

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

EASTERN KERGUELEN SLOPES ISRA

Polar Waters Region

SUMMARY

Eastern Kerguelen Slopes is located primarily in the French Exclusive Economic Zone (EEZ) and marginally into the Australian EEZ east of the Kerguelen Islands in the Southern Ocean. The northern part of the split Antarctic Circumpolar Current flows eastward through the area. Eastern Kerguelen Slopes is characterised by a deep slope, with canyons, escarpments, ridges, and terraces. The area overlaps with the French National Natural Reserve of the Terres australes françaises and the Australian Heard Island and McDonald Islands Marine Park. Within this area there are: **threatened species** (Kerguelen Skate *Bathyraja irrasa*); **range-restricted species** (Kerguelen Skate); and **reproductive areas** (Traveller Lanternshark *Etmopterus viator*).

CRITERIA

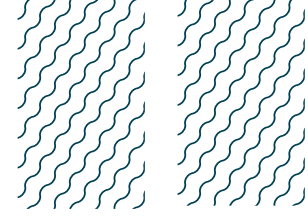
Criterion A - Vulnerability; Criterion B - Range Restricted; Sub-criterion C1 - Reproductive Areas

— —
AUSTRALIA
FRANCE

— —
500-2,060 metres

— —
28,446 km²
 — —





DESCRIPTION OF HABITAT

Eastern Kerguelen Slopes is located on the slope east of Kerguelen Islands, ~2,000 km north of Mac Robertson Land, Antarctica, in the Southern Ocean. The area is located primarily in the French Exclusive Economic Zone (EEZ) of Terres australes et antarctiques françaises/French Southern and Antarctic Lands (TAAF), and marginally into the Australian EEZ of Heard Island and McDonald Islands (HIMI). There are canyons, escarpments, ridges, and terraces in this part of the Kerguelen slope.

The main oceanographic influence on the area is the Antarctic Circumpolar Current flowing eastward. It splits at the Kerguelen Plateau, with most of the flow deflected around the northern side, through the area (Park et al. 2008).

The area overlaps with the French National Natural Reserve of the Terres australes françaises and the Australian Heard Island and McDonald Islands Marine Park.

This Important Shark and Ray Area is benthopelagic and subsurface and is delineated from 500 m to 2,060 m based on the depth range of Qualifying Species in 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 Kerguelen Skate (Dulvy et al. 2020).

CRITERION B – RANGE RESTRICTED

This area holds the regular presence of Kerguelen Skate as a resident range-restricted species. It is incidentally captured in the Patagonian Toothfish *Dissostichus eleginoides* longline fishery in this area (Nowara et al. 2017; Faure 2023). Data from 2008–2014 included an average of 2,613 hauls per year and recorded ~54,000 Kerguelen Skates, making up the majority (62%) of skate bycatch in this fishery (Nowara et al. 2017). These skates were caught on the slope between 500–2,059 m depth, with a slight peak at ~800 m. Although the species is also captured elsewhere on the Kerguelen Plateau, major hotspots are in this area east of Kerguelen Islands (Nowara et al. 2017; MNHN & TAAF 2020; Faure 2023), indicating that it is an important area for Kerguelen Skates in this region. This species is endemic to the wider Kerguelen Plateau (Last et al. 2016) and is found nowhere else in the Southern Ocean or globally, highlighting its limited range.

SUB-CRITERION C₁ – REPRODUCTIVE AREAS

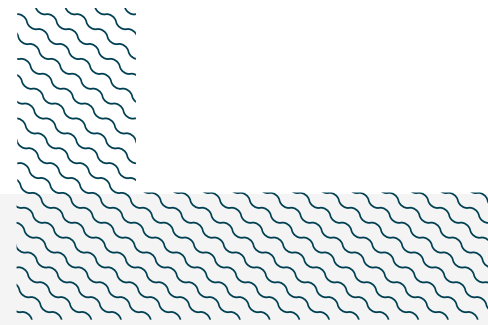
Eastern Kerguelen Slopes is an important reproductive area for one shark species.

During 2006–2015, Traveller Lanternsharks were the most common shark bycatch recorded by observers monitoring 25% of fishing effort (>55 million hooks checked) of the benthic longline fishery targeting Patagonian Toothfish operating in the area (Chazeau et al. 2019). In total, 29,422 Traveller Lanternsharks were captured, extrapolating from the 25% observer coverage to ~12,000 individuals

per year. The species was present in ~18% of hauls and up to 60 individuals (mean of 2.5) were caught per 1,000 hooks. The fishery operates between 500–2,000 m depth, and there was a peak in Traveller Lanternshark catch at 1,200 m depth (Chazeau et al. 2019).

The catch was dominated by females with a sex ratio of 1.4, but females and males were found in the same areas. Similarly, all size classes were found in the same locations, indicating that this is an important area for the whole life cycle of the species. The catch was dominated by juveniles (~90% of the total catch), however the length distribution was bimodal with a second peak at ~52 cm total length (TL) for adults. The second peak was particularly apparent in females, with adult females making up ~15% of the catch of females (Chazeau et al. 2019).

