

The Everglades still threatened by excess nutrients

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Since 1985, a state agency has constructed and continues to maintain hundreds of square kilometers of wetlands built to regulate the amount of nutrients reaching the Everglades in southern Florida. But this is proving to be ineffective in controlling concentrations of phosphorous, a key nutrient, in the surface waters of the wetland, a new study by Zapata-Rios et al. shows. Historically, the Everglades have been a nutrient-poor environment, a characteristic that determines the delicate ecological balance and distinct flora and fauna in this region.

Agricultural development and urbanization since the 1800s have not only claimed two-thirds of the natural Everglades (only 6,000 square kilometers (2,300 square miles) now exist in their natural form) but have also dramatically increased phosphorus levels in surface water, at times exceeding the acceptable limit of 10 micrograms per liter by severalfold.

Using a database containing more than 360,000 individual measurements of water quality from various sources between 1985 and 2007, the authors demonstrate that over the long term (about 13 years), phosphorus levels in surface waters have decreased by 5 percent during the dry season in several protected areas, as well as in [Everglades National Park](#). Yet on shorter timescales (approximately 4 to 5 years), the levels continue to increase in Everglades National Park. In fact, the highest [phosphorus concentrations](#) were in the dry and wet seasons of 1999 and 2003, when levels reached 200 micrograms per liter. In 65 percent of the natural Everglades, [phosphorus levels](#) in surface water remain above 10 micrograms per liter. The study shows that measures undertaken thus far

have been insufficient in regulating phosphorus and [nutrient levels](#) in the surface waters of the Everglades. The authors emphasize the need to further increase the area of constructed wetlands that help regulate nutrient flow into the Everglades.

More information: Spatial and temporal phosphorus distribution changes in a large wetland ecosystem, *Water Resources Research*, [doi:10.1029/2011WR011421](https://doi.org/10.1029/2011WR011421)

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