

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

MEKONG DEEP POOLS ISRA

Asia Region

SUMMARY

Mekong Deep Pools is located in the main channel of the Mekong River in northern Cambodia. The area is an ~60 km stretch of the broader deep pool system around the confluence of the 3S River Basin. The habitat consists of a series of deep pools with slower water flow than shallower reaches of the river. The banks of the area include riparian vegetation. Rainfall influencing this area is seasonally dynamic and the water is highly turbid year-round. Within this area there are: **threatened species** and **distinctive attributes** (Giant Freshwater Whipray *Urogymnus polylepis*).

CRITERIA

Criterion A - Vulnerability; Sub-criterion D1 - Distinctiveness

CAMBODIA

0-75 metres

150.08 km²





DESCRIPTION OF HABITAT

Mekong Deep Pools is located at the confluence of the 3S Rivers (comprising the Sekong, Sesan, and Srepok Rivers) in Cambodia. The area is an ~60 km stretch of the broader deep pool system (~170 km) of the upper Cambodian Mekong, below the Sipandone (four thousand Islands) region in southern Laos (Chan et al. 2005).

The 3S River basin drains into the Mekong main channel. The Mekong River flows from the Tibetan Plateau through China, Myanmar, Laos, Thailand, Cambodia, and Vietnam where it enters the South China Sea. The pools are deep sections of the river of ecological importance (Lee et al. 2023). The deep pools are more stable throughout the year than shallower parts of the river which can shift dynamically with the northeast monsoon. Their depth can reach 75 m. Rainfall influencing this area is seasonally dynamic and the water condition in the Mekong Deep Pools is highly turbid year-round, though flow velocity is reduced compared to shallower reaches of the river (Chan et al. 2005). The banks of the area include riparian vegetation.

This Important Shark and Ray Area is benthic and is delineated from surface waters (0 m) to 75 m based on the bathymetry of the area.

ISRA CRITERIA

CRITERION A – VULNERABILITY

One Qualifying Species within the area is considered threatened with extinction according to the IUCN Red List of Threatened Species. The Giant Freshwater Whipray is assessed as Endangered (Grant et al. 2021).

SUB-CRITERION D1 – DISTINCTIVENESS

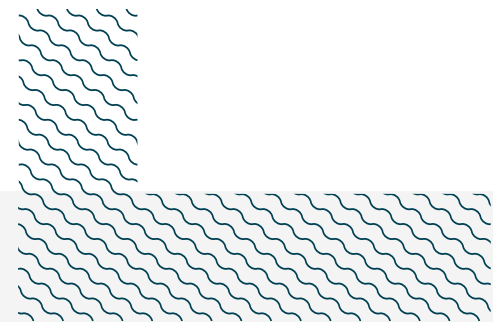
Mekong Deep Pools is an important area for distinctive attributes of one species of ray.

Mekong Deep Pools hosts distinctively large individuals of the Giant Freshwater Whipray. Knowledge on the regular and predictable occurrence of large Giant Freshwater Whiprays in the area is based on anecdotal reports from local fishers. These reports were validated in 2022 when individuals weighing 300 kg, 180 kg, and 143 kg were opportunistically caught within a five-week survey period. These weights correspond to rays with disc widths (DW) of 220 cm, 185 cm, and 171 cm DW, respectively (Z Hogan pers. obs. 2024). The 300 kg individual was globally recognised as the 'largest freshwater fish' ever documented (Lee et al. 2023). This is a significant statistic across fishes with ~51% of all described fishes (n = 18,663) also occurring in freshwater. Further, this individual was tagged, and showed a restricted home range of 7.5 km for a 10-month period within the area. This is the only area which has verifiable accounts of Giant Freshwater Whipray of these weights, despite the species having a broad distribution throughout Asia. The indication from local ecological knowledge (validated by photographed catch reports), is that there is a higher concentration of large adults, and that the area likely supports the ecological requirements of these large adults for prolonged periods (Lee et al. 2023).

The distinctively large size of the rays in this area is of regional importance. As of 2023, there were 46 dams in the Lower Mekong Basin (Lee et al. 2023) where this area is located, revealing the isolated nature of this system. In other regions, such as West Bengal in India, where comparatively large Giant Freshwater Whiprays are found (13 specimens ranging between 120–223 cm DW [average 159.1 cm DW] and weighing 95–300 kg [average 173 kg]; Sen et al. 2022), the animals are found in open riverine

and coastal systems. Likewise in neighbouring Thailand and Myanmar, large individuals have been observed in open riverine environments, but not in closed and isolated systems such as the Mekong Deep Pools. In Thailand, 71 individuals were found in the Chaopraya and Me Klong rivers, with sizes ranging between 30–250 cm DW (Phomikong et al. 2019). Seven individuals were found in Myanmar, with sizes ranging between 122–194 cm DW and an average weight of ~130 kg (Grant et al. 2022).

Mekong Deep Pools offers a unique combination of biophysical conditions. Ordinarily, freshwater habitat availability is highly constrained and is a factor that is likely to inhibit species obtaining large body size compared to more expansive marine environments (Lee et al. 2023). This area offers individuals a large volume of ecological space (to 75 m depth), which is unique among ordinarily shallow tropical floodplain systems. The area supports a high diversity of mega-teleost fish (>30 kg) (He et al. 2019), for example the Critically Endangered Mekong Giant Catfish *Pangasianodon gigas* (Hogan 2011). In the context of the broader Mekong, local knowledge surveys conducted upstream found the Giant Freshwater Whipray to be rarely encountered in southern Laos (one capture in 2015 from 120 interviewees; Gray et al. 2017) and few fishers within the 3S Rivers reported captures of this species compared to the main channel of the Cambodian Mekong (Campbell et al. 2020). Downstream, no records exist for Tonle Sap System despite supporting one of the world's largest freshwater fisheries, and a lack of contemporary records in Vietnam, where the Mekong River connects to the sea, indicate that this may be a closed freshwater population (Z Hogan pers. obs. 2024). While the Giant Freshwater Whipray occurs broadly throughout this region (Campbell et al. 2020), anecdotal reports from over a decade of Mekong fisheries research have also indicated that the broader deep pool system near the 3S Rivers confluence is a site for large Giant Freshwater Whiprays (Z Hogan unpubl. data 2024).



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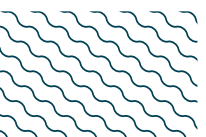
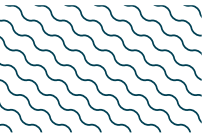
QUALIFYING SPECIES

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	
RAYs													
<i>Urogymnus polylepis</i>	Giant Freshwater Whipray	EN	0-50	X								X	

SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
RAYS		
<i>Hemistrygon laosensis</i>	Mekong Stingray	EN

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.





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