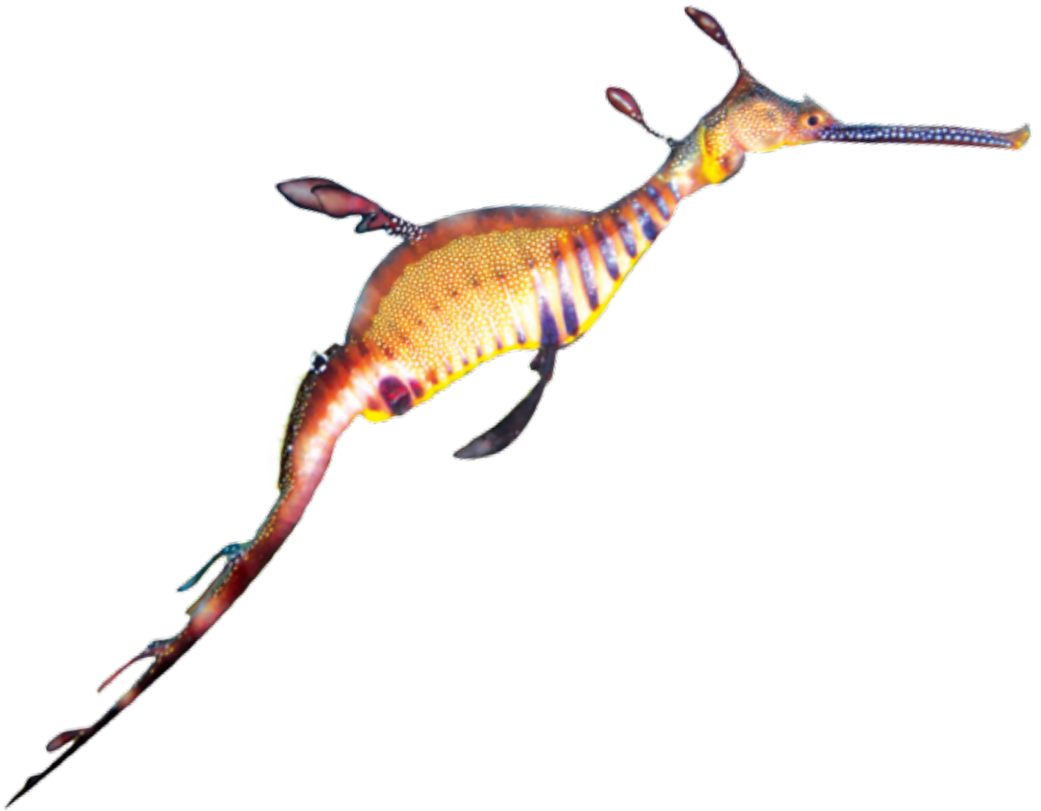


Seadragons & their Friends

A Guide to Syngnathidae Fishes in South Australia



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Dedication

This booklet is dedicated to Mr Rudie Kuitert, whose research and photography of syngnathids over many years has enabled people around the world to better understand and appreciate these remarkable fishes.

Citation

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Seadragons and their Friends in South Australia

South Australia has a rich variety of syngnathid species, including weedy and leafy seadragons, robust pipehorse, southern pygmy pipehorse, 2 seahorse species (and possibly a pygmy species in deeper waters), and at least 25 species of pipefishes.

The syngnathid fish fauna of South Australia is a mix of western species, south-eastern species, and endemic species known to date only from South Australia, and a few species that are also found in tropical and subtropical waters.

All of these fishes are fully protected under legislation in South Australia, and Australia. It is illegal to harm pipefishes, seahorses, seadragons and pipehorses, or to remove these fishes from their habitat without a Ministerial exemption.



The Syngnathidae

Seahorses, pipehorses, pipefishes and seadragons all belong to the fish family Syngnathidae. The body of syngnathid fishes is encased in a bony 'armour' made up of segmented rings, and ridges. The snout is tubular, and adapted for sucking up the small crustaceans upon which these fishes feed. Males of all fishes in the family brood the young, on the underside of their trunk or under the tail. Some species brood exposed eggs on their body, others partly encase the eggs in skin folds, and some have a fully enclosed brood pouch. Fishes in Syngnathidae are strongly site-associated within their habitats, and often very well camouflaged. Many of the species are found in or near seagrasses, or in brown or red seaweeds. Some live in caves and crevices, and others on sand or rubble bottoms, near seagrass detritus, or sponges, or near other attached animals on the seafloor.

Glossary

barotrauma:	damage to the enclosed cavities within the body, caused by rapid or extreme changes in atmospheric pressure, as occurs when fish are hauled quickly to the surface during fishing
brood pouch:	a pouch or cavity in which eggs develop
caudal:	relating to the tail, or to the posterior end of the body
courting ritual:	a defined sequence of behaviours by male and female animals prior to mating
cryptic:	concealed or camouflaged
crustacean:	any of a large group of arthropods (animal with segmented body, and jointed limbs) that typically have a hard shell or crust covering the body, including lobsters and crabs, shrimps, mysids, copepods and many other types
demersal:	living close to the seafloor
density / densities:	number / numbers of inhabitants per unit area
dermal outgrowths:	projections from the dermis (layers of skin)
detritus:	plant and animal remains, waste products, and other organic debris
dorsal:	pertaining to the back (dorsum), often the upper side; the opposite of ventral (belly side)
dredging:	a process, often mechanical, by which sand, silt or mud is removed from the seafloor and deposited at another location. Often used to create or maintain marine channels and harbours
effluent:	liquid waste from sewage treatment, or other nutrient-rich liquid waste, that is discharged into a body of water
epibenthic:	living on the surface of sediments at the bottom of the sea, from low tide level to about 180 m deep
estuary:	the part of a river mouth (or river's lower course) that is influenced by the tide from the sea, and is thus a mix of fresh and salt water
everted:	turned outward, or inside out

intertidal:	relating to the area of shore affected by the tides, i.e. the region that is above low water mark and below high water mark
invertebrate:	an animal that does not have a backbone
lateral:	pertaining to or positioned at the side
larvae:	an early life history stage, that undergoes metamorphosis
monogamy:	having only one mate, often for entire life of the animal
mortality:	relating to death or the timing of death
mysid:	small shrimp-like animals in the group <i>Mysidacea</i> , often referred to as opossum shrimps
ovipositor:	an organ in a female animal, used to deposit eggs.
pair-bonding:	a partnership between mating animals that lasts through one breeding season or more, which serves to benefit the process of producing offspring
pelagic:	relating to the open sea
plankton:	small or microscopic plants and animals that drift or float in the sea or fresh water
prehensile:	adapted for grasping or holding on to something
scutella:	small, shield-like plates (singular = scutellum)
seagrass:	photosynthetic, flowering plants which live in the sea
seaweed:	marine algae, the main types being green, brown and red
sedimentation:	the process of depositing sediment which, in the marine environment, can degrade reefs and seagrass beds, by smothering marine life, and reducing light penetration in water
semi-inverted:	partly turned inward
site-attached reproduction:	relating to the production of offspring that do not have a dispersed larval phase, and thus remain in or close to the area where they were produced by the parent animals
subtidal:	the sea area below the low-tide mark, but still shallow and close to shore
temperate:	relating to, or denoting a marine region or climate characterised by mild temperatures (e.g. 10-24°C)
trawling:	fishing method by which a net is dragged across sea floor
trawl trauma:	physical or physiological damage to animals due to capture in trawl nets
ventral:	the lower side or belly side in animals; the opposite of dorsal (back) side

Weedy Seadragon

Phyllopteryx taeniolatus



© L. Baade

Description

A seadragon that grows to about 45 cm long, but more often seen at less than 30 cm. The body is usually a gold or reddish colour, with pale spots all over, blue stripes on the underside, and a dark snout and tail. Head and body appendages may be gold, greyish-blue or black. The body is deeper in females than in males, and body girth increases with age. Males are often darker than females. Animals from deeper water are often more brightly coloured, with fewer appendages. Juveniles have narrow, stick-like, mottled brown and white bodies, and are well camouflaged.

