

Hippocampus patagonicus, Patagonian Seahorse

Assessment by: Wei, J., Estalles, M., Pollom, R. & Luzzatto, D.



View on www.iucnredlist.org

Citation: Wei, J., Estalles, M., Pollom, R. & Luzzatto, D. 2017. *Hippocampus patagonicus*. *The IUCN Red List of Threatened Species 2017*: e.T195100A54909767.

<http://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T195100A54909767.en>

Copyright: © 2017 International Union for Conservation of Nature and Natural Resources

Reproduction of this publication for educational or other non-commercial purposes is authorized without prior written permission from the copyright holder provided the source is fully acknowledged.

Reproduction of this publication for resale, reposting or other commercial purposes is prohibited without prior written permission from the copyright holder. For further details see [Terms of Use](#).

The IUCN Red List of Threatened Species™ is produced and managed by the [IUCN Global Species Programme](#), the [IUCN Species Survival Commission \(SSC\)](#) and [The IUCN Red List Partnership](#). 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](#).

If you see any errors or have any questions or suggestions on what is shown in this document, please provide us with [feedback](#) so that we can correct or extend the information provided.

Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Actinopterygii	Syngnathiformes	Syngnathidae

Taxon Name: *Hippocampus patagonicus* Piacentino & Luzzatto, 2004

Common Name(s):

- English: Patagonian Seahorse, Patagonian Sea-horse
- Spanish: Caballito de Mar Patagónico

Taxonomic Source(s):

Piacentino, G. L. M. and Luzzatto, D. C. 2004. *Hippocampus patagonicus* sp. nov., nuevo caballito de mar para la Argentina (Pisces, Syngnathiformes). *Revista del Museo Argentino de Ciencias Naturales* 6(2): 339-349.

Taxonomic Notes:

This species was likely misidentified as *Hippocampus erectus* prior to its description in 2004.

Assessment Information

Red List Category & Criteria: Vulnerable A2cd [ver 3.1](#)

Year Published: 2017

Date Assessed: September 27, 2016

Justification:

Hippocampus patagonicus is a coastal species of seahorse that inhabits waters from northeastern Brazil to Chubut, Argentina. The major habitats occupied by the species include seagrasses, macroalgae, and sheltered areas with sessile invertebrates. The species is threatened by habitat degradation and loss from coastal development and destructive fishing practices, targeted exploitation, and by being caught extensively as bycatch in shrimp trawl fisheries. Based on declining habitat quality, extent of occurrence, and declines reported by fishers, it is inferred that the population has undergone a decline of at least 30%. Therefore *Hippocampus patagonicus* is listed as Vulnerable under criterion A2cd.

Geographic Range

Range Description:

Hippocampus patagonicus occurs in the Southwest Atlantic Ocean off the coasts of Brazil and Argentina (Piacentino and Luzzatto 2004, Boehm *et al.* 2013), with a range likely extending from Recife, Pernambuco to Puerto Madryn, Chubut (Luzzatto *et al.* 2012, Boehm *et al.* 2013, Silveira *et al.* 2014, Pereira *et al.* 2016, R. Silveira pers. comm. 2016). The species occurs from shallow depths to 120 m (Rosa *et al.* 2011; Luzzatto *et al.* 2012, 2014).

Country Occurrence:

Native: Argentina (Buenos Aires, Chubut, Rio Negro); Brazil (Espírito Santo, Paraná, Rio de Janeiro, Rio

