

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

EAST AUSTRALIAN CURRENT CORRIDOR ISRA

Australia and Southeast Indian Ocean Region

SUMMARY

East Australian Current Corridor is located along the east coast of Australia, stretching from the Gladstone region of Queensland in the north to the Wollongong region of New South Wales in the south. It comprises continental shelf waters along the main influence of the East Australian Current. The habitat is characterised by pelagic waters, soft substrates, rocky reefs and headlands, coral reefs, and estuaries. Within this area there are: **threatened species** and areas important for **movement** (Bull Shark *Carcharhinus leucas*).

CRITERIA

Criterion A - Vulnerability; Sub-criterion C4 - Movement

— AUSTRALIA —

— 0-200 metres —

— 79,959 km² —





DESCRIPTION OF HABITAT

East Australian Current Corridor is located off the east coast of Australia, spanning from the Gladstone region in Queensland to the Wollongong region in New South Wales. This large area comprises mostly continental shelf waters along the coast. The habitat is characterised by soft substrates, sandy beaches, rocky reefs and headlands, coral reefs, and estuaries.

The area is influenced by the East Australian Current that carries warm water southward along Australia's east coast (Ridgeway & Hill 2009). The East Australian Current is a dynamic western boundary current, with mesoscale eddies influencing current strength and direction. The flow is seasonally stronger in the austral summer, and the separation location, where the East Australian Current turns eastward into the Tasman Sea, also moves seasonally (Ridgeway & Hill 2009). This area overlaps with the strongest southward flow in the current.

This Important Shark and Ray Area is benthic and pelagic and is delineated from inshore and surface waters (0 m) to 200 m based on the bathymetry of the area.

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 Bull Shark (Rigby et al. 2021).

SUB-CRITERION C4 - MOVEMENT

East Australian Current Corridor is an important movement area for one shark species.

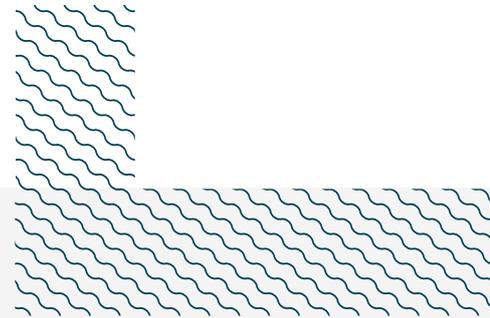
Bull Sharks regularly move through this area, spanning from Gladstone in the north to Wollongong in the south, connecting subtropical waters of Queensland with temperate waters of New South Wales (Heupel et al. 2015; Espinoza et al. 2021; Smoothery et al. 2023; IMOS unpubl. data 2025). A study analysed movements of 114 Bull Sharks tracked with acoustic telemetry during 2011–2014 (Heupel et al. 2015). Around half (48%; n = 36) of the 75 individuals tagged in temperate waters moved through this area into Queensland, including four sharks that made a return trip, 13 sharks that crossed the border three times, one shark four times, and two sharks five times. About a quarter (n = 10) of the 39 individuals tagged off Townsville, outside the area, moved to subtropical waters, and only one of these (3%) continued into temperate regions (Heupel et al. 2015). Another study tracked 73 Bull Sharks tagged off Townsville and in Sydney Harbour on a total of 360 acoustic receivers along the east coast of Australia (Espinoza et al. 2021). Individuals tagged in Sydney were mainly present there in summer and autumn, while those in Townsville were mainly detected in spring and some migrated south in summer (Espinoza et al. 2021).

For an updated analysis, data were sourced from Australia's Integrated Marine Observing System (IMOS) - IMOS is enabled by the National Collaborative Research Infrastructure Strategy (NCRIS). It is operated by a consortium of institutions as an unincorporated joint venture, with the University of Tasmania as Lead Agent. These data include 398 Bull Sharks tracked between 2010–2025 (IMOS unpubl. data 2025). Bull Sharks were initially tagged in various locations spread along the east coast from Narooma, New South Wales in the south to Darwin, Northern Territory and the Gulf of Carpentaria, Queensland in the north. Movement segments were extracted using a speed filter of 1 km/h and only displaying movements between receiver stations that were >10 km apart. This

approach means that movement segments are indicative of relatively direct and fast movements. Since most of the receivers are near the coast, and that a strict speed filter was used, these movement segments suggest that the sharks were mostly swimming along the coast.

There were 2,160,714 detections of Bull Sharks and 60,265 movement segments Australia-wide. These grouped into 7,130 unique movement segments used between 1–1,294 times by 1–85 individual Bull Sharks. The 700+ receivers were then grouped into 14 broader regions along the east coast of Australia to better assess movements within the area. The strongest connections were among nearby regions, with Sydney–Wollongong used by 295 individuals and 275 in the opposite direction, Newcastle–Sydney used by 201 individuals, and northern New South Wales to Coffs Harbour used by 146 individuals and 135 in the opposite direction. Strong connections were apparent within the eight sectors between Wollongong and Gladstone, with Gladstone to Hervey Bay ($n = 34$ individuals, and 37 in the opposite direction) and Hervey Bay to southeast Queensland ($n = 30$ and $n = 44$) still showing regular movements. These shorter connections also suggest that most movements were in coastal waters, with sharks being detected regularly along their migration routes. There were few movements among regions ($n = 167$) north of Gladstone, outside this area, despite many individuals first detected, for example, in Far North Queensland ($n = 62$ individuals), Townsville ($n = 45$), or Whitsundays ($n = 26$). It is possible that Bull Sharks from these northern sites also moved widely, but not within the strict speed filter that was needed to infer a movement corridor.

