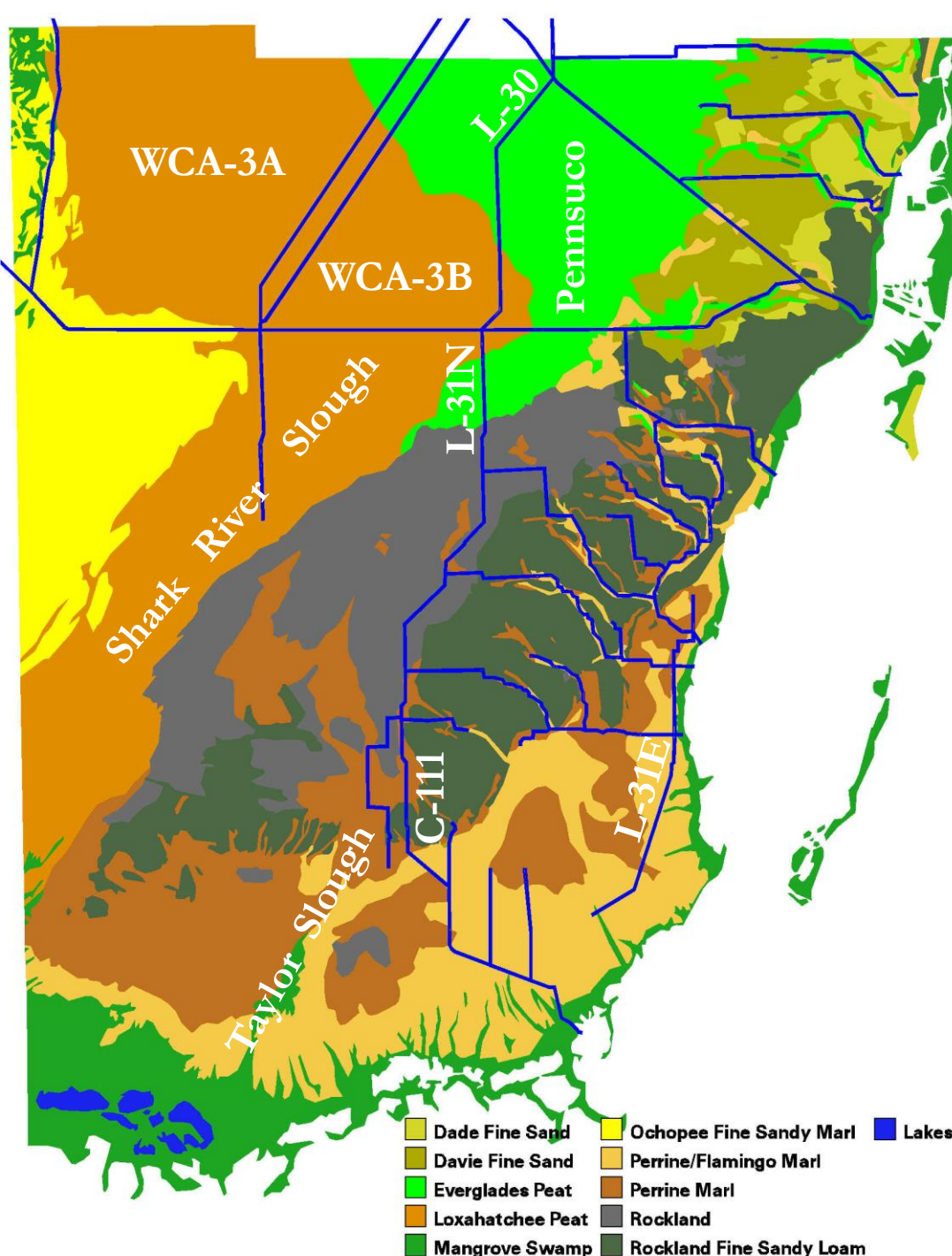




# **National Park Service Desired Conditions in South Miami-Dade County**

**Robert Johnson, NPS  
South Miami-Dade  
Conditions Meeting  
September 3, 2015**

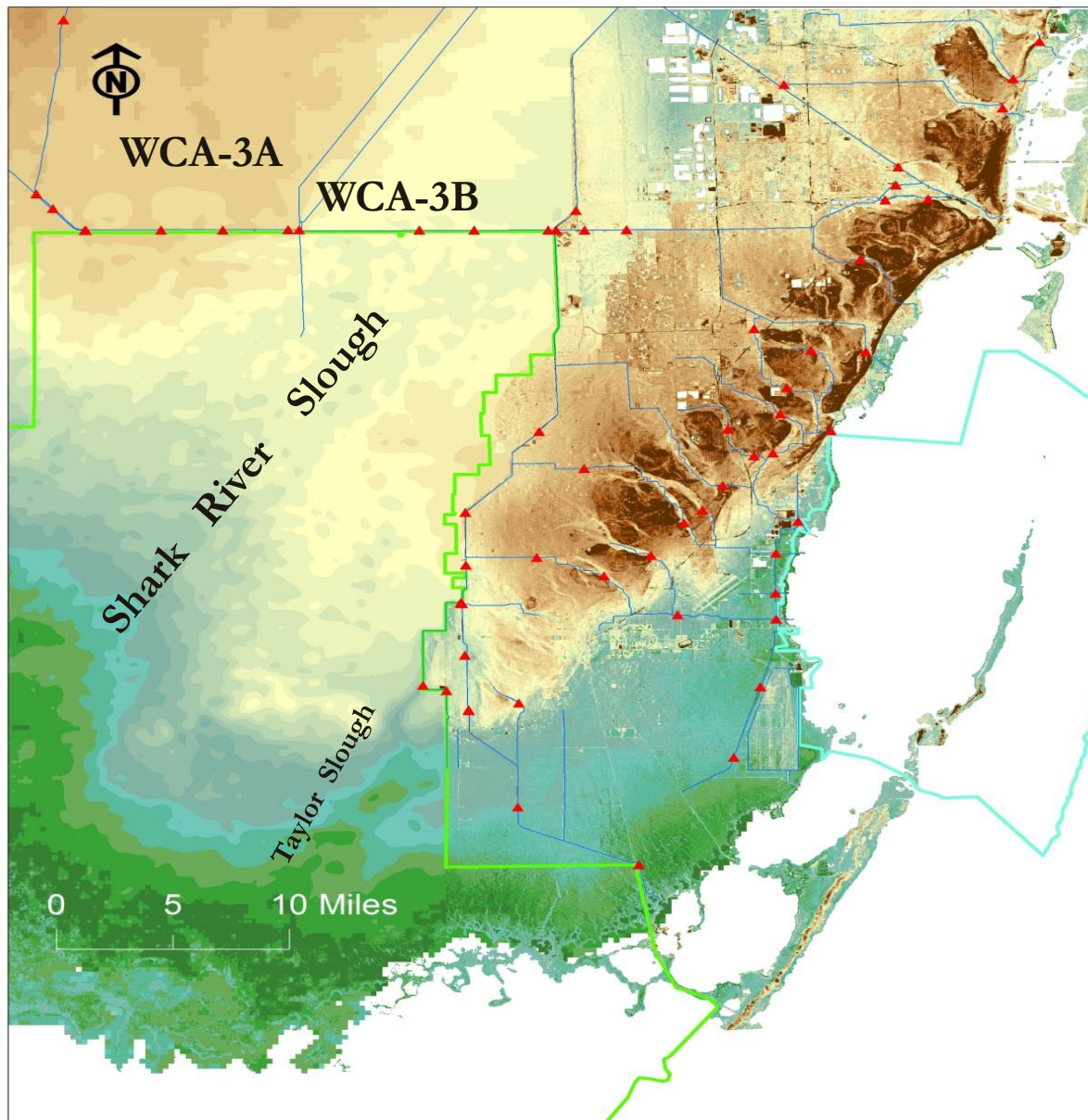
# Miami-Dade County Soil Association Map



- Permanently Flooded Wetlands
  - Everglades Peat
  - Loxahatchee Peat
  - Mangrove Swamp
- Seasonally Flooded Wetlands
  - Ochopee Marl
  - Rockland
  - Perrine Marl
  - Perrine/Flamingo Marl
- Uplands (Persistent Dry Areas)
  - Rockland Fine Sandy Loam
  - Dade/Davie Fine Sand

The Atlantic Coastal Ridge is a narrow strip of Uplands that does not experience routine flooding.