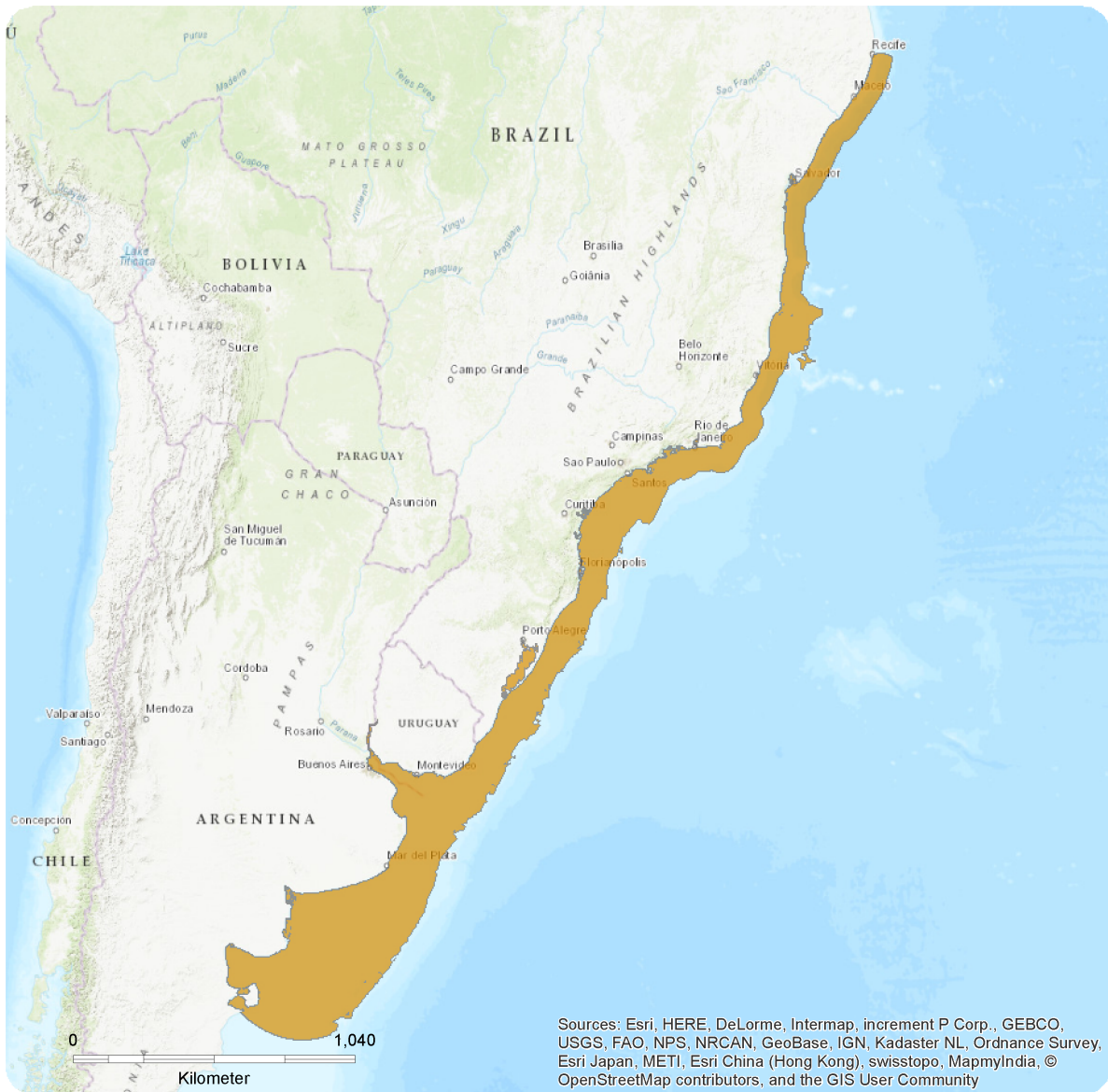
Grande do Sul, Santa Catarina); Uruguay

FAO Marine Fishing Areas:

Native: Atlantic - southwest

Distribution Map

Hippocampus patagonicus

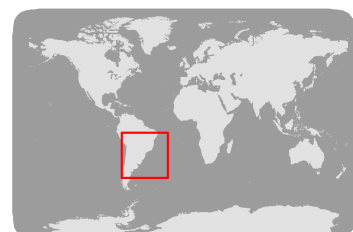


Range

Extant (resident)

Compiled by:

IUCN Seahorse, Pipefish & Stickleback Specialist Group



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



Population

To date there has been no dedicated range-wide surveys or population estimates for this species. The species appears to occur patchily, but studies in areas where these seahorses are found indicate densities of between 0.005 individuals/m² and 0.057 ind/m² (Luzzatto 2006, IBAMA 2011, Giacardi and Reyes 2012). It's not clear how these numbers would scale up for a full population estimate, as the areas surveyed were not randomly selected.

The population is inferred to have declined in San Antonio Bay by 90% over the past 30 years based on fisher interviews (some who reported declines of >99% and even local extirpation) and ongoing habitat degradation and loss (Rosa *et al.* 2011, Luzzatto unpublished data). This equates to a decline of at least 30% over ten years.

