

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

## CHATHAM RISE ISRA

### New Zealand & Pacific Islands Region

#### SUMMARY

Chatham Rise is located on the eastern side of New Zealand. This ridge is characterised by muddy substrates with high microbenthic and low meiofaunal biomass in the north, and muddy and sandy substrates in the south. The area is influenced by the Subtropical Front where subtropical waters and subantarctic waters mix. The area overlaps with three Key Biodiversity Areas. Within this area there are: **threatened species** (e.g., Largespine Velvet Dogfish *Scymnodon macracanthus*); **range-restricted species** (e.g., Prickly Deepsea Skate *Brochiraja spinifera*); **reproductive areas** (e.g., Dark Ghostshark *Hydrolagus novaezealandiae*); and the area sustains a **high diversity of sharks** (26 species).

#### CRITERIA

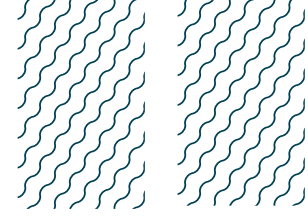
**Criterion A - Vulnerability; Criterion B - Range Restricted;**  
**Sub-criterion C1 - Reproductive Areas; Sub-criterion D2 - Diversity**

NEW ZEALAND

0-1,200 metres

194,188 km<sup>2</sup>





## DESCRIPTION OF HABITAT

Chatham Rise is located on the eastern side of New Zealand. This ridge rises from deep areas (~3,000 m) to 50 m in the western side and to sea level near the Chatham Islands (McGregor et al. 2019). The area is characterised by muddy substrates with high microbenthic and low meiofaunal biomass in the north, and muddy and sandy substrates in the south (Nodder et al. 2003). The rise has abyssal hills in the south, abyssal plain in the centre and a major mountain feature in the north. Phosphorite nodules are spread around the crest of the rise along with exposed basement rock substrates (Bowden et al. 2017; Leduc et al. 2024). These habitats sustain large densities of deepwater corals (Leduc et al. 2024). The area has a stable and permanent oceanography dominated by the Subtropical Front where there is a mix of subtropical waters and subantarctic waters (Sutton 2001; Chiswell et al. 2015). North subtropical waters are warmer, more saline, and nutrient-poor compared to the cold and nutrient-rich subantarctic waters from the south (McGregor et al. 2019). This front is divided by north and south fronts separated by a frontal zone (Sutton 2001). Sea surface temperatures are warmer during austral autumn with a shallow mixed layer in subtropical waters while in spring, temperatures are cooler and there is a deeper mixed layer (Sutton et al. 2001). Due to the oceanographic and habitat features in the rise, this area has the highest species richness for demersal fishes (Leathwick et al. 2006).

The area overlaps with the Chatham Islands (nearshore), Chatham (offshore), and East Coast South Island (offshore) Key Biodiversity Areas (KBA 2024a; 2024b; 2024c).

This Important Shark and Ray Area is benthic and pelagic and is delineated from inshore and surface waters (0 m) to 1,200 m based on the bathymetry of the area.

## ISRA CRITERIA

### CRITERION A - VULNERABILITY

Nine Qualifying Species considered threatened with extinction according to the IUCN Red List of Threatened Species regularly occur in the area. Threatened sharks comprise one Critically Endangered species, two Endangered species, and six Vulnerable species (IUCN 2024).

### CRITERION B - RANGE RESTRICTED

This area holds the regular presence of the New Zealand Catshark, Garrick's Catshark, Dawson's Catshark, Northern Spiny Dogfish, Longnose Deepsea Skate, Smooth Deepsea Skate, Prickly Deepsea Skate, Smooth Skate, Brown Chimaera, Giant Chimaera, Australasia Narrow-nosed Spookfish, Pale Ghostshark, Black Ghostshark, and Dark Ghostshark. These species were regularly encountered in independent research surveys using demersal trawls (200–1,300 m) conducted in January–February annually from 2009–2012 and bi-annually since 2014 (O'Driscoll et al. 2011; Stevens et al. 2012, 2013, 2014, 2015, 2017, 2018, 2021, 2023; B Finucci unpubl. data 2024). Due to the fishing gear selectivity, the abundance recorded for some of the species is underestimated and does not represent their true abundances in the area

For New Zealand Catshark, 127 individuals were recorded between 2020–2024 while for Garrick's Catshark, 16 individuals were reported in the same period. Species-specific catch records prior to 2020 are not available, as both species were recorded as 'catsharks'. This area had the largest number of New Zealand Catshark caught during research surveys around all of New Zealand (B

Finucci unpubl. data 2024). Garrick's Catshark was almost exclusively recorded in this area, and this is the only area around all New Zealand where the species occurs regularly. Both species are endemic to the New Zealand Shelf Large Marine Ecosystem (LME).

