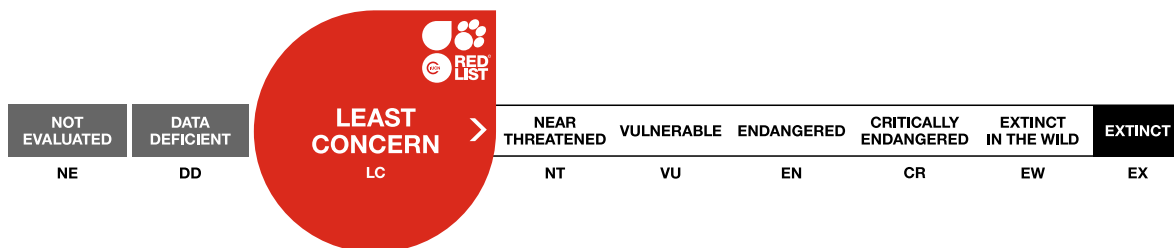


Macrodon atricauda

Assessment by: Haimovici, M., Ruarte, C. & Rico, R.



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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Actinopterygii	Perciformes	Sciaenidae

Scientific Name: *Macrodon atricauda* Gunther, 1880

Synonym(s):

- *Ancylodon atricauda* Günther, 1880
- *Perca mollis* Larrañaga, 1923
- *Perca vigintioctoradiata* Larrañaga, 1925

Common Name(s):

- English: King Weakfish
- Spanish; Castilian: Pescadilla de Red
- Portuguese: Pescada Foguete, Pescadinha, Pescadinha Real

Taxonomic Source(s):

Eschmeyer, W.N. 2013. Catalog of Fishes. Available at: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>. (Accessed: 9 Sep 2013).

Taxonomic Notes:

Macrodon atricauda was revalidated by Carvalho-Filho *et al.* (2010). *Macrodon ancylodon* (Bloch & Schneider 1801) was used prior to 2010.

Assessment Information

Red List Category & Criteria: Least Concern [ver 3.1](#)

Year Published: 2021

Date Assessed: July 30, 2019

Justification:

This demersal species inhabits the continental shelf and estuaries from southeastern Brazil to Argentina. It is not directly targeted in Argentina and Uruguay, and catch there has remained at very low levels since the 1930s. Conservation measures are in place in Argentina and Uruguay to manage fishing of coastal, demersal species, which includes this species. It is heavily fished and is overexploited in southern Brazil where total relative biomass declined by 65-67% from 1950 to 2010. Fishing mortality sharply increased from 1997 to the late 2000s, placing the fishery within danger of collapse. In the most recent decade, some conservation measures have been implemented to reduce fishing effort in Brazil, and this may have reduced the rate of decline. This is a fast-growing species with a long spawning season, early maturity and high fecundity, and these characteristics are expected to allow populations to recover given reductions in fishing effort. Declines have occurred in the southern Brazil stock, but the Argentina/Uruguay stock is not expected to be in decline; therefore, global-level declines are not expected to be approaching a Near Threatened or threatened level at this time. It is listed as Least

Concern with a strong recommendation to improve fisheries monitoring and management in areas where it is overexploited.

Geographic Range

Range Description:

This species is endemic to the southwestern Atlantic where it occurs from Espírito Santo, Brazil to the Bahia Blanca estuary in Argentina (41° S) (Santos *et al.* 2006, Cousseau and Perrotta 2013). The depth range is 2-57 metres (INIDEP Researchers pers. comm. 2020).