Historically, the species was commonly found in San Antonio Bay and its adjacent waters (Perier 1994). Now the population is restricted to a few areas of the bay (Giacardi and Reyes 2012).

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

Hippocampus patagonicus generally occur in shallow waters up to 15 m in depth in Argentina (Piacentino and Luzzatto 2004). In Brazil it can be found in deeper waters up to 120 m in depth (Rosa *et al.* 2011). They are found attached to marine algae, mainly on floating *Sargassum* species, and on seagrasses, artificial substrates, and sessile invertebrates such as sponges, ascidians, and polychaete worms (Kuitert 2009, Silveira *et al.* 2014, Luzzatto unpublished data). *Hippocampus patagonicus* are opportunistic predators, mainly feeding on amphipods (including Gammaridae, Caprellidae, and Hiperidae) and decapods, exhibiting no differences based on sex or size (Storero and Gonzalez 2008, Pujol 2014). Juveniles in San Antonio Bay have been reported demonstrating dispersive potential by rafting (Luzzatto *et al.* 2013). This evidence of a dispersive juvenile stage may explain records of this species in deeper waters, suggesting long-distance migration beyond original populations and explaining the wide distribution range of the species (Luzzatto *et al.* 2014). This behaviour may be cause for conservation concern, as rafting juveniles are susceptible to being trapped in seine nets (Luzzatto *et al.* 2013). As is the case with other seahorses, *H. patagonicus* is ovoviviparous, and males brood the young in a pouch prior to giving live birth (Foster and Vincent 2004). During spring and summer, individuals are more active and can be found pregnant or displaying mating behaviour (Perier 1994; Pujol 2014). Both males and females appear to reach maturity during the first breeding season after they are born, and captive specimens are mature at 6 months (D. C. Luzzatto unpublished data). Size at maturity is around 11 cm (Pujol 2014), and the species lives 2-3 years (D. C. Luzzatto unpublished data). The gestation time for this species is 19.6 ± 2.9 days (Luzzatto unpublished data), and newborn offspring are 0.7 cm in length (Storero and Gonzalez 2008). Brood size is 207+/-134 in captivity (Luzzatto *et al.* 2009).

Systems: Marine

Use and Trade

Brazil is South America's main consumer of dry seahorses and is the largest source of seahorses from natural populations of *Hippocampus patagonicus* (Rosa *et al.* 2011, Vincent *et al.* 2011). *Hippocampus*

patagonicus are sold as dried specimens for religious talismans and charms, curios, traditional medicine, and to a lesser extent, as live specimens for aquarium displays (Rosa *et al.* 2011). Captures are not reported and the dried trade is unregulated. Nevertheless, analysis of catch data from industrial shrimp trawler landings from 2002–2003 suggested that 1.2 million seahorses potentially entered the dried trade per annum, with a monthly mean catch rate of 801 ± 532 seahorses (95% CI; range 0–14,400) per trawler (Rosa *et al.* 2011). No formal records of exported seahorses exist in Brazil, however, Customs records provide evidence that Brazil exported dried seahorses: in 2001 the Hong Kong Customs recorded the import of 240 kg of seahorses from Brazil, and in 2000 the United States Customs recorded the entry of 305 specimens of dried seahorses from Brazil (Rosa *et al.* 2011). Exports have occurred to Hong Kong, USA and Asia (IBAMA 2011, Rosa *et al.* 2011, Vincent *et al.* 2011). It is estimated that at minimum 120,000 seahorses were consumed annually from 2002–2009 in the domestic trade in Brazil (Rosa *et al.*, 2011). It's not clear how much *Hippocampus patagonicus* contributes to this trade.

