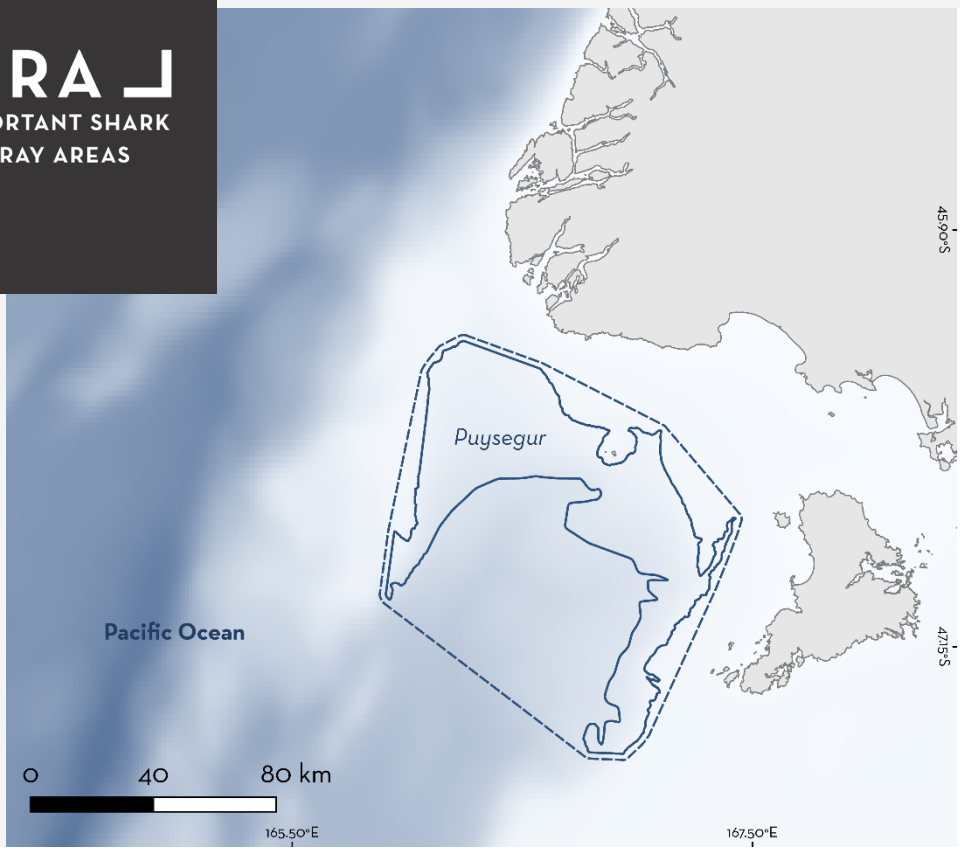
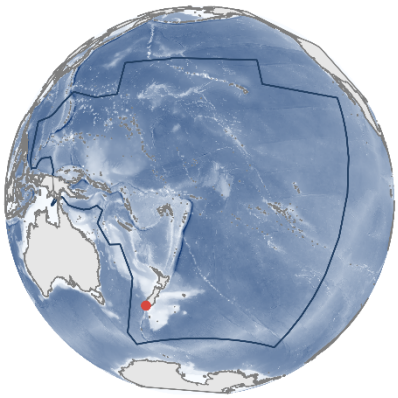
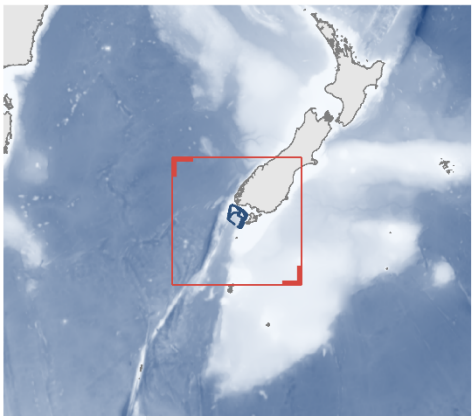
ISRA
IMPORTANT SHARK AND RAY AREAS







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

PUYSEGUR ISRA

New Zealand & Pacific Islands Region

NEW ZEALAND

137–1,000 metres

4,589 km²

SUMMARY

Puysegur is located on the southern part of New Zealand's South Island. The area is characterised by a steep slope, multiple submarine canyons and seamounts with muddy substrates, and patches of sandstone and shell mixtures. The area overlaps with the Fiordland - West Coast South Island (South) (offshore) and the Rakiura (offshore) Key Biodiversity Areas. Within this area there are: **threatened species** (e.g., Kitefin Shark *Dalatias licha*) and **reproductive areas** (e.g., Shovelnose Dogfish *Deania calceus*).

