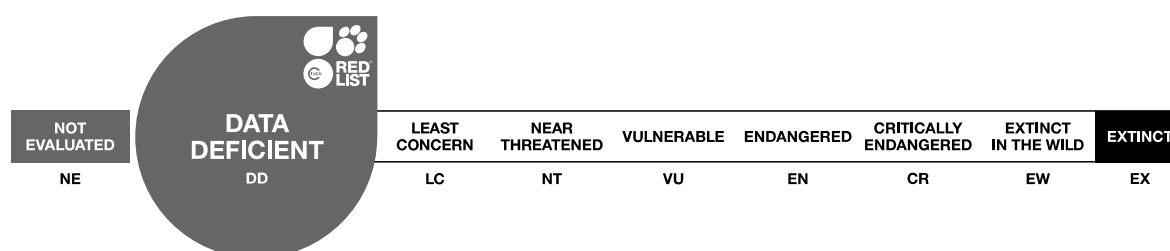


Patagonotothen ramsayi, Longtail Southern Cod

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



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Citation: Buratti, C., Díaz de Astarloa, J., Hüne, M., Irigoyen, A., Landaeta, M., Riestra, C. & Vieira, J.P. 2020. *Patagonotothen ramsayi*. *The IUCN Red List of Threatened Species 2020*: e.T195069A2373922. <https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T195069A2373922.en>

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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Actinopterygii	Perciformes	Nototheniidae

Scientific Name: *Patagonotothen ramsayi* (Regan, 1913)

Synonym(s):

- *Notothenia ramsayi* Regan, 1913

Common Name(s):

- English: Longtail Southern Cod
- Spanish; Castilian: Nototenia

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 species has a relatively small range on the continental shelf and slope of the southern part of the Patagonia Sea where it plays an important ecological role as a prey item for larger marine species. The majority of its global population is concentrated in southern Argentina, including the Malvinas Islands, where the main fishing ground is located. One generation length is estimated as 10 years. It is relatively slow-growing and late to maturity with relatively low fecundity, which may cause it to be susceptible to declines when facing heavy fishing pressure. Previous to 2006, it was mostly discarded as bycatch in large quantities beginning in the 1980s. A large-scale, commercial fishery began in 2007 in the Malvinas area. In areas outside the Malvinas closer to the Argentine mainland, it is taken in fisheries in relatively small amounts. According to stock assessment models based on catch per unit effort data and fishery independent trawl surveys, the estimated biomass for the period of 2005 to 2018 was highest in 2005 and then declined by 79% to a low in 2018. According to the 2019 and 2020 survey results, biomass has continued to decline. Biomass trends prior to 2005 are poorly understood, but based on these data, it is suspected that its population has declined by 40-50% on a global-level over the past one and a half generation lengths, or 15 years. In addition, declines in length at maturity and average length of individuals in the survey catch have also occurred. The cause of decline is poorly understood, but may be attributed in part to fishing activity or a shift in the spatial distribution of its abundance to areas adjacent to the Malvinas. Several fishery management measures are in place, catches have been at a relatively low level and it is not considered overfished. Due to the uncertainty associated with the cause of decline and lack of data prior to 2005, it is not possible to estimate the population trend to cover a

three generation length period (either in the past or into the future) at this time. It is listed as Data Deficient with a strong recommendation to conduct studies to improve the understanding of this decline both within the Malvinas area and areas adjacent to it.

Geographic Range

Range Description:

This species is distributed in the southeastern Pacific from Isla Madre de Dios, Chile (about 50°S) to Cape Horn and in the southwestern Atlantic from Argentina to Uruguay, including the Malvinas Islands and Burdwood Bank at 55°S (Brickle *et al.* 2005, Irigoyen *et al.* 2018). It has also been recorded in the South Georgia Islands and off the eastern tip of the Antarctic Peninsula (iDigBio database accessed May 2020). The depth range is 50-500 metres.

Country Occurrence:

Native, Extant (resident): Antarctica; Argentina; Chile; Falkland Islands (Malvinas); South Georgia and the South Sandwich Islands; Uruguay