Distribution

Found across southern Australia, from New South Wales through to the mid-coast of Western Australia, including Tasmania.

Habitat

Found in reef areas with seaweeds such as kelp, and in mixed habitats of seaweed and seagrass, sponges and bare sand and rubble patches. Sometimes observed at the edge of reef patches near sand, where it feeds on small crustaceans such as mysids. In earlier decades, reported to have previously occurred in seagrass, in Gulf St Vincent in South Australia.

Reproduction

The breeding period usually starts in spring, with regional differences in timing across the geographic range. There is usually only one brood per season. Males brood around 250 to 300 eggs in cup-like structures made from raised skin under the tail. Juveniles hatch after about 8 weeks.

Vulnerability

Seadragons are strongly site-associated within their habitat, and are slow-moving, weak swimmers. They are vulnerable to habitat degradation (particularly loss of seagrass beds and stands of kelp), and illegal collection for aquaria. Unintentional disturbance by divers due to over-visitation for photographic opportunities may also be an issue at some sites. Noise from dive boats and fishing boats may also be a disturbance. In the longer term, changes to sea temperature may influence distribution.



© L. McLean

Weedy Seadragon

Phyllopteryx taeniolatus

Leafy Seadragon

Phycodurus eques



© C. Hall

Description

A seadragon that grows to about 43 cm long, but more often seen at less than 30 cm. The body is an olive green to yellow-brown colour, with variable markings, including orange- or brown-edged white bars along the trunk, and brown-edged white lines and blotches on the head and snout. The numerous appendages are similar in colour to the body, but often with darker spots and blotches. Dark blotches and bars are often present around the eye. Juveniles have narrow, stick-like bodies that are paler in colour than the adults, and have large appendages with dark spots or marks.

Distribution

Found mainly in Western Australia and South Australia, with isolated records from Victoria and occasional unconfirmed records from northern Tasmania.

Habitat

This species is found in and near seagrass beds (e.g. *Posidonia* strap weed) and also near brown seaweeds (such as *Ecklonia* and *Macrocystis* kelps, and multi-branched *Cystophora* and *Sargassum*) at the edges of reefs, and near jetties.

Reproduction

The breeding season peaks during late spring and early summer, and males and females may congregate in spring, in preparation for egg transfer. There is a complex courting ritual, which may last for several days. During breeding season, the male's tail swells and sometimes turns bright yellow. The female deposits 250 — 300 eggs on his tail, and the soft skin folds around the eggs to hold them securely, and then hardens. The eggs are then fertilised, and incubated for about 8 weeks. The eggs hatch over about a week, during which time the male distributes the young over the sea floor. The young begin to feed immediately, and often form small groups.

Vulnerability

Seadragons are strongly site-associated within their habitat, and are slow-moving, weak swimmers. They are vulnerable to habitat degradation (particularly loss of seagrass beds, and stands of seaweed such as kelp), and illegal collection for aquaria. Disturbance due to over-visitation may be an issue at some sites, where seadragons are regularly surrounded by groups of divers with camera flashes, strobes, video lights, and/or shark shields. Noise from dive boats and fishing boats may also be a disturbance. In the longer term, changes to sea temperature may influence distribution.



© L. McLean

Leafy Seadragon

Phycodurus eques



Bigbelly/Potbelly Seahorse

Hippocampus abdominalis or *H. bleekeri*

Description

A large seahorse (to about 35 cm, but often seen at a smaller size), with a snout about 39 – 54% of head length, and a big middle ('belly'). Variable colour, including cream, grey, tan, brown, purple, orange or yellow, often with dark spots or splotches, and sometimes paler stripes. Some animals have long filaments on the head and/or body. The tail, at least 45 rings long, is often striped.

Distribution

Found in New Zealand, NSW, Victoria, Tasmania and South Australia. Animals in the southern part of the range - which have a longer snout, fewer head filaments and several other differences - have been considered by some authorities to be a separate species, but a genetic study in Tasmania indicated that all regional variants are within the range of species *abdominalis*.

Habitat

Often found near *Ecklonia* brown kelp and other seaweeds on rocky reefs. Also occurs in estuaries, and near seagrass, sponges, and sand and rubble bottom in deeper water. Sometimes attached to jetty piles, shark nets and fish cages. Depth range is mainly less than 50 m, but known to about 100 m in NZ.

Reproduction

Breeds year round, with a peak in spring and summer. Males have a prominent pouch during breeding season. Males compete for the attention of gravid females, by inflating their brood pouches to attract her to deposit eggs. A complex courting ritual precedes deposition of about 300 - 400 eggs per brood in the pouch.

Vulnerability

Adult seahorses are strongly site associated with the sea floor, are weak swimmers, and produce relatively few offspring. A main threatening process may be nearshore habitat loss, including loss of kelp and other seaweeds, from dredging, sedimentation and nutrient pollution. Illegal collection for aquaria and/or Asian medicine trade may occur in some areas, but is unquantified. Culturing for the aquarium trade reduces the extent of collection from the wild. In some parts of the range (e.g. New Zealand), this species has been caught in set nets and other fishing gear, as bycatch.



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Bigbelly Potbelly Seahorse

Hippocampus abdominalis or *H. bleekeri*

Short-snout Seahorse

Hippocampus breviceps



© H. Crawford

Description

A small seahorse (to about 10 cm), with a shortish snout, about one third of head length, but longer in juveniles. Variable colour - often fawn, tan or yellowish, with dark-ringed spots (ocelli). Other colours include brown, purple-brown, pink, orange or mauve, sometimes mixed with pale blotches. White line through eye. Pale bars (often around 13) on underside of tail. Fine, fleshy tendrils on top of head and sometimes also on back.

Distribution

Found in Tasmania, Victoria and South Australia.

Habitat

Known from calm bays and estuaries, and other sheltered waters, to at least 15 m deep. Often seen clinging by the tail to various marine plants, such as brown *Sargassum* or *Caulocystis* seaweed, and *Amphibolis* (wireweed) seagrass. Also found near jetties, sponges, and red seaweed. Very well camouflaged when resting on marine plants.

Reproduction

Breeds every month during summer, and females transfer eggs using an ovipositor, into the male's pouch. Each male produces around 50-100 young, from one or more females.

Vulnerability

Adult seahorses are strongly site associated with the sea floor, are weak swimmers, and produce relatively few offspring. The main threatening process may be nearshore habitat degradation, including loss of seagrasses and seaweeds from dredging, coastal sedimentation and nutrient pollution. The culturing of this species for the Australian and international aquarium trade reduces the extent of collection from the wild. Illegal collection may occur in some areas, but is unquantified.

Other Information

Hatchlings and juveniles are pelagic, and later settle near the seafloor, when they change shape, colour, and head dimensions. In SA, juveniles are sometimes seen “rafting” in large numbers on floating seagrass and seaweed at the sea surface. Juveniles are more slender, and have a longer snout and straighter head than adults. In some years, the pelagic young may survive longer and keep growing to adulthood, without settling. These seahorses have been mistaken for a separate species in the past.



