

A Case Study in Applying Natural Resources Management for Coastal Resiliency: **The City of Miami Beach Coastal Dune Management Plan**



City of Miami Beach

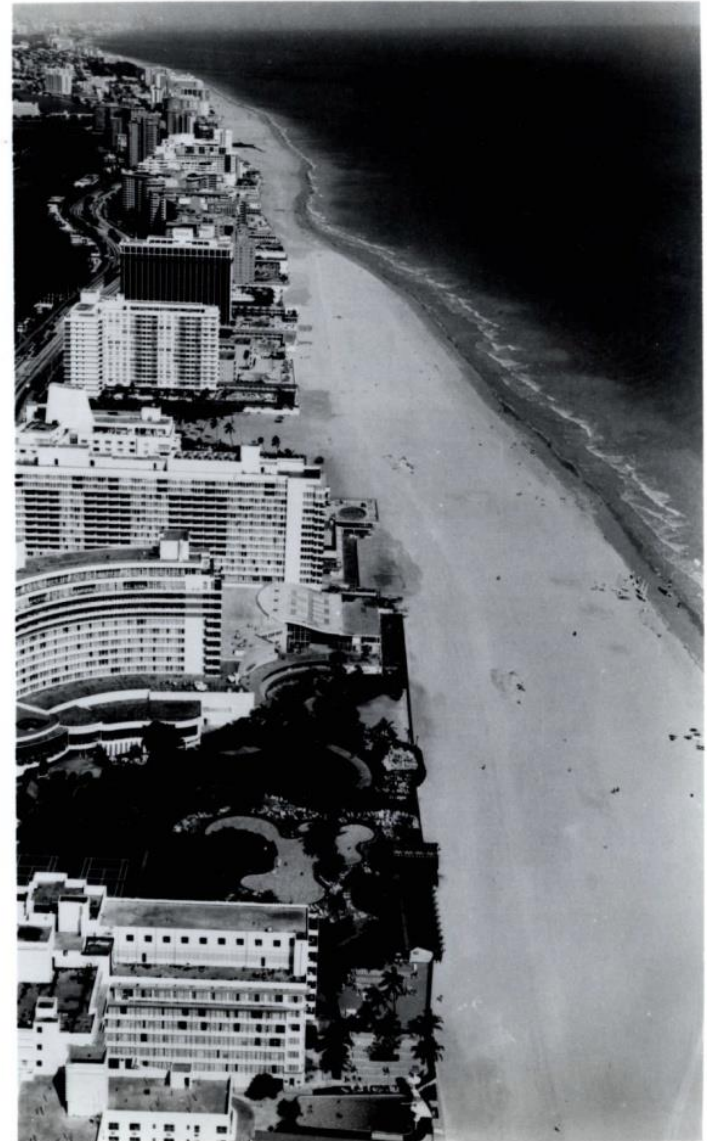


History of the Miami Beach Dune & Beach Ecosystem

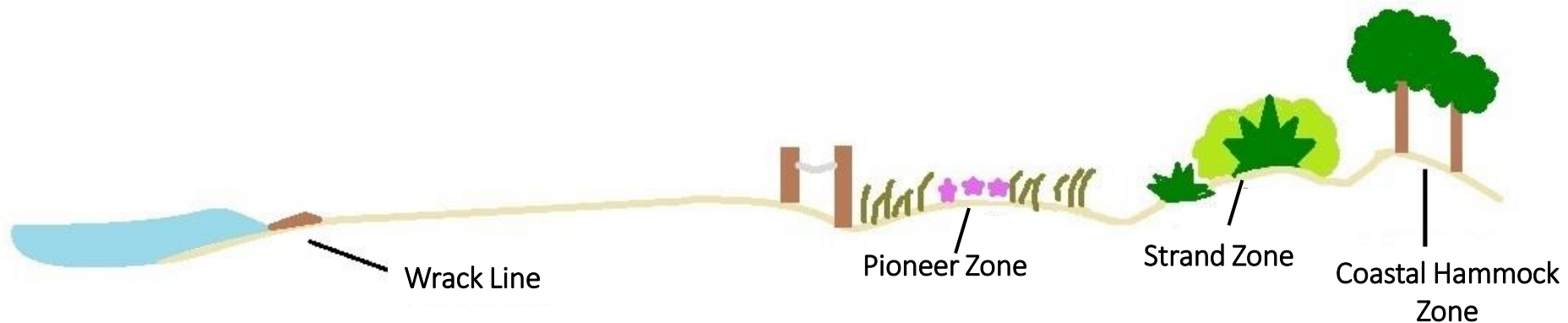
- **1915:** City was incorporated
- **1975-1980:** US Army Corps of Engineers Miami-Dade County Beach Erosion Control and Hurricane Surge Protection project
- **1982:** Beachfront Management Agreement with FDEP
- **Mid-1980s:** FDEP and Miami-Dade County create vegetated dune
- **2014:** City develops Dune Management Plan and begins updating Beach Management Plan



Miami-Dade County Beach Erosion Control & Hurricane Surge Protection Project



The Miami Beach Dune System



- Began as strand zone with saw palmettos
- Planted as pioneer zone and strand zone to stabilize dune and to promote a self-sustaining system
- Primary purpose: minimize erosion, accrete sand, and block storm surge



Tropical Storm Sandy



Tropical Storm Sandy



Dune Management Challenges

- Non-native invasive species
- Security concerns
- Desire to have ocean views
- Illegal dune work