# Miami-Dade County Elevation Map

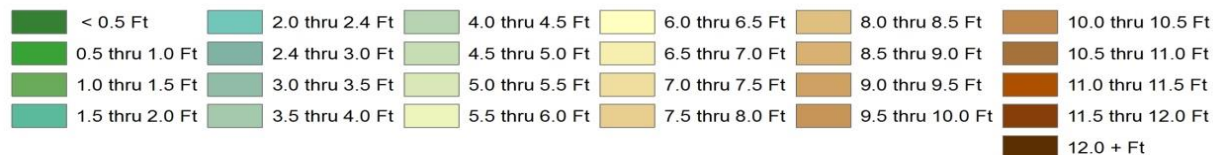


- Permanently Flooded Wetlands  
Light Tans/Blues (2-5.5 feet)  
Greens (< 1 foot)
- Seasonally Flooded Wetlands  
Dark Tans/Blues (1.5-6 feet)
- Uplands (Persistent Dry Areas)  
Browns (8-12+ feet)

The Atlantic Coastal Ridge is bisected by a series of transverse glades .

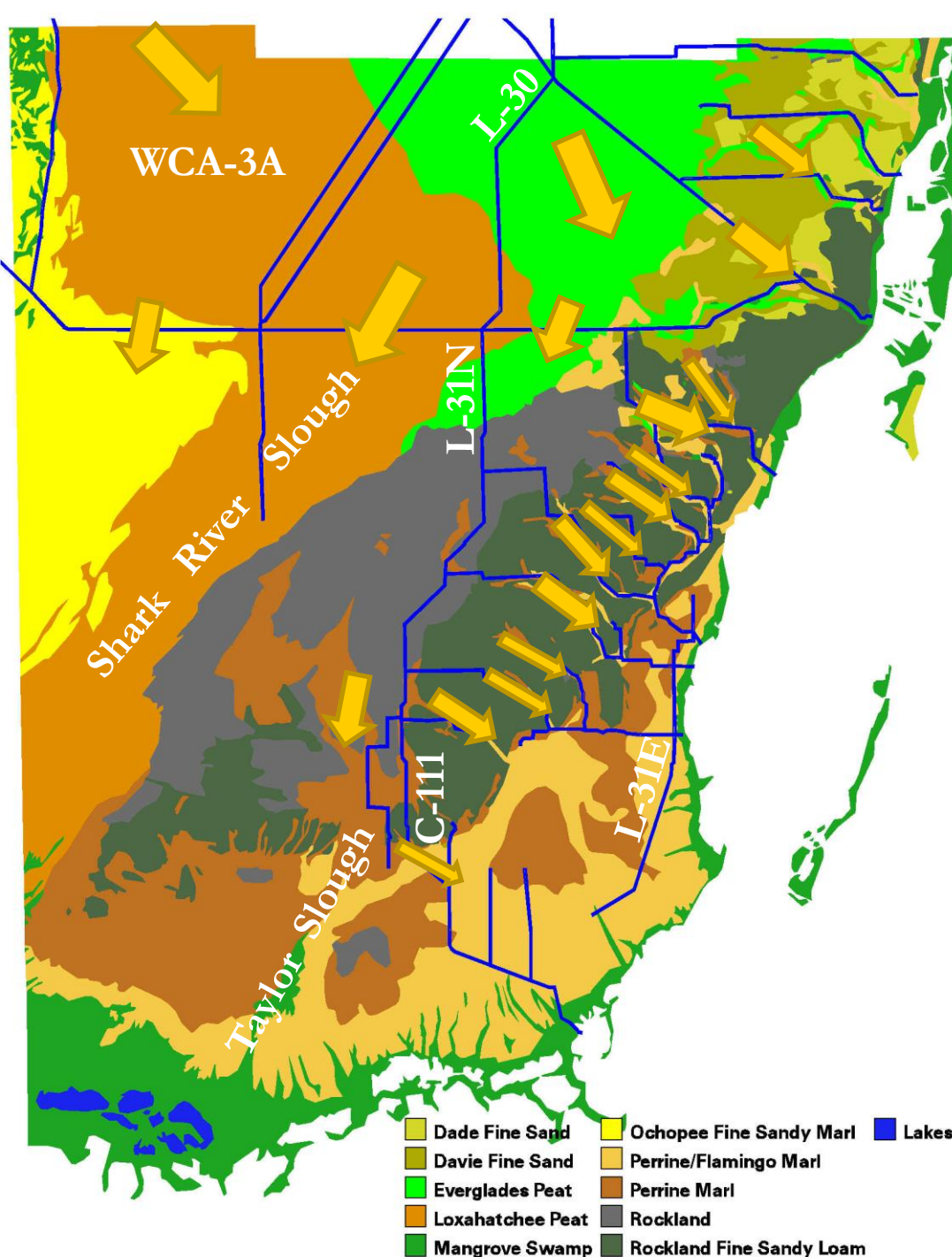
The steep elevation gradient along the edge of the Atlantic Coastal Ridge explains why freshwater springs occur in Biscayne Bay.

