



# Introduction to Everglades water quality

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# Unimpacted conditions



- The Everglades evolved under extremely low concentrations of nutrients, particularly phosphorus.
- Concentrations of total phosphorus (TP) can be at or near detection limits, and typically are below 10 ppb (or  $\mu\text{g/L}$  – micrograms per liter) in unimpacted areas.
- This type of nutrient condition is typical in tropical and sub-tropical aquatic ecosystems.
- Everglades plants and animals thrive under these conditions, with calcite-precipitating periphyton and sawgrass dominating the landscape.

# Nutrient impacts



- Even very small increases in nutrients, particularly TP, can cause changes in Everglades plants and animals.
- Early changes are not readily apparent, and include shifts in periphyton species composition, which alters the base of the food web.
- As nutrients increase, cattails began to occur, and become dominant at TP concentrations above about 40 ppb.
- Nutrient enrichment of the water causes sediment nutrient enrichment, which can take decades to reverse.

# Nutrient reduction efforts



- Cattail expansion into the Everglades was first noticed in the 1980s, causing scientific concern and the start of efforts to reduce nutrient inputs.
- Farmers have implemented agricultural Best Management Practices (BMPs) to reduce nutrients at their source.
- More than 50,000 acres of Stormwater Treatment Areas (STAs) have been constructed to intercept nutrients at discharge points into the Everglades.
- Despite these efforts, more work is needed to reduce TP concentrations to a point that causes no harm to Everglades plants and animals.