© A. Futterer

Short-snout Seahorse

Hippocampus breviceps



Southern Pygmy Pipehorse

Idiotropiscis australe
or *Acentronura australe*

Description

A small (about 5 – 6 cm long) pipehorse, with a short, pale snout (about one third of head length), a narrow body, and a prehensile tail. Southern pygmy pipehorses have numerous pale pink or white spots and blotches on the body, and many pale dermal outgrowths on the head and body. The filamentous growths that cover much of this pipehorse make it extremely well camouflaged.

Distribution

Found in Western Australia and South Australia. Known to date from few locations, mainly sites towards the bottom of Gulf St Vincent, on both eastern and western sides.

Habitat

Found in and near seagrass beds, and in red seaweed, including small plants attached to seagrasses such as *Halophila* paddleweed. Also recorded over bare sand at a site in Western Australia, and on larger brown seaweed (*Caulocystis*) in South Australia.

Reproduction

Males and females may be pair-bonded. Males brood the eggs in a pouch. In WA, brood sizes of 10 to 80 eggs have been recorded.

Vulnerability

Like many other members of the family, pygmy pipehorses are slow-moving, and weak swimmers. They are closely associated with mixed seaweed / seagrass habitat in shallow subtidal waters, and are thus vulnerable to habitat degradation in nearshore areas (such as dredging, and sedimentation and nutrient pollution from coastal run-off), and also to illegal collection for aquaria or other purposes. There are very few sites where this species has been recorded in South Australia, and some are inaccessible, thus providing refuge from various threatening processes. At accessible nearshore sites, there may be future potential for unintentional disturbance by divers due to over-visitation.



© C. Harmer

Southern Pygmy Pipehorse

Idiotropiscis australe or *Acentronura australe*

Robust Pipehorse

Solegnathus robustus



© Australian Museum

Description

A large pipehorse to about 36 cm. Snout around 55% of head length. Has 5 short spines radiating from bony shield-like structures on each trunk ring. Orange body, with darker patches on snout, and parts of underside. Tiny dark spots on surface of ridges on some trunk rings. Prehensile tail.

Distribution

Known to date from South Australia and the SA / WA border, based on around two dozen trawled specimens (most collected between 1909 and 1982) from Great Australian Bight area. Robust pipehorses have also been recorded at the bottom of Spencer Gulf.

Habitat

Most records come from prawn trawls, and the preferred habitat on the continental shelf is not documented. Apparently fairly common within its recorded depth range to date (42 m – 68 m). The full depth distribution is not known, because records are principally from trawl bycatch.

Reproduction

In *Solegnathus*, the eggs are brooded on the under-surface of the tail, behind the anal fin.

Vulnerability

This species has been found to date over a narrow depth range, in a small geographical area. Given that trawled pipehorses may not survive when hauled to the surface (due to trawl trauma and barotrauma, including prolapse), commercial trawl fishing is considered to be a potential threat to populations of this species. *Solegnathus* species are valued in the traditional Asian medicine trade, but the extent to which *S. robustus* specimens enter this trade is likely to be low, compared with pipehorse species in other parts of Australia, which are traded under permit.



© Australian Museum

Solegnathus robustus Holotype
70 mm

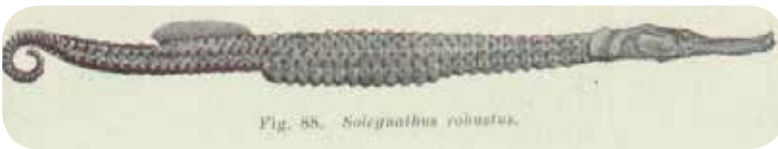


Fig. 88. *Solegnathus robustus*.

© Waite 1921 Courtesy of Freshwater and Marine Image Bank

Gales Pipefish

Campichthys galei



©J. Lewis

Description

A small pipefish (to about 6 cm) with a tan, yellow-brown or dark brown body. Some individuals are solid in colour; others have pale blotches on the head and about 12 pale bars across the body. Sometimes has a red blotch behind the pectoral fin.

Distribution

This species ranges from the central Western Australian coast through to the South Australian gulfs. There are very few records known from South Australia, mostly from southern Spencer Gulf.

Habitat

Gales pipefishes have been recorded in a variety of habitat types, including sand with seagrass detritus, shell and rubble bottom, seagrass beds, and on reefs in bays. At the Sir Joseph Banks group of islands in SA, it has been found in mixed habitat of reef, rubble, sand and sparse *Posidonia* seagrass. Recorded depth range is from the shallow subtidal to about 18 m deep.

Reproduction

The male may start breeding when around 3 to 4 cm long, and carries the eggs in a brood pouch under the tail.

Vulnerability

Population characteristics that may increase the vulnerability of Gales pipefishes include:

- spatially restricted distribution of populations in SA (known to date mainly from Spencer Gulf)
- low population densities
- strong habitat association
- probable small home range size and low mobility
- possible low rates of natural adult mortality
- probable monogamy
- site-attached reproduction with small brood sizes

In SA, this species has been recorded in seagrass trawl samples from Spencer Gulf. Nearshore habitat impacts, especially in seagrass beds, could adversely affect populations. Examples would include trawling, dredging, netting, effluent discharge and sedimentation, and coastal developments.



© Barry Hutchins WA Museum

Gales Pipefish

Campichthys galei

Tiger Pipefish

Filicampus tigris



©D. Muirhead

Description

A large pipefish (to about 35 cm) with a greenish brown body. Smaller, younger tiger pipefish usually have dermal flaps on the head or body.

Distribution

Mainly subtropical in distribution, along the Western Australian coast, and from parts of the central and southern Queensland coast and NSW. There is a separate population in Spencer Gulf in South Australia.

Habitat

Usually found in sheltered bays, tidal channels and estuaries, on rubble, sandy or muddy bottom, or near the edges of seagrass beds. Depth ranges from the shallow subtidal to around 30 m deep.

Diet

Tiger pipefishes feed on swarms of mysids.

Reproduction

This species forms pair bonds, and are strongly site-associated. Males may start breeding when they are around 17.5 cm long and carry eggs in a brood pouch under the tail.

Vulnerability

Population characteristics that may increase the vulnerability of this species include:

- the spatially restricted distribution of populations in SA
- low population densities
- strong habitat association
- small home range size and low mobility
- possible low rates of natural adult mortality
- monogamy and pair-bonding,
- site-attached reproduction with small brood sizes.

In SA, tiger pipefish occurs in Spencer Gulf, including marine habitats adjacent to highly industrialised areas, where water quality and nearshore habitat quality and extent have been degraded over decades, and threatening processes remain active. Habitat impacts, especially in and around tidal channels, and shallow sandy bays, could adversely affect their populations.



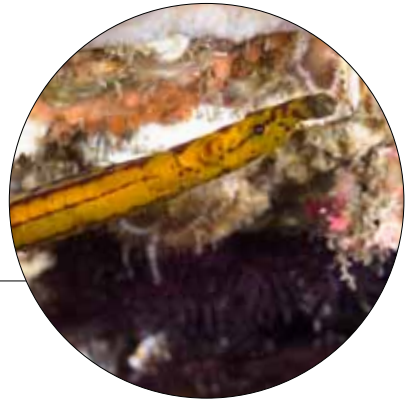
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Tiger Pipefish

Filicampus tigris

Upside-down Pipefish

Heraldia nocturna or *Heraldia* sp.1



© T. Rakotoarivelo

Description

A small pipefish, to about 10 cm. Yellow and brown body with white markings, and fan-like tail. Eastern populations (*Heraldia nocturna*) and southern populations (sometimes called *Heraldia* sp. 1) differ in colour and markings, but taxonomic separation is still uncertain.

Distribution

If populations across Australia are one species, then the range is broad - from Western Australia to NSW, including Tasmania. Records from SA are mainly from northern Kangaroo Island and southern Gulf St Vincent.

