

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

PUNTA CHAME AND PANAMA BAY ISRA

Central and South American Pacific Region

SUMMARY

Punta Chame and Panama Bay comprises two distinct sections in the northern Gulf of Panama which are separated by Panama City and the Panama Canal. This area includes the Panama Bay Wetland of International Importance (Ramsar site) and a diversity of habitats including coastal mangroves and extensive mudflats with corresponding high fish diversity. Oceanographic features strongly influence the area, including periods of coastal upwelling which produce seasonal fluctuations in marine productivity. Within this area there are: **threatened species** (e.g., Southern Banded Guitarfish *Zapteryx zyster*); **range-restricted species** (Southern Banded Guitarfish); and **reproductive areas** (Scalloped Hammerhead *Sphyrna lewini*).

CRITERIA

Criterion A - Vulnerability; Criterion B - Range Restricted; Sub-criterion C1 - Reproductive Areas

—	—
PANAMA	—
—	—
0-30 metres	—
—	—
2,623 km²	—
—	—





DESCRIPTION OF HABITAT

Punta Chame and Panama Bay is located in the Pacific Central-American Coastal Large Marine Ecosystem (LME) in the Panama Oeste and Panama provinces. The two disjunct sections of the area are separated by Panama City and the Panama Canal. Due to development and urbanisation, this central location does not support the same habitats as Punta Chame and Panama Bay that have similar habitat characteristics due to their close proximity. The area sits within the Corredor Marino del Pacífico Oriental tropical Ecologically or Biologically Significant Marine Area (EBSA).

Punta Chame is characterised by shallow inshore waters, including Chame Bay, with extensive mud and sand flats, mangroves, sandy beaches, and shallow marine waters. The area is influenced by four rivers (Capira, Salado, Sajalices, and Chame) that provide an important contribution of sediment. The mangroves of Punta Chame cover some 59.6 km² with an extension of 39 km² of mudflats (Angehr 2003). The area includes the islands Isla Otoque and Isla Boná in the Gulf of Panama. The Punta Chame section extends out to the 30 m depth contour.

Panama Bay is characterised by varying habitats, including extensive mangroves, flats, estuaries, freshwater marshes, and shallow marine waters between Panama City and the Gulf of San Miguel. It is a Wetland of International Importance (a Ramsar site). The area includes 297 km² of mangroves, representing 21% of the mangroves of the Pacific coast of Panama (Kaufmann 2012). Between December and April, the region experiences an intense seasonal upwelling that promotes high productivity (D’Croze et al. 1991). The substrate in Panama Bay has a high density of marine invertebrates as well as a relatively high detritus load which supports the local food web. Because of the great diversity of fish species (at least 177 species), as well as invertebrates, there is great complexity in terms of trophic relationships (Ramsar 2020). Mangroves within the area are important egg-laying habitat for fishes such as Pacific Anchoveta *Cetengraulis mysticetus* (D’Croze 1985). The Panama Bay section extends out to the 20 m depth contour.

This Important Shark and Ray Area is delineated from surface and inshore waters (0 m) to a depth of 30 m based on the depths of 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 Scalloped Hammerhead (Rigby et al. 2019) and the Vulnerable Southern Banded Guitarfish (Kyne et al. 2020).

CRITERION B – RANGE RESTRICTED

This area holds the regular presence of the Southern Banded Guitarfish as a resident range-restricted species. This species occurs year-round in the area and is regularly encountered and caught in local fisheries, particularly trawls and purse seines in coastal habitats (YN Rodríguez-Arriatti unpubl. data 2022). The species occurs primarily in the Pacific Central-American Coastal LME and its distribution only marginally extends into the Humboldt Current LME.



SUB-CRITERION C₁ – REPRODUCTIVE AREAS

Punta Chame is an important reproductive area for one shark species. Pupping and nursery grounds for Scalloped Hammerheads have been documented along with gravid females visiting the area seasonally (YN Rodríguez-Arriatti et al. unpubl. data 2022). Traditional ecological knowledge of local fishers indicates that there is an annual influx of large Scalloped Hammerheads in the area between February and May, which coincides with an increased presence of neonate and juvenile sharks, indicating that these sharks arrive at the site to give birth.

