

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

SOUTHERN HAWAII ISRA

New Zealand & Pacific Islands Region

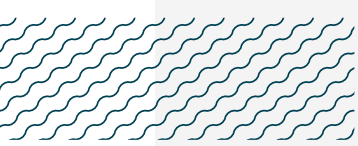
SUMMARY

Southern Hawaii is located south and southwest of the main Hawaiian Islands. It includes pelagic waters of Hawaii and Johnston Atoll, which are part of the United States of America, and Areas Beyond National Jurisdiction (ABNJ). The area is influenced by the northeast trade winds and the North Equatorial Current flowing westward. It is characterised by pelagic waters. Within this area there are: **threatened species** and **reproductive areas** (Bigeye Thresher *Alopias superciliosus*).

— —
**HAWAII,
 JOHNSTON
 ATOLL,
 ABNJ**
 — —
0-955 metres
 — —
1,173,777 km²
 — —

CRITERIA

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





DESCRIPTION OF HABITAT

Southern Hawaii is located south and southwest of the main Hawaiian Islands. It includes pelagic waters of Hawaii and Johnston Atoll, which are part of the United States of America, and Areas Beyond National Jurisdiction (ABNJ). The nearest land is Johnston Atoll ~60 km west and Hawai'i Island ~100 km northeast of the area. The area is influenced by the northeast trade winds and the North Equatorial Current flowing westward (Wyrtky & Kilonsky 1984). Below the surface current that is affected by poleward Ekman transport, the current flows towards the equator (Wyrtky & Kilonsky 1984).

The area partially overlaps with the Johnston Atoll Marine Key Biodiversity Area (KBA 2024) and with the Pacific Remote Islands Marine National Monument (UNEP-WCMC & IUCN 2024).

This Important Shark and Ray Area is benthic and pelagic and is delineated from surface waters (0 m) to 955 m based on the global depth range of the Qualifying Species.

ISRA CRITERIA

CRITERION A – VULNERABILITY

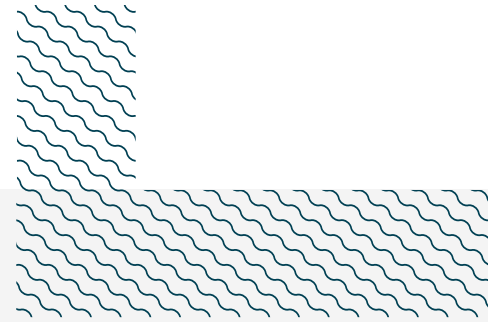
One Qualifying Species considered threatened with extinction according to the IUCN Red List of Threatened Species regularly occurs in the area. This is the Vulnerable Bigeye Thresher (Rigby et al. 2019).

SUB-CRITERION C₁ – REPRODUCTIVE AREAS

Southern Hawaii is an important reproductive area for one shark species.

Pregnant, neonate, and young-of-the-year (YOY) Bigeye Threshers are observed in the area. Observer data on incidental captures of 24,457 Bigeye Threshers in longline fisheries reported to the Western and Central Pacific Fisheries Commission (WCPFC) from 2013–2022 show a strongly defined hotspot in captures in this area (WCPFC 2022). Additionally, historical data (1996–2006) from Japanese fisheries reveal that this same area is important for the reproduction of the species (Matsunaga & Yokawa 2013). Bigeye Threshers with a precaudal length (PCL) <80 cm were classified as neonate (Matsunaga & Yokawa 2013), considering the size-at-birth of the species of ~70 cm PCL (Chen et al. 1997). Neonates had a clear and latitudinally narrow hotspot of occurrence, mainly within the area, but also including additional waters further west (Matsunaga & Yokawa 2013). They were captured almost exclusively in boreal winter and spring, indicating a defined pupping season. Additionally, juveniles <100 cm PCL, including YOY and 2–3-year-old individuals, were also captured in this same area, highlighting that early life stages of Bigeye Threshers are present in this area for several years. Pregnant females (n = 267) were also captured in this area in winter and spring, with additional captures north of the area in summer and autumn (Matsunaga & Yokawa 2013). Parturition is likely to occur within the area between latitudes ~10–15°N and longitudes ~150–180°W during winter and spring, based on the distribution of pregnant females with large embryos and small neonates (Matsunaga & Yokawa 2013).

Although there are no contemporary data on the reproduction of the species in this area, the overlapping hotspot of high capture rates in the historical and contemporary data, and the overlap with the defined area important for neonates, YOY, and pregnant Bigeye Threshers in the historical data show that the species regularly and predictably uses this area for reproduction.



Acknowledgments

Amanda Batlle-Morera (IUCN SSC Shark Specialist Group - ISRA Project) and Christoph A Rohner (IUCN SSC Shark Specialist Group - ISRA Project) contributed and consolidated information included in this factsheet. We thank all participants of the 2024 ISRA Region 10 - New Zealand and Pacific Islands workshop for their contributions to this process.