## LIDAR Elevation (NGVD29)





# Historic Water Flow Patterns in Miami-Dade



- Permanently Flooded Wetlands  
Flows traverse from the NW to the SE in the WCAs, then turn to the SW again as they pass through Shark River Slough .

- Seasonally Flooded Wetlands  
Wet season flows in SRS overtopped the Rocky Glades, contributing to Taylor Slough and central Florida Bay.

Flows from SRS crossed the Atlantic Coastal Ridge entering the eastern coastal wetlands and Biscayne Bay via the transverse glades.

# NPS Desired Restoration Conditions

## Permanently Flooded Wetlands

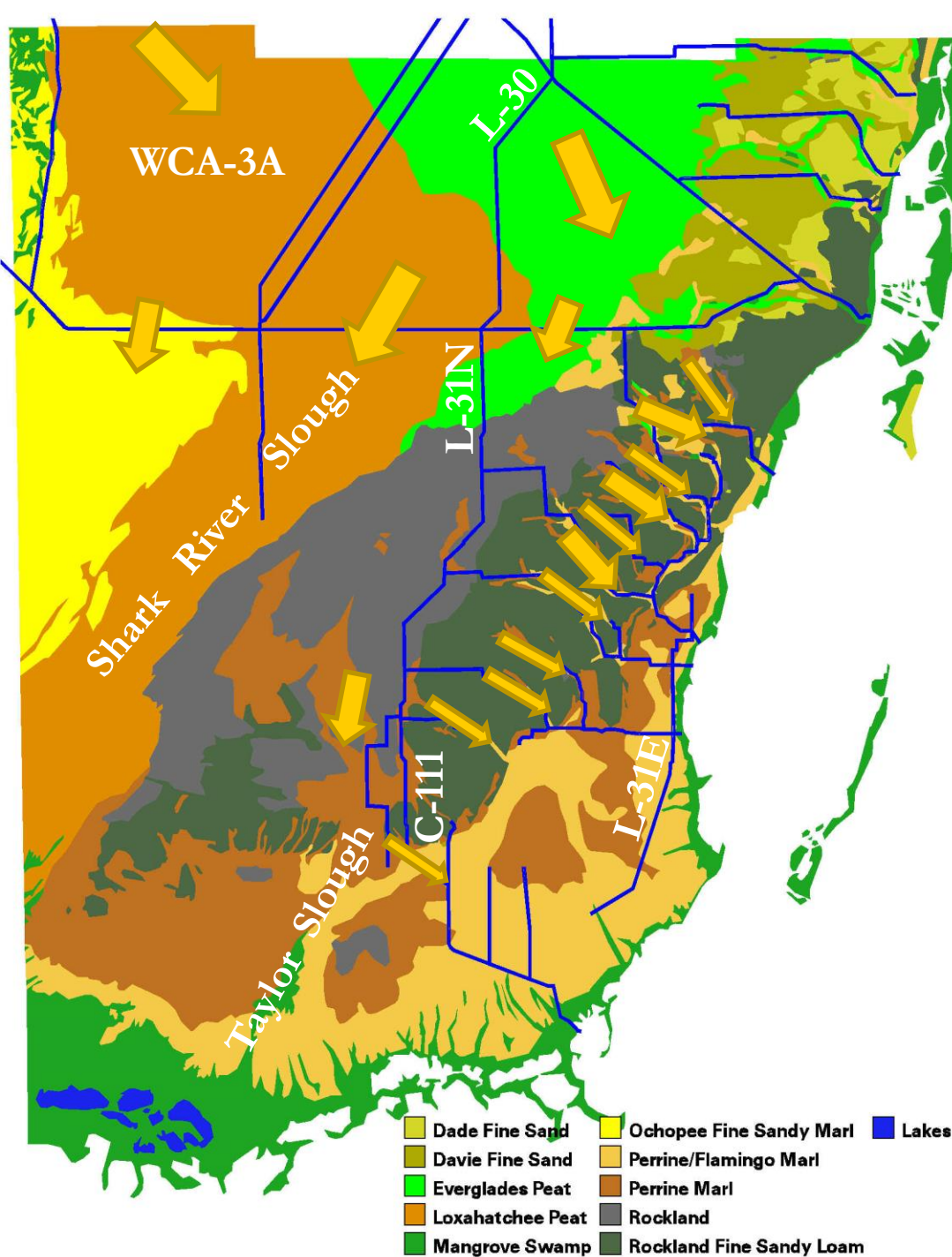
- Sufficient water flows to maintain continuous flooding, with water depths that support peat formation and slough/wet prairie communities.
- Slow water level recessions with minimal water level reversals.