CRITERIA

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

DESCRIPTION OF HABITAT

Puysegur is located on the southern part of New Zealand's South Island. The area is characterised by a steep slope, multiple submarine canyons and seamounts with muddy substrates, and patches of sandstone and shell mixtures (Lewis & Marshall 1996; Tracey et al. 2004). The area is highly influenced by the Subtropical Front where subtropical and subantarctic waters converge (Chiswell et al. 2015). Sea surface temperatures average ~11.5°C in the austral summer and bottom temperature average ~6.8°C (Bagley et al. 2014).

The area overlaps with the Fiordland - West Coast South Island (South) (offshore) and the Rakiura (offshore) Key Biodiversity Areas (KBA 2024a, 2024b).

This Important Shark and Ray Area is pelagic and subsurface and is delineated from 137–1,000 m based on the depth range of Qualifying Species in the area.

ISRA CRITERIA

CRITERION A – VULNERABILITY

Two Qualifying Species considered threatened with extinction according to the IUCN Red List of Threatened Species regularly occur in the area. These are the Endangered Leafscale Gulper Shark (Finucci et al. 2024) and the Vulnerable Kitefin Shark (Finucci et al. 2018).

SUB-CRITERION C1 – REPRODUCTIVE AREAS

Puysegur is an important reproductive area for four shark species.

Independent research surveys using demersal trawls (200–1,300 m depths) were conducted in the area during summer (November–December) in 1991–1993, 2000–2009, 2011, 2012, 2014, 2016, 2018, 2020, and 2022 (Bagley et al. 2013, 2014, 2017; O'Driscoll et al. 2018; MacGibbon et al. 2019; Stevens et al. 2022, 2024). Contemporary data (since 2009) from these surveys recorded young-of-the-year (YOY) individuals and late-stage pregnant females (with near-term embryos) of Leafscale Gulper Shark, Longnose Velvet Dogfish, Kitefin Shark, and Shovelnose Dogfish that are regularly found in the area (B Finucci unpubl. data 2024).

For Leafscale Gulper Shark, 131 of the 400 individuals (32.7%) recorded in these surveys and for which biological data were collected measured 37.9–50 cm total length (TL) and were caught at depths of 536–985 m (B Finucci unpubl. data 2024). These individuals were classified as YOY based on the reported size for this life stage in the region (<50 cm TL; Parker & Francis 2012; Francis et al. 2016). Puysegur held the largest number of YOY caught in research surveys along all New Zealand in that period and YOY were caught in all surveyed years except for 2016 (Bagley et al. 2013, 2014, 2017; O'Driscoll et al. 2018; MacGibbon et al. 2019; Stevens et al. 2022, 2024; B Finucci unpubl. data 2024). Additionally, three of the seven late-stage pregnant females reported for all New Zealand and 27 early-stage pregnant females were recorded in this area (B Finucci unpubl. data 2024).

For Longnose Velvet Dogfish, 198 of the 615 individuals (32.2%) recorded in these surveys and for which biological data were collected measured 30.6–50 cm TL and were caught at depths of 661–997 m (B Finucci unpubl. data 2024). These individuals were classified as YOY based on the reported size for this life stage in the region (<50 cm TL; Francis et al. 2016). Puysegur held the second largest number of YOY caught in research surveys along all New Zealand and YOY were caught in all surveyed years except for 2009 and 2016 (Bagley et al. 2013, 2014, 2017; O'Driscoll et al. 2018;

MacGibbon et al. 2019; Stevens et al. 2022, 2024; B Finucci unpubl. data 2024). Additionally, 20 of the 69 late-stage pregnant females reported for all New Zealand and 37 early-stage pregnant females were recorded in this area (B Finucci unpubl data 2024).