Populations in Argentina have been exploited by divers, gatherers, and fisherfolk, resulting in dried specimens sold as souvenirs or as handicrafts, and to a lesser extent as live specimens for aquarium displays (Pujol 2014, Estalles *et al.* in review). In San Antonio Bay, the species has sustained a small-scale fishery that developed over the past 30 years (Gonzalez *et al.* 2014) and the specimens are sold as souvenirs or in handicrafts, and to a lesser extent live specimens for aquarium displays (Estalles *et al.* in review). **Local Livelihood:** In southern Brazil when trawl fisheries targeting shrimps record low yield levels, fishers sustain their incomes selling high-value resources - fish and invertebrates obtained in the by-catch. Seahorses are a resource available for generating an extra income for many fishers (IBAMA 2011). About 13,000 people are directly involved in these fisheries (IBAMA 2011). In San Antonio Bay, seahorses are caught by subsistence fishers and local divers along with other marine taxa. In Mar del Plata, they are caught targeted and caught as by-catch in artisanal fisheries (Pujol 2014). In all cases, seahorses become an extra income for fishers. **National Commercial Value:** In Brazil, the prices paid for seahorses increased according to the level of trader involved, the size of the specimens, origin and the degree of preservation. Seahorses were sold at prices ranging from US\$0.02 to \$0.98 (level 1 traders; except during tourist season, when the price per specimen could reach US\$5.29) to US\$0.13–\$17.59 (end-sellers). Prior to 2005, each dried seahorse was sold to end-consumers on the domestic market for prices ranging from US\$0.13 to \$10.73, while in 2005 and 2009 prices ranged from US\$0.74 to \$17.59 (Rosa *et al.* 2011). In Argentina, the domestic market of *H. patagonicus* sells individuals at US\$4.00–\$7.50, depending on their size. Live specimens for aquarium display are sold at approximately US\$100, depending on the size and colour of the specimens (Estalles *et al.* in review). **International Commercial Value:** In 2001 the Hong Kong Customs recorded the import of 240 kg of seahorses from Brazil at a price of US\$44.87/kg, and in 2000 the United States Customs recorded the entry of 305 specimens of dried seahorses from Brazil, traded for a total of US\$816 (Rosa *et al.* 2011). It is not known how many of these specimens were of *H. patagonicus*, or how this trade affected wild populations. In San Antonio Bay, the reconstruction of historical data through interviews and current samplings indicate that the resource has declined 90% in 30 years (Luzzatto unpublished data). The causes of this decline may correspond not only to active fishing of adult specimens, but also a direct impact on recruitment and an indirect effect due to habitat degradation (Giacardi and Reyes 2012).

Threats (see Appendix for additional information)

Brazil: *Hippocampus patagonicus* are collected and traded in Latin America as religious amulets, traditional medicines, curios, and as aquarium fishes (Rosa *et al.* 2011). They are under considerable fishing pressure, and are the most commonly caught seahorse species in the south and southeast regions of Brazil, predominantly as by-catch of industrial shrimp fisheries (Rosa *et al.* 2011, Vincent *et al.*

2011). Brazil is South America's largest consumer of dry seahorses, with the largest source of *Hippocampus patagonicus* (Rosa *et al.* 2011). In addition, habitat degradation by the shrimp fisheries of the *Sargassum* banks where seahorses are found, coastal urban development, and vessel traffic in sensitive areas all pose threats to the species (IBAMA 2011). **Argentina:** Seahorses in San Antonio Bay and in Mar del Plata were reportedly exploited to be sold as curios and for aquarium purposes (Luzzatto 2006, Pujol 2014, Estalles *et al.* in review). Rapid industrial and urban development in coastal areas has resulted in habitat degradation and retraction in San Antonio Bay (Luzzatto *et al.* 2012). Additionally, tourists and fishermen using seines accumulate large amounts of debris, often incidentally catching rafting juveniles, which would directly influence the species' recruitment (Luzzatto *et al.* 2012). In San Antonio Bay, the reconstruction of historical data through interviews to fishermen and local researchers and current samplings indicate that the resource has declined 90% over the past 30 years (Luzzatto unpublished data, Estalles *et al.* in review). In Mar del Plata the main threats identified were fishing to be sold as curios and for aquarium purposes, incidental fishing, contamination, habitat degradation and biological invasions (Pujol 2014).

Conservation Actions (see Appendix for additional information)

