

Shallow Groundwater Transport of Agricultural Sulfate in the Northern Everglades

Kalli Unthank, Florida International University
 Research Mentor: Dr. Rene Price, Earth and Environment

Goals

- Determine role of shallow groundwater (GW) in sulfate transport
- Quantify sulfate/sulfide concentrations in GW
- Determine budget input of GW sulfate to methylmercury (MeHg) cycle

Research Methodology

- Study Area: North to South transect, starting in Everglades Agricultural Area (EAA) to Water Conservation Area (WCA) 3 (Fig 2)
- Collect ground and pore water samples in WCA's and along canals
- Test for sulfate, sulfide, mercury
- Develop sulfate/sulfide gradient map for GW

Research Questions

- What role does groundwater play in sulfate/sulfide input to surface water?
- What is the concentration of sulfate/sulfide in shallow groundwater?
- What role do canals play in transport of sulfate and increasing GW and SW mixing zones?

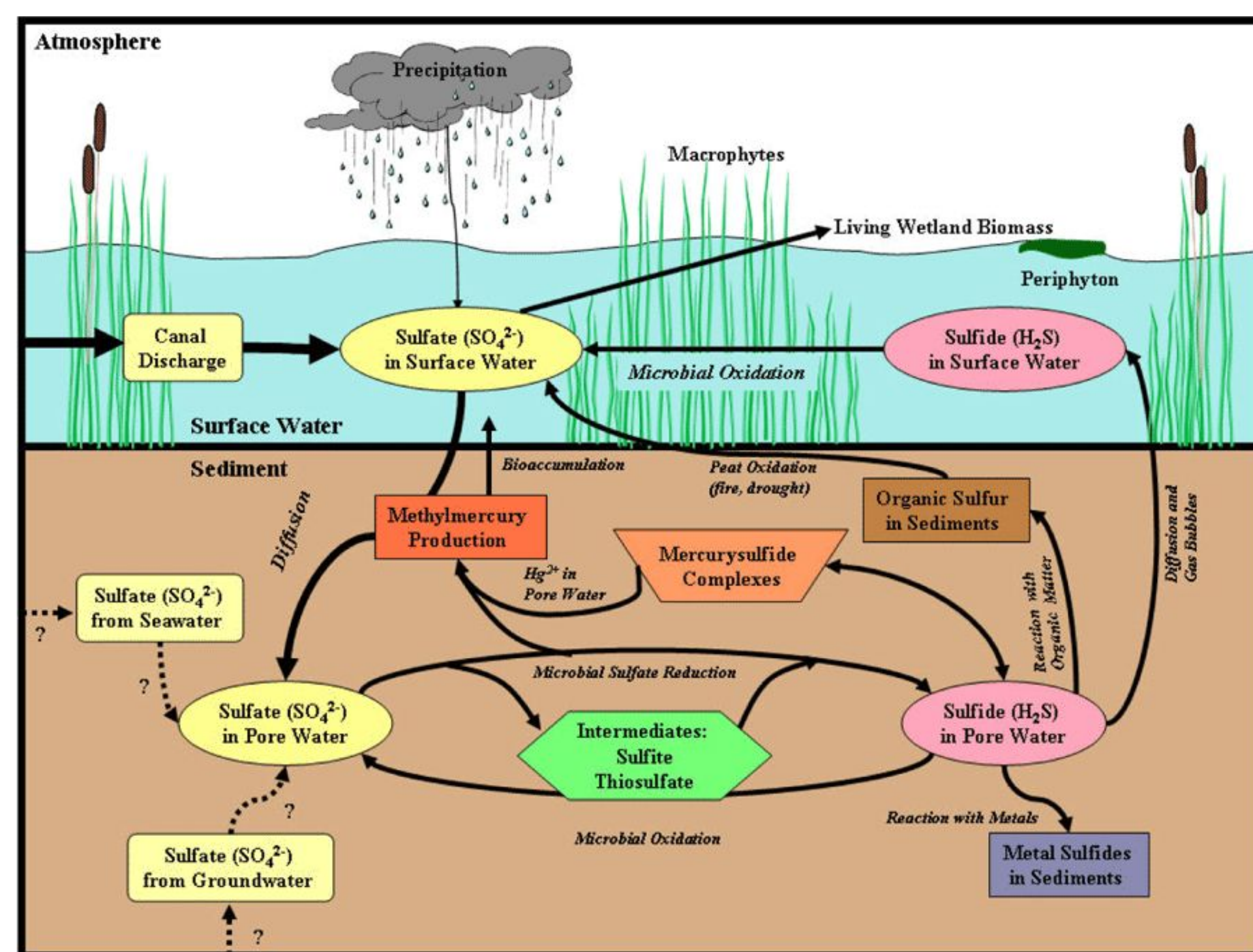


Figure 1. Sulfur cycle in the Everglades freshwater, mostly occurring in pore water.
<https://sofia.usgs.gov/publications/ofr/2007-1374/review.html>