Habitat

Found in caves, crevices, and under ledges on rocky reefs. Recorded depth range to date is about 2 to 30 m deep.

Reproduction

Males of *Heraldia* may first breed when about 6 cm long. Care of the young is classified as being “unprotected”, because there is no brood pouch, and eggs are carried exposed, under the trunk.

Other Notes

Heraldia pipefishes live in pairs, and swim upside down near the ceiling of caves, crevices and rock ledges, where they hide during the day. They can also swim right way up, when not near the ceiling. In some areas they have been observed swimming (still upside down) out of from the cave ceiling into open water, to feed on small crustaceans, which are sucked in through the snout.

Vulnerability

Population characteristics that may increase the vulnerability of upside-down pipefishes include:

- low population densities
- strong habitat association
- small home range size and low mobility
- possible low rates of natural adult mortality
- probable monogamy;
- site-attached reproduction with small brood sizes.

The reef habitat offers some protection, except in areas where reefs could become degraded - e.g. from dumping of coastal dredge spoil. Illegal collecting, if it were to occur, could also be a threatening process.



© T. Rakotoarivelo
Male brooding eggs on underside of body (trunk)

Upside-down Pipefish

Heraldia nocturna or *Heraldia* sp.1

Brigg's Crested Pipefish

Histiogamphelus briggsii



©D. Muirhead

Description

A moderately large pipefish - to about 24 cm, with a plate-like dorsal ridge above the snout. Females are mainly tan to dark brown with small brown spots, and dark-ringed eye spots (ocelli) on the sides of the body and part of the tail. Males are plain brown, or brown with pale streaks and blotches on the body.

Distribution

Ranges from NSW through to SA, including northern Tasmania. Most sightings in SA have been in Gulf St Vincent, but this species has also been recorded in the South East, and off Kangaroo Island.

Habitat

Generally found in sandy areas, near rocks, rubble, live or dead seagrass or seaweed. Recorded depth is from the shallow subtidal down to at least 20 m deep.

Diet

This species feeds on mysids and other small crustaceans

Reproduction

Males may start breeding when at least 9 cm long and carry eggs in a brood pouch under the tail.

Other Notes

This species is well camouflaged, and can resemble dead seagrass in appearance. In eastern Australia, seasonal aggregations occur in some beach areas.

Vulnerability

Population characteristics that may increase the vulnerability of Brigg's crested pipefishes include:

- low population densities
- strong habitat association
- probable small home range size and low mobility
- possible low rates of natural adult mortality
- probable monogamy
- site-attached reproduction with small brood sizes

Nearshore habitat impacts, especially in seagrass beds, could adversely affect populations. Examples would include trawling / dredging, netting, effluent discharge and sedimentation, and coastal developments.



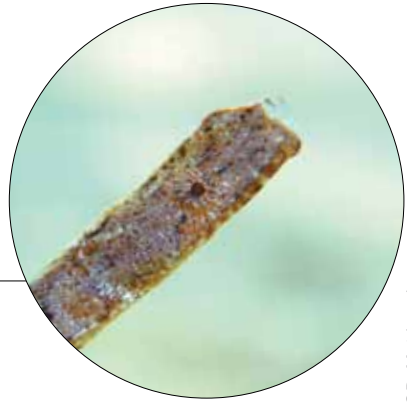
© D. Muirhead

Brigg's Crested Pipefish

Histiogamphelus briggsii

Rhino Pipefish

Histiogamphelus cristatus



©D. Muirhead

Description

A large pipefish (to about 27 cm), with a plate-like dorsal ridge above the snout, which extends to the back of the head, behind the eye. Both males and females are various shades of brown, with darker bars and paler blotches on body. Blotches are sometimes bluish or pearly in females.

Distribution

Ranges from southern WA through to the gulfs region in South Australia.

Habitat

Generally found in sandy areas, near rocks or rubble, and sparse seagrass.

Diet

Like other pipefishes, *H. cristatus* eats small crustaceans. Because the species has a short snout, it consumes mainly slow-moving prey.

Reproduction

Males may start breeding when about 13 – 14 cm long, and carry eggs in a brood pouch under the tail.

Vulnerability

Population characteristics that may increase the vulnerability of rhino pipefishes include:

- low population densities
- strong habitat association
- probable small home range size and low mobility
- possible low rates of natural adult mortality
- probable monogamy
- site-attached reproduction with small brood sizes.

Nearshore habitat impacts, especially in seagrass beds, could adversely affect populations. Examples would include trawling / dredging, netting, effluent discharge and sedimentation, and coastal developments.

Other Notes

Rhino pipefishes are well camouflaged, and can resemble dead seagrass in appearance.



© J. Lewis

Rhino Pipefish

Histiogamphelus cristatus

Shaggy Pipefish/ Prickly Pipefish

Hypsognathus horridus



© South Australian Museum

Description

A moderately long pipefish (to about 28 – 30 cm). Colour in life not confirmed, but reported to be greyish, with many tiny brown or black spots and rings that have paler margins.

Distribution

Full distribution is not known, but this species is currently recorded from the eastern part of the Great Australian Bight. Most records range from the Anxious Bay area, westwards to the Ceduna area.

Habitat

The habitat has not been documented in detail, but specimens have been trawled in the eastern Great Australian Bight, at least at depths of 40 – 55 m. This species likely occurs over a wider depth range.

Reproduction

The brood pouch in the male is reported to develop when animals are about 15 cm long. Specimens at the South Australian Museum had 20, 60 and 80 eggs, and the smallest brooding male in that sample was 23 cm.

Vulnerability

Very little is known about the full distribution, depth range or habitat of this species. It is currently known from a relatively small area of the Great Australian Bight, and the apparent limited distribution may increase the vulnerability of populations to impacts.

As with other pipefishes, characteristics that may cause populations to be intrinsically vulnerable to decline are likely to include: strong habitat association; small home range size and low mobility; probable monogamy; and site-attached reproduction with small brood sizes. The impacts of trawling on the habitat are not known.

Other Information

The shaggy pipefish is considered unusual, because it has a spiny head and body surfaces, a caudal fin and a caudal brood pouch, and no scutella (shield-like scales).



© The Museum Board of South Australia 2004. Photographer: G. Kluske.

Shaggy Pipefish / Prickly Pipefish

Hypselognathus horridus

Knife-snout Pipefish

Hypselognathus rostratus



©D. Muirhead

Description

A large pipefish (to about 40 cm) with a long snout, about 62 - 77% of head length. Mostly smooth body, but has small, wart-like growths on each body ring. Body various shades of brown, with dark-ringed white blotches or indistinct bars.

Distribution

This species is found in Victoria, Bass Strait and South Australia. Most records in SA are from the gulfs, but *H. rostratus* is also known from: eastern Great Australian Bight; islands off southern Eyre Peninsula; and Encounter Bay.

Habitat

Mostly found in shallow seagrass beds of *Posidonia* and *Zostera*, and on sandy substrates with clumps of seagrass and detritus. In SA, found in a variety of oceanographic conditions, from shallow sheltered bays to more exposed habitats around offshore islands. Depth ranges from less than 1 m to at least 10 m deep.

Reproduction

Males carry eggs in a brood pouch under the tail.

Other Notes

In Victoria, juveniles to around 15 cm long are reported to be not uncommon in surface waters with large jellyfishes, when oceanic waters run into Port Phillip Bay.

Vulnerability

Population characteristics that may increase the vulnerability of knife-snout pipefishes include:

- strong habitat association
- probable small home range size and low mobility
- possible low rates of natural adult mortality
- probable monogamy
- site-attached reproduction with small brood sizes

Nearshore habitat impacts, especially in seagrass beds, could adversely affect populations. Examples would include trawling/dredging, netting, effluent discharge and sedimentation and coastal developments.



