The IUCN Red List of Threatened Species™
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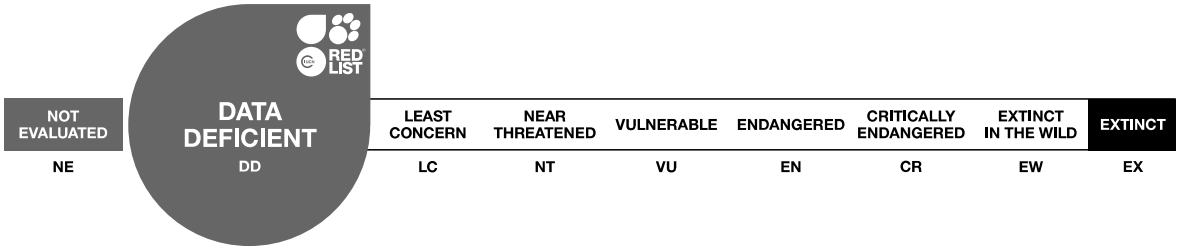
Scope(s): Global
Language: English

Salilota australis, Red Cod

Assessment by: Buratti, C., di Marco , E., Giussi, A., Díaz de Astarloa, J., Hüne, M., Irigoyen, A., Landaeta, M., Riestra, C. & Vieira, J.P.



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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Actinopterygii	Gadiformes	Moridae

Scientific Name: *Salilota australis* (Günther, 1878)

Synonym(s):

- *Haloporphyrus australis* Günther, 1878
- *Salilota bovei* Perugia, 1891

Common Name(s):

- English: Red Cod, Tadpole Codling
- Spanish; Castilian: Bacalao Austral, Brótula

Taxonomic Source(s):

Fricke, R., Eschmeyer, W.N. and Van der Laan, R. (eds). 2020. Eschmeyer's Catalog of Fishes: genera, species, references. Updated 02 March 2020. Available at: http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp.

Assessment Information

Red List Category & Criteria: Data Deficient ver 3.1

Year Published: 2020

Date Assessed: December 6, 2019

Justification:

This widely distributed, demersal species has an estimated generation length of 10 years. It is a valued bycatch species retained in bottom trawl fisheries throughout its range. Exploitation of spawning aggregations increases the susceptibility of this species to declines. On the Pacific coast, catch has declined, however, this is reflective of declines in effort caused by fishery regulations that reduced the number of fishing vessels. On the Atlantic coast, it is not currently considered overfished, and catches in recent years have been low. Due to the lack of fishery independent survey data, biomass estimates are conducted under data-poor conditions, which causes high uncertainty. The currently available biomass estimates show it has declined or fluctuated widely over much of the past three generation lengths with a slightly increasing trend in recent years. It is not completely understood whether fishing effort will remain the same or decline, but some regulations have been implemented to reduce fishing effort on the spawning grounds. Due to the potential major threat from fishing, and that there has been some poorly understood level of global population decline since the 1990s, it is listed as Data Deficient. Fishery independent surveys are needed as well as research on population structure.

Geographic Range

Range Description:

This species occurs in the southeast Pacific at approximately 40°S off Chile to the Magellan Straits and

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into the southwest Atlantic north to Uruguay, including the Malvinas Islands (Brickle *et al.* 2011, Follert *et al.* 2017). Records from further south are considered waifs. The depth range is 8-1,000 metres.

Country Occurrence:

Native, Extant (resident): Argentina; Chile; Falkland Islands (Malvinas); Uruguay

FAO Marine Fishing Areas:

Native: Atlantic - southwest

Native: Pacific - southeast

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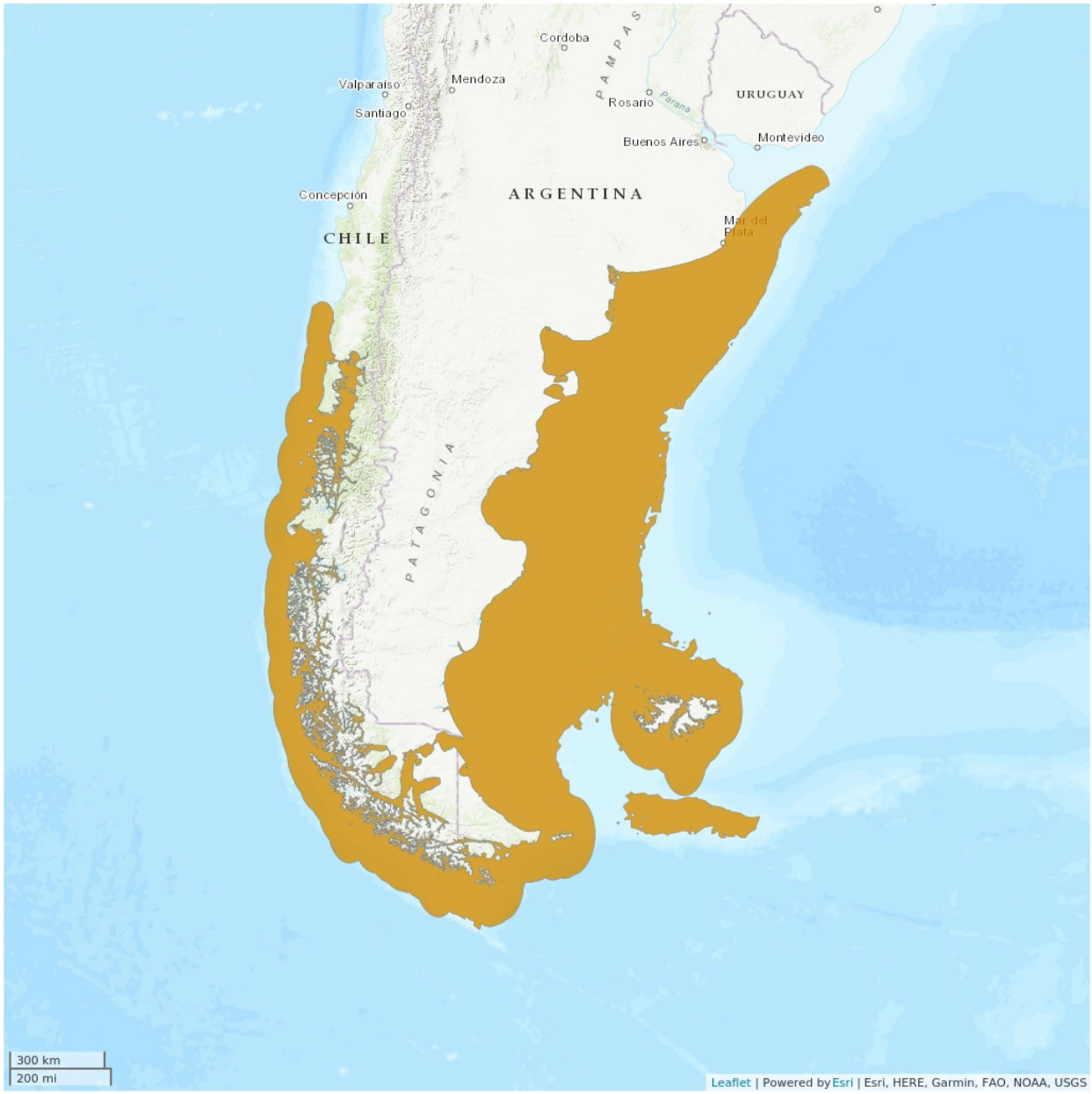
Distribution Map

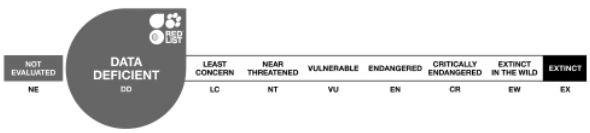


Legend

EXTANT (RESIDENT)

Compiled by:

IUCN Marine Biodiversity Unit/GMSA 2020



The boundaries and names shown and the designations used on this map do not imply any official endorsement, acceptance or opinion by IUCN.

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Population

This species is common and abundant.

Pacific: Over the past five years, catch on the Chilean coast has been about 500 t, and overall, it represents a much smaller proportion of the global catch as compared to the Atlantic. There is likely some level of connectivity between the populations from the Pacific to the Atlantic. There is likely just one stock in the Pacific. Estimates of biomass are not available for the Pacific coast. Landings declined since 1988 from 8,000 t to 500 t, which represents about a 94% decline over the past three generation lengths. However, effort has also been declining during the same time period, and therefore, this trend is considered to explain the catch trends, and does not reflect a population decline. Effort was reduced due to fishing regulations introduced over the past six years, and effort is now at a relatively low level. However, this species has been increasingly targeted by the austral demersal fleet in Chile over the past decade (Follert *et al.* 2017).

Atlantic: Fishing for this species on the Atlantic coast occurs mostly in areas around the Malvinas Islands. From 1984-2017, in Argentina, landings by the Argentine and foreign fleets varied widely over time. Catch declines are related to changes in effort being directed towards other species. The exploitation of this species is highly related to the fishing effort directed towards Hoki (*Macruronus magellanicus*). As Hoki abundance has declined over time, the effort towards this species increased. The Argentine fishery began exploiting this species in 1980 and it is typically caught during the spawning season when it occurs in high densities. Largest catches occurred in the late 1990s, with a peak in 1999 of 16,500 t and then gradually declined by 70% to around 5,000 t in 2015-2017. Catch per unit effort declined by 52% from 49.69 kg/h in 1998 to 23.82 kg/h in 2017 (data are not available prior to 1998). Biomass declined by 47% over the past four generation lengths from 201,748 t in 1980 to 106,656 t in 2018, but there were periods of some stability (2002-2007 and 2012-2018) and a slight upward trend has been recorded in recent years (2014-2017). Catches during the period from 1984 to 2000 and 2007 to 2013 were too high, and this may have contributed to biomass decline. Catches declined in 2014 to 2017 and biomass increased slightly. Currently, catches are only 3% of the biomass. The most recent Argentine stock assessment concluded overfishing was not occurring as abundance levels remained above the target and biological limit reference points (Di Marco 2019). The Malvinas fishery is not currently overfished but has been in recent years. Biomass has declined or fluctuated widely since at least 1987, although there has been an increasing trend in recent years. Recent catches are low at nearly 2.5% of the biomass. The average length and age at maturity of the individuals in the Malvinas catch has declined since 1988 (Winter 2018).

