

Hippocampus erectus (Lined Seahorse)

Family: Syngnathidae (Seahorses and Pipefish)

Order: Syngnathiformes (Seahorses, Pipefish and Trumpetfish)

Class: Actinopterygii (Ray-finned Fish)



Fig. 1. Lined seahorse, *Hippocampus erectus*.

[<http://www.tnaqua.org/our-animals/fish>, downloaded 21 September 2016]

TRAITS. The lined seahorse is also called the northern seahorse (IUCN, 2003). The name lined seahorse was derived from the strong resemblance of the head to a horse's head, and the fine white lines covering the head and body (Fig. 1). Length ranges from 5.5-18.5cm. This fish has a tough, rigid appearance due to the occurrence of approximately 50 bony plates in the skin which form rings around the body. At the top of the head is a crown-like, bony structure called the coronet. Pectoral fins are located at the height of the eye. They possess a prehensile tail which has the adaptive function of holding on to objects in its environment. The species exhibits a wide range of colours including red, brown, black, grey and orange (Sweet, 2009). They are capable of changing

their colour in response to environmental conditions. The pair of eyes can work together or independently of each other (Gardiner, 2001). The lined seahorses are sexually dimorphic i.e. male and female are distinct, especially the presence of the brood pouch at the bottom of the abdomen in the males which has a reproductive function.

DISTRIBUTION. Lined seahorses are native in marine waters from Nova Scotia, Canada in the north to Venezuela in the south. This includes the western Atlantic bordering the United States, the Gulf of Mexico and the Caribbean Sea (IUCN, 2003) (Fig. 2). Similar seahorses are also found in waters surrounding Brazil but differences in the genome suggests that they may not belong to the species *Hippocampus erectus*, but research has yet to confirm this (Bester, 2016).

HABITAT AND ECOLOGY. Lined seahorses are confined to marine waters. The depth of water they inhabit is dependent on their stage of life. Juveniles are found near the water surface while adults inhabit greater depths. They can be located within the depth range of 5-73m and can live up to 4.7 years (Gardiner, 2001). They are found in areas of mangrove, seagrass and brown algae vegetation and sponges, where they use their prehensile tails to grasp on to the environment (Fig. 3). Their diet is small crustaceans, zooplankton and molluscs, and the horse-like snout is used in capturing prey. The snout produces a suction effect that pulls food toward and through it. This is a highly successful mechanism, especially if the prey's distance from the lined seahorse is 1-2cm, as the snout usually never misses the desired target. Juveniles can consume 3600 young brine shrimps in 10 hours (Gardiner, 2001).

REPRODUCTION. *Hippocampus erectus* has sexual reproduction, and males look after the young ones. Courting occurs when the male's brood pouch increases in size and both male and female may undergo colour alteration to a pale hue (Sweat, 2009). A few days after, mating takes place. The female shoots about 250-600 eggs into the male's pouch where internal fertilisation occurs. Direct development into young seahorses then begins in the pouch. This takes about three weeks until the young seahorses can swim somewhat independently. During birth, the male parent stabilises its body, using its prehensile tail to latch itself onto an anchored object such as a plant stem. It angles its body backward and forward in quick succession and after each forward bend, a juvenile, a small version of the adult, is released. This continues until the pouch is vacant. After birth, courtship commences again.

BEHAVIOUR. In order to capture and avoid prey, colour change is exhibited to blend in with the natural environment. They also use their eyes to examine their surroundings. They are natatorial i.e. made for swimming even though they are not strong swimmers. Swimming is achieved by the use of the pectoral and dorsal fins which move quickly backward and forward, driving the organism forward. They only travel short distances and hence are not migratory. Adult males and females practice a monogamous lifestyle, where they remain sexual pairs for life. The performance of a ritualistic dance each morning symbolises the reaffirmation of their allegiance to each other. They also produce clicking sounds during mating. Sounds are derived from physical contact between the coronet and the edge of the skull when the organisms raise and lower their heads consecutively (Gardiner, 2001).

APPLIED BIOLOGY. Millions of lined seahorses are traded every year for medicinal and decorative purposes in aquariums. They are used in dried and tablet form, in traditional Chinese medicine for erectile dysfunction. They also have characteristics which could suppress undesirable traits in humans such as tumours, senescence and fatigue (Chang et al., 2013). These trades have

led to declining populations of the species which is considered Vulnerable according to the IUCN (2013). *Hippocampus erectus* is also a prospective species for commercial aquaculture (Sweat, 2009).

REFERENCES

- Bester, C. 2016. *Hippocampus erectus*. Accessed October 18th, 2016.
<https://www.flmnh.ufl.edu/fish/discover/species-profiles/hippocampus-erectus/>.
- Chang, C.-H., Nian-Hong J.-L., Yeong-Shin L, Yi-Chiao F, and Kwang-Tsao S. 2013. Authenticating the use of dried seahorses in the traditional Chinese medicine market in Taiwan using molecular forensics. *Journal of Food and Drug Analysis* 310-315.
- Gardiner, N. 2001. *Hippocampus erectus* Horsefish. Accessed October 18, 2016.
http://animaldiversity.org/site/accounts/information/Hippocampus_erectus.html.
- IUCN. 2003. Lined seahorse. IUCN Red List. <http://www.iucnredlist.org/details/10066/0>, downloaded 21 October 2016.
- Sweat, LH. 2009. Indian River Lagoon Species Inventory. Accessed October 21, 2016.
http://www.sms.si.edu/IRLSpec/Hippoc_erectu.html.

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Fig. 2. World map showing distribution of *Hippocampus erectus* (red).

[<https://www.flmnh.ufl.edu/fish/discover/species-profiles/hippocampus-erectus/> downloaded 21 October 2016]



Fig. 3. *Hippocampus erectus* attached to plant by prehensile tails.

[<http://thevlm.org/wp-content/uploads/4-horses.jpg> downloaded 21 October 2016]