitesnout Guitarfish	VU
<i>Urotrygon chilensis</i>	Blotched Round Ray	NT

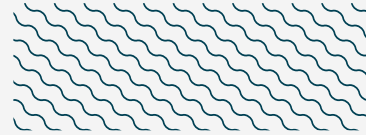
IUCN Red List categories: CR, Critically Endangered; EN, Endangered; VU, Vulnerable; NT, Near Threatened; LC, Least Concern; DD, Data Deficient.





## SUPPORTING INFORMATION

There are additional indications that this area is important for the reproductive purposes of three ray species. Pregnant female Pacific Chupare, Mazatlán Butterfly Ray (n = 5), and Pacific Eagle Ray (n = 4) with embryos at different stages of development have been recorded from landings, particularly during the month of September (E. Augustinus unpubl. data. 2019). Local fishers suggest that these species reproduce in the gulf and that the main area used is located on the border between Honduras and Nicaragua. However, further evidence on the importance of the area to these species' reproduction is needed.



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