The Effects of Contaminants on South Florida Bonefish: a spatial approach

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Goals

1. Pinpoint the exact pharmaceuticals and affected tissues.
2. Assess the risk of contaminant exposure to South Florida bonefish.
3. Determine the role of trophic pathways in contaminant exposure.
4. Compliment previous risk assessment work, explore potential cause of population decline, and provide information for population management.

Figure 1. Image of a bonefish caught for the project

Research Questions

1. How does exposure to key contaminants (copper and pharmaceuticals) vary at large spatial scales? Contaminant risk in bonefish across the Caribbean basin determined by bonefish sampling.
2. How does exposure vary at small scales with distance from shore (Biscayne Bay vs. Florida Bay vs. Florida Keys)? Contaminant risk across spatial scales in South Florida determined by prey sampling.
3. Are South Florida bonefish at higher risk of contaminants relative to elsewhere?

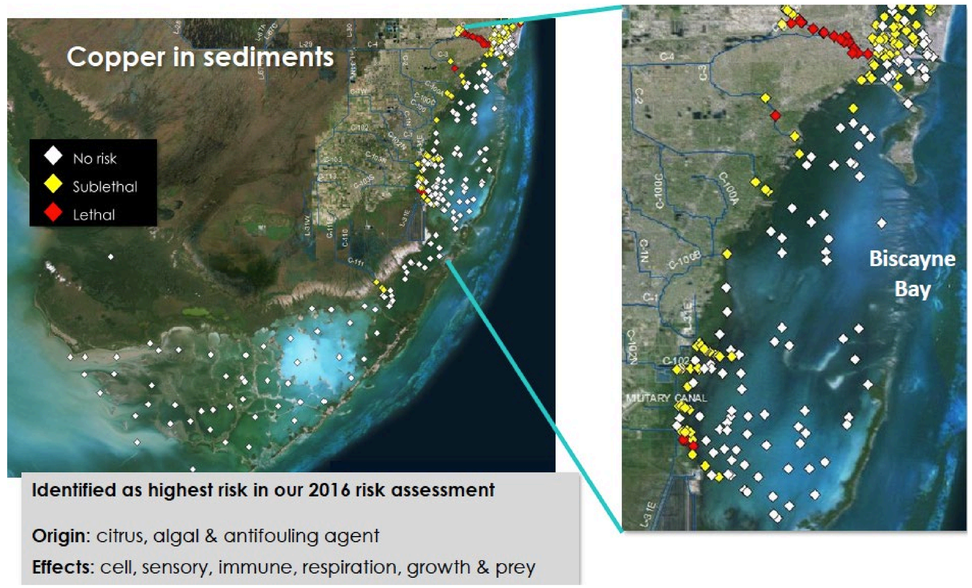


Figure 2. Copper in sediments across Florida Bay, Florida Keys, and Biscayne Bay

Project Components

Year 1A: Tissue Distribution Study
Sampling of bonefish in Biscayne Bay, Florida Bay, and Florida Keys for analysis of contaminant distribution across different tissues.
Year 1B: Sample in Caribbean Basin
Collect samples in three different Caribbean locations and compare to samples from the three South Florida locations of interest.
Year 2: Examine Trophic Pathway
Sample in Biscayne Bay, Florida Bay, and Florida Keys for prey (crabs, toadfish, shrimp etc.) and a surrogate species (Gray Snapper) across two transects in each region.

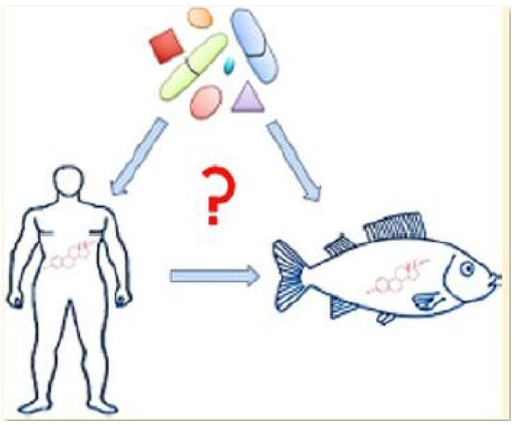
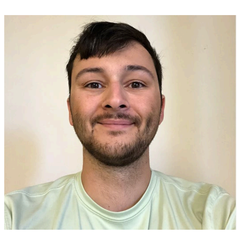


Figure 3. Visualization of the connection between anthropogenic pharmaceutical contamination and the unknown effects to fish



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