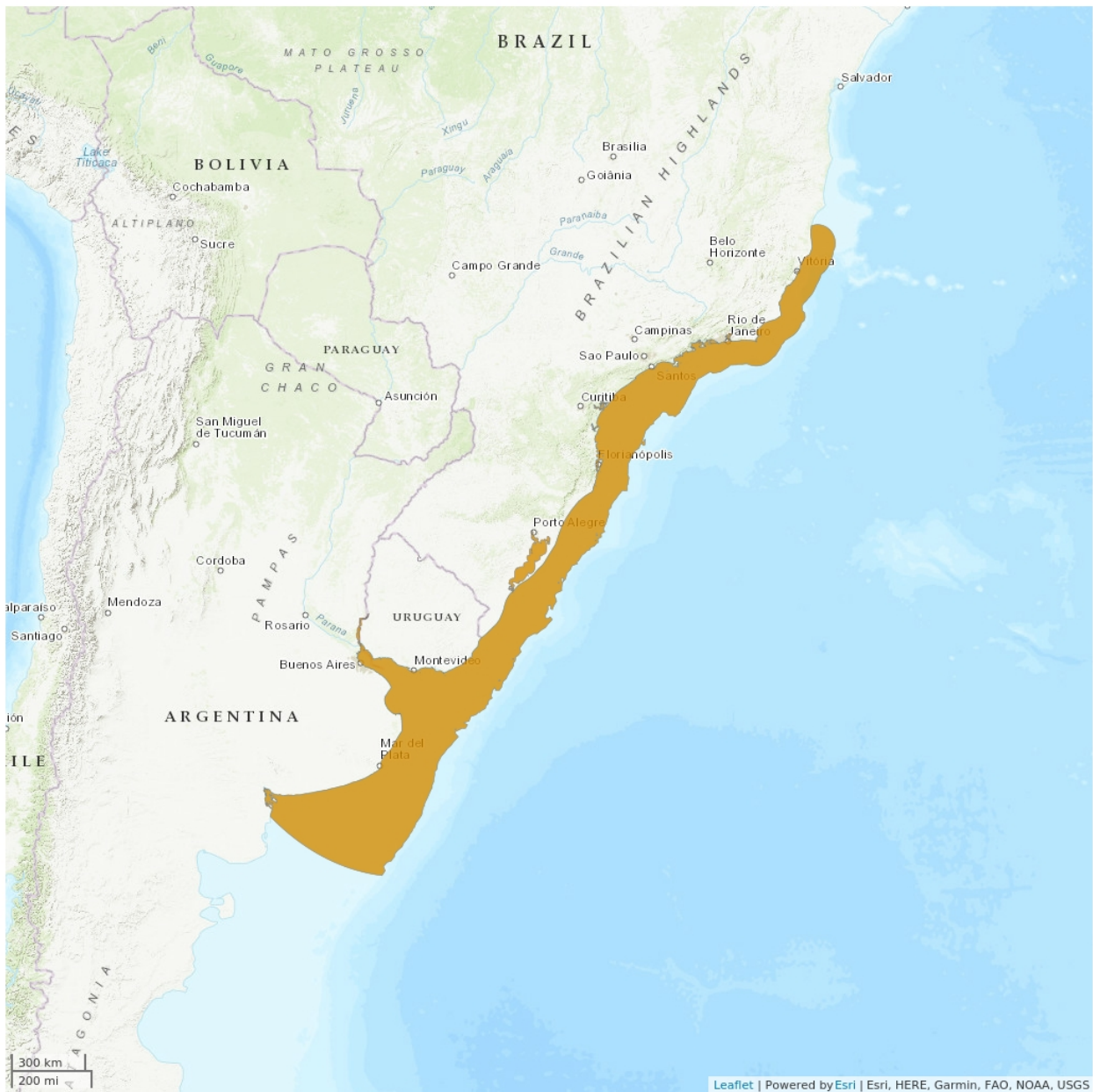
Country Occurrence:

Native, Extant (resident): Argentina; Brazil; Uruguay

FAO Marine Fishing Areas:

Native: Atlantic - southwest

Distribution Map

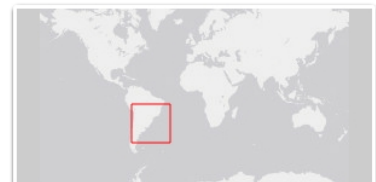


Legend

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

According to studies of otoliths and genetics, there are at least three independent stocks: southeastern Brazil, southern Brazil and Uruguay/Argentina (Leta 1987, Santos *et al.* 2006, Rodrigues *et al.* 2014, Cardoso and Haimovici 2015).

Brazil: This species has been targeted by fisheries in Brazil since at least the 1950s. Landings peaked in Brazil at 10,617 t in 1977 and declined thereafter to about 1,700 t in 2018 (M. Haimovici pers. comm. 2019). Landings off São Paulo steadily declined from 3,300 t in 1970-1979 to 807 t in 2009-2018 (Institute of Fisheries São Paulo). In 2012, the Brazilian government discontinued the program that collected national fishery statistics, which includes the areas where most landings of sciaenid fishes occur (Rio Grande and Santa Catarina). The Laboratory of Demersal and Cephalopod Fishing Resources at the Universidade Federal Rio Grande continued to collect data on effort and catch by conducting dockside interviews. According to an analysis of these data, there is no clear trend in catch per unit effort (CPUE) from 1977-2017, but the occurrence of large catches is suspected to have declined. Fisheries landings and catch per unit effort (CPUE) data cannot be directly translated to abundance changes for this species because they include vulnerabilities, biases and market factors that influence fishing (Cardoso and Haimovici 2015, M. Haimovici pers. comm. 2020).

