



Seadragons

This year the Management Plan for the Cottesloe Reef Fish Habitat Protection Area will be reviewed. It is a good time to push for full protection in WA for our mythical weedy seadragon.

Background

Seadragons have an iconic status in Australia; they live nowhere else in the world.

Two species of seadragon are found in Australian waters, the 'common' or weedy seadragon (*Pyllopteryx taeniolatus*) and the leafy seadragon (*Phycodurus eques*). They belong to the family *Syngnathidae* (pronounced sing-nay-thid-day) that also includes seahorses and pipefish. Seadragons live only round the southern coast of the continent as they need temperate waters.



There is great concern for the future of seadragons and their relatives. They are under severe threat by habitat destruction, marine pollution and potentially by the aquarium trade.

But only the leafy seadragon is fully protected in all Australian waters by Federal law. The weedy seadragon is also fully protected in all other States where they live¹, but surprisingly not in Western Australia.

In WA, weedy seadragons are only protected in Marine Sanctuaries and Fish habitat areas (such as the Cottesloe Reef FHPA) and in some other protected zones.

The world's main authority on the conservation status of plants and animals, the International Union for the Conservation of Nature (IUCN), lists seadragons as a 'near threatened species' because of human impacts on their habitat - such as storm water and sewage discharge.²

Rouse and Wilson at Scripps Institute of Oceanography, San Diego have suggested that the weedy seadragon is actually two species - an eastern Australian species and a Western Australian species.³ If the species is divided in two, this should be another compelling reason to fully protect the weedy seadragon in Western Australia.

It is unlawful to sell seadragons without a licence. In WA, 17 licenses are currently issued by Fisheries WA, which controls the Marine Aquarium Fish Managed Fishery (MAF). The licensees can collect 2000 specimens (in 2010), from the *Syngnathidae* family - pipefish and weedy seadragons (but not leafies), for the aquarium trade.⁴ The Fisheries WA website states that 1,572 of the *Syngnathidae* family were legally collected in 2007-8.⁵ According to information from Fisheries WA most of the weedy seadragons, pipefish and seahorses collected for sale end up in aquariums in Sydney and overseas.⁶ It is a dreadful irony that in NSW weedy seadragons are protected but WA allows them to be collected in our waters and they can be sent to aquarium shops

in Sydney and elsewhere, despite a general consensus that the survival rate in captivity is poor. Anecdotal evidence is that in captivity seahorses can cope better than seadragons.

The maximum figure of 2000 set by Fisheries WA for 2010 is not based on scientific research.⁷ Fisheries WA state that the MAF is a 'sustainably managed fishery' but they do not have population records.⁸ They will refer to the WA Museum if they should consider allowing even greater numbers of *Syngnathidae* to be collected commercially.⁹ The WA Museum has no population records either. The Museum can provide details on range, distribution, habitat and identification but they have no *Syngnathidae* population records and the Museum does no monitoring of populations.¹⁰

The only population study I have located is the 'WA Dragon Search project undertaken in WA waters – from the Abrolhos, right round the coast, to east of Esperance and including islands.'¹¹ The study continued for 4 years, from early 1998 to September 2002. A total of 1088 weedy and leafy seadragons were sighted during that time. There is no way of knowing how many recordings were repeat sightings of the same individual. 25% or 61 of these sighted specimens were dead, found on beaches. The study involved many people (the number involved is not specified), but at popular dive sites off Bremer Bay, 284 day records were documented. It astonishes me that only 816 live individuals (this is of both species) were sighted during an almost 4 year long study, over such a large area. And the research areas included the most popular dive sites to view seadragons. Despite this evidence, hundreds of weedy seadragons can be legally collected in WA, for the aquarium trade, every year!

It is impossible to know how many seadragons are actually taken from WA waters each year. Seadragons and their relatives are highly sought after for aquariums. It would be interesting to know how many fragile weedy seadragons and their relatives actually survive in aquariums and for how long. There have been reports of devastating morbidity levels in some captive aquarium populations.^{12 13}

Leafy seadragons

'Leafies' are slightly smaller than weedies, some growing to 43cm, however most reach an average of 30cm. Their leafy appendages are more numerous and branching than on weedies and they look like delicate seaweed fronds.



Adults are green to yellow-brown with thin, pale dark-edged bands. Seadragons are able to change colour depending on their food, age and environment. New research has shown that leafy seadragons have a highly sophisticated navigation system, venturing hundreds of metres from their base but returning precisely to the same spot (Connolly 1998). The leafy seadragon has a much smaller range than the weedy. Leafies have been recorded from Geraldton in Western Australia along the southern Australian coastline to Wilsons Promontory in Victoria.

The leafy sea dragon is the official marine emblem of the state of South Australia. Sightings of

the rare leafy seadragon have been reported in the past at Cottesloe reef. Skeletons have been found in South Cottesloe (Management Plan for the Cottesloe Reef system, FHPA, 2000).

Weedy seadragons

Weedy seadragons are only found in southern Australian waters, usually ranging from Geraldton WA, to Port Stephens NSW and around Tasmania. The weedy sea dragon is the marine emblem of the State of Victoria. These mythical looking creatures can sometimes be seen, if you are very lucky, in Cottesloe waters.



