

# GEOSPATIAL ANALYSIS OF STORMWATER PONDS AND WATER QUALITY ACROSS THE STATE OF FLORIDA

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Approximately 95,000 stormwater detention ponds collect surface water and nutrient runoff from urbanized landscapes across the state of Florida. However, poorly managed ponds may increase the occurrence of regional algal blooms and degraded water quality by failing to effectively buffer nutrient discharge. Here, we seek to build a spatial and temporal relationship between remote imagery and surface water quality to evaluate nutrient behavior within stormwater ponds across the state by combining satellite-based imagery with on-the-ground water quality measurements. Chlorophyll is used to ground-truth Landsat satellite imagery with water quality samples collected through the community science Florida Lakewatch program. All processed Landsat imagery satisfy two conditions: (1) images were taken within a one-day buffer of a recorded water sample and (2) images contained 10% or less cloud cover. Satellite imagery is corrected using ERDAS Imagine software, and data processes are automated using Python, Matlab, and ArcGis software. Remote sensing chlorophyll compliments in-situ sampling, providing a practical solution for water resource assessment. Particularly, this research may help to rapidly assess water quality dynamics at large spatial scales or short and frequent timescales, evaluate the impacts of vegetation on water quality, and manage nutrient fluxes in freshwater systems.

**PRESENTER BIO:** Trista is a PhD student in the School of Natural Resources and Environment and a graduate assistant in the Soil and Water Sciences Department at UF. Her research focuses on sustainability and climate change in an urban planning context and the core of her work centers around stormwater.