Secrets of the Seahorse

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There are many divers in New South Wales that have been fortunate enough to venture below the waters of Port Stephens or Sydney Harbour and encounter one of the ocean's shyest and most unusual animals… the seahorse.

Seahorses are bizarre and fascinating little marine creatures that belong to a family called 'Syngnathidae' which includes seahorses, pipefish, seadragons and pipehorses. They are known to occur throughout the oceans of the world (except in the coldest seas) and can be found living in various habitats including seagrass meadows, sponge gardens and coral reefs. They are closely related to ghost pipefishs (Solenostomidae) and seamoths (Pegasidae) and all seahorses belong to the one genus, Hippocampus, which is derived from the Greek words 'Hippos' (meaning horse) and 'Campus' (meaning sea monster). Most species are found in shallow coastal habitats (less than 20 metres) but some species are known to occur in water depths of up to 150 metres.

There is considerable conjecture over the number of seahorses that are found worldwide with Project Seahorse recognising 33 species in 'A Guide to the Identification of Seahorses' (2004) whilst Rudie Kuiter in his 'Comprehensive guide to syngnathiformes' (2006) indicates that there are at least 60 different species worldwide and the total figure could be higher than 100. The largest seahorse is considered to be the Australian Pot Belly Seahorse (Hippocampus abdominalis) that can be found on the protective swimming nets in Sydney Harbour whilst the smallest is the Pygmy Seahorse (Hippocampus denise) that lives on gorgonian fans in the tropics. However, there may be even smaller seahorses yet to be discovered as a new undescribed species recently found in Indonesia and Papua New Guinea (commonly referred to as the Pontoh's Seahorse) is incredibly small and proves to be very hard to photograph!

Seahorse habitats are among the most threatened in the world. More than 25 million dead and live seahorses are traded globally on an annual basis with around 95% of these being used in traditional medicines; aquarium and the souvenir trade make up the rest. In areas such as Vietnam, Indonesia and the Philippines populations of seahorses have noticeably declined. To help minimise the decline in seahorse populations, all species of seahorses (Genus Hippocampus) were protected under CITES (Convention on International Trade in Endangered Species) in May 2004. Listing means that exporting countries need to ensure that trade does not threaten wild populations of seahorses. Consideration is being given to list all species in the syngnathid family on CITES to ensure the trade of pipefish and pipehorses is ecologically sustainable.

There are at least 31 syngnathids (7 seahorses) and four solenostomids (ghostpipefish) species known to exist in NSW waters. Two of these species, the White's seahorse (Hippocampus whitei) and the pygmy pipehorse (Idiotropiseis lumnitzeri), are considered to be endemic to NSW (meaning they are only known to occur in NSW waters). Australia has taken several measures to protect seahorse populations with protection being afforded in NSW, VIC, SA, TAS and Commonwealth waters. All species in the Syngnathidae family became protected in New South Wales in July 2004 and it is illegal to take them from the wild or

Australian Pot Belly Seahorse (Hippocampus abdominalis) - with 2 orange tags.

Tiger Pipefish (Filicampus tigris) - this species is also being studied in Port Stephens.

\Pygmy Seahorse (Hippocampus denise) - the worlds smallest seahorse.

Ornate Ghostpipefish - close relative of syngnathids.

Thorny Seahorse (Hippocampus histrix) - First confirmed sighting for Australia in Nelson Bay 2007

Male Hippocampus abdominalis showing pouch opening

possess any of the species in the Syngnathidae family. Therefore, if a diver notices an activity occurring with seahorses being taken from the wild they should report it immediately to NSW DPI-Fisheries.

Seahorses are a very unique species as, unlike the rest of the animal kingdom, it is actually the male seahorse that becomes pregnant, carrying eggs in a pouch-like opening. The female deposits her eggs into the males pouch which are fertilised by his sperm. In seahorses, pregnancy lasts about two weeks to one month and the male can then give birth up to 150 babies. The babies are left to fend for themselves as after birth the adults provide no parental care.

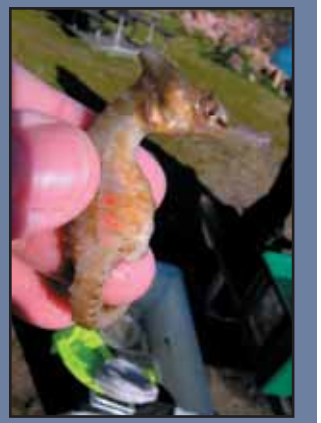
In Port Stephens and Sydney Harbour the most common seahorse that can be found is the White's Seahorse (Hippocampus whitei). This shy and elusive animal likes to live in the sponge gardens and seagrasses of the Port and is currently being studied by David Harasti from Project Seahorse and the University of Newcastle as part of his PhD research. His study is currently in its second year and he is examining the habitat preferences of the seahorse and assessing the effectiveness of marine protected areas for seahorse conservation.

Left: Injecting a Seahorse with yellow elastomer.

In March 2007, David discovered the Thorny Seahorse (Hippocampus histrix) which was the first confirmed sighting of this tropical seahorse in Australian waters – a very unusual discovery as this species is generally found in the Philippines and Indonesia! The Australian Pot Belly seahorse (Hippocampus abdominalis) has also been sighted during the seahorse surveys therefore at least 3 species of seahorses are known to occur within Port Stephens.

Additional elements to the seahorse research project include mark-recapture analysis by the tagging of seahorses, the role of artificial structures as seahorse habitat and the potential for releasing captive bred animals into the wild. The tagging involves injecting 3 small coloured fluorescent implants (elastomer) into different sections of the seahorse that can easily been seen by a diver. These small tags are fluorescent and are usually pink, yellow, orange or green in colour.

As of June 2006, over 400 seahorses and 50+ pipefish have been individually tagged in Port Stephens. It is believed that the population of



Right: White's Seahorse with three pink tags.

Left: Dried seahorses for sale in Vietnam.

Above: Thorny Seahorse (Hippocampus histrix) - a tropical spiny seahorse.

Above: Henriette in Port Stephens - the only seahorse that has been named so far.

Hippocampus whitei within Port Stephens is much greater than originally thought with initial mark-recapture estimates indicating that one of the divesites could have as many as 1500 animals.

Over the past 10 months research has also been conducted on the protective swimming enclosure at Manly (located between the Ferry wharf and Manly Oceanworld). Over 130 Hippocampus whitei have been tagged at this site and surveys are conducted each month to examine growth rates, seahorse movements and population size. This work will hopefully assist Manly Council with their management of the net, particularly in regards to net cleaning methods to minimise the impact on the seahorse population.

If divers are interested they can assist with the seahorse research by taking photo's of any of the tagged animals within Port Stephens or Sydney Harbour and recording the date, location, depth and water temp. Don't forget that both sides of the tagged seahorse must be photographed as all 3 tags must be seen to determine the individual identity. This seahorse research has been supported with funding from the Sydney Aquarium Conservation Foundation and the University of Newcastle and assistance has also kindly been provided by Ikelite and Mares through provision of equipment.

Right: White's seahorse with pink tags at Pipeline - Nelson Bay.

Below: Pontoh Seahorse (Hippocampus sp) - the hardest seahorse to photograph.