## Seasonally Flooded Wetlands

- Sufficient water flows to maintain seasonal flooding, with water depths that support marl formation and mixed sawgrass and muhly grass communities.
- Slow water level recessions with minimal water level reversals

## Biscayne and Florida Bays

- Sufficient freshwater flows to minimize salinity fluctuations.
- Lower Coastal Shoreline salinity to support nursery habitat
- Lower salinities in the early wet season, late dry season.





# Implementation of Water Management Actions in South Miami-Dade County

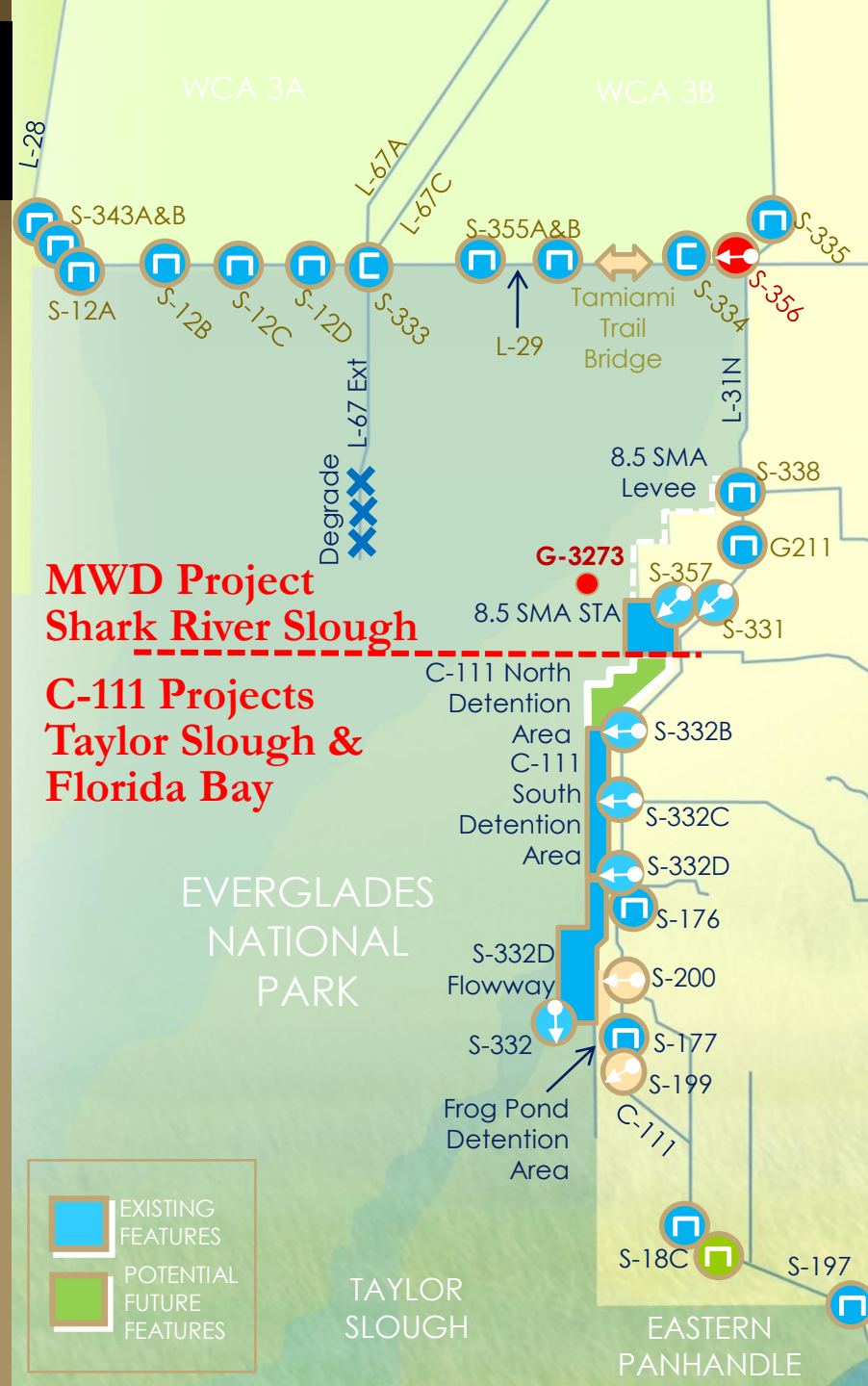
## The Flood Control Acts of 1948 & 1962

The 1968 ENP-South Dade Conveyance System (PL 90-483) Purpose: "Improve the conservation and conveyance of water supplies to meet the long-term needs of urban and agricultural users and the ENP".

The 1989 ENP Protection and Expansion Act (PL 101-229) Purpose: "Increase the level of protection of ENP, ... by adding 107,600 acres of lands commonly known as Northeast Shark River Slough and the East Everglades to the park".

The Modified Water Deliveries to ENP Project Purpose: "Construct modifications to the C&SF Project to improve water deliveries into the park and shall, to the extent practicable, take steps to restore the natural hydrological conditions within the park".

The 1994 Canal-111 General Re-Evaluation Report Purpose: "Restoration of the ecosystem of Taylor Slough and the Eastern Panhandle of ENP that were affected by construction of the flood control project in the C-111 basin".