Most inter-regional movements occurred between December–April (84.4%). There were more southward movements detected during spring to early summer from September–January, and more northward movements during autumn from March–May. It is possible that some of the Bull Shark movements in this area are related to reproduction and/or feeding, as adult females show natal philopatry to certain rivers for pupping (Tillett et al. 2012; Lubitz 2023; Lubitz et al. 2025) but may forage widely.



Acknowledgments

Stacy L Bierwagen (Australian Institute of Marine Science), Culum Brown (Macquarie University), Paul Butcher (New South Wales [NSW] Department of Primary Industries, Fisheries), Gavin Butler (NSW Department of Primary Industries, Fisheries), Leanne M Currey-Randall (Australian Institute of Marine Science), Ross G Dwyer (School of Science, Technology and Engineering, The University of the Sunshine Coast), Mario Espinoza (Universidad de Costa Rica), Johan A Gustafson (The University of the Sunshine Coast), Doug Harding (Water Planning and Science, LGWV, Queensland Government), Michelle R Heupel (Australian Institute of Marine Science), Bonnie J Holmes (The University of the Sunshine Coast), Kate Lee (formerly Sydney Institute of Marine Science), Nicolas Lubitz (Biopixel Oceans Foundation; James Cook University), Victor M Peddemors (Sea Predator Research Unit), Amy F Smoothey (NSW Department of Primary Industries and Regional Development), 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 2025 ISRA Region 08 - Australia and Southeast Indian Ocean workshop for their contributions to this process.

We acknowledge the Traditional Owners of Country throughout Australia and recognise the continuing connection to land, waters, and culture. We pay our respects to Elders past, present, and emerging.

This factsheet has undergone review by the ISRA Independent Review Panel prior to its publication.

This project was funded by the Shark Conservation Fund, a philanthropic collaborative pooling expertise and resources to meet the threats facing the world's sharks and rays. The Shark Conservation Fund is a project of Rockefeller Philanthropy Advisors.

Suggested citation

IUCN SSC Shark Specialist Group. 2025. East Australian Current Corridor ISRA Factsheet. Dubai: IUCN SSC Shark Specialist Group.

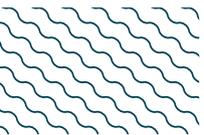
QUALIFYING SPECIES

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>Carcharhinus leucas</i>	Bull Shark	VU	0-256	X						X			

SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
SHARKS		
<i>Carcharhinus obscurus</i>	Dusky Shark	EN
<i>Carcharias taurus</i>	Sand Tiger Shark (Grey Nurse Shark)	CR
<i>Carcharodon carcharias</i>	White Shark	VU
<i>Galeocerdo cuvier</i>	Tiger Shark	NT
<i>Stegostoma tigrinum</i>	Indo-Pacific Leopard Shark	EN
RAYS		
<i>Mobula alfredi</i>	Reef Manta Ray	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.





REFERENCES

- Espinoza M, Lédée EJI, Smoothey AF, Heupel MR, Peddemors VM, Tobin AJ, Simpfendorfer CA. 2021.** Intra-specific variation in movement and habitat connectivity of a mobile predator revealed by acoustic telemetry and network analyses. *Marine Biology* 168: 80. <https://doi.org/10.1007/s00227-021-03886-z>
- Heupel MR, Simpfendorfer CA, Espinoza M, Smoothey AF, Tobin A, Peddemors V. 2015.** Conservation challenges of sharks with continental scale migrations. *Frontiers in Marine Science* 2: 12. <https://doi.org/10.3389/fmars.2015.00012>
- Lubitz N. 2023.** Context-dependent movement behaviour in marine predators: the causes and consequences of behavioural variability. Unpublished PhD Thesis, James Cook University, Townsville.
- Lubitz N, Butcher PA, Vianello P, Barnett A, Dwyer RG, Sheaves M, Smoothey AF. 2025.** Ocean warming increases residency at summering grounds for migrating bull sharks (*Carcharhinus leucas*). *Science of the Total Environment* 992: 179966. <https://doi.org/10.1016/j.scitotenv.2025.179966>
- Ridgeway K, Hill K. 2009.** The East Australian Current. In: Poloczanska ES, Hobday AJ, Richardson AJ, eds. *A marine climate change impacts and adaptation report card for Australia 2009*. Southport: NCCARF Publication, 1-16.
- Rigby CL, Espinoza M, Derrick D, Pacoureaux N, Dicken M. 2021.** *Carcharhinus leucas*. *The IUCN Red List of Threatened Species* 2021: e.T39372A2910670. <https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T39372A2910670.en>
- Smoothey AF, Niella Y, Brand C, Peddemors VM, Butcher PA. 2023.** Bull shark (*Carcharhinus leucas*) occurrence along beaches of south-eastern Australia: Understanding where, when and why. *Biology* 12: 1189. <https://doi.org/10.3390/biology12091189>
- Tillett BJ, Meekan MG, Field IC, Thorburn DC, Ovenden JR. 2012.** Evidence for reproductive philopatry in the bull shark *Carcharhinus leucas*. *Journal of Fish Biology* 80: 2140-2158. <https://doi.org/10.1111/j.1095-8649.2012.03228.x>