This species is not directly targeted, but retained as bycatch, and data needed to accurately estimate relative abundance are difficult to obtain because fishery independent research surveys have not been conducted. Due to this, both stock assessments (Winter 2018, Di Marco 2019) are conducted under data-poor conditions. The high amount of uncertainty associated with these estimates prevents an estimate of global population decline at this time, but concern remains that some level of decline has occurred over the past three generation lengths (C. Buratti, A. Giussi and E. di Marco pers. comm. 2020).
Current Population Trend: Decreasing

Habitat and Ecology **(see Appendix for additional information)**

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This demersal species occurs on soft bottoms on the continental shelf and slope. It migrates to form spawning aggregations on the continental shelf edge near areas of upwelling associated with the Malvinas Current in September-October and then returns to feeding grounds on the Patagonian Shelf (Arkhipkin *et al.* 2010). The maximum total length is 96 cm (Brickle *et al*. 2011). Age at first maturity is 4 years and longevity is 16 years (Wöhler *et al*. 2004, Winter 2018, Di Marco 2019). When applying an age at first reproduction of 4 years and longevity of 16 years, its estimated generation length is 10 years based on the following equation recommended by the IUCN Red List methods: Age at first reproduction + (Age at last reproduction – age at first reproduction)/2.

Systems: Marine

Use and Trade

This species is a valued bycatch species taken in mixed-species bottom trawl fisheries.

Threats (see Appendix for additional information)

Overfishing is a potential major threat to this species. It is an aggregate spawner, and heavy exploitation on these aggregations increases the susceptibility of this species to rapid declines (Brickle *et al.* 2011).

Conservation Actions (see Appendix for additional information)

There are fishing regulations in place in Chile. Fishing area restrictions were put in place by the Argentine government in 2002 and total catch limits and vessel permitting have been in place since 2008 (Di Marco 2019). In 2009, fishing regulations were put in place on the Malvinas spawning grounds.

Field surveys are needed to improve the accuracy of abundance indices and research on population structure would also be beneficial.

Credits

Assessor(s): Buratti, C., di Marco , E., Giussi, A., Díaz de Astarloa, J., Hüne, M., Irigoyen, A., Landaeta, M., Riestra, C. & Vieira, J.P.

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Disclaimer

External Resources

For Supplementary Material, and for Images and External Links to Additional Information, please see the Red List website.

Appendix

Habitats
(http://www.iucnredlist.org/technical-documents/classification-schemes)

Habitat	Season	Suitability	Major Importance?
9. Marine Neritic -> 9.4. Marine Neritic - Subtidal Sandy	Resident	Suitable	Yes
11. Marine Deep Benthic -> 11.1. Marine Deep Benthic - Continental Slope/Bathyl Zone (200-4,000m)	-	-	-

Use and Trade
(http://www.iucnredlist.org/technical-documents/classification-schemes)

End Use	Local	National	International
Food - human	No	Yes	No

Threats
(http://www.iucnredlist.org/technical-documents/classification-schemes)

Threat	Timing	Scope	Severity	Impact Score
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.4. Unintentional effects: (large scale) [harvest]	Ongoing	Majority (50-90%)	Causing/could cause fluctuations	Medium impact: 6
	Stresses:	2. Species Stresses -> 2.1. Species mortality		

Conservation Actions in Place
(http://www.iucnredlist.org/technical-documents/classification-schemes)

Conservation Action in Place
In-place species management
Harvest management plan: Yes

Research Needed
(http://www.iucnredlist.org/technical-documents/classification-schemes)

Research Needed
1. Research -> 1.2. Population size, distribution & trends
1. Research -> 1.3. Life history & ecology
1. Research -> 1.4. Harvest, use & livelihoods

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Research Needed
3. Monitoring -> 3.1. Population trends

Additional Data Fields

Distribution
Lower depth limit (m): 1,000
Upper depth limit (m): 8
Habitats and Ecology
Generation Length (years): 10

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The IUCN Red List Partnership

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The IUCN Red List Partners are: Arizona State University; BirdLife International; Botanic Gardens Conservation International; Conservation International; NatureServe; Royal Botanic Gardens, Kew; Sapienza University of Rome; Texas A&M University; and Zoological Society of London.