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Knife-snout Pipefish

Hypselognathus rostratus

Deep-body Pipefish

Kaupus costatus



©D. Muirhead

Description

A moderate sized pipefish (to about 14 cm), with a variable sized snout (32 – 56% of head length). Brightly coloured: body is greenish, red-brown or red, with small blue, yellow and white dots and streaks. Females have prominent, curved blue bars on the sides of the body, and males often have a brown lateral stripe, with brownish-red circular markings below.

Distribution

Known mainly from South Australia, but there are small populations in Victoria (both major bays, and around some islands in Bass Strait).

Habitat

Found in small aggregations, in low energy, silty-bottomed, clear-water environments that support *Zostera* seagrass beds, and short, filamentous seaweed. Examples include tidal channels adjacent to mangroves, and shallow, quiet water bays. Most records are from low intertidal and shallow subtidal waters. This species is capable of withstanding extreme fluctuations in temperature and salinity in the intertidal environment.

Reproduction

In SA, the reproductive period is from spring to autumn. Males may be brooding at 9 cm, and carry from 10 to 50 eggs in a brood pouch under the tail.

Vulnerability

Deep-body pipefishes are considered to be an indicator of the health of *Zostera* seagrass beds, with which they are strongly associated. Impacts in *Zostera* seagrasses may adversely affect *K. costatus* populations. Examples may include shallow water trawling / dredging, netting, power boating, trampling (e.g. during shore fishing), effluent discharge, and sedimentation from run-off, drains, or engineering works associated with nearshore coastal developments.



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Deep-body Pipefish

Kaupus costatus

Brush-tail Pipefish

Leptoichthys fistularius



© K. Smith

Description

A very long pipefish (to about 65 cm), with a long, narrow snout, 71 - 77% of head length. Body often greenish brown, with orange-brown wavy lines or bands, and pale spots. Darker head and tail area in some individuals.

Distribution

Found across southern Australia, from southern WA through to northern Tasmania. Most records in South Australia are from the gulfs region, but it is also known from the South East of SA.

Habitat

Found mainly in dense seagrass beds, particularly *Zostera* and *Posidonia*, in which it is well camouflaged. Juveniles sometimes swim in small groups, near seagrass beds, and some juveniles have also been recorded near macroalgae. Recorded depth range is from about 3 m to 20 m.

Reproduction

Males may begin breeding when they are about 20 - 21 cm long, and carry eggs in a brood pouch under the tail.

Vulnerability

Degradation of seagrass beds in some areas may be a threatening process, given the strong association of this species with seagrasses. Brush-tail pipefishes also occur in prawn trawl grounds in SA, but the potential impacts are not known, because population sizes and catch statistics are not recorded.

Some life history characteristics that increase the vulnerability of brush-tail pipefishes to population decline include:

- strong habitat association
- possible small home ranges and low mobility
- possible low rates of natural adult mortality
- aggregation
- small brood sizes



© J. Lewis

Group of young juvenile brush-tail pipefish

Brush-tail Pipefish

Leptoichthys fistularius



Smooth Pipefish

Lissocampus caudalis

Description

A relatively small pipefish (to about 10.5 cm), with a broad snout. Like the javelin pipefish, the body is longer and more slender after the dorsal fin.

The colour of smooth pipefish is highly variable, including brown, tan, amber or yellowish-green body with brown and/or white bands and blotches. Some individuals have a regular pattern of reddish-brown dots. There is usually a brownish blotch at the front of the dorsal fin.

Distribution

Found across southern Australia, from Bass Strait and northern Tasmania through to southern WA. In SA, known to date from eastern Great Australian Bight, Spencer Gulf, Gulf St Vincent, Encounter Bay and Kangaroo Island.

Habitat

Smooth pipefishes are found in a variety of nearshore habitats, including tide pools, shallow seagrass beds (e.g. in *Zostera*, and *Amphibolis*), shallow reefs with mixed seaweed, subtidal sand and rubble habitats, and under jetties. Recorded depth range is from less than 1 m to about 10 m deep.

Reproduction

Males may start brooding when they are around 7 cm long and carry eggs in a pouch on the underside of the tail near the anal fin.

Vulnerability

Population characteristics that may increase the vulnerability of smooth pipefishes include:

- low population densities
- strong habitat association
- probable small home range size and low mobility
- probable monogamy
- possible low rates of natural adult mortality
- site-attached reproduction with small brood sizes

Nearshore habitat impacts, especially in seagrass beds, could adversely affect populations. Examples would include trawling and dredging, netting, effluent discharge and sedimentation, and coastal developments.



© A. Sutandio

Smooth Pipefish

Lissocampus caudalis



Javelin Pipefish

Lissocampus runa

Description

A relatively small pipefish (to about 10 cm), with a broad, concave snout. The body is longer and more slender after the dorsal fin. The colour is variable, and may be solid, or with darker bars or blotches. Females are usually brown, or off-white, or shades of dark green or yellow. Males often have blue and white on the body, with scarlet red patches.

Distribution

Found across southern Australia, from northern NSW through to southern WA, including Tasmania.

Habitat

Javelin pipefishes are found in a variety of nearshore habitats, including estuaries, tide pools, shallow seagrass beds (e.g. *Zostera*), shallow rubble reefs with short seaweed, and subtidal sand habitat. Distribution records indicate an apparent tolerance for a broad range of temperature, salinity and wave exposure levels. Recorded depth range is from about 1 – 18 m, but most records are from less than 5 m deep.

Reproduction

Males may start brooding when they are around 7 cm long, and carry eggs in a pouch on the underside of the body near the anal fin.

Vulnerability

Population characteristics that may increase the vulnerability of javelin pipefishes include:

- low population densities
- strong habitat association
- probable small home range size and low mobility
- possible low rates of natural adult mortality
- probable monogamy
- site-attached reproduction with small brood sizes

Nearshore habitat impacts, especially in estuaries, seagrass beds and shallow rubble reefs, could adversely affect populations. Examples would include trawling and dredging, netting, effluent discharge and sedimentation, and coastal developments.



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Javelin Pipefish

Lissocampus runa

Sawtooth Pipefish

Maroubra perserrata



© P. Macdonald

Description

A small pipefish, to about 8.5 cm. Pinkish or yellowish body with brown markings, sometimes with white dorsal stripe, and reddish brown or dark brown lateral stripes. Body may also appear bluish. Dark stripe on side of snout.

Distribution

Found across southern Australia, from northern NSW through to southern WA, including Tasmania. Most records in South Australia are from commonly dived locations in the gulfs region, and along northern Kangaroo Island.

Diet

Sawtooth pipefishes feed mainly on benthic crustaceans such as small amphipods, and also zooplankton.

Habitat

A reef-dwelling species, usually found in the back of narrow fissures / crevices in rock, and in caves. Also hides under rocks. Depth ranges from the shallow subtidal to about 15 m deep.

Reproduction

Aquarium studies have shown that this species begins breedings in the first year of life, and may be carrying eggs during the several months of summer. Males incubate the brood below their trunk, with the eggs exposed in fully grown sawtooth pipefish. The brood size is about 60, and eggs hatch after several weeks.

Vulnerability

Population characteristics that may increase the vulnerability of sawtooth pipefishes include:

- low population densities
- strong habitat association
- small home range size and low mobility
- possible low rates of natural adult mortality
- probable monogamy
- site-attached reproduction with small brood sizes

The reef habitat offers some protection, except in areas where reefs could become degraded - e.g. from increased sedimentation. Illegal collecting, if it were to occur, could also be a threatening process.