Since the beginning of the southern Brazil fishery in the 1950s, total relative biomass declined in the 1960s and 1970s, was stable in the 1980s and then declined in the 1990s and 2000s to 33-35% of initial biomass. This represents a 65-67% decline in biomass from 1950 to 2010, a 60-year time period. Fishing mortality sharply increased from 1997 to the late 2000s to levels that placed it within danger of collapse. Over the past 30 years, this stock withstood high exploitation rates and suffered a steady decline in biomass, but has not collapsed, probably due to life history traits that favor resilience, including early maturation and rapid individual growth rate. However, the stock is at risk for collapse considering the present, non-stabilized level of high mortality, changes in age structure and life history, low biomass and high exploitation rates. A precautionary approach suggest the need to reduce fishing effort (Cardoso and Haimovici 2015). Capture and discard of small-sized individuals of this species is high in the trawl fishery (Haimovici and Perez Habiaga 1982, L. Cardoso and M. Haimovici pers. comm. 2019). Both size and age at maturity as well as older individuals have declined over time, and it is considered overexploited in Brazil (Cardoso and Haimovici 2014, Cardoso and Haimovici 2015, Cardoso *et al.* 2019). Given this species has an early maturation and high fecundity, it is expected the population would recover given the reduction of fishing pressure (M. Haimovici pers. comm. 2020).

Uruguay and Argentina: According to Leta (1987), the population inhabiting Argentinean and Uruguayan waters is different from that of Brazil. This species is not directly targeted in Uruguay and Argentina, but is taken in coastal, demersal fisheries, including those that target Whitemouth Croaker (*Micropogonias furnieri*). Since the 1930s, it never composed more than 1% of the catch in Argentina and total annual catch is very low (Sanchez *et al.* 2012). In the past 30 years, annual landings of this species were around 200 tons, except for the years 2013 and 2014 when annual catches were around 1,000 tons and landings of Whitemouth Croaker reached a maximum. Due to conservation measures that implemented fishing seasonal area closures in 2004 as well as the fishing fleet switching to target other species, such as Patagonian Shrimp (*Pleoticus muelleri*), fishing effort has declined, and as a result, landings of demersal species have declined significantly. A stock assessment has not been conducted for this species, but studies on life history parameters have been undertaken (INIDEP Researchers pers.

comm. 2020). According to Uruguayan official statistics, between 1,000 and 2,000 t are landed each year since 1994 in coastal trawl and beach seine fisheries. It has been regularly fished there without signs of decline. Fishing off Uruguay and occasionally off Argentina is increasing (M. Haimovici pers. comm. 2020).

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

This demersal, euryhaline species inhabits estuarine and shallow coastal waters over muddy or sandy bottoms (Vazzoler 1962, Yamaguti *et al.* 1977, Chao *et al.* 1985, Haimovici *et al.* 1996). It primarily consumes shrimp, fishes and squid (Juras and Yamaguti 1995, Cardoso and Haimovici 2016). Juveniles feed mostly on shrimp while adults feed mostly on fishes (Juras and Yamaguti 1985). The relative importance of shrimp in the adult diet has increased in recent years (Cardoso and Haimovici 2016). In southern Brazil, it migrates north in the winter and south during summer (Yamaguti 1979). This migration is usually followed by a fishing fleet (Haimovici *et al.* 1989). This species is a batch spawner with indeterminate fecundity and an extensive spawning season (Juras and Yamaguti 1989, Militelli *et al.* 2013, Cardoso and Haimovici 2014). Spawning occurs in fall-winter in southeastern Brazil (Yamaguti 1979, FUNDESPA 1994) and spring-fall in southern Brazil to Argentina (Militelli *et al.* 2013, Cardoso and Haimovici 2014). Age at first maturity in Brazil is 1-2 years (Haimovici and Cardoso 2011), but was previously 2-3 years (Cardoso and Haimovici 2014, Haimovici and Cardoso 2017). Its longevity in 1960 was of 12 years, in 1968-1969 the maximum recorded age was 8 years (Yamaguti *et al.* 1973), in 1979 the maximum recorded age was 7 years (Juras 1980), in 1984-1986 the maximum recorded age was 5 years (Haimovici 1998) and was also 5 years in 2006-2009 (Cardoso and Haimovici 2011). Studies in Uruguay reported a maximum age of about 7 years (Leta 1987). Males reach sexual maturity at about 19.3 cm and females at 23.1 cm (Militelli *et al.* 2013). Age at maturity is 2 years, the maximum recorded age in Argentina is 8 years and maximum recorded sizes have been 34 cm for males and 39 cm for females (Cousseau and Perrotta 2013). The estimated natural mortality is 0.33 (Cardoso and Haimovici 2015). The life history data considered to be closer to the pre-exploitation maturation and longevity will be applied to estimate generation length. When applying an age at first reproduction of 2-3 years and longevity of 12 years, its estimated generation length is 7 years based on the following equation recommended by the IUCN Red List methods: $\text{Age at first reproduction} + (\text{Age at last reproduction} - \text{age at first reproduction})/2$. When applying the equation recommended by the IUCN Red List methods: $1/\text{adult mortality} + \text{age of first reproduction}$, the generation length is about 5 years.