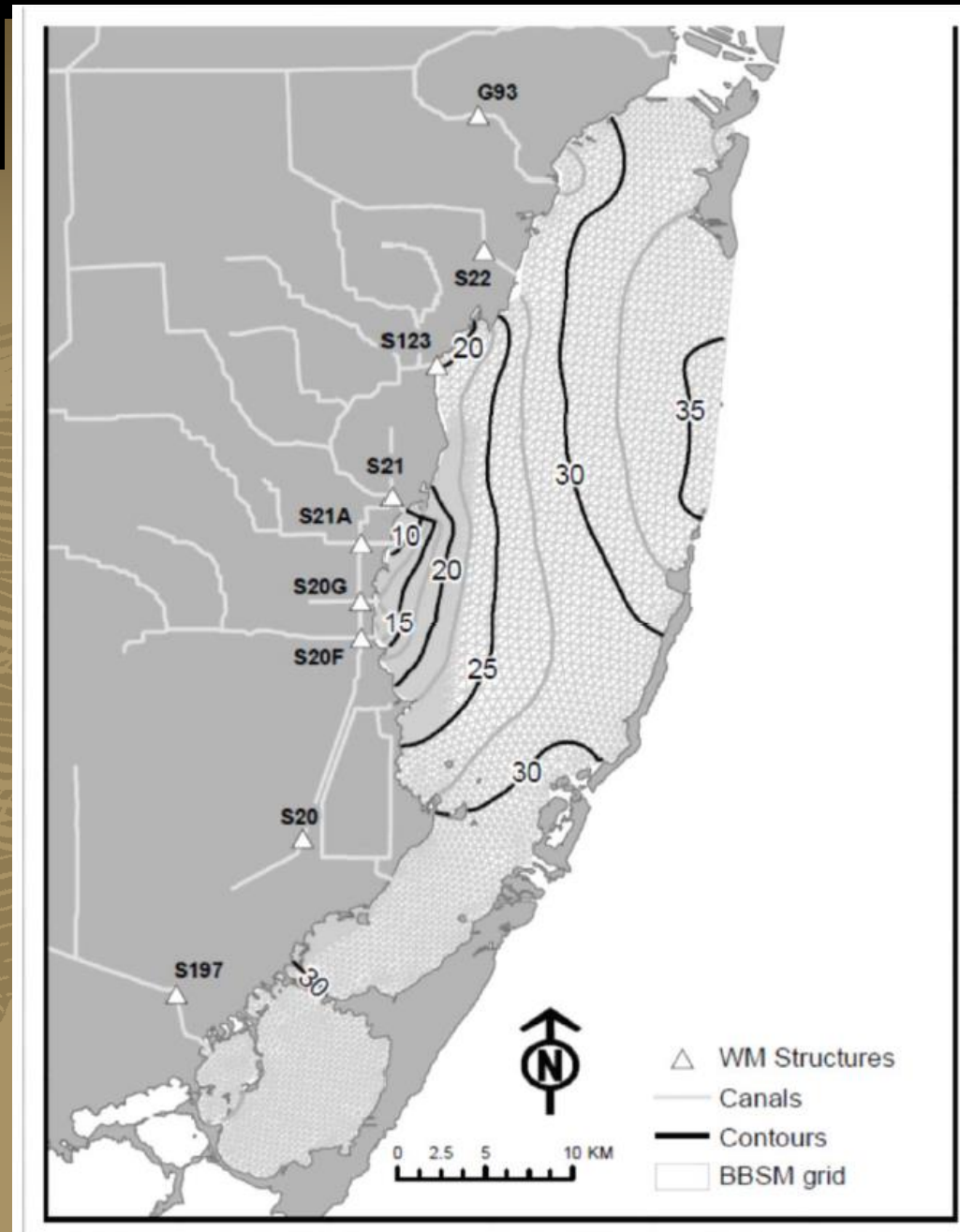
# Implementation of Water Management Actions in South Miami-Dade County

