

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

NECKER SLOPE ISRA

New Zealand & Pacific Islands Region

SUMMARY

Necker Slope is located around Necker Island and is part of the Northwestern Hawaiian Islands in the United States of America. It is situated ~740 km from Honolulu and ~287 km northwest of Nihoa, its nearest neighbouring island. The area is characterised by steep slopes with sandy and low-rugosity hard substrates. The area overlaps with the Northwestern Hawaiian Islands Key Biodiversity Area and with the Papahānaumokuākea Marine National Monument. Within this area there are: **range-restricted species** (Hawaiian Spurdog *Squalus hawaiiensis*).

CRITERIA

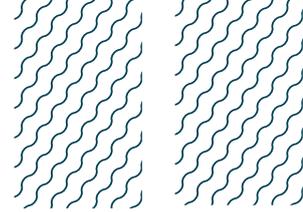
Criterion B - Range Restricted

HAWAII

216–595 metres

809.2 km²





DESCRIPTION OF HABITAT

Necker Slope is located around Necker Island and is part of the Northwestern Hawaiian Islands in the United States of America. It is situated ~740 km from Honolulu and ~287 km northwest of Nihoa, its nearest neighbouring island. Necker Island is a small, fishhook-shaped volcanic island measuring ~150 m wide and less than 1,200 m long (Macdonald et al. 1970; Evenhuis & Eldredge 2004). While shallow water ecosystems around Necker Island have been documented (Parrish & Polovina 1994; Weiss et al. 2009), the deeper shelves below the euphotic zone remain largely unexplored. Necker Slope is characterised by steep slopes with sandy and low-rugosity hard substrates (Mejía-Mercado et al. 2019). Sea temperatures in the area average ~4.5°C (Mejía-Mercado et al. 2019).

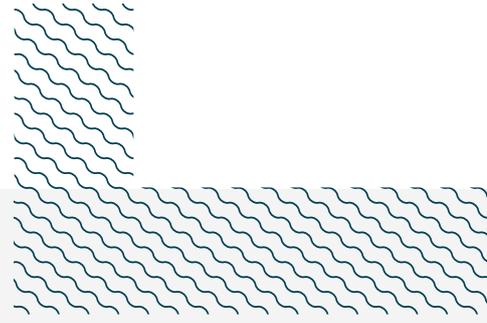
The area overlaps with the Northwestern Hawaiian Islands Key Biodiversity Area (KBA 2024) and with the Papahānaumokuākea Marine National Monument (UNEP-WCMC & IUCN 2024).

This Important Shark and Ray Area is benthic and subsurface and is delineated from 216 m to 595 m based on the distribution of the Qualifying Species in the area.

ISRA CRITERIA

CRITERION B – RANGE RESTRICTED

This area holds the regular presence of the Hawaiian Spurdog as a resident range-restricted species. Autonomous Underwater Vehicle (AUV) surveys in 2015 around Necker Island, covering depths from 200–700 m with 2–3 transects of 1,000 m at each depth, recorded the Hawaiian Spurdog at 216–595 m (Mejía-Mercado et al. 2019). Further studies in 2016 showed its highest abundance at depths below 300 m, particularly on sandy substrates, distributed almost equally between the western and southern seamount regions (Mejía-Mercado & Baco 2022). Seventy-one individuals were recorded in these surveys, which is a higher number than that recorded for other seamounts in the region (Mejía-Mercado et al. 2019; Mejía-Mercado & Baco 2023). This species occurs only in the Insular Pacific-Hawaiian Large Marine Ecosystem.



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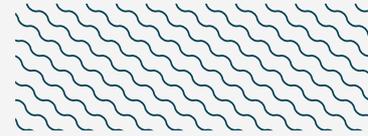
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QUALIFYING SPECIES

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>Squalus hawaiiensis</i>	Hawaiian Spurdog	LC	100-595		X							

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.



REFERENCES

- Evenhuis NL, Eldredge LG. 2004.** *Natural history of Nihoa and Necker Islands. A Hawaii biological survey handbook.* Honolulu: Bishop Museum Press.
- Key Biodiversity Areas (KBA). 2024.** Key Biodiversity Areas factsheet: Northwestern Hawaiian Islands. Available at: <https://www.keybiodiversityareas.org/site/factsheet/29587> Accessed September 2024.
- Macdonald GA, Abbott AT, Peterson FL. 1970.** *Volcanoes in the Sea: the geology of Hawaii.* Honolulu: University of Hawaii Press.
- Mejía-Mercado B, Baco A. 2022.** Characterization and spatial variation of the deep-sea fish assemblages on Pioneer Bank, Northwestern Hawaiian Islands. *Marine Ecology Progress Series* 692: 99-118. <https://doi.org/10.3354/meps14071>
- Mejía-Mercado BE, Baco AR. 2023.** Horizontal distribution of benthic and demersal fish assemblages on three seamounts in the Papahānaumokuākea Marine National Monument. *Deep-Sea Research Part I: Oceanographic Research Papers* 195: 104003. <https://doi.org/10.1016/j.dsr.2023.104003>
- Mejía-Mercado BE, Mundy B, Baco AR. 2019.** Variation in the structure of the deep-sea fish assemblages on Necker Island, northwestern Hawaiian Islands. *Deep Sea Research Part I: Oceanographic Research Papers* 152: 103086. <https://doi.org/10.1016/j.dsr.2019.103086>
- Parrish FA, Polovina JJ. 1994.** Habitat thresholds and bottlenecks in production of the Spiny Lobster (*Panulirus marginatus*) in the Northwestern Hawaiian Islands. *Bulletin of Marine Science* 54: 151-163.
- Weiss J, Miller J, Hirsch E, Rooney J, Wedding L, Friedlander A. 2009.** Geology and benthic habitats. In: Friedlander A, Keller K, Wedding L, Clarke A, Monaco M, eds. *A Marine Biogeographic Assessment of the Northwestern Hawaiian Islands. NOAA Technical Memorandum NOS NCCOS 84.* Hawaii: National Centers for Coastal Ocean Science Biogeography Branch/National Marine Sanctuaries Papahānaumokuākea Marine National Monument/ National Oceanic and Atmospheric Administration. 65-104.
- UNEP-WCMC & IUCN. 2024.** Protected Planet: The World Database on Protected Areas (WDPA) and World Database on Other Effective Area-based Conservation Measures (WD-OECM) [Online], February 2024, Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net Accessed September 2024.