For Dawson's Catshark, 48 individuals were caught between 2009–2024 (except for 2013, 2016, 2019 and 2023) and Chatham Rise had the second largest number of individuals recorded during research surveys for this species in all New Zealand. This species is endemic to the New Zealand Shelf LME.

For Northern Spiny Dogfish, 186 individuals were recorded in the area between 2009–2024 (except 2015, 2019 and 2023) with Chatham Rise having the second largest number of individuals recorded during research surveys for this species in all New Zealand. This species is endemic to the New Zealand Shelf LME.

For Longnose Deepsea Skate, 65 individuals were recorded between 2009–2024 (except 2013, 2019 and 2023) and the largest number of individuals caught during research surveys for this species in all New Zealand were recorded in Chatham Rise. This species is endemic to the New Zealand Shelf LME.

For Smooth Deepsea Skate, 56 individuals were recorded in the area between 2009–2024 (except 2011, 2013, 2019 and 2023) with Chatham Rise having the largest number of individuals recorded during research surveys for this species in all New Zealand. This species is endemic to the New Zealand Shelf LME.

For Prickly Deepsea Skate, 52 individuals were recorded in the area between 2010–2024 (except 2013, 2015, 2016, 2019 and 2023) with Chatham Rise having the largest number of individuals recorded during research surveys for this species in all New Zealand. This species is endemic to the New Zealand Shelf LME.

For Smooth Skate, 444 individuals were recorded in the area between 2009–2024 with Chatham Rise having the largest number of individuals recorded during research surveys for this species in all New Zealand. This species is endemic to the New Zealand Shelf LME.

For Brown Chimaera, 104 individuals were recorded in the area between 2009–2024 (except 2013, 2015, 2019 and 2023) with Chatham Rise having the largest number of individuals recorded during research surveys for this species in all New Zealand. This species occurs in the New Zealand Shelf LME and in the Southeast Australian Shelf LME.

For Giant Chimaera, 11 individuals were recorded in the area in 2009, 200, 2012 and 2020. Despite the low numbers, Chatham Rise represents the largest number of individuals recorded during research surveys for this species in all New Zealand. This species is endemic to the New Zealand Shelf LME.

For Australasia Narrow-nosed Spookfish, 3,414 individuals were recorded in the area between 2009–2024 (except 2019 and 2023) with Chatham Rise having the largest number of individuals recorded during research surveys for this species in all New Zealand. This species is endemic to the New Zealand Shelf LME.

For Pale Ghostshark, 7,916 individuals were recorded in the area between 2009–2024 with Chatham Rise having the largest number of individuals recorded during research surveys for this species in all New Zealand. This species is endemic to the New Zealand Shelf LME.

For Black Ghostshark, 17 individuals were recorded in the area between 2009–2024 (except 2011–2013, 2015, 2019 and 2023). Despite the low numbers, Chatham Rise represents the second largest number of individuals recorded during research surveys for this species in all New Zealand. This species occurs in the New Zealand Shelf LME and in the Southeast Australian Shelf LME.

For Dark Ghostshark, 11,856 individuals were recorded in the area between 2009–2024 (except in 2019) with Chatham Rise having the largest number of individuals recorded during research surveys for this species in all New Zealand. This species is endemic to the New Zealand Shelf LME.

## SUB-CRITERION C<sub>1</sub> – REPRODUCTIVE AREAS

Chatham Rise is an important reproductive area for six shark and two chimaera species.

