

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

WESTERN KYUSHU ISRA

Asia Region

SUMMARY

Western Kyushu is located in the East China Sea within the exclusive economic zone of Japan. The area is located on the continental shelf and is influenced by the Kuroshio Current, seasonal monsoons, and semidiurnal and diurnal tides. The area overlaps the Danjo Islands Key Biodiversity Area. Within this area there are: **threatened species** (e.g., Sharpnose Skate *Okamejei acutispina*); **range-restricted species** (Bigeye Skate *Okamejei meerdervoortii*); and **reproductive areas** (e.g., Polkadot Skate *Dipturus chinensis*).

CRITERIA

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

JAPAN

100-220 metres

3,133.69 km²





DESCRIPTION OF HABITAT

Western Kyushu is located in the East China Sea within the exclusive economic zone of Japan. The area is situated on the continental shelf with a habitat characterised by muddy and sandy substrates (Shi & Wang 2012). The area has an elevated turbidity due to the sediments deposited from the Yangtze River that contributes significantly to the eutrophication of the area and results in seasonal phytoplankton blooms (Shi & Wang 2012). Within the area, the bottom depth ranges from 90 to 275 meters.

Oceanographically, the area is influenced by the Kuroshio Current, seasonal monsoons, and semidiurnal and diurnal tides (Fang 1994). Additionally, the area experiences regular occurrences of fronts, eddies, and upwelling, contributing to dynamic environmental conditions (Shi & Wang 2012).

This area overlaps with the Danjo Islands Key Biodiversity Area (KBA 2024).

This Important Shark and Ray Area is benthic and subsurface and is delineated from 100-220 m based on the depth range of Qualifying Species in the area.

ISRA CRITERIA

CRITERION A - VULNERABILITY

Three Qualifying Species considered threatened with extinction according to the IUCN Red List of Threatened Species regularly occur in the area. These are the Vulnerable Polkadot Skate (Rigby et al. 2020), Sharpspine Skate (Rigby et al. 2021a), and Bigeye Skate (Rigby et al. 2021b).

CRITERION B - RANGE RESTRICTED

This area holds the regular presence of Bigeye Skate as a resident range-restricted species. This species occurs year-round in the area with 77 individuals collected between 2009 and 2023 during experimental benthic trawl surveys (1-3 tows per month, except December-February and July when no surveys were conducted) (Hara, Furumitsu, & Yamaguchi unpubl. data 2024). Bigeye Skates collected ranged from neonates to mature individuals, with six pregnant females (Hara unpubl. data 2024). Bigeye Skates accounted for 5.5% of skates collected by number and 1.5% by weight and were less abundant than other skate species (Hara et al. 2016). However, reliable records of Bigeye Skates are scarce outside of this area, indicating that this habitat is likely important for the species (Hatooka et al. 2013). Furthermore, the Japanese commercial benthic trawlers operating in the area target Bigeye Skate as an economically valuable skate species (Hara et al. 2014; Hara pers. comm. 2024). This species occurs in the East China Sea Large Marine Ecosystem (LME) and Kuroshio Current LME and is on the marginal limit of the Yellow Sea LME.

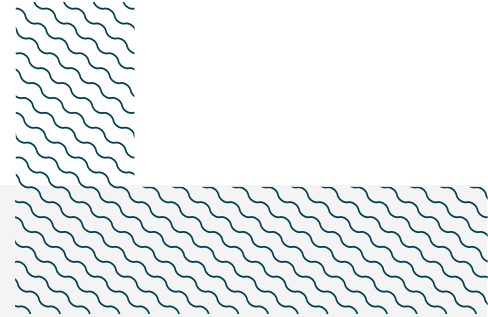
SUB-CRITERION C1 - REPRODUCTIVE AREAS

Western Kyushu is an important reproductive area for two ray species.

Between April 2009 and December 2014, 614 Polkadot Skates (337 males and 277 females) were collected in the area at ~130-220 m depth during experimental benthic trawl surveys and by Japanese commercial trawlers (Hara et al. 2017). Individuals were captured each month except July when no surveys were conducted. Egg-bearing females (presence of uterine egg capsules) were

observed in all months except for July when no samples were available, indicating that oviposition occurs throughout the year (Hara et al. 2017). Three-quarters of mature females collected in January and June were pregnant, and 25-50% of mature females captured in February, March, April, August, September, and November were pregnant (Hara et al. 2017). Furthermore, 10 neonates and young-of-the-year of 11-14 cm total length (TL) were captured. The size-at-birth is estimated to be ~12 cm and size-at-age 1 year is ~20 cm TL (Hara et al. 2017). Larger immature individuals were captured in all survey months with higher numbers from March to August (Hara et al. 2017).