The length-at-first-maturity for females was 48.5 cm TL with pregnant females ranging 48.5–59.5 cm TL aborting late-term embryos (3–13 per female) ranging 15–18 cm TL (Chazeau et al. 2019). This slightly extends the published size-at-birth of ~12–15 cm TL (Ebert et al. 2021). Around 1% of the catch were neonates born or aborted on board, indicating that this is likely to be an important pupping area too. The large hooks used in the fishery meant that neonates and young-of-the-year were not frequently directly captured (Chazeau et al. 2019), however, full-term embryos of pregnant females show that this is an important reproductive area. Traveller Lanternsharks were rarely reported in nearby fisheries at Crozet Islands (Pruvost et al. 2015; C Péron pers. obs. 2024) and only two individuals of the genus were recorded on Elan Banks (Péron et al. 2019), highlighting that Eastern Kerguelen Slopes is an important reproductive area for this species. Further, detailed information on reproductive biology is not available from anywhere else in the scattered Southern Ocean distribution of this species.



Acknowledgments

Johanna Faure (Muséum national d'Histoire naturelle; La Rochelle Université), Clara Péron (Muséum national d'Histoire naturelle), Peter M Kyne (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 1 – Polar Waters workshop for their contributions to this process.

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. 2024. Eastern Kerguelen Slopes ISRA Factsheet. Dubai: IUCN SSC Shark Specialist Group.

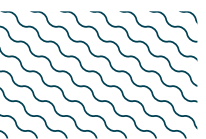
QUALIFYING SPECIES

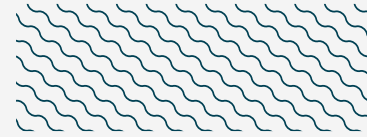
Scientific Name	Common Name	IUCN Red List Category	Global Depth Range (m)	ISRA Criteria/Sub-criteria Met									
				A	B	C1	C2	C3	C4	C5	D1	D2	
SHARKS													
<i>Etmopterus viator</i>	Traveller Lanternshark	LC	324-1,951			X							
RAYS													
<i>Bathyraja irrasa</i>	Kerguelen Skate	VU	150-2,059	X	X								

SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
SHARKS		
<i>Lamna nasus</i>	Porbeagle	VU
<i>Somniosus antarcticus</i>	Southern Sleeper Shark	LC
RAYS		
<i>Bathyraja eatonii</i>	Eaton's Skate	LC

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

- Chazeau C, Iglésias SP, Péron C, Gasco N, Martin A, Duhamel G. 2019.** Shark by-catch observed in the bottom longline fishery off the Kerguelen Islands in 2006–2016, with a focus on the traveller lantern shark (*Etmopterus viator*). In: Welsford D, Dell J, Duhamel G, eds. *The Kerguelen Plateau: Marine ecosystems and fisheries. Proceedings of the Second Symposium*. Hobart: Australian Antarctic Division, 311–327.
- Dulvy NK, Bineesh KK, Cheok J, Dharmadi, Finucci B, Pacoureau N, Sherman CS. 2020.** *Bathyraja irrasa*. *The IUCN Red List of Threatened Species 2020*: e.T161659A124523337. <https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T161659A124523337.en>
- Ebert DA, Dando M, Fowler S. 2021.** *Sharks of the world. A complete guide*. Princeton: Princeton University Press.
- Faure J. 2023.** Vulnérabilité des raies capturées dans la pêcherie de légine australe (*Dissostichus eleginoides*) dans les Zones Economiques Exclusives (ZEE) de Kerguelen et Crozet. Unpublished PhD Thesis, Muséum national d'Histoire naturelle, Paris, France.
- Last PR, White WT, de Carvalho MR, Séret B, Stehmann MFW, Naylor GJP. 2016.** *Rays of the world*. Clayton South: CSIRO Publishing.
- MNHN, TAAF. 2020.** Guide des Bonnes Pratiques environnementales dans la pêcherie palangrière de légine australe. Fishery manager report.
- Nowara GB, Burch P, Gasco N, Welsford DC, Lamb TD, Chazeau C, Duhamel G, Pruvost P, Wotherspoon S, Candy SG. 2017.** Distribution and abundance of skates (*Bathyraja* spp.) on the Kerguelen Plateau through the lens of the toothfish fisheries. *Fisheries Research* 186: 65–81. <https://doi.org/10.1016/j.fishres.2016.07.022>
- Park Y-H, Roquet F, Durand I, Fuda J-L. 2008.** Large-scale circulation over and around the Northern Kerguelen Plateau. *Deep Sea Research Part II: Topical Studies in Oceanography* 55: 566–581. <https://doi.org/10.1016/j.dsr2.2007.12.030>
- Péron C, Chazeau C, Gasco N, Massiot-Granier F. 2019.** Report on fish by-catch during exploratory fishing activities in Division 58.4.3a (Elan Bank) between 2008 and 2018 (WG-FSA-2019/56). Hobart: Commission for the Conservation of Antarctic Marine Living Resources.
- Pruvost P, Duhamel G, Gasco N, Palomares MLD. 2015.** A short history of the fisheries of Crozet Islands. In: Palomares MLD, Pauly D, eds. *Marine fisheries catches of SubAntarctic islands, 1950-2010*. Vancouver: Fisheries Centre, University of British Columbia, 31–36.