

Bonefish Pharmaceutical Contaminants Study

photo: Justin Lewis



The Bonefish Pharmaceutical Contaminants Study was a three-year research project commissioned by Bonefish & Tarpon Trust and conducted by Florida International University's Coastal Fisheries Research Lab. The goal of the study was to determine the occurrence of pharmaceutical contaminants in bonefish in South Florida and the Caribbean. These waterborne contaminants pose a significant threat to the flats fishery, an important part of Florida's recreational saltwater fishery, which has an annual economic impact exceeding \$9 billion and directly supports 88,500 jobs.

- Researchers analyzed 93 South Florida bonefish for 104 commonly prescribed pharmaceuticals.
- Pharmaceuticals were detected in bonefish in all locations sampled, from Biscayne Bay to west of Key West, in both urban and remote areas.
- All bonefish contained pharmaceuticals. An average of 7 pharmaceuticals were detected per bonefish. One fish contained 17 pharmaceuticals.
- A total of 58 pharmaceuticals were detected in bonefish.
- The most commonly detected pharmaceuticals were:
 - Blood pressure medications
 - Antidepressants
 - Prostate medications
 - Antibiotics
 - Pain relievers
- The list also includes heart medications, antihistamines, antifungal and stomach medications, and opioids.
- Heart medications, antihistamines, and antidepressants lead exceedances.

- Exposure to pharmaceuticals by bonefish may occur by inhalation (via water/sediment) or through food.
- Pharmaceuticals were present in all prey tested and contain the same types of pharmaceuticals as detected in bonefish.

These results come as BTT works to improve other issues that threaten the flats fishery, including habitat loss, freshwater flow alterations, and water quality concerns.

In his first days in office Governor Ron DeSantis issued Executive Order 19-12, which laid out his plan for historic funding and his agenda for Florida's environment and water quality. Since then, the Governor and the Florida legislature have prioritized water quality improvements in the state providing over \$2 billion over the last three years for these programs and through legislation, including the Clean Waterways Act and establishment of the Wastewater Grant program.

The study's results provide more evidence that support the ongoing need for this significant investment in Florida's water infrastructure and an opportunity to look for additional innovative solutions to address pharmaceuticals.



Bonefish & Tarpon Trust

An international non-profit organization based in Miami, Florida, **Bonefish & Tarpon Trust (BTT)** is focused on conserving bonefish, tarpon and permit—the species, their habitats and the larger fisheries they comprise. The organization, which pursues its mission through science-based conservation, education and advocacy, was founded in 1997 by grassroots volunteers seeking to reverse the declines they were witnessing in bonefish and tarpon populations in the Florida Keys. Today, BTT continues a comprehensive research and conservation program in the Keys and has expanded its work to other locations in Florida, and across the Caribbean basin to include staffed programs in The Bahamas, Belize, and Mexico as well as grant-funded research projects in Cuba and other locations. Learn more at **BTT.org**.

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Florida International University

Florida International University is a Top 50 public university that drives real talent and innovation in Miami and globally. Very high research (R1) activity and high social mobility come together at FIU to uplift and accelerate learner success in a global city by focusing in the areas of environment, health, innovation, and justice. Today, FIU has two campuses and multiple centers. FIU serves a diverse student body of more than 58,000 and 270,000 Panther alumni. U.S. News and World Report places dozens of FIU programs among the best in the nation, including international business at No. 2. Washington Monthly Magazine ranks FIU among the top 20 public universities contributing to the public good.

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