Based on records from research demersal trawl surveys conducted in yearly between January–February from 2009–2014 and bi-annually since 2014 (O’Driscoll et al. 2011; Stevens et al. 2012, 2013, 2014, 2015, 2017, 2018, 2021, 2023), young-of-the-year (YOY) individuals and late-stage pregnant females (with egg cases ready to be deposited or with near-term embryos) of Leafscale Gulper Shark, Longnose Velvet Dogfish, Kitefin Shark, Birdbeak Dogfish, Southern Lanternshark, Spiny Dogfish, Pale Ghostshark, and Dark Ghostshark are regularly found in the area (B Finucci unpubl. data 2024). Species maturity was assessed at sea using the National Institute of Water and Atmospheric Research’s standard shark macroscopic maturity staging key (Finucci et al. 2021). Late-stage pregnant females were classified as those with late-term embryos or females with egg cases ready to be laid. YOY individuals were determined either through physical assessment at sea or estimated from published growth curves based on their size (Hanchett 1988; Francis 2001; Irvine 2007; Parker & Francis 2012; Francis et al. 2016; Berio 2024). Due to the fishing gear selectivity, the abundance of YOYs recorded for some of the species is underestimated and does not represent the true abundances of these life-stages in the area. Chatham Rise is the most surveyed area in all New Zealand.

For Leafscale Gulper Shark, 640 individuals were caught. Of these, 154 YOY (24% of captures) and two late-stage pregnant females were caught in the northern part of this area at 356–1,200 m depth. YOY were defined as individuals measuring <50 cm total length (TL; Parker & Francis 2012; Francis et al. 2016). Chatham Rise was the area with the largest number of YOY sampled in all New Zealand.

For Longnose Velvet Dogfish, 6,824 individuals were caught. Of these, 3,803 YOY (55.7% of catches) and 35 late-stage pregnant females were caught in the northern part of the rise at depths of 414–1,200 m. YOYs were also caught in the southern sites at 538–1,200 m. YOY were defined as individuals measuring <50 cm TL (Parker & Francis 2012; Francis et al. 2016). Chatham Rise was the area with the largest number of YOY and late-stage pregnant females sampled in all New Zealand.

For Kitefin Shark, 618 individuals were caught. Of these, 585 YOY (94.6% of catches) were caught in the northern part of the rise at 369–1,020 m. YOY were defined as individuals measuring <50 cm TL (Parker & Francis 2012; Francis et al. 2016). Chatham Rise was the area with the largest number of YOY sampled in all New Zealand.

For Birdbeak Dogfish, 9,352 individuals were caught. Of these, 1,336 YOY (14.2% of catches) and seven late-stage pregnant females were caught in the northern part of the rise at 482–969 m. YOY were defined as individuals measuring <50 cm TL (Parker & Francis 2012; Francis et al. 2016). Chatham Rise was the area with the largest number of YOY sampled in all New Zealand.

For Southern Lanternshark, 5,386 individuals were caught. Of these, 251 (4.6% of catches) YOY and 78 late-stage pregnant females were caught mostly in the southern part of the rise at 500–1,135 m. YOY were defined as individuals measuring <25 cm TL (Irvine 2004). Chatham Rise was the area with the largest number of YOY sampled in all New Zealand.

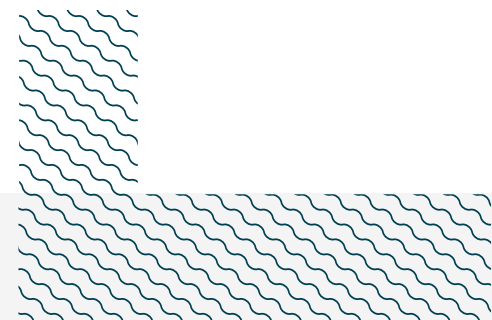
For Spiny Dogfish, 10,934 individuals were caught. Of these, 26 YOY and 2,586 late-stage pregnant females (23.6% of catches) were caught mostly in the middle and shallower parts of the rise at 220–587 m. YOY were defined as individuals measuring <30 cm TL (Hanchett 1988).

For Pale Ghostshark, 7,916 individuals were caught. Of these, 16 YOY and 117 late-stage pregnant females (1.47% of catches) were caught mostly in the middle and shallower parts of the rise at 369–778 m. YOY were defined as individuals measuring <20 cm TL (Berio 2024). Chatham Rise was the area with the largest number of pregnant females with egg cases sampled in all New Zealand.

For Dark Ghostshark, 11,856 individuals were caught. Of these, two YOY and 103 late-stage pregnant females (0.86% of catches) were caught mostly in the middle and shallower parts of the rise at 243–486 m. YOY were defined as individuals measuring <20 cm TL (Berio 2024). Chatham Rise was the area with the second largest number of pregnant females with egg cases sampled in all New Zealand.

