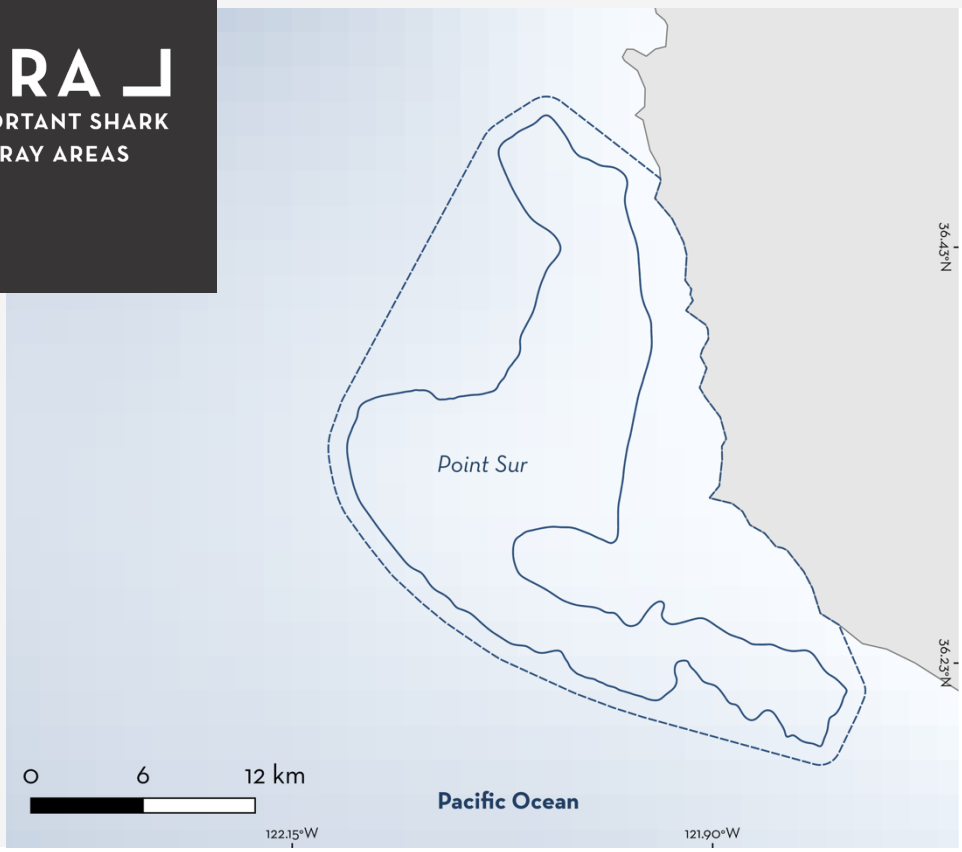
ISRA
IMPORTANT SHARK AND RAY AREAS



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

POINT SUR ISRA

North American Pacific Region

UNITED STATES OF AMERICA

72–454 metres

273.9 km²

SUMMARY

Point Sur is located off central California, United States of America. The area is situated on the continental shelf between Sur and Monterey canyons. The habitat is characterised by a mixture of hard and soft substrates, including high-relief granitic outcrops, extensive cobble fields, intermittent areas of sand, and mud expanses. Point Sur is one of the major upwelling centres along the central California coast. Within this area there are: **undefined aggregations** (White-spotted Ratfish *Hydrolagus colliei*).

CRITERIA

Sub-criterion C5 – Undefined Aggregations

DESCRIPTION OF HABITAT

Point Sur is located off central California, United States of America (USA). The area is situated on the continental shelf between Sur and Monterey canyons. The habitat is characterised by a mixture of hard and soft substrates, including high-relief granitic outcrops, extensive cobble fields, intermittent areas of sand, and mud expanses (Kennedy et al. 1987; Kramp 2012).

During the boreal spring and summer, persistent northwesterly winds drive upwelling by pushing surface waters away from the coast, allowing cold, nutrient-rich water to rise to the surface. Point Sur is one of the major upwelling centres along the central California coast (Bakun 1973; Rosenfeld et al. 1994).

This Important Shark and Ray Area is benthic, pelagic, and subsurface and is delineated from 72–454 m based on the depth range of Qualifying Species in the area.

ISRA CRITERIA

SUB-CRITERION C5 – UNDEFINED AGGREGATIONS

Point Sur is an important area for undefined aggregations of one chimaera species.

The West Coast Groundfish Bottom Trawl Survey (WCGBTS) is conducted annually between May –July and August–October along the USA west coast between the USA-Canada border and the USA-Mexico border, at depths ranging from 55 to 1,280 m (Keller et al. 2017). The survey area is subdivided into ~12,000 equal-area grid cells, from which 188 cells are randomly selected each year within depth and latitudinal strata to ensure representative spatial sampling. All sharks captured are sorted to species level (or the lowest possible taxonomic resolution) and weighed, and subsamples of selected species are measured. The trawl net used in the survey has a headrope measuring 25.9 m and a footrope measuring 31.7 m. Trawling is conducted during daylight hours at a target speed of 2.2 ± 0.5 knots, with a standard tow duration of 15 minutes (~0.55 km) (Keller et al. 2017).