The entire genus *Hippocampus* is listed on Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), with implementation in May 2004. In February 2004, The Brazilian Institute of Environment and Renewable Natural Resources (IBAMA) implemented a quota of 250 specimens per species for the export of seahorses (Rosa *et al.* 2011). Quotas were established in a context of zero monitoring and zero enforcement (Rosa *et al.* 2011). Quotas were clearly violated by exporters, who received permission to export color morphs or misidentified species of *Hippocampus* as separate species. Additionally, as informed by one dealer of marine fishes, because the contents of the live fish shipments were not checked, when the maximum quota for seahorses was reached they were sold as another species (Rosa *et al.* 2011). There are no regulations or records for the domestic trade and use of seahorses. In Brazil, *Hippocampus erectus* is included in Appendix II of the Instruction No. 5 of the Ministry of the Environment (05/28/2004), which lists the aquatic invertebrate and fish species "Threatened with Extinction, Over-exploited or Threatened with Over-exploitation". The listing in Appendix II does not necessarily imply limitation to the use, but requires that the Brazilian government begin the implementation of a management plan for the species (IBAMA 2011). *H. erectus* is also considered vulnerable in the states of Espirito Santo and Rio de Janeiro, and in Sao Paulo, the species is considered threatened of overexploitation (IBAMA, 2011). In all these cases, legislation may actually be referring to *Hippocampus patagonicus* in light of the misidentification of the Brazilian species (Vincent *et al.* 2011, Boehm *et al.* 2013, Silveira *et al.* 2014).

In southern Brazil, the species seems to be associated with *Sargassum sp.* (IBAMA 2011), therefore areas with *Sargassum sp.* should be protected in order to protect *Hippocampus patagonicus*.

In Mar del Plata, the species has been declared a "Natural Monument", the maximum status of conservation in Argentina. This category prohibits any act or omission that directly or indirectly involves abuse, harm, capture or captivity of the species, except in the case of individuals collected for scientific purposes. In San Antonio Bay, the *Hippocampus patagonicus* population is located within a protected area, however, legislation is not always enforced.

Also in Mar del Plata, *Hippocampus patagonicus* is a flagship species used by "La ciencia hace escuela" www.maresyoceanos.com to educate the community about the importance of coastal ecosystems

integrated with the cultural heritage of the region (Vallarino *et al.* 2011). This program has established a permanent exhibition of seahorse's characteristics and conservations concerns at the Museo Municipal de Ciencias Naturales "Lorenzo Scaglia", conducted training courses for teachers and the general public, design and published educational material, including a book entitle "Cuadernos de educación ambiental: los caballitos de mar". Studies on the species have been increasing in recent years. Long-term monitoring, official records of the number of individuals caught in by-catch, and further research on the biology, ecology, habitat, abundance and distribution of this species is required to prioritize management actions for effective conservation.

Credits

Assessor(s): Wei, J., Estalles, M., Pollom, R. & Luzzatto, D.

Reviewer(s): Ralph, G.

Bibliography

- Boehm, J. T., Woodall, L., Teske, P. R., Lourie, S. A., Baldwin, C., Waldman, J., & Hickerson, M. 2013. Marine dispersal and barriers drive Atlantic seahorse diversification. *Journal of Biogeography* 40(10): 1839-1849.
- Estalles, M. L., Pujol, M. G., Díaz de Astarloa, J. M., and Luzzatto, D. C. In Review. The trade of seahorses in Argentina. *Biological Conservation*.
- Foster, S.J. and Vincent, A.C.J. 2004. Life history and ecology of seahorses: implications for conservation and management. *Journal of Fish Biology* 65: 1-61.
- Giaccardi, M. and Reyes, L. M. 2012. Plan de Manejo del Area Natural Protegida Bahia de San Antonio - Rio Negro. Gobierno de La Provincia De Rio Negro.
- Gonzalez, R., Dinghi, P., Corio, C., Medina, A., Maggioni, M., Storero, L., and Gosztonyi, A. 2014. Genetic evidence and new morphometric data as essential tools to identify the Patagonian seahorse *Hippocampus patagonicus* (Pisces, Syngnathidae). *Journal of Fish Biology* 84(2): 459-474.
- IBAMA (Instituto Brasileiro do Meio Ambiente e Recursos Naturais Renováveis). 2011. Propuesta de plano de gestão para o uso sustentável de cavalos-marinhos do Brasil. In: José Dias Neto (ed.). Brasilia, Brazil.
- IUCN. 2017. The IUCN Red List of Threatened Species. Version 2017-3. Available at: www.iucnredlist.org. (Accessed: 7 December 2017).
- Kuiter, R.H. 2009. *Seahorses and Their Relatives*. Aquatic Photographics, Seaford, Australia.
- Luzzatto, D. 2006. Primeros datos de campo para el caballito de mar *Hippocampus patagonicus* en la Bahía de San Antonio (Rio Negro). *XXII Reunión Argentina de Ecología*.
- Luzzatto, D.C., Entraigas J.C., Quiroga, L. Reggiani, C. Rodríguez, M.J. 2009. Producción de crías del caballito de mar *Hippocampus patagonicus* en sistemas de recirculación. *2da Conferencia Latinoamericana sobre Cultivo de Peces Nativos*. Chascomús, Buenos Aires, Argentina.
- Luzzatto, D. C., Estalles, M. L., and Diaz De Astarloa, J. M. 2014. Comment on 'Genetic evidence and new morphometric data as essential tools to identify the Patagonian seahorse *Hippocampus patagonicus* (Pisces, Syngnathidae) by González et al. (2014)' . *Journal of Fish Biology* 85(5): 1297-1299.
- Luzzatto, D. C., Estalles, M. L., Diaz de Astarloa, J. M. 2013. Rafting seahorses: the presence of juvenile *Hippocampus patagonicus* in floating debris. *Journal of Fish Biology* 83(3): 677-691.
- Luzzatto, D. C., Pujol, M. G., Figueroa, D., and Diaz de Astarloa, J. M. 2014. The presence of the seahorse *Hippocampus patagonicus* in deep waters: additional evidence of the dispersive capacity of the species. *Marine Biodiversity Records* 7: e71.
- Luzzatto, D. C., Sieira, R., Pujol, M. G., and Diaz de Astarloa, J. M. 2012. The presence of the seahorse *Hippocampus patagonicus* in the Argentine Sea based on the cytochrome b sequence of mitochondrial DNA. *Cybium* 36(2): 329-333.
- Pereira, L. F., Silveira, R. B., and Abilhoa, V. 2016. New records of *Hippocampus patagonicus* Piacentino & Luzzatto, 2004 (Teleostei: Syngnathidae) from the coast of Paraná, southern Brazil. *Check List* 12(1): 1822.
- Perier, M. R. 1994. La fauna íctica del litoral de la Bahía San Antonio, Golfo San Matías, Provincia de Río Negro, República Argentina. Facultad de Ciencias Naturales y Museo., Universidad Nacional de La Plata.

