

Toxins are turning off great egrets mating in the Everglades

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Great egrets in the Everglades are losing their sexual motivation because

they are exposed to mercury through the fish they eat, a University of Florida study using more than 20 years of data has found.

Researchers observed that [mercury contamination](#) led to a 50% reduction in attempts by the [birds](#) to breed, showing that the heavy metal is affecting their reproduction process much earlier than previously thought. As most studies have focused on offspring-related metrics such as hatchling success, the recent findings indicate that the full effects of mercury exposure among wading birds may be "systematically underestimated," the study said.

"This study suggests that there are a lot of birds that are just sitting out the breeding season. It's not that they are starting and not successfully finishing; they aren't even attempting to breed," said Peter Frederick, one of the study's co-authors and a professor at the university's department of wildlife ecology and conservation. "We've probably been underestimating the effects of mercury on reproduction, not just among great egrets but other animals as well."

Heavy metals and other contaminants can disrupt hormones, which, in turn, can affect courtship, breeding propensity and even parental behavior of vertebrates, said the study that was published in the peer-reviewed scientific journal *Environmental Science & Technology*. In the case of great egrets in the Everglades, exposure to mercury occurs through [fish](#), their main diet.

Mercury occurs naturally in the earth. It enters the atmosphere mostly through the burning of fossil fuels and mining. It can travel the globe and eventually settles in the ocean and other bodies of water like the Everglades. Once deposited, certain microorganisms can change mercury into methylmercury, a highly toxic form that builds up in fish, shellfish and animals that eat fish, in a process known as bioaccumulation. Most human exposure to mercury is from eating fish and shellfish

contaminated with methylmercury.

The study used more than two decades of data on the number of great egret nesting pairs in the Everglades. Researchers counted nesting pairs in about 130 colonies of great egrets by doing aerial and land surveys of nesting areas, taking photos and counting the pairs in photos taken from 1994 through 2019.

The researchers compared the survey data on nesting pairs with information documenting the amount of mercury detected in bird feathers as well as other factors such as fish densities and water levels.

"We know things like food availability can affect breeding and reproduction, so we needed to separate the effects of [food availability](#) from those of mercury," said Jabi Zabala, the study's lead author. Using statistical modeling, Zabala was able to isolate the effect of [mercury](#) on the birds.

While the study was conducted in the Everglades with great egrets, this is a [case study](#) that represents a phenomenon likely happening in wildlife from the tropics to the poles.

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