

# Male sea snakes may have evolved bigger eyes to help them find a mate

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Examples of variation in body size and shape within aipysurine snakes. (a) *Emydocephalus annulatus* (short, stout), (b) *Aipysurus duboisii* (long, slender), (c) *Aipysurus laevis* (long, stout). All photographs by Claire Goiran. Credit: *Royal Society Open Science* (2023). DOI: 10.1098/rsos.231261

A trio of marine scientists from Macquarie University, working with a colleague from the Australian Institute of Marine Science, all in Australia, has found evidence suggesting that male aipysurine sea snakes have evolved to have relatively large eyes as a means to find female mates underwater.

In their study, [reported](#) in the journal *Royal Society Open Science*, the group analyzed hundreds of aipysurine snake specimens from six species.

Aipysurine sea snakes are a species of venomous [snake](#) found throughout the Indo-Pacific region. Most of the species tend to live in coral areas and survive by hunting fish and crustaceans. Like other marine snakes, they must rise to the surface to breathe.

Prior research has indicated that the ancestors of the snakes were land dwellers, which suggests the snakes must have evolved in ways to live mostly in the water. In this new study, the research team notes that the males evolved unusually large eyes and the species exhibits dimorphism—females are much larger than males. The researchers investigated the reason the male snakes evolved such big eyes.

The work involved obtaining and studying the physiology of 419 preserved samples from six species. Each was measured, weighed and

compared against others in the sample group. The researchers came up with several theories to explain the large eyes in males. Their main theory suggests that as the snakes moved from land to the sea, the males were no longer able to track the females using scent—that led to them developing larger eyes to see better underwater, which allowed them more easily to find and mate with females.

A secondary theory suggests they grew larger eyes because they simply needed to be able to see better in a [marine environment](#) to find and capture prey. They also suggest possible reasons for the larger size of females—it may have become necessary to allow them to have more babies, or because they switched to eating more nutrient-rich food than the males. The researchers note also that small size in males is common in [species](#) where males do not physically compete for females.

**More information:** R. Shine et al, Sexual dimorphism in aipysurine sea snakes (Elapidae, Hydrophiinae), *Royal Society Open Science* (2023). [DOI: 10.1098/rsos.231261](https://doi.org/10.1098/rsos.231261)

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