Other Notes

Sawtooth pipefish rest during the day, and is nocturnally active. Adults often occur in pairs, or in small groups (e.g. 4 or 5 individuals).



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Sawtooth Pipefish

Maroubra perserrata

Tucker's Pipefish

Mitotichthys tuckeri



© QVMAG

Description

A moderately sized pipefish (to about 19 cm), with a snout about 47 – 56% of head length. Tan body, darker on dorsal surface, with irregular dark marks, and pale underneath.

Distribution

Tucker's pipefishes have been recorded from south-eastern Australia, including southern New South Wales, Victoria, Tasmania and south-eastern South Australia, the latter of which is the western edge of its range.

Habitat

Found in kelp, and also reported floating in *Sargassum* seaweed, on open coasts. Specimens have been collected mainly from between 9 m – 20 m.

Reproduction

Male *M. tuckeri* reportedly carry eggs in a brood pouch under the tail, and males may first start breeding when about 12 cm long.

Vulnerability

As with other pipefishes, characteristics that may cause populations to be intrinsically vulnerable to decline include:

- strong habitat association
- probable small home range size and low mobility
- possible low rates of natural adult mortality
- probable monogamy
- site-attached reproduction with small brood sizes

Processes that degrade nearshore reef habitats (particularly kelp-covered reefs) may adversely affect populations, but there are no specific data. The Tucker's pipefish is unlikely to be captured by fisheries, due to its habitat.



Source: Australian National Fish Collection Images. Image by: Scott, E.O.G. (1955)
Observations on some Tasmanian fishes: part VII.



Red Pipefish

Notiocampus ruber

Description

A moderately sized pipefish (to about 17 cm), with a short snout, and large eyes. The body is dusky pink, red or maroon, with a fine scale-like surface pattern, and tiny yellow or red spots.

Distribution

Known from a few locations across southern Australia, ranging from New South Wales through to Western Australia, including Tasmania. Records from SA include upper South East, northern Kangaroo Island, and along the southern Fleurieu Peninsula.

Habitat

Found in a variety of habitats, including filamentous and other red seaweeds and on reefs, amongst sponges in reef crevices, in seagrass beds, and shipwrecks.

Reproduction

Due to the lack of specimens found to date, there is little information on reproduction. The male may carry the eggs in a brood pouch under the tail.

Vulnerability

Population characteristics that may increase the vulnerability of red pipefishes include:

- strong habitat association
- probable small home range size and low mobility
- possible low rates of natural adult mortality
- probable monogamy
- site-attached reproduction with small brood sizes

Processes that degrade nearshore reef and seagrass habitats may adversely affect populations, but there is no specific data. The red pipefish is unlikely to be captured by fisheries, due to its habitat. The only fisheries capture recorded to date is an individual found in a rock lobster pot in 1964.

Other Information

This pipefish is cryptic in its habitat. It can move very quickly in a snake-like fashion and is hard to photograph. At locations in NSW and SA where individual red pipefish were found on single occasions, repeated searches over time at the same locations failed to find any more individuals.



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Pugnose Pipefish

Pugnaso curtirostris



Description

A moderately sized pipefish (to about 15 – 19 cm), with snout around one third of head length. The colour is variable, including cream, yellowish, tan or dark brown. Has rectangular dark blotches along the side, on most trunk rings, and may have paler spots or blotches on the top side. Snout of some specimens is much paler than the body colour.

Distribution

Found across southern Australia, from south-western WA through to Bass Strait and northern Tasmania. There are numerous records from South Australia (SA), ranging from the Great Australian Bight through to the South East.

Habitat

Found in a variety of nearshore habitats, including shallow seagrass beds of various types (*Zostera*, *Amphibolis*, *Posidonia*), shallow reefs with short seaweed, and areas of rubble and sand. Juveniles are found in estuaries and shallow bays, often amongst decaying seagrass. Distribution records indicate an apparent tolerance for a broad range of temperature, salinity and wave exposure levels. Most records are from shallow subtidal waters, to less than 15 m deep.

Reproduction

Males have been recorded brooding during the summer in SA and may be brooding at 13 – 14 cm, and carry eggs in a brood pouch under the tail. Egg numbers have been examined in a small number of specimens from two locations in SA, and varied from 12 – 90.

Vulnerability

Population characteristics that may increase the vulnerability of pugnose pipefishes include:

- strong habitat association
- probable small home range size and low mobility
- possible low rates of natural adult mortality
- probable monogamy
- site-attached reproduction with small brood sizes

Nearshore habitat impacts, especially in estuaries, seagrass beds and shallow rubble reefs, could adversely affect populations. Examples would include trawling, dredging, netting, effluent discharge and sedimentation, and coastal developments.



© D. Muirhead

Pugnose Pipefish

Pugnaso curtirostris

Spotted Pipefish

Stigmatopora argus



© J. Lewis

Description

A moderately long pipefish (to about 28 cm), with a long snout (62–72% of head length). Variable colour, often green, brown, or greenish brown, with dark spots over much of the body. Some animals have lines of pale spots along sides of body. Male brood pouch often has longitudinal stripes.

Distribution

Found in western and southern Australia, ranging from Shark Bay in WA through to central New South Wales coast, including Tasmania. Widespread in South Australia.

Habitat

Large numbers are often found in seagrass beds of various types, such as *Posidonia*, *Amphibolis* and *Zostera*, and mixed beds of any of these. *Stigmatopora* pipefishes show a strong preference for seagrass habitat from an early juvenile stage, and the green or brown colouration helps them to mimic strap-like seagrass leaves, which they grasp with prehensile tails.

Reproduction

Breeding has been recorded during spring and summer. Males brood at least 25 eggs.

Vulnerability

This species is abundant in some areas, but shares the population characteristics of other pipefishes that increase their vulnerability, including:

- strong habitat association
- probable small home range size and low mobility
- probable monogamy
- possible low rates of natural adult mortality
- site-attached reproduction with small brood sizes

Nearshore habitat impacts, especially in seagrass beds, could adversely affect populations. Seagrass beds continue to be degraded in many parts of southern Australia, and consequent impacts upon spotted pipefish populations are likely.

Other Information

During some years of the 2000s, brooding males were collected under Commonwealth permit in SA, for culture of offspring, to supply an overseas market.



© K.Hart

Gulf Pipefish

Stigmatopora narinosa



© K. Smith

Description

A narrow, moderately sized pipefish (to about 15 cm), with a laterally flattened snout that is longer than the head length. Greenish-brown, golden-brown or reddish-brown body, with pale bands that are broader in adults. There is anterior ventral spotting in some animals, below the head. The tail is red in juveniles.

Distribution

Found in SA. Most records to date from central and southern coasts of Spencer Gulf, Fleurieu Peninsula, and northern Kangaroo Island.

Habitat

Found in semi-sheltered waters, often less than 5 m deep, in seagrass (e.g. *Zostera*, *Posidonia* and *Amphibolis*) and mixed brown seaweed, seagrass, rubble, sand and coralline algae habitats.

Reproduction

There is little information. Males mature at 11 cm and were observed to be brooding at 15 cm. Males have more eggs (98 in one specimen) compared with other SA pipefishes. Hatchlings are about 18 mm long.

Vulnerability

Gulf pipefishes appear to be less common than other *Stigmatopora* species, and have a geographically restricted known range.

The narrow distribution and depth range may render populations in SA gulfs susceptible to decline, due to the effects of habitat damage. Both gulfs are subject to many impacts that affect habitat quality (e.g. channel dredging; coastal developments; shallow water trawling or netting in seagrasses; power boating; and industrial, rural and residential discharges from point and diffuse sources).



