

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

MANUKAU HARBOUR ISRA

New Zealand & Pacific Islands Region

SUMMARY

Manukau Harbour is located on northwest of the North Island of New Zealand. The area is a large, drowned river system. It is characterised by the presence of extensive intertidal sandflats in the central basin, deep muddy channels and muddy tidal creeks and headwaters. The area is influenced by strong tidal currents in the channels and wind driven circulation in the central basin. The area overlaps with the Manukau Harbour Key Biodiversity Area. Within this area there are: **threatened species** (e.g., White Shark *Carcharodon carcharias*) and **reproductive areas** (e.g., Tope *Galeorhinus galeus*).

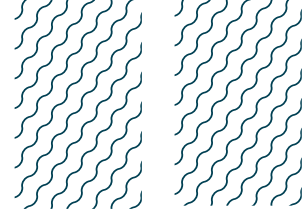
CRITERIA

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

NEW ZEALAND

0-50 metres

350.4 km²



DESCRIPTION OF HABITAT

Manukau Harbour is located on the upper west coast of the North Island of New Zealand (Hume et al. 2016). The area is a large, drowned river system. This is the second largest harbour on the west coast of the North Island. The 2 km wide mouth connects the harbour with the Tasman Sea and is fixed in position, constrained to the opening between the headlands at the end of Āwhitu Peninsula and the southern end of Waitākere Ranges (Bell et al. 1997, 1998; Kelly 2008). The harbour has three main arms: Māngere Inlet at the northeast, Papakura Channel in the southeast and the Waiuku River in the southwest. The area is characterised by the presence of extensive intertidal sandflats in the central basin, deep muddy channels and muddy tidal inlets and headwaters. The latter are lined by mangroves and relict salt marshes (Bell et al. 1997; Greenfield et al. 2019). Maximum depths (~50 m) occur in the entrance off Paratutae Island and along Huia Bank. Depths in the arms range from ~1-30 m. Circulation is dominated by tides, but wind-generated circulation and sediment resuspension by waves are important in the large central basin (Bell et al. 1998; Hume et al. 2016).

The area overlaps with the Manukau Harbour Key Biodiversity Area (KBA 2024).

This Important Shark and Ray Area is benthic and pelagic and is delineated from inshore and surface waters (0 m) to 50 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 Tope (Walker et al. 2020) and the Vulnerable White Shark (Rigby et al. 2019).

SUB-CRITERION C₁ – REPRODUCTIVE AREAS

Manukau Harbour is an important reproductive area for two shark species.

Between 1965–2020, 46 records of White Sharks from Manukau Harbour were obtained from media reports, interviews with fishers, direct observations by researchers, and social media (Finucci & Ó Maolagáin 2022; CAJ Duffy unpubl. data 2024). Of these records, 37% (n = 17) were recorded between 2000–2020. For 20 sharks, sizes were visually estimated and ranged from 150–610 cm total length (TL) (average = 346 cm TL). For another 11 sharks, with sizes measured from caught individuals, estimated from length-weight relationships and estimated from a picture, average size was 250 cm TL (range 159–424 cm TL). Estimated size-at-birth for the species in the area is ~152 cm TL, while for young-of-the-year (YOY) it is ~180 cm TL (Finucci & Ó Maolagáin 2022), confirming that some of the individuals observed were YOY and small juveniles. YOY have been recorded as recently as November 2024 (CAJ Duffy pers. obs. 2024). White Sharks have been recorded in the harbour during every month except July, with 84% of records occurring from December–April and 50% from January and February. Satellite tagging of a 218 cm TL male indicates that the shark remained in Manukau Harbour for a month before its tag released (CAJ Duffy unpubl. data 2024). Further, a 240 cm TL juvenile female caught, and satellite tagged in 2011 left the harbour immediately upon release. Similar sized juveniles tagged in Kaipara Harbour exhibited several weeks temporary residency in the harbour, long-shelf movements to the North Taranaki Bight and shelf off Ninety Mile Beach and Cape Maria Van Dieman followed by return to Kaipara Harbour or offshore migration (CAJ Duffy

unpubl. data 2024). No pregnant females have been recorded in the area.