Piacentino, G. L. M. and Luzzatto, D. C. 2004. *Hippocampus patagonicus* sp. nov., nuevo caballito de mar para la Argentina (Pisces, Syngnathiformes). *Revista del Museo Argentino de Ciencias Naturales* 6(2): 339-349.

Pujol, M. G. 2014. Ecología del Caballito de Mar *Hippocampus patagonicus* (Piacentino & Luzzatto, 2004) en las costas de Mar del Plata y su relación con ambientes impactados antropicamente. Área de Ecología de Ambientes Acuáticos, Museo Municipal de Ciencias Naturales “Lorenzo Scaglia”.

Rosa, I. L., Oliveira, T. P. R., Osorio, F. M., Moraes, L. E., Castro, A. L. C., Barros, G. M. L., and Alves, R. R. N. 2011. Fisheries and trade of seahorses in Brazil: historical perspective, current trends, and future directions. *Biodiversity and Conservation* 20(9): 1951-1971.

Silveira, R. B., Siccha-Ramirez, R., Silva, J. R. S., and Oliveira, C. 2014. Morphological and molecular evidence for the occurrence of three *Hippocampus* species (Teleostei: Syngnathidae) in Brazil. *Zootaxa* 3861(4): 317-332.

Storero, L. P. and Gonzalez, R. A. 2008. Feeding habits of the seahorse *Hippocampus patagonicus* in San Antonio Bay (Patagonia, Argentina). *Journal of the Marine Biological Association of the United Kingdom* 88(7): 1503-1508.

Vallarino, E., Pujol M.G., Llanos, E., Vouilloz M. and Luzzatto D. C. 2011. Las especies protegidas como herramienta educativa y de protección ambiental: El caballito de mar. *XI Congreso Iberoamericano de extensión universitaria*.

Vincent, A.C.J., Foster, S.J. and Koldewey, H.J. 2011. Conservation and management of seahorses and other Syngnathidae. *Journal of Fish Biology* 78: 1681-1724.

Citation

Wei, J., Estalles, M., Pollom, R. & Luzzatto, D. 2017. *Hippocampus patagonicus*. *The IUCN Red List of Threatened Species 2017*: e.T195100A54909767. <http://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T195100A54909767.en>

Disclaimer

To make use of this information, please check the [Terms of Use](#).