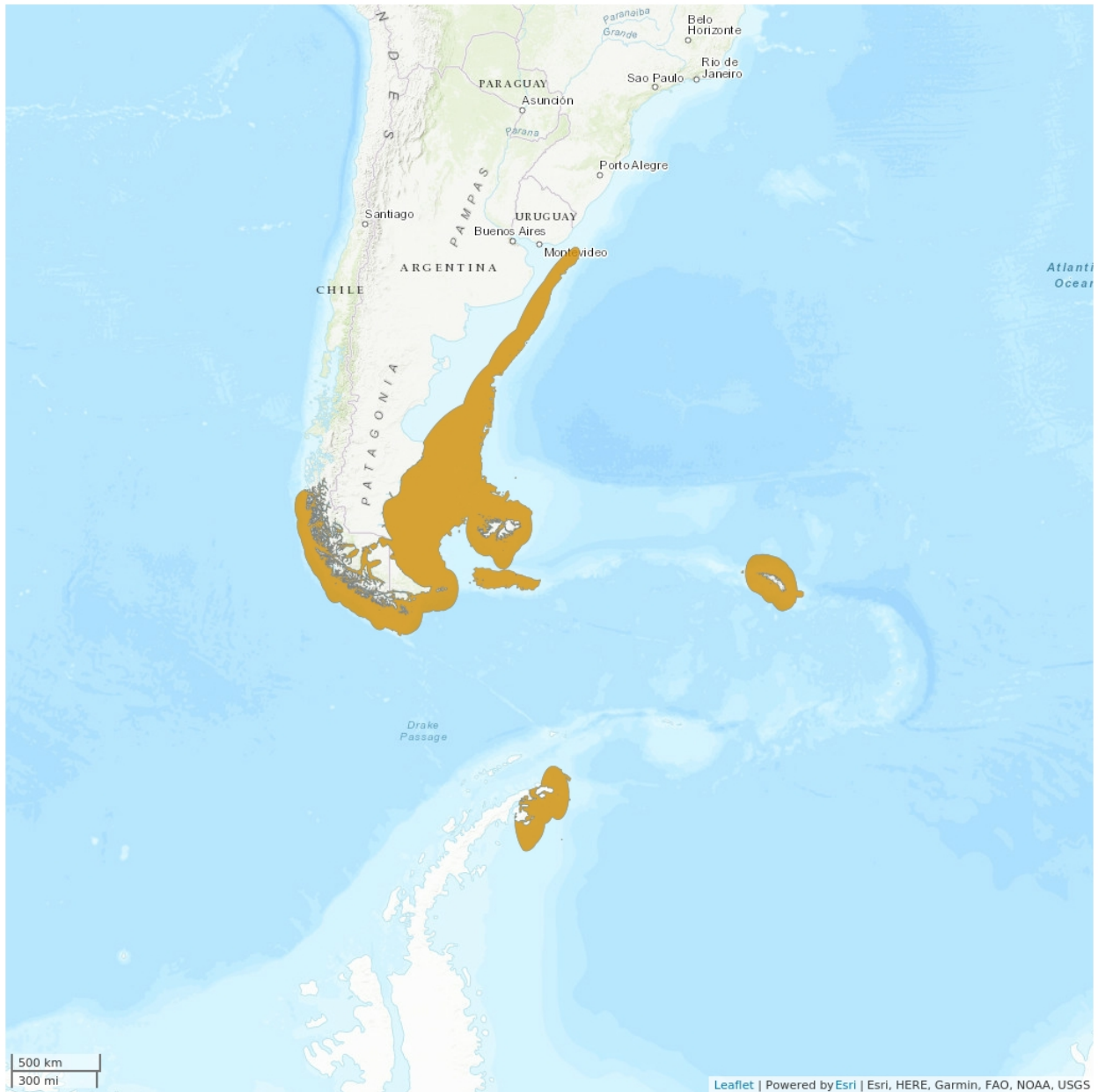
FAO Marine Fishing Areas:

Native: Atlantic - Antarctic

Native: Atlantic - southwest

Native: Pacific - southeast

Distribution Map

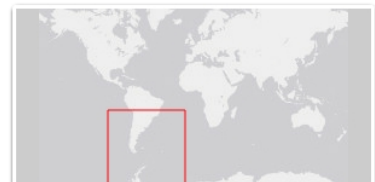
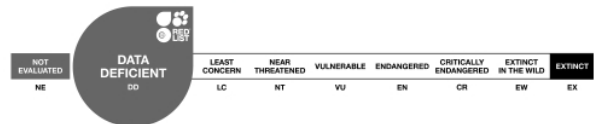


Legend

■ 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.

Population

This species is common and abundant off southern Argentina, but less common off Chile. It has a particularly high abundance in the Namuncurá Burwood Bank Marine Protected Area Plateau (J.M. Díaz de Astarloa pers. comm. 2020). The main fishing ground for this species is located in the Malvinas area, and is taken in relatively small amounts in areas closer to the Argentine mainland. Fishing fleets that operate in international waters off Argentina also take this species. It is not targeted by fisheries in the Pacific part of its range nor in the northern part of the Atlantic range (Uruguay) as it is less common in those areas (C. Buratti, J.M. Díaz de Astarloa and M. Hüne pers. comm. 2019).