The iconic weedy seadragon was the symbol of the Cottesloe Marine Protection Group which was amalgamated with the Cottesloe Coast Care Association in 2004. The group had raised public consciousness of the need for protection of the Cottesloe reef ecosystem since 1999, which led to the creation of the Cottesloe Reef Fish Habitat Protection Area. Seadragon Festivals on Cottesloe beach were an important part of this process.

What do Weedy seadragons look like?



Weedy seadragons can be 45cm in length. They have leaf-like appendages for camouflage and a few short spines along their body. These spines are thought to be used as a defence against attacking fish. Their bodies are orange/red with yellowish or whitish spots. They may have bluish purple stripes and some yellow markings. The head has a long tube shaped snout. A male weedy has a thinner body width and is generally darker in colour than the female.

The photo shows another weedy seadragon in Cottesloe waters.

Where do they live?

- Weedy seadragons are found in a variety of habitats including shallow estuaries and deep offshore reefs.
- They can occur to depths of fifty metres and are mostly found in water over 10 metres deep. Juveniles are often found among kelp and seagrass.

What do they eat?

- Weedy seadragons feed upon mysids or sea-lice (tiny shrimp like creatures) and other small crustaceans. They seem to suck their prey straight into their snouts.

Family life for weedies.

- They reach sexual maturity within two years. The breeding season is early summer and they can have one brood (or sometimes two) per season. Prior to mating an area of the male's tail becomes swollen and spongy. The female places the eggs onto the male's tail, where they are fertilised. The male carries from 120 to 300 eggs (approx) on his tail for 1 to 2 months.
- The hatching period is staggered, to give the young more chance to find food. It lasts around 1-2 weeks, during which time the young are spread over a large area.
- The young develop rapidly, from 25-35mm at birth to 3 times that size within 3 weeks. In the first weeks they remain close to seaweed shelter. Very few of the newborn may survive to reach maturity.
- Bad weather can cause many seadragon deaths. They are poor swimmers and are sometimes found on the beach after storms and heavy seas.

Findings from The Sims institute of Marine Science indicate the recruitment rate of sea dragons is low and that they may be more vulnerable (than seahorses or pipe fish) to habitat destruction and aquarium trade collecting.¹⁴

A tiny creature that might move about 100 metres or so in its adult life is very vulnerable! Threats include: marine pollution, habitat destruction and the aquarium trade. When you are diving with these beautiful creatures please do not touch them or harass them, just enjoy your good fortune to be lucky enough to see them.

Watch [weedy seadragons off Cottesloe](#) on a beautiful video supplied by Mark Binns and Kerry Fletcher.

I have gathered this information from personal communication, the sources already mentioned and the following websites:

- Western Australian Department of Fisheries
www.fish.wa.gov.au/docs/pub/FHSlideofQuarter/200703.php?0408
- NSW DPI Threatened Species Unit www.dpi.nsw.gov.au
- A Chevron Texaco Australia technical report concerning Barrow Island
www.chevronaustralia.com/Libraries/Chevron_Documents/C6_Marine_Protected_Species.sflb.ashx
- SA Dept of Environment and Heritage
www.environment.sa.gov.au/data/press/leafy_seadragon.pdf

For more information:

- Seadragon Search diving code (Scuba Divers Fed. of SA): www.dragonsearch.asn.au IUCN Red List (May, 2006) <http://www.redlist.org>
- Australia Museum: www.amonline.net.au/fishes/fishfacts/fish/ptaeniolatus.htm
- Melbourne Aquarium: www.melbourneaquarium.com.au
- Connolly, R. (1998). Measuring the home range of leafy seadragons. The Dragon's Lair Vol. 3 No. 2 : p3

Dr Anne Brearley from the Oceans Institute at the University of Western Australia kindly recommended the titles of these [papers on Syngnathidae](#) for additional reading.

Robyn Benken
Cottesloe Coastcare Association
12th March 2010

¹ All weedy seadragons are fully protected in Victoria, Tasmania, NSW and South Australia (since 2006), by state laws

² Scripps Institute of Oceanography, UC, San Diego
http://explorations.ucsd.edu/Features/2009/Flight_Dragons/

³ Scripps Institute of Oceanography, UC, San Diego

⁴ Reef Watch South Australia/Dragon Search
<http://www.reefwatch.asn.au/dsIntroduction.html#syngn>

⁵ Western Australian Department of Fisheries www.fish.wa.gov.au

⁶ pers.comm., Sasha Brand Gardner, Fisheries Management Officer, WA Department of Fisheries

⁷ pers.comm., S. Brand Gardner, WA Dept of Fisheries

⁸ pers.comm., S. Brand Gardner, WA Dept of Fisheries

⁹ pers.comm., S. Brand Gardner, WA Dept of Fisheries.

¹⁰ pers.comm., Sue Morrison, Fish Curator, WA Museum.

¹¹ WA Dragon Search http://www.reefwatch.asn.au/PDF/DragonSearch_WA_Sept2002.pdf

¹² W.A Department of Fisheries
<http://www.fish.wa.gov.au/docs/sof/2007/state%20wide.pdf>

¹³ Captive husbandry of seadragons at L'Oceanário de Lisboa
www.intaquaforum.org/PROC%20MONACO%20I/046-Pereira.doc

¹⁴ Sims Sydney Institute of Marine Science
<http://sims.org.au/research/Booth-UTS-seadragonsuts.cfm>