## SUB-CRITERION D2 – DIVERSITY

Chatham Rise sustains a high diversity of Qualifying Species (26 species). This exceeds the regional diversity threshold (21 species) for the New Zealand and Pacific Island region. The regular presence of Qualifying Species has been documented through scientific demersal trawl surveys conducted by the National Institute of Water and Atmospheric Research (NIWA) since 1992 (O’Driscoll et al. 2011; Stevens et al. 2012, 2013, 2014, 2015, 2017, 2018, 2021, 2023; B. Finucci unpubl. data 2024) and by records of White Sharks tagged around the Chatham Islands (Duffy et al. 2012).



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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
<b>SHARKS</b>												
<i>Apristurus exsanguis</i>	New Zealand Catshark	LC	415-1,200		X							X
<i>Apristurus garricki</i>	Garrick's Catshark	LC	517-1,200		X							
<i>Bythaelurus dawsoni</i>	Dawson's Catshark	LC	50-992		X							
<i>Carcharodon carcharias</i>	White Shark	VU	0-1,277	X								
<i>Centrophorus squamosus</i>	Leafscale Gulper Shark	EN	0-3,366	X		X						
<i>Centroscymnus owstonii</i>	Roughskin Dogfish	VU	150-1,459	X								
<i>Centroselachus crepidater</i>	Longnose Velvet Dogfish	NT	200-2,080			X						
<i>Dalatias licha</i>	Kitefin Shark	VU	37-1,800	X		X						
<i>Deania calceus</i>	Birdbeak Dogfish	NT	60-1,600			X						
<i>Etmopterus granulosus</i>	Southern Lanternshark	LC	220-1,500			X						
<i>Galeorhinus galeus</i>	Tope	CR	0-826	X								
<i>Isurus oxyrinchus</i>	Shortfin Mako	EN	0-1,888	X								
<i>Lamna nasus</i>	Porbeagle	VU	0-1,809	X								



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
<i>Scymnodon macracanthus</i>	Largespine Velvet Dogfish	VU	180-1,550	X								
<i>Squalus acanthias</i>	Spiny Dogfish	VU	0-1,978	X		X						
<i>Squalus griffini</i>	Northern Spiny Dogfish	LC	15-700		X							
<b>RAYS</b>												
<i>Bathyraja shuntovi</i>	Longnose Deepsea Skate	DD	300-1,485		X							X
<i>Brochiraja asperula</i>	Smooth Deepsea Skate	DD	57-1,150		X							
<i>Brochiraja spinifera</i>	Prickly Deepsea Skate	DD	125-1,500		X							
<i>Dipturus innominatus</i>	Smooth Skate	LC	0-1,450		X							
<b>CHIMAERAS</b>												
<i>Chimaera carophila</i>	Brown Chimaera	LC	846-1,350		X							X
<i>Chimaera lignaria</i>	Giant Chimaera	LC	400-1,800		X							
<i>Harriotta avia</i>	Australasia Narrow-nosed Spookfish	LC	260-1,278		X							
<i>Hydrolagus bemisi</i>	Pale Ghostshark	LC	400-1,100		X	X						
<i>Hydrolagus homonycteris</i>	Black Ghostshark	LC	500-1,450		X							
<i>Hydrolagus novaezealandiae</i>	Dark Ghostshark	LC	32-800		X	X						

## SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
<b>SHARKS</b>		
<i>Apristurus ampliceps</i>	Roughskin Catshark	LC
<i>Apristurus melanoasper</i>	Fleshynose Catshark	LC
<i>Cephaloscyllium isabellum</i>	Carpet Shark	LC
<i>Chlamydoselachus anguineus</i>	Frilled Shark	LC
<i>Etmopterus lucifer</i>	Blackbelly Lanternshark	LC
<i>Heptranchias perlo</i>	Sharpnose Sevengill Shark	NT
<i>Hexanchus griseus</i>	Bluntnose Sixgill Shark	NT
<i>Mustelus lenticulatus</i>	Rig	LC
<i>Oxynotus bruniensis</i>	Prickly Dogfish	NT
<i>Prionace glauca</i>	Blue Shark	NT
<b>RAYS</b>		
<i>Amblyraja hyperborea</i>	Arctic Skate	LC
<i>Bathytoshia brevicaudata</i>	Smooth Stingray	LC
<i>Dipturus nasutus</i>	Rough Skate	LC
<i>Tetronarce nobiliana</i>	Great Torpedo Ray	LC
<b>CHIMAERAS</b>		
<i>Hydrolagus trolli</i>	Abyssal Ghostshark	LC
<i>Rhinochimaera pacifica</i>	Pacific Spookfish	LC

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







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