



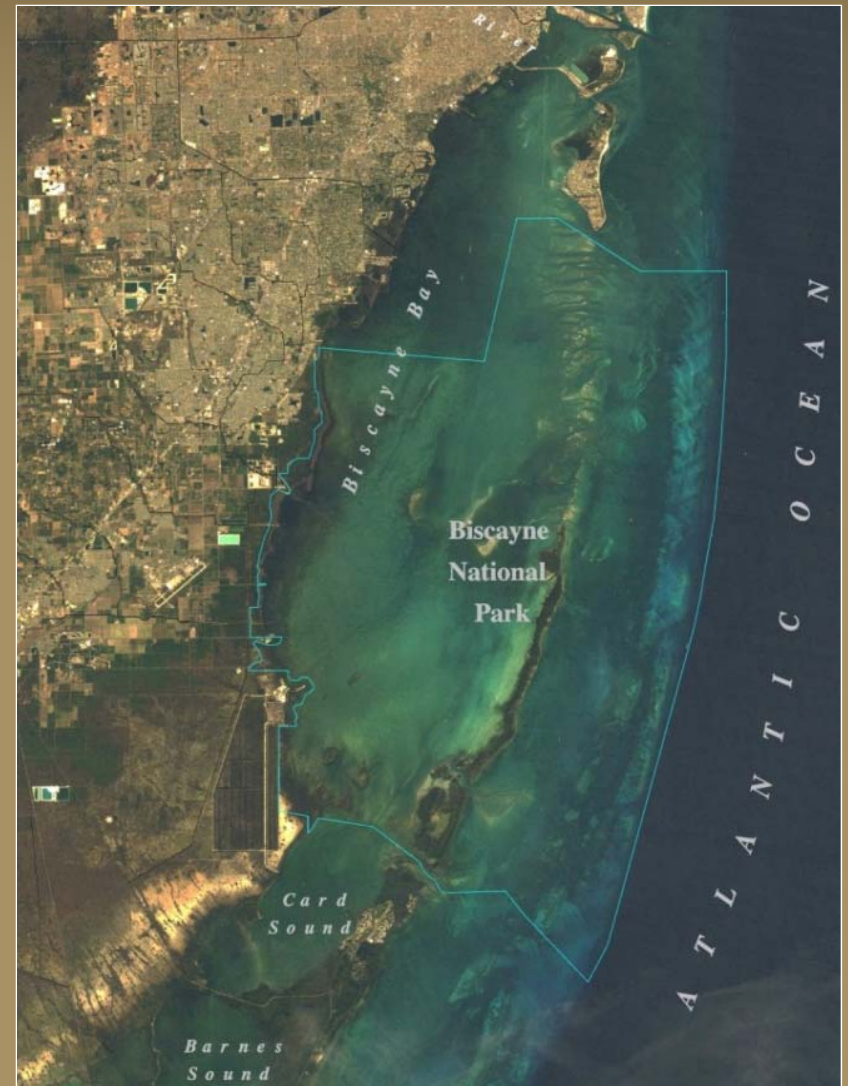
# Ecosystem Restoration and Management in Biscayne National Park

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Greater Everglades Ecosystem Restoration  
Conference  
April 21-23, 2015

# Biscayne National Park

- One of the largest marine parks in the national park system at 173,000 acres, 95% submerged lands.
- Recreation destination for 496,000 people annually
- Provides recreational opportunity for 4.4 million people in South Florida within 50 miles of the park
- One of 2 National Parks in South Florida



# Biscayne National Park

Biscayne National Park extends from Miami to Arsenicker Islands; includes Northern Florida Keys. It is intended to....

“To preserve and protect for the education, inspiration, recreation, and enjoyment of present and future generations a rare combination of terrestrial, marine and amphibious life in a tropical setting of great natural beauty.”