For Kitefin Shark, 50 of the 106 individuals (50%) recorded in these surveys and for which biological data were collected measured 39.4–50 cm TL and were caught at depths of 419–964 m (B Finucci unpubl. data 2024). These individuals were classified as YOY based on the reported size for this life stage in the region (<50 cm TL; Francis et al. 2016). Puysegur held the second largest number of YOY caught in research surveys along all New Zealand in the surveyed years and YOY were caught in all surveys (Bagley et al. 2013, 2014, 2017; O'Driscoll et al. 2018; MacGibbon et al. 2019; Stevens et al. 2022, 2024; B Finucci unpubl. data 2024).

For Shovelnose Dogfish, 15 of the 1,238 individuals (1.21%) recorded in these surveys and for which biological data were collected measured 36.6–50 cm TL and were caught at depths of 616–927 m (B Finucci unpubl. data 2024). These individuals were classified as YOY based on the reported size for this life stage in the region (<50 cm TL; Parker & Francis 2012). Puysegur held the second largest number of YOY caught in research surveys along all New Zealand in the surveyed years and YOY were caught in 2011, 2018, 2020, and 2022 (Bagley et al. 2013, 2014, 2017; O'Driscoll et al. 2018; MacGibbon et al. 2019; Stevens et al. 2022, 2024; B Finucci unpubl. data 2024). Additionally, one of the 32 late-stage pregnant females reported for all New Zealand and 60 early-stage pregnant females were recorded in this area (B Finucci unpubl. data 2024).

Acknowledgments

Brittany Finucci (National Institute of Water and Atmospheric Research), Clinton AJ Duffy (Auckland War Memorial Museum), Malcolm P Francis (National Institute of Water and Atmospheric Research), and Emiliano García-Rodríguez (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.

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. Puysegur 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												
Centrophorus squamosus	Leafscale Gulper Shark	EN	0–3,366	X		X						
Centroselachus crepidater	Longnose Velvet Dogfish	NT	200–2,080			X						
Dalatias licha	Kitefin Shark	VU	37–1,800	X		X						
Deania calceus	Shovelnose Dogfish	NT	60–1,600			X						

SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
SHARKS		
Apristurus exsanguis	New Zealand Catshark	LC
Centroscymnus coelolepis	Portuguese Dogfish	NT
Centroscymnus owstonii	Roughskin Dogfish	VU
Etmopterus granulosus	Southern Lanternshark	LC
Etmopterus lucifer	Blackbelly Lanternshark	LC
Galeorhinus galeus	Tope	CR
Scymnodon macracanthus	Plunket's Shark	VU
Squalus acanthias	Spiny Dogfish	VU
RAYS		
Dipturus innominatus	Smooth Skate	LC
CHIMAERAS		
Rhinochimaera pacifica	Pacific Spookfish	LC
Harriotta avia	Australasian Narrow-nose Spookfish	LC
Hydrolagus bemisi	Pale Ghostshark	LC
Hydrolagus novaezealandiae	Dark Ghostshark	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.

SUPPORTING INFORMATION

There are additional indications that this is an important reproductive are for one shark species. Young-of-the-year Southern Lanternshark were recorded in independent research surveys using demersal trawls (200–1300 m depths) conducted in the area during summer (November–December) in 1991–1993, 2000–2009, 2011, 2012, 2014, 2016, 2018, 2020, and 2022 (Bagley et al. 2013, 2014, 2017; O'Driscoll et al. 2018; MacGibbon et al. 2019; Stevens et al. 2022; Stevens et al. 2024). Of 153 individuals recorded, 7 (4.5%) measured 20.8–25 cm TL and were caught at depths of 789–902 m (B Finucci unpubl. data 2024). These individuals were classified as YOY based on the reported size for this life stage in the region (<25 cm TL; Irvine 2004). Puysegur held the third largest number of YOY (~16%) caught in research surveys along all New Zealand in that period and YOY were caught in 2012, 2014 and 2018 (Bagley et al. 2013, 2014, 2017; O'Driscoll et al. 2018; MacGibbon et al. 2019; Stevens et al. 2022; Stevens et al. 2024; B Finucci unpubl. data 2024). More information is needed to confirm the regularity of these life stages in the area.

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