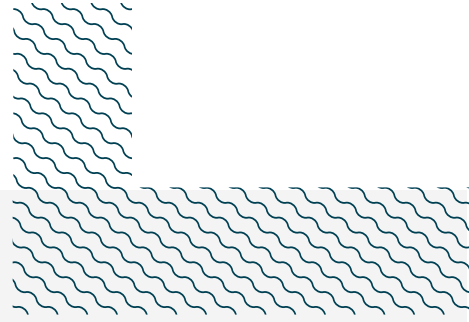
The high level of captured neonates and young-of-the-year in local fisheries and fishery-independent surveys have supported the area's importance for parturition. Of 232 conventionally tagged individuals, 99% were young-of-the-year (average length: 53.4 cm total length [TL]), where the average reported birth length was 47.5 cm TL (YN Rodríguez-Arriatti et al. unpubl. data 2022). Examination of umbilical scars (following Duncan & Holland 2006) was used to assess whether sharks were neonates, with the presence of an open umbilical scar confirming an individual was a neonate.

The nursery area in Punta Chame was found to be in an exposed area, and not within Chame Bay itself (YN Rodríguez-Arriatti et al. unpubl. data 2022). This seems to be contradictory to the assumption that mangroves are ideal nursery areas for Scalloped Hammerhead. This situation has been reported for other shark species in Florida, USA (Blacktip Shark *Carcharhinus limbatus*) where other factors seem to be the drivers for a site to act as a nursery area (Heupel & Hueter 2002). It is likely that the highly productive and turbid waters of Punta Chame provide protection from predators and ample nutritional resources for young Scalloped Hammerhead.

Further supporting evidence of the area as a pupping site is a study conducted by the Charles Darwin Foundation where a satellite tagged gravid female Scalloped Hammerhead was tracked leaving Galapagos Islands and arriving very close to Punta Chame presumably to give birth before then returning to Galapagos (Salinas de León 2021).

For Panama Bay, preliminary results from an onboard observer project with PROMARINA (a company dedicated to purse seine fishing for small pelagic fishes in various points of the Bay of Panama) report the presence of Scalloped Hammerhead as the most common shark species where all individuals reported are neonates and young-of-the-year, many of which have open umbilical scars, indicating that they were born in the sites where they were caught (YN Rodríguez-Arriatti et al. unpubl. data 2022).





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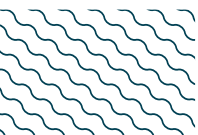
QUALIFYING SPECIES

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
SHARKS											
<i>Sphyrna lewini</i>	Scalloped Hammerhead	CR	0-1,043	X		X					
RAYs											
<i>Zapteryx xyster</i>	Southern Banded Guitarfish	VU	1-150	X	X						

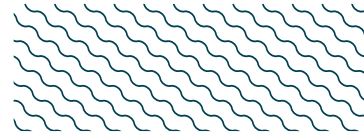
SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
SHARKS		
<i>Carcharhinus galapagensis</i>	Galapagos Shark	NT
<i>Galeocerdo cuvier</i>	Tiger Shark	NT
<i>Rhincodon typus</i>	Whale Shark	EN
<i>Rhizoprionodon longurio</i>	Pacific Sharpnose Shark	VU
<i>Sphyrna corona</i>	Scalloped Bonnethead	CR
<i>Sphyrna media</i>	Scoophead Shark	CR
RAYS		
<i>Aetobatus laticeps</i>	Pacific Eagle Ray	VU
<i>Hypanus dipterus</i>	Diamond Stingray	VU
<i>Hypanus longus</i>	Longtail Stingray	VU
<i>Mobula munkiana</i>	Munk's Pygmy Devil Ray	VU
<i>Narcine entemedor</i>	Cortez Numbfish	VU
<i>Pseudobatos leucorhynchus</i>	Whitesnout Guitarfish	VU
<i>Rhinoptera steindachneri</i>	Pacific Cownose Ray	NT
<i>Styracura pacifica</i>	Pacific Chupare	VU
<i>Urotrygon aspidura</i>	Spinytail Round Ray	NT
<i>Urotrygon rogersi</i>	Rogers' Round Ray	DD

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



SUPPORTING INFORMATION

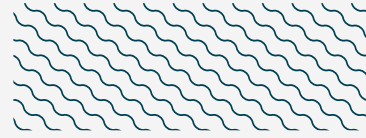


There are additional indications that this area is important for other shark species.

Punta Chame may be a nursery area for Pacific Sharpnose Shark *Rhizoprionodon longurio* and Scalloped Bonnethead *Sphyrna corona* as individuals with open umbilical scars have been observed (YN Rodríguez-Arriatti unpubl. data 2022). However, only a very small number of individuals were recorded during sampling and further information is needed to confirm if nursery areas occur in this area for these species (and potentially others).

Local fishers have also reported the presence of Whale Sharks likely feeding or resting. This occurrence seems to be seasonal and has been evidenced by videos and photos mainly around the islands of Otoque, Boná, and Estiva (YN Rodríguez-Arriatti pers. obs. 2022).





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