Between February 2008–February 2013, researchers caught 86 Tope on hook and line in Manukau Harbour, mainly in Papakura Channel at depths of 3–27 m (Hernández Muñoz 2013; S. Hernández & CAJ Duffy unpubl. data 2024). Eighty-five of the individuals measured 31.5–55.5 cm TL (average 39.6 cm TL) and were determined to be neonates or YOY. Of these 83 (31.5–45 cm TL) were caught in February, and two (52 and 55.5 cm TL) were caught in November. Only a single female caught off Graham’s Beach exceeded 60 cm TL (measuring 150 cm TL). Most Tope caught in Papakura and Wairopa Channels during surveys in 2006–2007 were less than 40 cm TL (N Hannam pers. comm. 2024). Reported size for YOY in New Zealand is 50 cm TL (Francis & Mulligan 1998). YOY are still caught regularly in the area (CAJ Duffy pers. obs. 2024). Pregnant females have been recorded in Papakura and Wairopa Channels (Hernández et al. 2014; N Hannam pers. comm. 2024).

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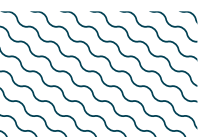
QUALIFYING SPECIES

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
SHARKS												
<i>Carcharodon carcharias</i>	White Shark	VU	0–1,277	X		X						
<i>Galeorhinus galeus</i>	Tope	CR	0–826	X		X						

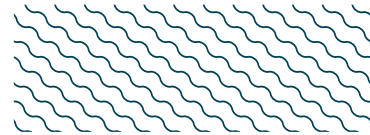
SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
SHARKS		
<i>Carcharhinus brachyurus</i>	Copper Shark	VU
<i>Mustelus lenticulatus</i>	Rig	LC
<i>Notorynchus cepedianus</i>	Broadnose Sevengill Shark	VU
<i>Sphyrna zygaena</i>	Smooth Hammerhead	VU
RAYS		
<i>Bathytoshia brevicaudata</i>	Smooth Stingray	LC
<i>Myliobatis tenuicaudatus</i>	Southern Eagle Ray	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 Manukau Harbour may be important for a range-restricted shark, for the reproductive purposes of two shark species, and for feeding of one ray species.

Rig have been regularly recorded in the area for more than 70 years (Fisheries New Zealand 2024). Pregnant females Rig have been reported to enter the harbour during spring to give birth (Blackwell & Francis 2010; Francis et al. 2012). This seasonal presence of pregnant females has triggered a target fishery using set nets that has operated since the 1940s and it is one of the most important target fisheries for the species in New Zealand (Blackwell & Francis 2010; Fisheries New Zealand 2024). Between 2006-2023, reported annual commercial catch of Rig from the area ranged from 1,138–8,312 kg (Fisheries New Zealand 2024). Further, the presence of neonates and YOY Rig has been confirmed from net surveys conducted in 2001 and 2011 (Hendry 2004; Francis et al. 2012). From surveys conducted in 2011, three of the six Rig caught were classified as YOY based on their body size as they measured <50 cm TL. Size-at-birth for this species is 20–32 cm TL (Ebert et al. 2021) and YOY have been estimated as sharks <45 cm TL in the area (Francis & Francis 1992). The low number of YOYs recorded during these surveys is likely a reflection of the limited sampling rather than a true reflection of the abundances of these life stages in the area. Males enter harbours such as Manukau Harbour first so that they can mate with females that enter the harbour in spring to give birth. The juveniles spend their first 6–8 months of life in estuaries and harbours before departing for deeper water in autumn–winter (Blackwell & Francis 2010; Francis et al. 2012). Additional information is needed to confirm the importance of the area in relation to other areas in the region

Pregnant female Copper Shark containing near-term embryos have been caught in the area, with neonates and YOY observed in the shallow flats in summer (Tindale Marine Research Charitable Trust 2019, 2021).

Juveniles Smooth Hammerhead have also been recorded in Manukau Harbour (CAJ Duffy unpubl. data 2024). Total lengths of six individuals caught in Papakura and Waiuku Channels between 2008–2011 ranged from 50–100 cm TL. A 60.5 cm TL male and 74 cm TL male had faint umbilical scars. Reported size-at-birth for the species is 49–63 cm TL (Ebert et al. 2021). Additional information is needed to confirm the reproductive importance of the area.

Southern Eagle Rays are abundant in the harbour and play a seasonally important role in structuring intertidal benthic communities (Thrush et al. 1994; Hines et al. 1997). More information is needed to confirm the feeding importance of the area.

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