Systems: Marine

Use and Trade

The species is targeted by commercial trawl fisheries and artisanal gill net fisheries in Brazil (Haimovici *et al.* 1989, Haimovici 1998, Kotas 1994, Alves 2007). In most years, it is not directly targeted in Argentina, but is retained when captured in multi-species, coastal, demersal fisheries (INIDEP Researchers pers. comm. 2020). In Uruguay, it is regularly fished by trawls and beach seines.

Threats (see Appendix for additional information)

Overfishing is a major threat to this species in southern Brazil (Cardoso and Haimovici 2015). It is dependent on estuaries, especially during early life history stages, so it may also be impacted by anthropogenic activities that frequently cause pollution and habitat degradation within these systems.

Conservation Actions (see Appendix for additional information)

Uruguay prohibited beach seine fishing of this species in the 1980s because it affected the nursery grounds of *Micropogonias furnieri* (Leta 1987). This ban resulted in recovered landings in the following years, or since 1994. Although there are no specific management measures for this species in Uruguay and Argentina, the measures in place that regulate the coastal fisheries, including fisheries management, fishery independent scientific surveys, total catch limits, gear restrictions, seasonal closed areas and limits on fishing vessels, provide protection to the sustainability of the coastal species assemblage, which includes this species (INIDEP Researchers pers. comm. 2020).

In Brazil, all types of motorized bottom trawl fishing were banned up to 12 nautical miles off the coast along 623 km of Rio Grande do Sul by a law implemented in 2018. This law is expected to reduce the catch and discard of young individuals of this species as well as other commercial demersal fishes in the region. Fishing effort should be reduced to prevent further decreases in the stock (Haimovici and Cardoso 2017). Conservation measures that include spatial fishing closures, possibly seasonal closures and limitations on effort are highly recommended for Brazil, as well as improving collection of catch data, encouraging stakeholder forums and funding enforcement of fishing regulation compliance (Cardoso *et al.* 2019).

Credits

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Authority/Authorities:	IUCN SSC Sciaenid Red List Authority

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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
9. Marine Neritic -> 9.5. Marine Neritic - Subtidal Sandy-Mud	Resident	Suitable	Yes
9. Marine Neritic -> 9.6. Marine Neritic - Subtidal Muddy	Resident	Suitable	Yes
9. Marine Neritic -> 9.10. Marine Neritic - Estuaries	Resident	Suitable	Yes

Use and Trade

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

End Use	Local	National	International
Food - human	Yes	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 -> 5.4.1. Intentional use: (subsistence/small scale) [harvest]	Ongoing	Unknown	Unknown	Unknown
	Stresses:	2. Species Stresses -> 2.1. Species mortality		
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.2. Intentional use: (large scale) [harvest]	Ongoing	Unknown	Unknown	Unknown
	Stresses:	2. Species Stresses -> 2.1. Species mortality		
9. Pollution -> 9.1. Domestic & urban waste water -> 9.1.3. Type Unknown/Unrecorded	Ongoing	Unknown	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation		

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
3. Species management -> 3.2. Species recovery

Research Needed

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

Research Needed
1. Research -> 1.2. Population size, distribution & trends
3. Monitoring -> 3.1. Population trends

Additional Data Fields

Distribution
Lower depth limit (m): 57
Upper depth limit (m): 2
Habitats and Ecology
Generation Length (years): 5-7

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