

PHOSPHORUS MANAGEMENT IN THE EVERGLADES WATERSHED: TIME FOR A CHANGE IN PARADIGM?

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The Florida Everglades is a Wetland of International Significance and World Heritage Site. Restoration of the Everglades after a century of hydrological modification and phosphorus (P) pollution is a critical challenge. In recent decades, strict water quality regulation has motivated improved water and nutrient management, reducing P loading from some sources by up to 90%. However, these interventions have yet to consistently meet the mandated 10 part-per-billion (ppb) regulatory standard. In addition, changes in the quantity, timing and distribution of water deliveries to the Everglades and the greater watershed have at times been compromised in pursuit of improved water quality. Given this gap between policy expectations and the physical limitations of the system, it is critical to assess the range of current phosphorus and water management approaches. As these problems persist, the South Florida Water Management District, Florida Department of Environmental Protection and other stakeholders have established a discourse of solutions and viewpoints on management through agency assessment and public engagement. In this context, a need remains to review and synthesize the science and dialogue about current and future P management paradigms in the Everglades. This work thus aims to review how and why specific phosphorus management goals and strategies have developed in the Florida Everglades, including the scientific background for standards and policy development. Next, the review discusses current and future issues in phosphorus management, including ecological tradeoffs, stakeholder equities, practical versus ideal phosphorus management, and the possibility of balancing multiple hydrologic and water quality goals. Overall, our goal is to provide an in-depth understanding of past and present P management approaches in the Everglades—including their shortcomings and potential future adaptations—that can help to support restoration progress into the future.

PRESENTER BIO: Quinn Zacharias is a 5th year environmental engineering sciences undergraduate at the University of Florida and completing an undergraduate honors thesis as a University Scholar. Under the supervision of Dr. David Kaplan, he is studying phosphorus management within the Florida Everglades watershed.