EXPERIENCE YOUR AMERICA

# Biscayne National Park

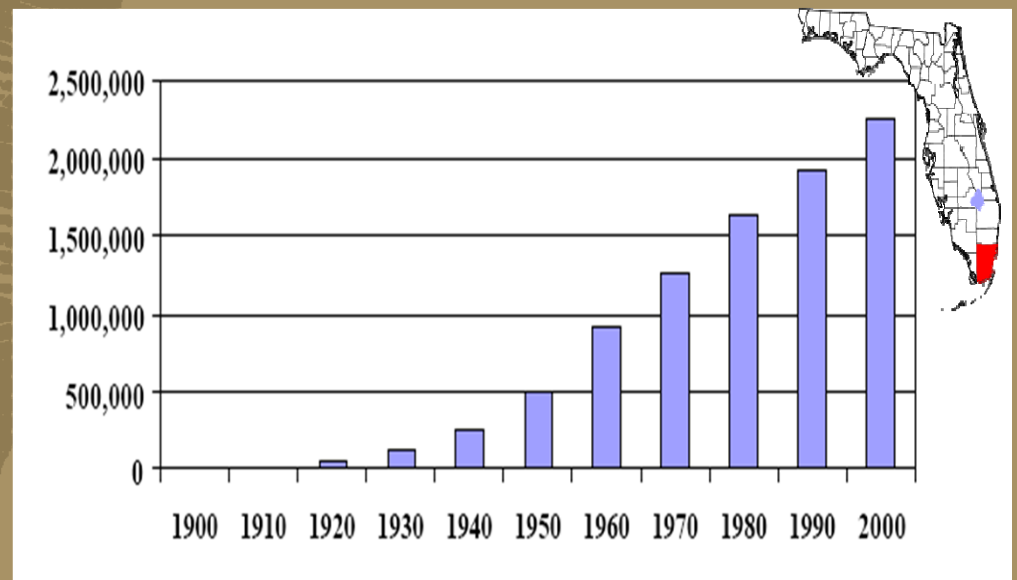
- Has 4 major habitat types:
  - Coastal Mangroves
  - Subtidal Bay-Estuarine
  - Northern Limestone Florida Keys
  - Offshore Reef Communities





# Biscayne National Park

- Watershed is in the most developed urban area in Florida
- Extends from City of Miami to municipalities at the edge of Everglades
- Over 1 million people live within Park's watershed
- High use rates, Recreation destination for 496,000 people annually



Human Population Growth in Miami Dade County (1900-2000)

# Challenges

- Nutrients and algal blooms
- Freshwater inputs (quality and quantity)
- Fishery sustainability
- Exotic species invasion
- Overuse
- Declining Budgets

# Nutrients

## MONITORING

- South Florida Mangrove-Bay-Reef ecosystem is naturally P-limited onshore and N-limited in the Bay
- Nutrient runoff from canals bring critical freshwater but also nutrients
- Can cause persistent algal blooms
- State and County monitor extensively for nutrients and algal blooms
- Monitoring Data forms the Basis for Rulemaking for Numeric Nutrient Criteria
- Monitoring necessary for micronutrients and water quality parameters associated with Algal Blooms

## MANAGEMENT POLICY

- Used Monitoring to Develop science-based rules, policies and procedures for Park and these Coastal Areas
- Worked State and Local interests through the process, to develop and support proposed nutrient criteria for the Park and other South Florida Coastal Areas
- Work with partners in and out of government to bring attention to the impacts of high nutrients and algal blooms
- Look for non-traditional funding

# Freshwater inputs

## MONITORING

- Historically from streams and rivers (e.g. Miami River)
- Current inputs: highly-regulated canals
- Highly seasonal due to freshwater availability
- Monitor salinity as part of many park, state, and local programs
- Park has 47 monitoring stations recording at 15 minute intervals
- County has monthly monitoring data beginning in 1979
- Data critical in understanding what is going on within Park waters

## MANAGEMENT POLICY

- Work with the South Florida Water Management District (SFWMD) to Develop Reservation of Water for the Comprehensive Everglades Restoration Plan (CERP) Biscayne Bay Coastal Wetlands Phase 1
- Work with in CERP to show the importance of groundwater flow to the bay
- Work with SFWMD identify necessary water delivery timing, volume and distribution to the Park.





# Fishery Sustainability

## MONITORING

- Creel Census Monitoring
- Exotic Fish Census
- Open access and fishing year-round

## MANAGEMENT POLICY

- 10-year plan
- Work with FWC and FWS to develop Management Rules and provide oversight

# Exotic Species Invasion

- Onshore: iguanas, tegus, invasive mangroves
- Offshore: Lionfish, soft coral virus

## MANAGEMENT POLICY

- Work with FWC on iguanas/tegus
- SFWMD, NPS, and volunteer groups have invasive animal eradication efforts
- Park has monitoring for lionfish
- Monitoring/eradication data collected critical in understanding Park ecosystem

# Questions?

