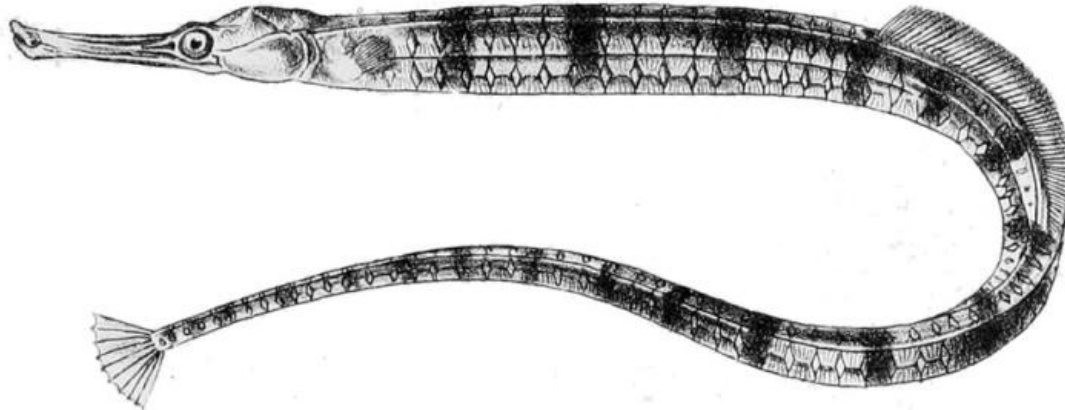


Male pregnancy and weird courtship wiggles: How NZ's wide-bodied pipefish confounds expectations

January 8 2024, by Sarah Flanagan



Male pipefish (*Syngnathus acus*) with subcaudal pouch. Credit: Public Domain

If you've ever watched a natural history program on TV, you've probably seen animals performing a wide variety of behaviors to get the attention of the opposite sex.

BBC Earth even released an [interview with David Attenborough](#) about some of nature's most spectacular mating displays. Not included,

however, was Aotearoa New Zealand's wide-bodied pipefish—although I think they should have been.

As our [recent research](#) explains, our local pipefish [species](#) really does confound expectations.

Pipefish are unusual because the [males](#) carry their developing babies around on their bodies, often in special broad pouches. In some species, these pouches are the only difference in appearance between males and females.

But that's not the case for New Zealand's wide-bodied pipefish. Females have a torso that can be almost three times as wide as males, and they have brightly colored stripes.

Why females have such a different body shape is a mystery. We set out to solve the puzzle by observing how females use this trait when interacting with other females and with males. To do this, we brought [wild fish](#) into aquariums and filmed their behaviors in groups of males and females.

The surprising courtship

We found males initiated courtship displays with females most of the time, using comical wiggles. This was unexpected because the wide-bodied pipefish gets its name from the broad, colorful, striped abdomen of the female—not the male.

Given this ornamentation, we expected females would approach males for courtship and display more often and for longer than males. Normally, the sex with more ornamentation in a species will lead the courtship display.

But what we observed was surprising. Often, a group of male wide-bodied pipefish would wiggle at a single female. These males would sometimes follow the female around the tank if she swam away. The resulting bouts of courtship display could last for minutes on end.

The results suggest males are more active in making decisions about who they want to court than has been described in other pipefish species.

Our findings also mean we can't necessarily predict which sex will be most active in courtship based on their ornamental traits and the differences in shape between males and females.

The pregnant male

Wide-bodied pipefish—like their close relatives seahorses—also feature male pregnancy. So males put a lot of energy into caring for their developing embryos.

One possible reason the males are so active in courtship is that they are choosing the most fecund females—those with the most available eggs.

Females deposit eggs into the male's pouch, making him pregnant, and he fertilizes those eggs and then cares for the embryos as they develop. Females who can give the male more eggs might therefore be preferred by males.

These findings differ from what we know about pipefish species in other parts of the world.

All pipefish have the unusual male pregnancy capability. But usually females initiate [courtship](#), and males reject some females. Any group behaviors involve more females than males. So even among pipefish, the wide-bodied pipefish is particularly odd.

Our research is the first step in understanding how wide-bodied [pipefish](#) males and females interact, and it's raised more questions for us to answer. We now want to know whether males court females in groups when there are more [females](#) than males, and vice versa.

Knowing more about these unusual fish behaviors is important in the broader context of mating behaviors scientists are already aware of. Having a diversity of examples can help make sense of unexpected behaviors in other species—and can challenge our expectations of the world.

There is still so much to learn, but every additional piece of the puzzle helps us understand what influences the weird and wonderful animals living around us.

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