External Resources

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 -> 9.7. Marine Neritic - Macroalgal/Kelp	-	Suitable	-
9. Marine Neritic -> 9.9. Marine Neritic - Seagrass (Submerged)	-	Suitable	-
15. Artificial/Aquatic & Marine -> 15.11. Artificial/Marine - Marine Anthropogenic Structures	-	Suitable	-

Threats

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

Threat	Timing	Scope	Severity	Impact Score
1. Residential & commercial development -> 1.1. Housing & urban areas	Ongoing	Unknown	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation		
1. Residential & commercial development -> 1.2. Commercial & industrial areas	Ongoing	Unknown	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation		
1. Residential & commercial development -> 1.3. Tourism & recreation areas	Ongoing	Unknown	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation		
11. Climate change & severe weather -> 11.1. Habitat shifting & alteration	Ongoing	Whole (>90%)	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 1. Ecosystem stresses -> 1.3. Indirect ecosystem effects		
4. Transportation & service corridors -> 4.3. Shipping lanes	Ongoing	Unknown	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation		
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.1. Intentional use: (subsistence/small scale) [harvest]	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
	Stresses:	2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.3. Indirect species effects -> 2.3.7. Reduced reproductive success		
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.4. Unintentional effects: (large scale) [harvest]	Ongoing	Majority (50-90%)	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion		

					1. Ecosystem stresses -> 1.2. Ecosystem degradation 1. Ecosystem stresses -> 1.3. Indirect ecosystem effects 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.3. Indirect species effects -> 2.3.7. Reduced reproductive success
9. Pollution -> 9.1. Domestic & urban waste water -> 9.1.1. Sewage	Ongoing	Unknown	Unknown	Unknown	
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation			
9. Pollution -> 9.1. Domestic & urban waste water -> 9.1.2. Run-off	Ongoing	Unknown	Unknown	Unknown	
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation			
9. Pollution -> 9.3. Agricultural & forestry effluents -> 9.3.1. Nutrient loads	Ongoing	Unknown	Unknown	Unknown	
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation			
9. Pollution -> 9.3. Agricultural & forestry effluents -> 9.3.2. Soil erosion, sedimentation	Ongoing	Unknown	Unknown	Unknown	
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation			

Conservation Actions in Place

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

Conservation Actions in Place
In-Place Research, Monitoring and Planning
Action Recovery plan: No
Systematic monitoring scheme: No
In-Place Land/Water Protection and Management
Conservation sites identified: No
Occur in at least one PA: Yes
Area based regional management plan: Unknown
Invasive species control or prevention: Unknown
In-Place Species Management
Harvest management plan: No
Successfully reintroduced or introduced benignly: No
Subject to ex-situ conservation: Unknown
In-Place Education
Subject to recent education and awareness programmes: Yes
Included in international legislation: Yes

Conservation Actions in Place

Subject to any international management/trade controls: Yes

Conservation Actions Needed

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

Conservation Actions Needed

2. Land/water management -> 2.1. Site/area 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
--

1. Research -> 1.5. Threats

3. Monitoring -> 3.1. Population trends

3. Monitoring -> 3.2. Harvest level trends
--

3. Monitoring -> 3.3. Trade trends

3. Monitoring -> 3.4. Habitat trends

Additional Data Fields

Distribution

Continuing decline in area of occupancy (AOO): Unknown
--

Extreme fluctuations in area of occupancy (AOO): Unknown
--

Continuing decline in extent of occurrence (EOO): Unknown

Extreme fluctuations in extent of occurrence (EOO): Unknown

Continuing decline in number of locations: Unknown
--

Extreme fluctuations in the number of locations: Unknown
--

Lower depth limit (m): 120

Upper depth limit (m): 0

Population

Continuing decline of mature individuals: Yes

Extreme fluctuations: Unknown

Population
Population severely fragmented: Unknown
Continuing decline in subpopulations: Unknown
Extreme fluctuations in subpopulations: Unknown
All individuals in one subpopulation: Unknown
Habitats and Ecology
Continuing decline in area, extent and/or quality of habitat: Yes
Generation Length (years): 0.5-1.5
Movement patterns: Not a Migrant
Congregatory: Congregatory (and dispersive)

The IUCN Red List Partnership



The IUCN Red List of Threatened Species™ is produced and managed by the [IUCN Global Species Programme](#), the [IUCN Species Survival Commission \(SSC\)](#) and [The IUCN Red List Partnership](#).

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](#).