

# Seahorse Secrets

and Where to Find Them

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**Chris is our 2020 Australian Wildlife Society University of Technology Sydney Wildlife Ecology Research Scholarship Recipient.**

Image: Nathan Klein

**There is no doubt about it; seahorses are one of the more unusual animals to be found in the ocean. They have a pouch like a kangaroo\*, a prehensile tail of similar character to a monkey's tail, and a snout with enough suction capability to put a Dyson vacuum cleaner to shame.**

They even hold themselves in an upright stature unseen elsewhere in the marine world. If you have ever been fortunate enough to spot a seahorse during a snorkel or dive, you may have been amazed by their unusual physique and awed by their ability to camouflage with their natural surroundings. Seahorses can change colour and even grow filaments or bumps to imitate their immediate surroundings. It is these peculiarities that have garnered seahorses a mythical like status. Torres Strait Islanders believe seahorses are a sign of good fortune, and in recent times, this omen has been passed on to divers in general. But it is partly this mythical status that has unfortunately led seahorse populations to become threatened.

Seahorses are highly sought-after for their purported medicinal properties, the aquarium trade, and as curios. Their high value and ease of capture have made them easy targets for fisherman. The seahorse trade became regulated in 2004 by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), restricting seahorse exports to those sourced legally and sustainably under CITES. Many traders of seahorses have since been unable to guarantee these conditions are met, and trade has been suspended by CITES or countries have self-imposed bans on the trade. Despite these bans, seahorses continue to be taken from the wild and traded illegally within and beyond the sourced country. Shipments are frequently intercepted, where the legality of geographic source and taxa of collected seahorses come into question. The border force's ability to enforce bans is restricted by a lack of forensic tools available to determine the provenance of shipments.

Although largely immune to the illegal wildlife trade in Australia, seahorses are still under threat. Seahorses have small home ranges, low population densities, and limited dispersal ability, which makes them particularly susceptible to anthropogenic effects. Habitat loss is the driving factor behind population declines of seahorses in Australia. For example, the loss of soft coral and sponge habitat, caused by boating and sand inundation, is linked to the eighty-three percent decrease in the White's seahorse (*Hippocampus whitei*) population at Seahorse Gardens, Port Stephens.



Seahorse is the name provided to forty-six species of small marine fish in the genus *Hippocampus*.  
Image: Arhnue Tan

Due to the seahorse's limited ability to disperse, seahorse populations are unlikely to recover without human intervention. Consequently, reintroduction programs and the restoration of vital habitat have the potential to assist the seahorse's ability to disperse. Promising results have been achieved using artificial habitats, however artificial habitats are known to breakdown rapidly – in less than one year. Identifying, preserving, and rehabilitating important natural habitats for seahorses, should be prioritised and is more likely to provide a long-term solution. Given the importance of habitat to the White's seahorse, and a lack of knowledge on its diet, additional information on the dietary sources of White's seahorse across several sites and habitats is desperately required to improve the survivability of reintroduced seahorses.

The project aims to determine the diet, geographic source, and species of biological material of a seahorse, in real-time, using technology borrowed from the mining industry. The limitations and differences in dietary preferences of White's seahorse between different locations and habitats will also be examined, aiming to improve conservation outcomes for seahorses locally. Furthermore, the project's findings can be applied to the illegal wildlife trade, on an international scale, to assist conservationists and border forces in tracking individual species, identifying dietary sources, and detecting fraudulent shipments of seahorses.

\* Not all species of seahorses have a pouch on their tail (abdomen). For example, pygmy seahorses are morphologically distinct from other seahorses, due to their pouch being present on their trunk (head).



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