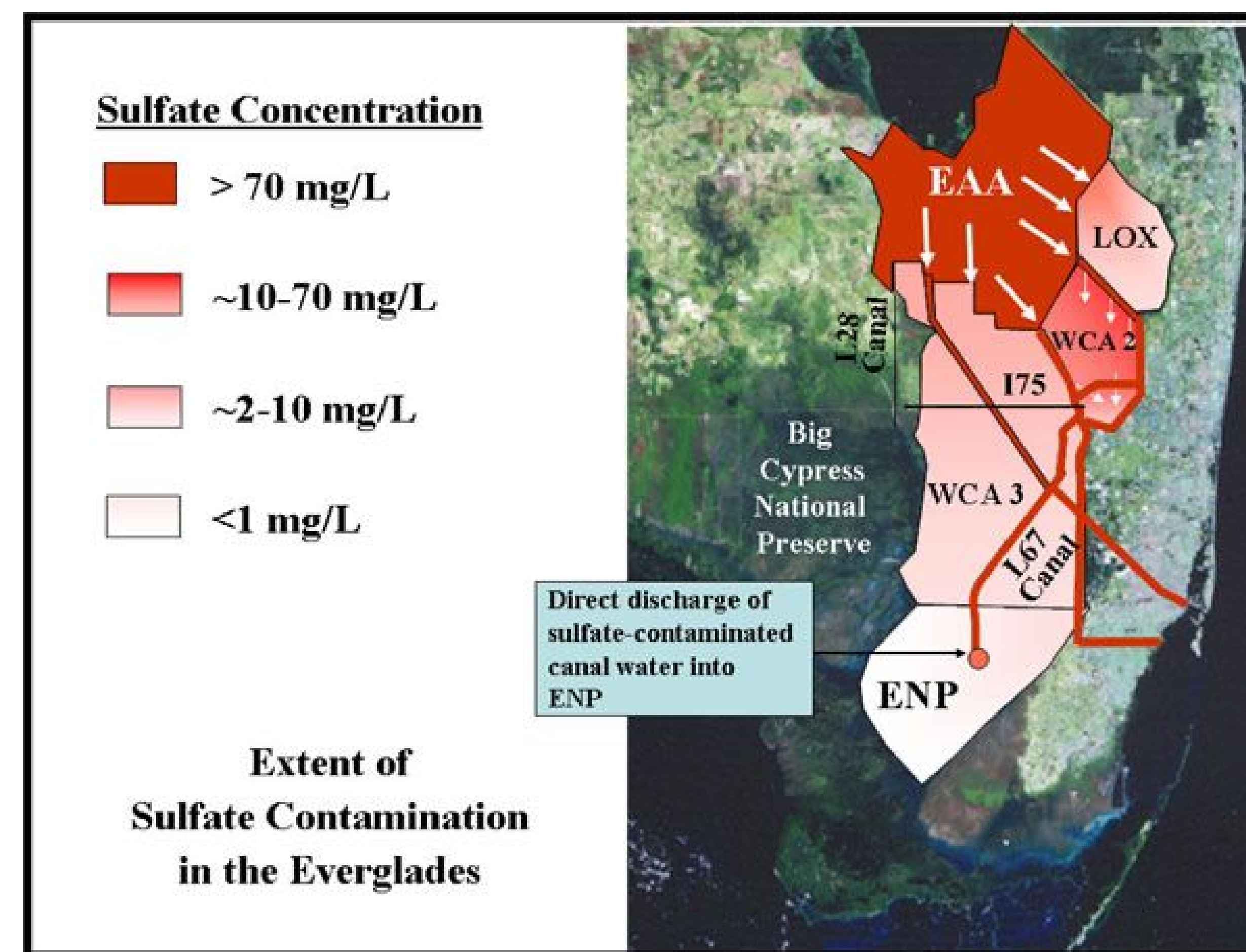


Figure 2. Study area, including the surface water sulfate gradient originating from the EAA.
<https://sofia.usgs.gov/publications/ofr/2007-1374/reducing.html>

Proposed Results

- No adequate work done on sulfate in shallow groundwater
- Expect to find North to South gradient, similar to surface water
- Expect to find increased methylmercury production in areas of GW discharge
- Expect higher conc. of sulfate surrounding canals, possible MeHg

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CREST CENTER FOR AQUATIC CHEMISTRY AND ENVIRONMENT



kunth001@fiu.edu



<http://crestcache.fiu.edu>