© J. Lewis



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Gulfs Pipefish

Stigmatopora narinosa

Wide-body Pipefish

Stigmatopora nigra



© K. Smith

Description

A moderately sized pipefish (to about 16 cm), with a long snout (around 55 — 67% of head length). Females have a very broad trunk, usually with dark bars on the underside. The colour is highly variable, including pale green, grey, purple, tan to brown, or reddish brown.

Distribution

An abundant species (or possibly a species complex) across the southern half of Australia, including Tasmania. Also found in New Zealand. Most records in SA are from the gulfs region.

Habitat

Found in seagrasses. This species mimics strap-like seagrass leaves in its movements, orientation and colour (i.e. often shades of green and brown).

Reproduction

Males have a brood pouch under the tail. In a museum sample of 10 brood males, brood size ranged from 14 to 25 eggs. Reproduction has been recorded to date from spring to autumn.

Vulnerability

Population characteristics that may increase the vulnerability of wide-body pipefishes include:

- strong habitat association
- probable small home range size and low mobility
- probable monogamy
- site-attached reproduction with small brood sizes

Nearshore habitat impacts, especially in seagrass beds could adversely affect populations.

Other Information

During some years of the 2000s, brooding males were collected under Commonwealth permit in SA, for culture of offspring, to supply an overseas market.



© R. Kuitert, Aquatic Photographics
Female above, male below

Wide-body Pipefish

Stigmatopora nigra



Ringback Pipefish

Stipecampus cristatus

Description

A moderately long pipefish (to about 25 cm) with a blunt snout. Yellowish brown or grey-brown body, with dark and light bars on dorsal surface, or with dark-ringed pale blotches on dorsal surface and sides of body.

Distribution

This species is found mainly in Victoria, northern Tasmania and South Australia. There are few records in SA, and most of these are from Spencer Gulf and Gulf St Vincent.

Habitat

Found mainly in sparse seagrass in sandy bays and estuaries, but may also occur in other habitats, such as rubble reef and shell beds with low seaweeds. Depth ranges from the shallow subtidal to at least 15 m deep, and ringback pipefish have been found in deeper waters in Bass Strait.

Reproduction

Males carry about 100 eggs in a brood pouch under the tail, and the incubation period is around 4 weeks, during spring.

Vulnerability

Population characteristics that may increase the vulnerability of ringback pipefishes include:

- apparently restricted distribution of populations in SA (known mainly from the gulfs)
- low population densities
- strong habitat association
- probable small home range size and low mobility
- probable monogamy
- site-attached reproduction with small brood sizes

Nearshore habitat impacts, especially in seagrass beds, could adversely affect populations. Examples would include trawling / dredging, netting, effluent discharge and sedimentation, and coastal developments.

Other Notes

In Victoria, ringback pipefish enter Port Phillip Bay seasonally in large numbers, probably for breeding.



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Ringback Pipefish

Stipecampus cristatus

Hairy Pipefish

Urocampus carinirostris



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Description

A small pipefish (to about 10 cm), with a short snout, about one third of head length. Pale green, creamy-yellow or brownish colour; plain or mottled on top and sides; sometimes with pale bars, and a longitudinal dark brown stripe under head and body. Fine, filamentous, feather-like projections on head and along the body, at irregular intervals.

Distribution

The species or species group currently known as *Urocampus carinirostris* has an extremely wide distribution, ranging from tropical Australia and PNG, to as far south as Tasmania. There are scattered populations across eastern, south-eastern, southern and south-western Australia, to approximately Perth area. Abundant in NSW and parts of Victoria. Very rarely recorded in SA.

Habitat

Found in the lower reaches of rivers, estuaries and protected inshore marine habitats, often in shallow *Zostera* eelgrass beds, rarely at depths of more than a few metres. This is a sedentary species that attaches itself to eelgrasses with its prehensile tail. It closely mimics eelgrass leaves in movements, orientation and colour.

Reproduction

Males have a complex brood pouch with folds of skin, in the tail area. Males may brood over much of the year in southern areas. Up to 20 eggs are incubated in the brood pouch. Newly emerged young may remain in the pouch for some time. Hatchlings settle in the vicinity of the parents, during summer and early autumn.

Vulnerability

Hairy pipefishes are strongly associated with seagrass beds. Shallow seagrasses such as *Zostera* beds are a critically important habitat for this species. There is evidence of decline in hairy pipefish populations in parts of Queensland and Victoria where seagrasses have been impacted.

Other Information

There may be more than one species of hairy pipefish across the broad range, based on differences in body ring number in fishes from different areas. Genetic studies of hairy pipefish populations in eastern Australia indicate that more than one species may be present throughout the range.



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Hairy Pipefish

Urocampus carinirostris

Mother-of-Pearl Pipefish

Vanacampus margaritifer



© D. Harasti www.daveharasti.com

Description

A moderately large pipefish (to about 16 cm, but as large as 20 cm in some areas), with a snout about half as long as the head. The body is usually greyish-brown with 12 pale bars on the upper body (one ring wide), separated by darker areas (3-5 rings wide). Pearly spots or ring-shapes (ocelli) on side of body, and a small tail fin. Males and females look similar.

Distribution

Found across eastern and south-eastern Australia, excluding Tasmania, from southern Queensland through to SA, with a separate population in south-western WA. Most records are from eastern Australia, where this species is more abundant. The few records in SA, range from eastern Great Australian Bight to Encounter Bay.

Habitat

Recorded in estuarine areas and coastal lagoons (in central NSW and southern Queensland), and in shallow bays. Mostly found amongst seagrass and seaweed over sand, rubble and mud, to depths of about 10 m. Occasionally found in floating seaweed.

Reproduction

Males may begin breeding when they are about 13 cm long and carry eggs in a brood pouch under the tail.

Vulnerability

Population characteristics that may increase the vulnerability of mother-of-pearl pipefishes include:

- strong habitat association
- probable small home range size and low mobility
- possible low rates of natural adult mortality
- probable monogamy
- site-attached reproduction with small brood sizes

Nearshore habitat impacts, especially in seagrass beds, could adversely affect populations. Examples would include trawling and dredging, netting, effluent discharge and sedimentation, and coastal developments.



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Mother-of-Pearl Pipefish

Vanacampus margaritifer

Port Phillip Pipefish

Vanacampus phillipi



© A. Sutandio

Description

A moderately long pipefish (to about 20 cm) with a snout about half as long as the head. The body is usually brown with pale blue or white bars, blotches and spots.

Distribution

Found across southern Australia, from southern NSW through to southern WA, including much of Tasmania. Known from various coastal areas in South Australia, such as eastern Great Australian Bight, Spencer Gulf, Gulf St Vincent, and Kangaroo Island.

Habitat

Mostly found in estuaries and in shallow sandy and muddy bays with seagrass, but also in shallow reefs with seaweed. Recorded depth range is from the shallows to about 25 m deep.

Diet

Port Phillip pipefishes eat mainly amphipods.

Reproduction

Males may brood eggs when they are between 9 — 10 cm long, and eggs are carried in a brood pouch under the tail. A study in Victoria showed that brooding males were present in bays for 6 to 9 months of the year, and juveniles were found in summer and early autumn.

Vulnerability

Although Port Phillip pipefishes are abundant in estuaries and seagrass beds in shallow coastal waters across southern Australia, they share population characteristics of other pipefishes, that increase their vulnerability. Examples include:

- strong habitat association
- probable small home range size and low mobility
- possible low rates of natural adult mortality
- probable monogamy
- site-attached reproduction with small brood sizes

Nearshore habitat impacts, especially in seagrass beds, could adversely affect populations. Examples would include trawling and dredging, netting, effluent discharge and sedimentation, and coastal developments.

