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The International Trade in Seahorses

A TRAFFIC Species in Danger report by Amanda CJ Vincent¹

SUMMARY July 1996

Seahorses, long the creatures of tales about magic and medicine, are thought to have evolved at least 40 million years ago. They are as notable for their male pregnancy as for their distinctive shape. Seahorses have horse-like heads atop upright bodies, long tubular snouts and eyes that swivel independently. Seahorses are also masters of camouflage, growing long skin filaments or dramatically changing colour to match their habitats.

The Greek philosopher Plutarch (circa 46-120 AD) regarded the seahorse as a symbol of impudence, "the creature being said first to slay his sire and then force his mother". The seahorse has also been associated with Greek mythology. Greek fishermen believed seahorses were the miniature offspring of horse-sized parents that pulled Poseidon's chariot.

A succession of Greek and Roman writers, from as early as 342 BC, credited seahorses with medicinal values, ranging from preventing urine retention to curing baldness and rabies. The European use of seahorses as medicines continued until at least the 18th century. In 1753, *Gentleman's Magazine* in England noted that "ladies make use of them to increase their milk".

In about 720 AD, seahorses also began to feature as an ingredient in traditional Chinese medicine for a variety of ailments - a practice that continues today. Nowadays, seahorses are also in demand for the curio and aquarium trade. The total trade in seahorses, both dead and alive, may exceed 20 million seahorses each year and involves at least 32 countries and territories, from Ecuador to Australia. Seahorses are being harvested in ever greater numbers and some seahorse populations may have declined by 50 per cent during the past five years. As an additional pressure, seahorses are also vulnerable to degradation of their habitats.

This report presents information on the international trade, with an emphasis on the countries and territories in Asia visited by the author. It examines fishing methods, trade routes, volumes and values, key players and the issues of conservation concern. The report also includes recommendations for action to help ensure that this trade does not further endanger seahorses' survival. The findings come from at least 400 surveys and interviews in 1993 and 1995.

¹ Amanda CJ Vincent, Darwin Senior Research Fellow, Department of Zoology, University of Oxford, UK. Research for this report was supported by *National Geographic*, the Whitley Award for Animal Conservation (Royal Geographic Society), Darwin Initiative, and British Airways Assisting Conservation.

Distribution and biology

Seahorses *Hippocampus* spp. live among seagrasses, mangroves and coral reefs in shallow temperate and tropical waters from roughly 45 degrees south to 45 degrees north. Despite their wide geographic range, they are sparsely distributed in narrow strips along coasts and most species are found in the West Atlantic or IndoPacific region. Seahorses may inhabit water less than one-metre deep, but most live at between 1-15 metres.

They range in size from the newly discovered 10-20mm Australian seahorse (to be named *H. minotaur*) to the 300mm Pacific Seahorse *H. ingens*. The taxonomy of seahorses is confused and in a state of flux. Among the approximately 150 recorded scientific names, there are probably only 35 true species. Some seahorses have yet to be named and existing names are undergoing a major revision.

There is a dearth of biological studies, particularly on the most heavily exploited species. Population numbers and geographic ranges are unknown. What is known, however, is that the biology of seahorses makes them unsuitable for intensive harvesting. They have low reproductive rates; easily disrupted social structures because they practise monogamy; and low mobility and population density as well as small home ranges, which mean that recolonisation of depleted areas would be difficult. Females have a home range of about 100 square metres and males only about one square metre, where they sometimes cling to the same seagrass shoot for weeks.

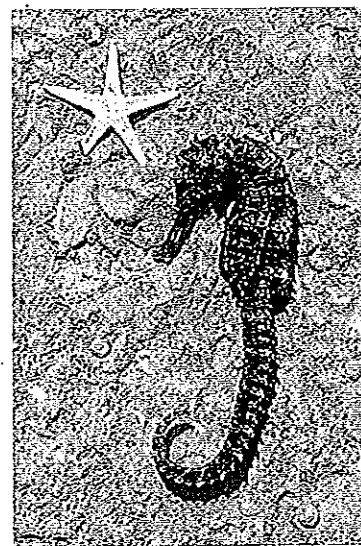
Uses of seahorses

Four or five species are most commonly in demand for the aquarium trade. Few survive for long in captivity because of physiological damage during collection and transport; poor management; disease; unbalanced or insufficient diets; incompatible aquarium inhabitants; and poor knowledge among aquarists of appropriate seahorse husbandry. Large public aquaria concur with hobby aquarists that these are the most difficult of fishes to rear. Nevertheless, aquarists whose seahorses die usually purchase more of these fishes, thus ensuring a steady market.