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Suggested citation

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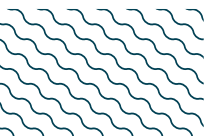
QUALIFYING SPECIES

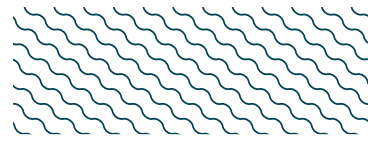
| Scientific Name | Common Name | IUCN Red List Category | Global Depth Range (m) | ISRA Criteria/Sub-criteria Met | | | | | | | | |
|------------------------------|-----------------|------------------------|------------------------|--------------------------------|---|----|----|----|----|----|----|----|
| | | | | A | B | C1 | C2 | C3 | C4 | C5 | D1 | D2 |
| SHARKS | | | | | | | | | | | | |
| <i>Alopias superciliosus</i> | Bigeye Thresher | VU | 0-955 | X | | X | | | | | | |

SUPPORTING SPECIES

| Scientific Name | Common Name | IUCN Red List Category |
|---------------------------------|------------------------|------------------------|
| SHARKS | | |
| <i>Carcharhinus falciformis</i> | Silky Shark | VU |
| <i>Carcharhinus longimanus</i> | Oceanic Whitetip Shark | CR |
| RAYS | | |
| <i>Mobula birostris</i> | Oceanic Manta Ray | EN |

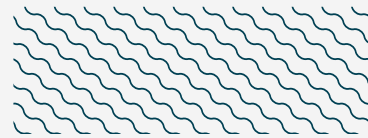
IUCN Red List of Threatened Species Categories are available by searching species names at www.iucnredlist.org. Abbreviations refer to: CR, Critically Endangered; EN, Endangered; VU, Vulnerable; NT, Near Threatened; LC, Least Concern; DD, Data Deficient.





SUPPORTING INFORMATION

There are additional indications that Southern Hawaii might also be an important area for undefined aggregations of Oceanic Whitetip Sharks. This area is a regional hotspot for captures of the species (Malloy 2023; WCPFC 2022). Bycatch data from observers reported in a 5 x 5-degree grid to the WCPFC from 2013-2022 showed that the hotspot of Oceanic Whitetip Shark captures from the WCPFC region (n = 12,187) is located in this area (WCPFC 2022). The Hawaii deep-set longline fishery (DSL) provides more fine-scale spatial detail and has recorded >6,000 interactions with the species between 2004-2022 (Malloy 2023). Adjusting for observer coverage, this extrapolates to ~31,500 individuals over 19 years. Captures are recorded throughout the year, with a slight peak in April-May and October-December. Although the DSL also has high fishing effort north of the main Hawaiian Islands, most Oceanic Whitetip Sharks are captured off the southwest, in this area (Malloy 2023). Historical data from Japanese tuna longline research and training vessels from 1992-1998 show that a higher concentration of pregnant females and neonates occurs between 10-15°N, including in this area and west of it, suggesting that the area could be a pupping ground for this species (Bonfil et al. 2009), but additional contemporary information is required to confirm the nature and function of this aggregation.



REFERENCES

- Bonfil R, Clarke S, Nakano H. 2008.** The biology and ecology of the oceanic whitetip shark, *Carcharhinus longimanus*. In: Camhi MD, Pikitch EK, Babcock A, eds. *Sharks of the open ocean: Biology, Fisheries and Conservation*. Oxford: Blackwell, 128–139 <https://doi.org/10.1002/9781444302516.ch11>
- Chen C, Liu K, Chang Y. 1997.** Reproductive biology of the bigeye thresher shark, *Alopias superciliosus* (Lowe, 1839) (Chondrichthyes: Alopiidae), in the northwest Pacific. *Ichthyological Research* 44: 227–235. <https://doi.org/10.1007/BF02678702>
- Key Biodiversity Areas (KBA). 2024.** Key Biodiversity Areas factsheet: Johnston Atoll Marine. Available at: <https://www.keybiodiversityareas.org/site/factsheet/31017> Accessed August 2024.
- Malloy S. 2023.** Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion – Report PIR-2018-10461. Honolulu: National Marine Fisheries Service, Pacific Islands Region, Protected Resources Division.
- Matsunaga H, Yokawa K. 2013.** Distribution and ecology of bigeye thresher *Alopias superciliosus* in the Pacific Ocean. *Fisheries Science* 79: 737–748. <https://doi.org/10.1007/s12562-013-0660-3>
- Rigby CL, Barreto R, Carlson J, Fernando D, Fordham S, Francis MP, Herman K, Jabado RW, Liu KM, Marshall A, et al. 2019.** *Alopias superciliosus*. *The IUCN Red List of Threatened Species* 2019: e.T161696A894216. <https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T161696A894216.en>.
- 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 August 2024
- Wyrtky K, Kilonsky B. 1984.** Mean water and current structure during the Hawaii-to-Tahiti Shuttle Experiment. *Journal of Physical Oceanography* 14: 242–254. [https://doi.org/10.1175/1520-0485\(1984\)014%3C0242:MWACSD%3E2.O.CO;2](https://doi.org/10.1175/1520-0485(1984)014%3C0242:MWACSD%3E2.O.CO;2)
- Western and Central Pacific Fisheries Commission (WCPFC). 2022.** WCPFC Regional Observer Program (ROP) database – Public domain bycatch data. Accessed May 2024.