Initial environmental impacts of Piney Point wastewater discharge into Tampa Bay, Florida

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# Abstract

*Key words*:

# Introduction

* Nutrient management paradigm for southwest Florida estuaries, historical progress
* Threats/challenges to protecting water quality: nutrient inputs, climate change
* Wastewater byproducts from mining are a global threat to the quality of surface and groundwater sources worldwide ([Hudson-Edwards et al., 2011](#ref-Hudson11)).
  + ([Tayibi et al., 2009](#ref-Tayibi09)) reviews environmental impact of phosphogypsum production, including contaminantion of groundwater/leaching to coastal waters.
  + ([Burnett and Elzerman, 2001](#ref-Burnett01)) evaluate radiochemistry of phosphogypsum at Piney Point to evaluate potential for contamination of groundwater sources [pdf](https://www.osti.gov/etdeweb/servlets/purl/20243518)
  + Citations from ([Pérez-López et al., 2016](#ref-Perez16)) to track down: Santos-Cubatao estuarine system (Brazil; Sanders et al., 2013), in the Lebanese coast (El Samad et al., 2014) and in the Gulf of Gabes (Tunisia; El Zrelli et al., 2016)
  + Dillon report about Grand Bay [link](https://www.wrri.msstate.edu/pdf/2016dillon_finalreport.pdf)
* Phosphate mining industry in Florida, then/now
* Piney Point
* Goals/objectives

# Methods

* Historical timeline: <https://docs.google.com/document/d/1KqaEAYEG7pdcGpWbUjONfVKMHHB6_kOkKCyncp4JYKA/edit>, <https://thebradentontimes.com/piney-point-a-retrospective-p6328-158.htm>
* Initial response, data collection
* Synthesis and Analysis

# Results

* 2021 timeline
* Historical context/baseline condition
* effluent characteristics
* water-column water quality changes
* red tide impacts
* Seagrass/macroalgae

# Discussion

* Comparison to other locations/past events - Grand Bay, Bishop Harbor, Huelva estuary ([Pérez-López et al., 2016](#ref-Perez16), [2010](#ref-Perez10))
* Analysis limitations: no smoking gun but 2021 is an anomaly, additional info (benthic diversity TBD, nekton diversity TBD, large mammals, etc.)
* Potential long-term impacts TBD
* Current challenges in TB/southwest FL - OTB, seagrass loss, red tide, climate change
* Risk of decline (IRL ex.)/regression of past progress

# Acknowledgments

# Figures

# Tables

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