Other Notes

Studies in Victoria have shown that *V. phillipi* is part of the diet of flathead and weedy whiting.



© A. Sutandio

Long-snout Pipefish

Vanacampus poecilolaemus



© A. Futterer

Description

A large pipefish, to about 30 cm. Various shades of brown, often with 6 – 9 rows of dark-ringed eye-spots (ocelli) on the side of the body. Males have pale bars or blotches on side of snout; females have distinct dark bars and spots on snout. Some have light blue spots, and pale blotches or horseshoe-shaped markings on body.

Distribution

Apparently consists of separate populations across southern Australia. Populations from WA may be a separate but undescribed species. Records in South Australia range from eastern Great Australian Bight through to south-eastern SA, with numerous records from Spencer Gulf and Gulf St Vincent.

Habitat

Mostly found in *Posidonia* and *Zostera* seagrass beds, and in shallow reefs with seaweed, in bays. Also found in estuaries. Recorded depth range is from 1 –25 m deep, but most records are from less than 10 m.

Diet

Long-snout pipefishes feed mostly near the sea floor, hunting small crustaceans, and can consume relatively mobile prey due to its long snout.

Reproduction

Males have a complex brood pouch structure (with semi-inverted folds) in the tail area. Males may be brooding at about 17 cm long.

Vulnerability

Population characteristics that may increase the vulnerability of long-snout pipefishes include:

- strong habitat association
- probable small home ranges and low mobility
- possible low rates of natural adult mortality
- probable monogamy
- site-attached reproduction with small brood sizes

There are previous museum records from some marine areas that are now the most heavily polluted in SA, where seagrass cover has declined significantly. However, no recent surveys have been undertaken to determine if this species is still present in such areas. Long-snout pipefishes have been recorded abundantly in trawl samples in Spencer Gulf in SA. Nearshore habitat impacts, especially in seagrass beds, could adversely affect populations. Examples would include trawling and dredging, netting, effluent discharge and sedimentation, and coastal developments.



© A. Futterer

Verco's Pipefish

Vanacampus vercoi



© D. Murihead

Description

A small pipefish (to about 15 cm, but usually seen at a smaller size), with a fairly short snout, 35-39% of head length. Body brownish, with white bars on top, dark bars on each trunk ring, pale mottling on top and sides of body, and scattered blue spots.

Distribution

Considered to be endemic within South Australia. Location records to date include central and south-eastern Spencer Gulf; southern Yorke Peninsula; Fleurieu Peninsula; north-eastern Kangaroo Island, and unconfirmed records from Encounter Bay.

Habitat

Verco's pipefishes have been recorded in tide pools, tidal channels, shallow subtidal seaweed and seagrass, and rubble bottom habitat, to about 3 m deep.

Vulnerability

Degradation of seagrass and seaweed cover in some areas, particularly in shallow waters, may be a threatening process, given the strong association of this species with marine plants in shallow subtidal areas. As with other pipefishes, life history characteristics that may increase vulnerability to population decline include strong habitat association; possible small home ranges and low mobility; possible low rates of natural adult mortality; probable monogamy, and site-attached reproduction with small brood sizes.



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Vercó's Pipefish

Vanacampus vercoi

References

- Atlas of Living Australia (2013) Search ALA (Australian node of the Global Biodiversity Information Facility). <http://www.ala.org.au/>
- Chenoweth, S., Hughes, J., Connolly, R. (2002) Phylogeography of the pipefish, *Urocampus carinirostris*: secondary contact and introgression of ancient lineages. *Marine Biology* **141** (3): 541-547.
- Dawson, C. (1980) *Kimblaeus*, a new pipefish genus (Syngnathiformes: Syngnathidae) from Australia, with a key to genera of pipefishes with continuous superior ridges. *Aust. J. Mar. Freshwater Res.* **31** (4): 517-523.
- Dawson, C. (1985) *Indo-Pacific Pipefishes (Red Sea to the Americas)*. The Gulf Coast Research Laboratory Ocean Springs, Mississippi, USA.
- Browne, R. (2004, 2006, 2007) *Syngnathids and other inshore demersal fish. Southern Australian Pipefish*. (web pages). <http://www.pipefish.bioteck.org>
- Browne, R.K. and Smith, K. (2007) A new pipefish, *Stigmatopora narinosa* (Syngnathidae) from South Australia. *Memoirs of the Museum of Victoria* **64**: 1-6.
- Edgar, G.J., Barrett, N.S. and Last, P.R. (1999) The distribution of macroinvertebrates and fishes in Tasmanian estuaries. *Journal of Biogeography* **26**: 1169-1189.
- Gomon, M.F. and Neira, F. (1998) Syngnathidae: pipefishes and seahorses. In: Neira, F., Miskiewicz, A. and Trnski, T. (Eds) *Larvae of Temperate Australian Fishes: laboratory guide for larval fish identification*. University of Western Australia Press. pp.122-131.
- Howard, R., and Koehn, J. (1985) Population dynamics and feeding ecology of pipefish (Syngnathidae) associated with eelgrass beds of Western Port, Victoria. *Australian Journal of Marine and Freshwater Research* **36**: 361-370.
- Jones, A. and Schlacher, T. (2001) *EHMP Annual Technical Report 2000-2001: State of South-East Queensland Waterways Report 2001*. Chapter 2: Noosa River. Ecosystem Health Monitoring Program, Moreton Bay Waterways and Catchments Partnership, Queensland.

Kendrick, A.J. and Hyndes, G.A. (2003) Patterns in the abundance and size-distribution of syngnathid fishes among habitats in a seagrass-dominated marine environment. *Estuarine, Coastal and Shelf Science* **57** (4): 631-640.

Kendrick, A.J. and Hyndes, G.A. (2005) Variations in the dietary compositions of morphologically diverse syngnathid fishes. *Environmental Biology of Fishes* **72** (4): 415-427.

Kuiter, R.H. (1996) *Guide to Sea Fishes of Australia*. (New Holland Publishers Australia Pty Ltd). 430p.

Kuiter, R.H. (2000, 2003) Seahorses, Pipefishes and Their Relatives. *A Comprehensive Guide to Syngnathiformes*. First and second editions. TMC Publishing, Chorleywood, UK. 240p.

Kuiter, R.H. (2001) Revision of the Australian seahorses of the genus *Hippocampus* (Syngnathiformes: Syngnathidae) with description of nine new species. *Records of the Australian Museum* **53**: 293-340.

Pogonoski, J.J., Pollard, D.A. and Paxton, J.R. (2002) *Conservation Overview and Action Plan for Australian Threatened and Potentially Threatened Marine and Estuarine Fishes*. Environment Australia, Canberra.

Pollard, D.A. (1994) A comparison of fish assemblages and fisheries in intermittently open and permanently open coastal lagoons on the south coast of New South Wales, south-eastern Australia. *Estuaries* **17** (3): 631-646.

Trnski, T. (2001) Diel and tidal abundance of fish larvae in a barrier-estuary channel in New South Wales. *Marine and Freshwater Research* **52**: 995-1006.

Wilson, A.B., Vincent, A., Ahnesjö, I. and Meyer, A. (2001) Male pregnancy in seahorses and pipefishes (family Syngnathidae): rapid diversification of paternal brood pouch morphology inferred from a molecular phylogeny. *The Journal of Heredity* **92** (2): 159-166.

Wilson, A.B., Ahnesjö, I., Vincent, A., and Meyer, A. (2003) The dynamics of male brooding, mating patterns, and sex roles in pipefishes and seahorses (Family Syngnathidae). *Evolution* **57** (6): 1374–1386.

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