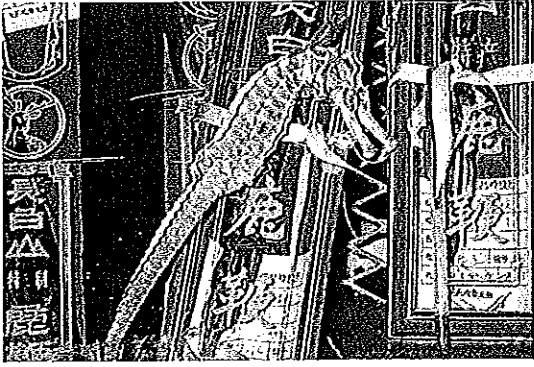
Dead seahorses are popular curios, probably because they retain their shape and detail when dried. They feature in shell scenes and mobiles sold in beach resorts and shell shops worldwide. Dried seahorses are also fashioned into earrings or brooches.

However, by far the majority of seahorses in trade are utilised in traditional Chinese medicine (TCM). TCM is practised in China, Hong Kong, Taiwan and Singapore, and by Chinese communities worldwide. It is also evident in Korea (where it is known as *hanyak*), in Japan (where it is known as *kanpo*) and in Jamu medicine in Indonesia as well as folk healing in other areas such as the central Philippines. All of these forms of medicine make use of seahorses.

Interviews with TCM practitioners and users indicate that seahorses are used to treat an extremely wide range of health problems. Among the conditions treated are respiratory disorders such as asthma; sexual disfunctions such as impotence and infertility; lethargy and exhaustion; throat infections; skin diseases; and difficulties in childbirth.



A seahorse sold as a curio in London's Covent Garden.



A large seahorse for sale in Qingping market, Guangzhou, China.

While prescription formulas for seahorses are detailed and directed to particular ailments, there are three basic formulations: grinding the seahorse to a powder (sometimes after first burning it black) and then mixing it with warm water or a strong alcohol to be drunk thrice daily; grinding the seahorse to a powder and applying directly to a wound; and placing the whole seahorse in strong alcohol or another Chinese liquid medicine to be drunk, sometimes after the seahorse ferments.

The search for faster remedies is prompting a significant change in TCM, with pre-packaged medicines supplanting individual prescriptions. One long established TCM importer in China noted that 30 per cent of seahorses, including small ones that were previously rejected, may now be going to factories producing manufactured medicines. These patent medicines are usually capsules or pills. At least eight of the patent medicines are sold in North America.

In the central Philippines, seahorses are used to treat asthma, intestinal gas pains and hyperactivity. In Indonesia's Jamu medicine, details are kept secret but men from Java, Bali and Sulawesi certainly take seahorse-based Jamu aphrodisiacs.

The trade picture

Seahorses are caught by hand, scoop net or small seine nets, primarily by artisanal or subsistence fishers. They are also a by-catch of trawl fishing. Only Tasmania (Australia) fully protects seahorses, although they are included in the French, Portuguese and Vietnamese Red Lists of Threatened Animals. Trawling is banned in the coastal waters of Indonesia, Taiwan and Thailand, which affords seahorses some indirect protection.

At least 22 countries or territories export seahorses. The largest known exporters are India, the Philippines, Thailand and Vietnam. In India, the Philippines and Thailand, where seahorses are not protected, the price of seahorses has increased markedly in recent years and some seahorse populations are believed to be in decline. Indonesia and Malaysia may also be exporters. Latin American countries such as Belize and Ecuador and African countries such as Mozambique and Nigeria, can be assumed to be net exporters since large domestic use there is unlikely.