The Malvinas stock of Southern Blue Whiting (*Micromesistius australis*) collapsed in 2004-2007 primarily due to overfishing, and following this, the catches and catch per unit effort of this species (Rock Cod) increased by 20-30 fold between 2002-2004 and 2009-2011 (Laptikhovsky *et al.* 2013). Large amounts of landings of this species were taken by the fisheries operating on the shelf and slope of the Malvinas between 2006 to 2015. Catch peaked in 2010 at 76,451 t and declined thereafter with a particularly steep decline occurring after 2015 to a low of 2,213 t in 2018. Since the fishery began in 2007, catch per unit effort increased until 2010 before declining thereafter. However, effort has been difficult to estimate as this species is not always the main target and has a patchy distribution that varies annually in the area. Vessels may choose to target Hake and/or Kingclip as they have a higher market value than this species.

Abundances estimates have not been made in any region other than the Malvinas Islands (C. Buratti pers. comm. 2020). Fishery independent scientific trawl surveys have been conducted throughout the Malvinas area since 2010, but were not carried out in the years 2012-2014. The mean length of individuals of this species captured in these surveys declined over time from 22 cm in 2010 to 18 cm in 2020. Length at maturity also declined from 2003 to 2018. These declines are inferred to be caused by fishing pressure (Winter 2019). Survey biomass peaked in 2011 at 1,090,655 t and then declined by 98% to a low of 22,335 t in 2020, or over one past generation length (Ramos and Winter 2020). Modelled biomass has been estimated for the time period from 2005 to 2018. Biomass was highest in 2005 at about 1,250,000 t and mostly declined thereafter to about 265,000 t in 2018, which represents a 79% decline over the past one and a half generation lengths, or 15 years. Biomass trends of this species prior to 2005 are poorly understood. The most recent stock assessment concluded that the stock is not overfished and overfishing is not occurring, but recognized there has been an 8-fold decline in the stock since at least 2005. Despite the situation that fishery catches have been at a relatively low level, no recovery in the stock has been detected (Winter 2019). The continuing decline in biomass may be due to changes in its distribution, but in general, the cause appears to be poorly understood (Ramos and Winter 2020).

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

This benthopelagic species inhabits the continental shelf and slope on both sandy and rocky areas. It plays an important ecological role as a prey item to many larger fish predators (Laptikhovsky *et al.* 2013). According to fecundity studies by Brickle *et al.* (2006), fertility is relatively low (J.M. Díaz de Astarloa pers. comm. 2019). The maximum total length is 41 cm. Spawning occurs on the continental shelf break. Longevity is 14 years and length and age at first maturity is 27.6 cm for males and 24.8 cm for females

and approximately 5 years (Brickle *et al.* 2006). When applying an age at first reproduction of 5 years and longevity of 14 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 targeted and sold for human consumption in Tierra del Fuego and the Malvinas Islands. Since the 1980s, it has comprised a large proportion of the bycatch in squid and finfish trawl fisheries (La Mesa *et al.* 2016). Previous to 2006, it was typically discarded due to its low commercial value (Laptikhovsky and Arkhipkin 2003, Brickle *et al.* 2006), but is now directly targeted by commercial fisheries operating on the shelf off the Malvinas (Arkhipkin *et al.* 2013).

Threats (see Appendix for additional information)

Overfishing is a potential major threat. This species is relatively slow growing and late to maturity with relatively low fecundity, which may cause it to be susceptible to declines when facing heavy fishing pressure.

Conservation Actions (see Appendix for additional information)

Fishing effort is regulated through an Individual Transferable Quota (ITQ) licensing system, total allowable catch limits, seasonal and area closures and gear restrictions. It occurs in a permanent closed area for the Argentine hake fishery on the Argentine continental shelf around 45°S (Alemany *et al.* 2013) and in the Namuncurá Burwood Bank Marine Protected Area Plateau (J.M. Díaz de Astarloa pers. comm. 2020). Improvements in fisheries management are needed to address biomass declines.

Credits

Assessor(s):	Buratti, C., Díaz de Astarloa, J., Hüne, M., Irigoyen, A., Landaeta, M., Riestra, C. & Vieira, J.P.
Reviewer(s):	Linardich, C.
Contributor(s):	Campagna, C.
Facilitator(s) and Compiler(s):	Falabella, V., Linardich, C. & Wildlife Conservation Society

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Citation

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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 -> 9.2. Marine Neritic - Subtidal Rock and Rocky Reefs	Resident	Suitable	Yes
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 -> 5.4.2. Intentional use: (large scale) [harvest]	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
	Stresses:	2. Species Stresses -> 2.1. Species mortality		
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.4. Unintentional effects: (large scale) [harvest]	Ongoing	Majority (50-90%)	Slow, significant declines	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 land/water protection
Occurs in at least one protected area: Yes

Conservation Actions Needed

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

Conservation Action Needed

3. Species management -> 3.1. Species management -> 3.1.1. Harvest management

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
--

3. Monitoring -> 3.1. Population trends

Additional Data Fields

Distribution

Lower depth limit (m): 500

Upper depth limit (m): 50

Habitats and Ecology

Generation Length (years): 10

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