Tight Lines and Survey Designs: How is Lake Okeechobee valued by Florida residents?

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Introduction

- Lake Okeechobee acts as the hydrological heart of the Greater Everglades Ecosystem and is slated to be the future source of water for Everglades restoration
- It is critical to understand stakeholder perspectives on Lake management
- This research contributes to existing literature on how the public values Everglades restoration (Brown et al., 2018; Milon et al., 1999; Seeteram et al., Stainback et al., 2019).

Source: South Florida Water Management District

Lake Okeechobee Management Challenges:

- Algae blooms in the Lake and estuaries
- Everglades National Park water delivery needs
- Agriculture water storage needs
- Urban population water needs
- Impacts on recreation
- Impacts on tourism

Research Objectives

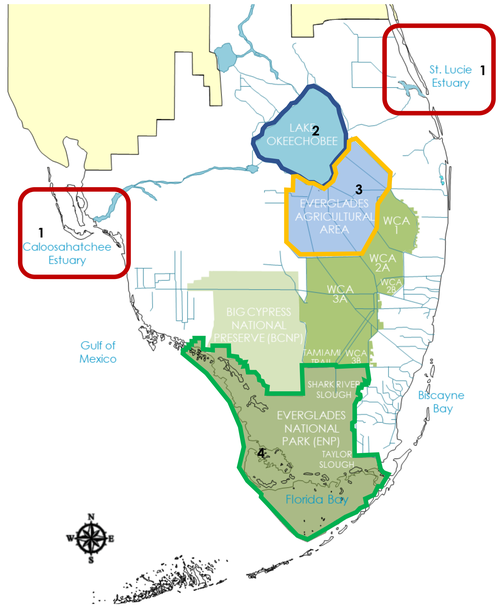
1. Measure South Florida resident preferences for Lake Okeechobee management using multi-criteria decision analysis.
2. Quantify resident willingness to pay for improvements in Lake Okeechobee management and Everglades restoration using a discrete choice experiment.
3. Combine WTP results with preference weights to value a larger bundle of ecosystem services.

Methodology

How much do South Florida residents value different Lake Okeechobee management outcomes?

We asked residents to value these outcomes:

1. Discharges into the St. Lucie and Caloosahatchee Estuaries
2. Lake Okeechobee water quality
3. Water storage for agriculture
4. Water storage for the Everglades



Which Lake Okeechobee management outcomes are important to residents?

What is respondent WTP?	Why does the respondent care about this?
Reduced discharges into the St. Lucie and Caloosahatchee Estuaries	1.Ecological impacts of salinity, pollution, and associated algae blooms such as fish kills and dead zones 2.Economic impacts on real estate values 3.Economic impacts on tourism and recreation in the estuaries
Lake Okeechobee water and ecological quality	1.Ecological impacts on habitat and water quality for Lake O species (such as wading birds, largemouth bass, and native plants) 2.Cultural impacts on experiences with nature in Lake Okeechobee 3.Economic impacts on tourism and recreation in Lake Okeechobee
Water Storage for agriculture	1.Cultural impacts of maintaining agricultural and rural lifestyles 2.Economic impacts on reserving jobs and economic activity for residents in rural areas 3.Economic impacts on protecting local food supply
Water storage for the Everglades	1.Economic impacts of protecting recreational fisheries in Florida Bay 2.Ecological impacts of increasing wildlife populations within Everglades National Park 3.Social and economic impacts of protecting drinking water in South Florida 4.Social and economic impacts of reducing the impacts of sea level rise with freshwater deliveries

Preliminary Results

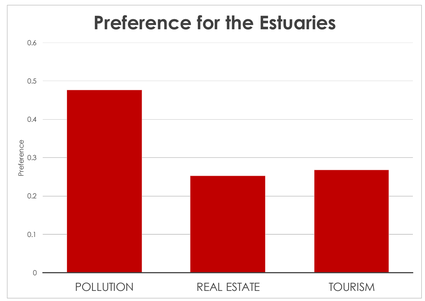
Willingness to Pay Results

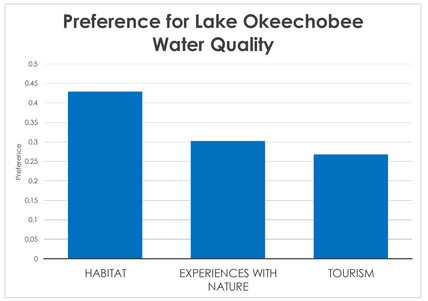
Willingness to Pay Rankings (highest to lowest):

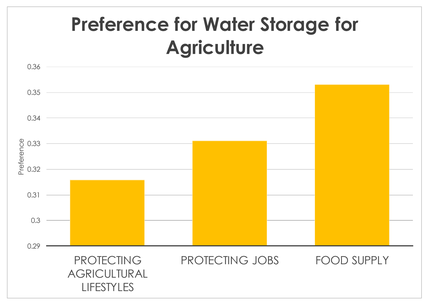
1. Reducing discharges into the St. Lucie and Caloosahatchee estuaries
2. Improving Lake Okeechobee water quality
3. Water storage for agriculture
4. Water storage for Everglades National Park

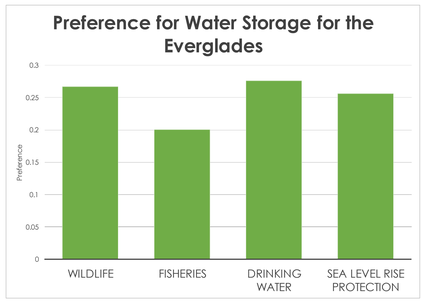
WTP calculations in progress.

Preference Results









Priority scores calculated using analytical hierarchy process methodology

Why does this matter?

1. Understanding how the public values natural resources is foundationally important for **effective communication**
2. Understanding stakeholder perspectives on Lake management is critical for **sound management**
3. Valuing natural systems that do not exist on markets requires the use of **multiple methods**

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Literature Cited + Resume

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