Frequent gaps and discrepancies in information make it difficult to track the trade in seahorses. Some seahorses are exported through official channels, but many are not. For example, Indians take them in checked luggage on flights to Singapore; overseas Chinese carry seahorses home when they return to China; huge volumes are traded across the Vietnam/China border, often illicitly; merchants tuck seahorses into shipments of sea cucumbers from the Philippines; dried seahorses are included with live grouper on fast boats from the Philippines to Hong Kong; Taiwanese and Chinese fishers exchange seahorses at sea; Indonesians send them as gifts to relatives in Taiwan; and exports under two kilos need not be declared in Australia.

The largest known net importers are China, Hong Kong and Taiwan. Singapore is probably another. Countries without native seahorses that sell seahorse curios or use seahorses as aquarium pets are also net importers. They include Canada, Germany, the Netherlands and UK. In all, at least 13 countries or territories import seahorses. Some importers are also exporters, such as the USA.

The value of seahorses can be high: In 1995, the preferred large, bleached seahorses sold for up to US\$1,200 per kilo in one Hong Kong outlet. Japanese consumers appear to pay the most for a much smaller seahorse. Dried seahorses of similar size cost at least US\$11.49 in Japan compared to about US\$2.80 in Taiwan.

India's fishery has greatly escalated in recent years, particularly along the Palk Bay coast of Tamil Nadu where a decline in availability of sea cucumbers diverted fishers' attention to seahorses, causing seahorse fishing to surge around 1990. Field surveys in 1995 indicated that Tamil Nadu fishers' annual sales involve at least 1.3 million seahorses or 3,040kg. Seahorses are occasionally used as medicines in India, but most are exported to Singapore and some to Malaysia.

In the Philippines, seahorses are used medicinally and as good luck charms or talismans, but most are exported. Four of eight TCM outlets visited in Manila's Ongpin district displayed dried, bleached seahorses. Seahorses are exported for the aquarium trade in Asia and the West and for curios globally, with Italy alone importing perhaps 90,000 dried seahorses annually from the Philippines for the curio trade. Survey data suggest exports could exceed 11 tonnes or 4.7 million dried seahorses.

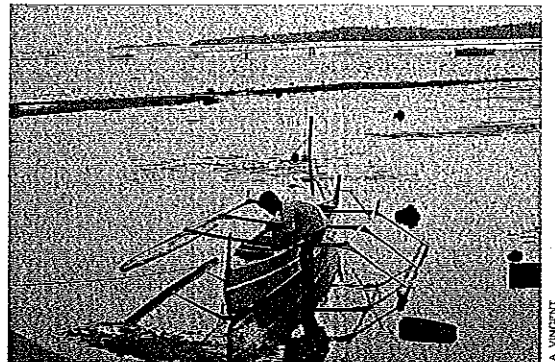
Thailand is also a large exporter and domestic market, exporting perhaps 15 tonnes or 4.5 million seahorses (at 1989 weights) annually. In 1995, two of five TCM shops visited were exhibiting seahorses. Large numbers of dried seahorses are also sold as curios, with beach resorts featuring heaps of seahorse key chains. Most seahorses, however, are exported to China, Hong Kong and Taiwan.

Vietnam's seahorse exports have increased greatly in recent years and may now exceed five tonnes annually, most destined for China. Large numbers are taken as incidental trawl by-catch and by swimmers. Domestic consumption is low, despite the large Chinese population in the country.

Among the large importers, Taiwan is the only country to publish detailed Customs statistics. These show substantial imports since at least 1983 and annual imports of more than 11 tonnes during 1992-1994. Thailand was its largest single source of seahorses for 11 of the 12 years from 1983-1994. In 1995, Taiwan reported importing 2,073kg from Thailand during the first four months alone. Seahorses are sold in Taiwan for use in TCM and as aquarium fishes and curios. In 1993, at least five species were sold in TCM outlets whole or halved, singly or in gift packages, in alcohol-based tonics or pre-packaged pills. Most pharmacists agreed that seahorses are used in Taiwan primarily as aphrodisiacs or as a treatment for impotence, although they are also popular general tonics.

