

# How urban seasnakes lost their stripes

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A photograph of a turtle-headed seasnake. Credit: Claire Goiran

Researchers studying turtle-headed seasnakes living on coral reefs in the Indo-Pacific noticed something unusual about the snakes' color patterns: seasnakes living in more pristine parts of the reef were decorated with black-and-white bands or blotches. Those in places with more human activity—near the city or military activity—were black.

As reported in *Current Biology* on August 10, those color differences are explained by differences in the snakes' exposure to pollution. The blacker skin of urban seasnakes allows the animals to more effectively bind and rid their bodies of contaminants, including arsenic and zinc, each time they shed their skins. The findings add seasnakes to a growing list of species that show industrial melanism, a greater prevalence of dark-colored varieties in industrial areas.

"The animals I study continue to astonish me," says Rick Shine at the University of Sydney in Australia. "I think it's remarkable to find industrial melanism in organisms as different as moths and seasnakes!"

Claire Goiran, the study's lead author, at Labex Corail & Université de la Nouvelle-Calédonie got the idea that blacker skin might be related to pollutant exposure after learning that the darker feathers of urban pigeons in Paris store more zinc than lighter feathers. Goiran and her colleagues wondered whether a similar thing might be happening in the seasnakes.



A photograph of a turtle-headed seasnake. Credit: Claire Goiran

To find out, the researchers measured trace elements in the sloughed skins of seasnakes from urban-industrial versus other areas and in dark versus light skin. As predicted, they report, concentrations of trace elements were higher in snakes from urban-industrial areas. Trace element concentrations were also higher in darker than in paler skin.

The researchers further found that darker snakes slough their skins more often. As a result, it appears that seasnakes whose [skin](#) is more heavily



pigmented with melanin have an advantage over their lighter relatives in polluted areas.

Shine says that the findings are yet another example of rapid adaptive evolutionary change in action. For him, it's also a more sinister reminder that "even on an apparently pristine coral reef, human activities can pose very real problems for the animals that live there."



A photograph of a turtle-headed seasnake. Credit: Claire Goiran

**More information:** *Current Biology*, Goiran et al.: "Industrial Melanism in the Seasnake *Emydocephalus annulatus*"  
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