Between 2009-2023, a total of 378 Sharpspine Skates were collected during experimental benthic trawl surveys in the area (1-3 tows per month, except December-February and July when no surveys were conducted) (Hara, Furumitsu, & Yamaguchi unpubl. data 2024). This was the only species collected in the central waters of the area. In the northern waters, the Sharpspine Skate was the second-most captured skate species after the Polkadot Skate, accounting for 23% of all specimens by number and 14% by weight (Hara et al. 2016). In the area, Sharpspine Skates are found from neonate/YOY to mature individuals (0-10 years of age) with pregnant females containing egg cases in their oviducts (Hara, Furumitsu, & Yamaguchi, unpubl. data 2024). This species reaches a maximum size of 45 cm TL, and males mature at 24cm TL while females mature at 38 cm TL (Last et al. 2016; Rigby et al. 2021a). Although size-at-birth for this species is unknown, for its close relative the Spiny Skate *Okamejei kenojei*, the size-at-birth is 8.2 cm TL (Ishihara et al. 2002). Reproduction is oviparous and egg cases are laid year-round with pregnant females containing egg cases in their oviducts (Hara, Furumitsu, & Yamaguchi unpubl. data 2024). Pregnant females represented 57% (n = 62) of the 108 mature females collected (Hara, Furumitsu, & Yamaguchi unpubl. data 2024). They were observed during all survey months. This suggests a prolonged egg-laying season for this species (Hara, Furumitsu, & Yamaguchi unpubl. data 2024).



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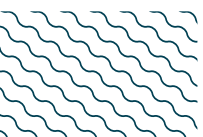
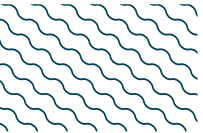
QUALIFYING SPECIES

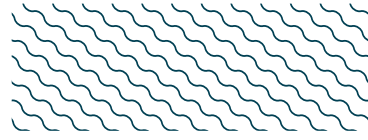
Scientific Name	Common Name	IUCN Red List Category	Global Depth Range (m)	ISRA Criteria/Sub-criteria Met									
				A	B	C1	C2	C3	C4	C5	D1	D2	
RAYS													
<i>Dipturus chinensis</i>	Polkadot Skate	VU	20-220	X		X							
<i>Okamejei acutispina</i>	Sharpspine Skate	VU	20-175	X		X							
<i>Okamejei meerdervoortii</i>	Bigeye Skate	VU	30-150	X	X								

SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
SHARKS		
<i>Alopias superciliosus</i>	Bigeye Thresher	VU
<i>Carcharhinus plumbeus</i>	Sandbar Shark	EN
<i>Mustelus manazo</i>	Starspotted Smoothhound	EN
<i>Squalus japonicus</i>	Japanese Spurdog	EN
RAYS		
<i>Okamejei boesemani</i>	Boeseman's Skate	VU

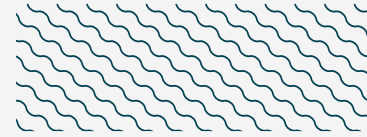
IUCN Red List of Threatened Species Categories are available by searching species names at www.iucnredlist.org Abbreviations refer to: CR, Critically Endangered; EN, Endangered; VU, Vulnerable; NT, Near Threatened; LC, Least Concern; DD, Data Deficient.





SUPPORTING INFORMATION

There are additional indications that this area is important for the reproductive purposes of Bigeye Skate. Between 2009–2016, a total of 77 Bigeye Skates were collected during the same surveys (Hara, Furumitsu, & Yamaguchi unpubl. data 2024). Animals ranged from YOY to mature individuals with pregnant females containing egg cases in their oviducts (Hara, Furumitsu, & Yamaguchi unpubl. data 2024). Pregnant females represented 29% (n = 6) of the 21 mature females collected during the study period, but this area is likely to be important for gestation and parturition due to their short pregnancy time (Hara, Furumitsu, & Yamaguchi unpubl. data 2024). However, further information is required on the importance of the area for reproduction in these species.



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