In China, where many juvenile seahorses were seen for sale in 1995, the few records indicate that Thailand is also this country's largest supplier of seahorses. In addition, all six of the TCM importers interviewed in three of China's provinces during 1995 cited Thailand as their primary or sole source of seahorses. All of those interviewed in 1993 and 1995 agreed that demand for seahorses has expanded dramatically in the past 10 years, perhaps ten-fold, and now continues to increase at a rate of about 8-10 per cent yearly. It was also generally agreed that large seahorses are becoming ever more difficult to obtain, even from newly tapped sources such as Vietnam.

The ports along the southern and southeastern coast have long been the major trading centres in China, however large importers either send the seahorses directly to factories or ship them elsewhere in China. The China/Vietnam border is also an important trading point, with TCM dealers converging there to obtain seahorses for national distribution. China's annual domestic trade may exceed 20 tonnes, or five to six million seahorses.



Fisherman, Bolinao, Philippines.

Outlets move large numbers of seahorses. In Guangzhou's Qingping market, about 20 large bags of seahorses were displayed, each with about 15 litres of seahorses. Government importers reported paying US\$135-241 per kilo in 1993-1995.

Hong Kong is a major entrepôt for seahorse trading, consuming at least seven tonnes of dried seahorses annually and re-exporting many tonnes of seahorses to China, Taiwan and others. Hong Kong buys seahorses primarily for TCM and tonic foods, although some are also imported live as aquarium fishes. While seahorses were caught locally until the 1970s, nowadays local production is minuscule. All 12 pharmacies visited in 1995 sold seahorses. In 1993, nine of 10 pharmacies visited were selling seahorses while the tenth sought to buy seahorses from the investigators.

Seahorses represent a previously unexplored genre of fisheries: one intended primarily for medicine rather than food. In Asia alone, the annual trade amounts to almost 16 million dried seahorses. In addition, many non-Asian countries are involved in the trade and many, or at least important parts, of the 32 countries or territories known to participate have yet to be researched. In the USA, for example, more than 112,000 seahorses were landed off the Florida coast in 1994, however little is known about the USA's role in the seahorse trade.

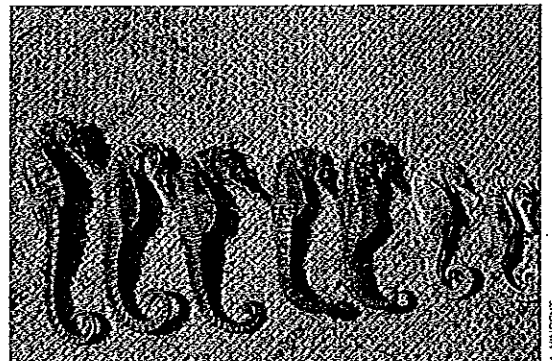


Dried bleached seahorses and patented medicine.

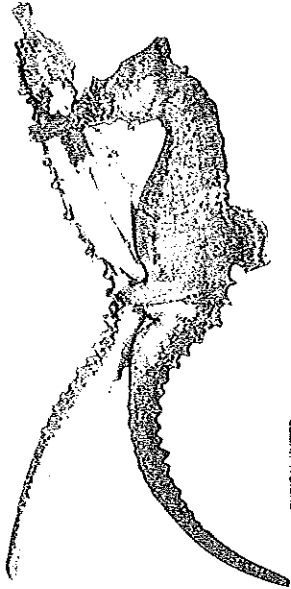
Recommendations

The implications of these findings are potentially grave. Demand exceeds supply and virtually all fishers and traders reported that it was becoming more difficult to obtain seahorses. A precautionary approach with pro-active conservation measures should be implemented to ensure the long-term viability of seahorse populations. The apparent decline in some populations and the expected continued growth in demand indicate that these measures should be implemented quickly to avert crisis management later. The report's recommendations are many and varied, including:

- Biological research should be urgently undertaken on all species, but particularly the most heavily exploited IndoPacific species.
- Countries involved in the trade should follow Taiwan's lead and keep detailed records on seahorse imports and exports, perhaps by allocating a modified Customs code. In particular, China and the Philippines should re-introduce such record-keeping.
- FAO and national fisheries agencies should monitor catches and populations.
- Individual countries should be encouraged to enact domestic fisheries or wildlife regulations to ensure seahorses are not over-exploited, but only where such regulations are not likely to drive the fishery underground and thus cannot be monitored effectively. Australia, with at least 11 species, could lead the way. National bodies responsible for compiling Red Data books or threatened species lists should also consider including seahorses on precautionary lists.
- The European Community, one of the larger importers of live seahorses and curios, should place seahorses on at least Annex D of the new EC Wildlife Trade regulations to be implemented in 1997. This would impose monitoring requirements on imports to member states.
- Consideration should be given to listing IndoPacific seahorse species as Vulnerable in the next IUCN Red List. To date, only the Knysna Seahorse *H. capensis* has been given such status.
- The option of listing seahorses in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) could be evaluated on an ongoing basis in response to changing circumstances and to improved data collection. A CITES Appendix II listing would introduce a permit system for seahorses in international trade.
- Fishers should be involved at all stages of efforts to manage and conserve seahorse populations, while buyers and exporters should be advised of conservation concerns.
- Support for conserving seahorses should also be sought directly from the TCM community.



A display of seahorses in Kilakural, Tamil Nadu, India.



RUDIE H. KUITER



IUCN
The World Conservation Union

TRAFFIC is the wildlife trade monitoring programme of WWF – World Wide Fund For Nature* and IUCN – The World Conservation Union. TRAFFIC works in close co-operation with the CITES Secretariat. For more information, contact your local TRAFFIC office or TRAFFIC International, which co-ordinates the worldwide TRAFFIC network.

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*WWF continues to be known as World Wildlife Fund in the USA and Canada.

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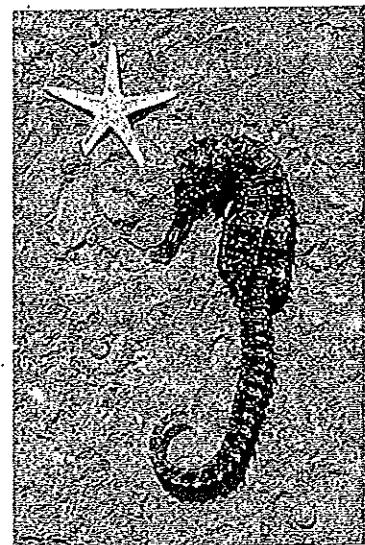
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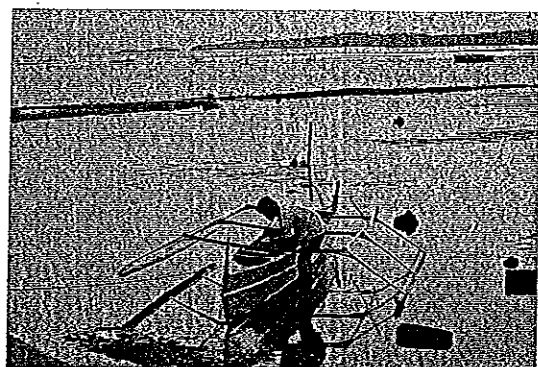
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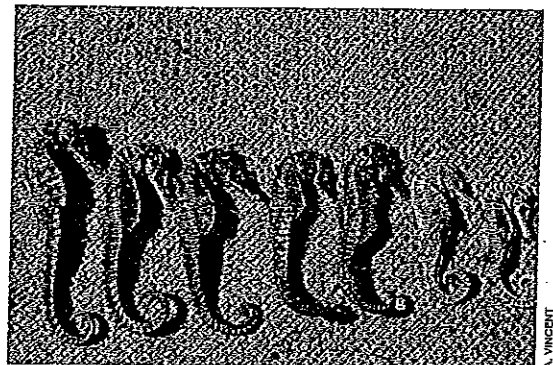


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