Dune Management Plan Goals

- Use the best available science
- Enhance the environmental and storm protection functions of the dunes
- Address stakeholder concerns
- Blend into community aesthetic and character
- Ensure consistent maintenance strategy into the future



Dune Management Plan

- Statement of Purpose
- Objectives
- History of Miami Beach Dunes
- Dune Management Specs
 - Non-Native Invasive Removal
 - Planting
 - Strand Zone Species Pruning
 - Litter Removal
 - Hazard Removal
- Mobilization and Access
- Permits



CITYWIDE COASTAL DUNE MANAGEMENT PLAN
January 2015

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Dune Management Plan Implementation

- \$300,000 Citywide Dune Restoration Project
- Private dune restoration efforts
- Beachwalk projects
- On-going maintenance
- Volunteer dune restoration efforts



Non-Native Invasive Removal



January 2015

Planting



January 2015

Strand Zone Species Pruning

January 2015



Volunteer Restoration Efforts

August 2010





August 2010



August 2011

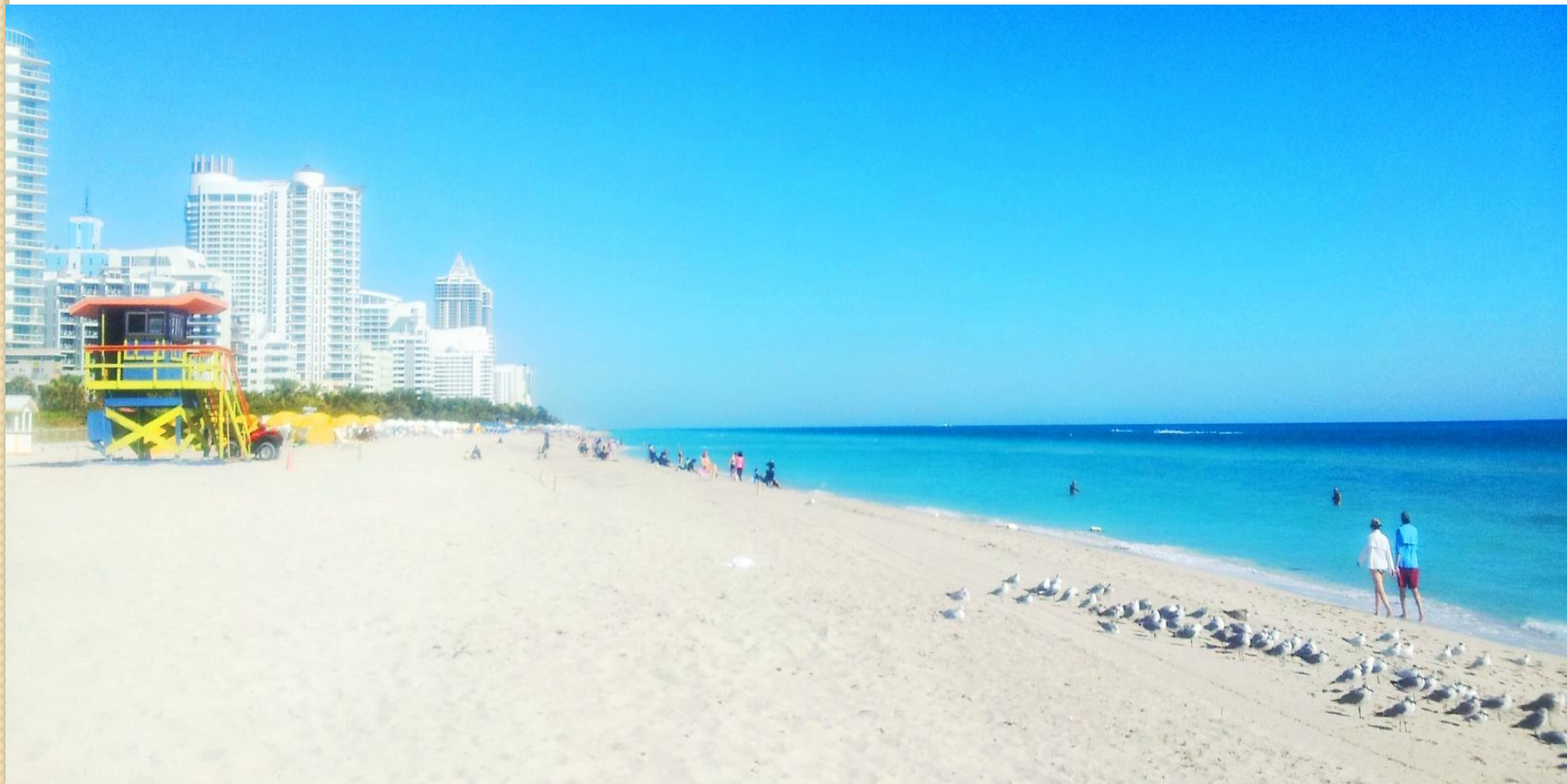


August 2012



Outcome

- Acts as tool for quick, consistent decision-making
- Supports daily resource management actions
- Meets initial goals



Dune Management Plan

Goals Achieved

- Enhance dune function
- Use best available science
- Address stakeholder concerns
- Blend into community aesthetic and character
- Ensure consistent management strategy into the future



Recommendations

- Develop a plan
- Collaborate
- Communicate frequently with stakeholders
- Implement a low-regret strategy



THANK YOU!



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