Between 2011–2025, 8,338 tows were conducted in the entire survey area, 43 of which were within this area (1.0%) (NOAA NWFSC FRAM 2026). Whitespotted Chimaeras were captured in 4,429 tows in the entire survey area (53.1% of total tows) at depths between 2.3–958.7 m and were captured in 39 tows within this area (90.7% of tows in this area) at depths between 72.8–453.7 m. Based on Kernel Utilization Distribution (KUD) weighted by catch-per-unit-effort (CPUE; number of individuals per square kilometre; ind/km^2), this area is one of the only five areas with KUD >75% along the USA west coast. Of the 10 highest CPUEs along this coast, one is within this area (121,557.8 ind/km^2). The average CPUE for the remaining 42 tows with Whitespotted Chimaera in this area was 8,309.5 (maximum = 47,595.7 ind/km^2). Outside this area, the average CPUE of the remaining 4,381 tows with Whitespotted Chimaera captures (also not considering the nine highest values) is 1,200.5 ind/km^2. The average maximum number of individuals in a single tow that had Whitespotted Chimaera captures in this area was 176.2, while outside this area it was 24.3 for the same average area (0.02 km^2) (NOAA NWFSC FRAM 2026).

Data comprised the number of individuals and total kilograms per species in each tow, and the Precaudal Length (PCL) was calculated based on the length-weight relationship (King & McPhie 2013). The average size of individuals in tows outside this area ranged 6.3–106.1 cm PCL compared to 6.7–44.2 cm PL (average = 32.8 cm PCL) within this area. Size-at-maturity for the species is 30.2 cm PCL for males and 39.3 cm PCL for females (King & McPhie 2013) indicating that aggregations were mainly composed of subadults. Whitespotted Chimaera are known to form large aggregations that

can be size-specific (Barnett et al. 2009). Sharks, rays, and chimaeras can aggregate in high density areas resulting in large catches in specific areas within the broader seascape (e.g., Bizzarro et al. 2014). Elevated CPUE relative to surrounding areas can be used as an indicator of aggregations of deepwater species (Orlov & Volvenko 2022). Specifically for chimaeras, high densities of individuals have been shown to be indicative of aggregations (Finucci et al. 2018).

Between 2006 and 2010, video transects were conducted using a remotely operated vehicle (ROV) and benthic towed camera sled as part of a larger project at North Monterey Bay, La Cruz Canyons, and within this area (Point Sur and Point Lobos) (Kramp 2012). The total area sampled was 174.7 km. Within this area, the number of Whitespotted Chimaera per km was 1.0 at Point Lobos and 2.0 at Point Sur, while outside this area, it was 0.1 and 0.7. The total number of individuals was 149 (121 measured; n = 96 were <44 cm TL and were classified as juvenile), of which 101 were from this area. One aggregation of at least 31 individuals (mostly juveniles) was observed in this area along with other loose aggregations of 3–8 individuals. The only other aggregation outside this area was recorded in southern North Monterey Bay and was formed by 29 individuals (Kramp 2012).

Further information is required to understand the nature and function of these aggregations.

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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
CHIMAERAS												
Hydrolagus colliei	White-spotted Ratfish	LC	0–959							X		

SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
SHARKS		
Squalus suckleyi	North Pacific Spiny Dogfish	LC
RAYS		
Bathyraja kincaidii	Sandpaper Skate	LC
Caliraja rhina	Longnose Skate	LC
Caliraja stellulata	Pacific Starry 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

Bakun A. 1973. Coastal upwelling indices, west coast of North America. Seattle: National Oceanic and Atmospheric Administration.

Barnett LAK, Earley RL, Ebert DA, Cailliet GM. 2009. Maturity, fecundity, and reproductive cycle of the spotted ratfish, *Hydrolagus colliei*. *Marine Biology* 156: 301–316. https://doi.org/10.1007/s00227-008-1084-y

Bizzarro JJ, Broms KM, Logsdon MG, Ebert DA, Yoklavich MM, Kuhnz LA, Summers AP. 2014. Spatial segregation in Eastern North Pacific skate assemblages. *PLoS ONE* 9: e109907. https://doi.org/10.1371/journal.pone.0109907

Finucci B, Dunn MR, Jones EG. 2018. Aggregations and associations in deep-sea chondrichthyans. *ICES Journal of Marine Science* 75: 1613–1626. https://doi.org/10.1093/icesjms/fsy034

Keller AA, Wallace JR, Methot RD. 2017. The Northwest Fisheries Science Center's West Coast Groundfish Bottom Trawl Survey: history, design, and description. NOAA Technical Memorandum, NMFS-NWFSC-136.

Kennedy MP, Green HG, Clarke SH. 1987. Geology of the California continental margin: explanation of the California continental margin geologic map series. Bulletin 207. Sacramento: US Geological Survey Bulletin.

King JR, McPhie RP. 2013. Preliminary age, growth and maturity estimates of spotted ratfish (*Hydrolagus colliei*) in British Columbia. *Deep Sea Research Part II: Topical Studies in Oceanography* 115: 55–63. https://doi.org/10.1016/j.dsr2.2013.11.002

Kramp H. 2012. Distribution and habitat associations of Spotted Ratfish (*Hydrolagus colliei*) in the Monterey Bay National Marine Sanctuary. Unpublished BSc Thesis, California State University, Monterey Bay.

NOAA Fisheries, Northwest Fisheries Science Center (NWFSC), Fisheries Resource Analysis and Monitoring Division (FRAM). 2026. West Coast Groundfish Bottom Trawl Survey. Seattle: NOAA Fisheries, Northwest Fisheries Science Center.

Orlov AM, Volvenko IV. 2022. Long-term changes in the distribution and abundance of nine deep-water skates (Arhynchobatidae: Rajiformes: Chondrichthyes) in the Northwestern Pacific. *Animals* 12: 3485. https://doi.org/10.3390/ani12243485

Rosenfeld LK, Schwing FB, Garfield N, Tracy DE. 1994. Bifurcated flow from an upwelling center: a cold water source for Monterey Bay. *Continental Shelf Research* 14: 931–964. https://doi.org/10.1016/0278-4343(94)90058-2