## Goal

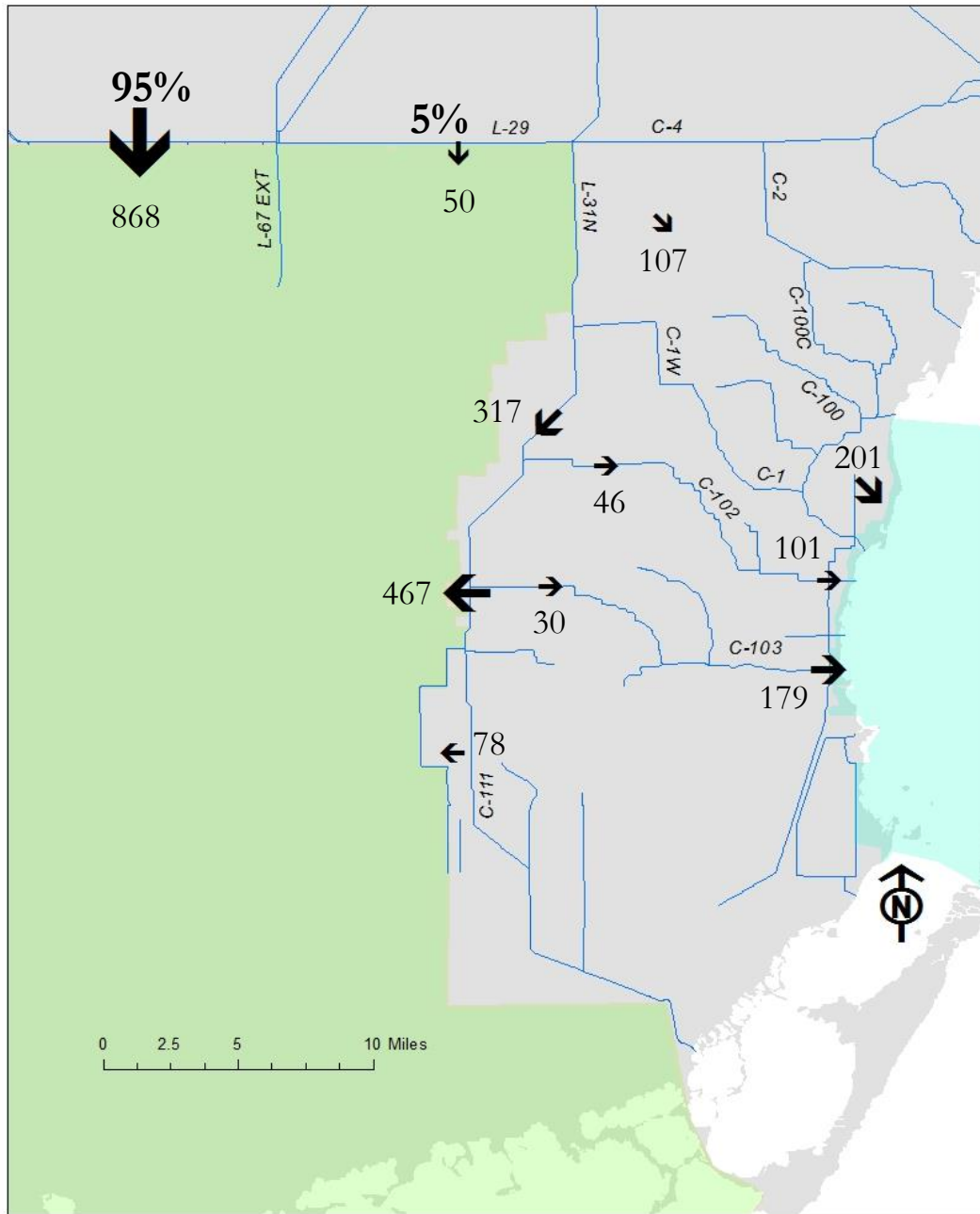
### Goal:

Expansion of the mesohaline zone in eastern Biscayne Bay (both the duration and spatial extent)

- Biscayne Bay Coastal Wetlands (phase 1): (WRDA 2014) Complete the L-31E flow-way and Cutler Wetlands components, and develop improved operational plans.
- Resolve Seasonal Agricultural Drawdown Conflicts (this study)
- Biscayne Bay Coastal Wetlands (phase 2) Begin planning and design for the BBCW phase 2 components, ideally in combination with the C-111 Spreader Canal eastern components.



# Current Surface Water Flow Patterns in South M-Dade (Wet Year 2013)



## Shark River Slough

- Excessive flows into the western SRS via the S-12s (onto higher elevated seasonal wetlands) and insufficient flows into Northeast SRS (lower elevated wetlands).
- Loss of Cape Sable Seaside Sparrows (sub-pop. A), due to prolonged flooding.

## South Dade Agricultural Lands

- Excessive flows into south Dade via S-334 & S-331 pump station.

## Taylor Slough & Florida Bay

- Beneficial flows into Taylor Slough via the C-111 South Dade and C-111 Spreader Canal features.
- Source was L-31N/C-111 pumping, so groundwater returned to east.

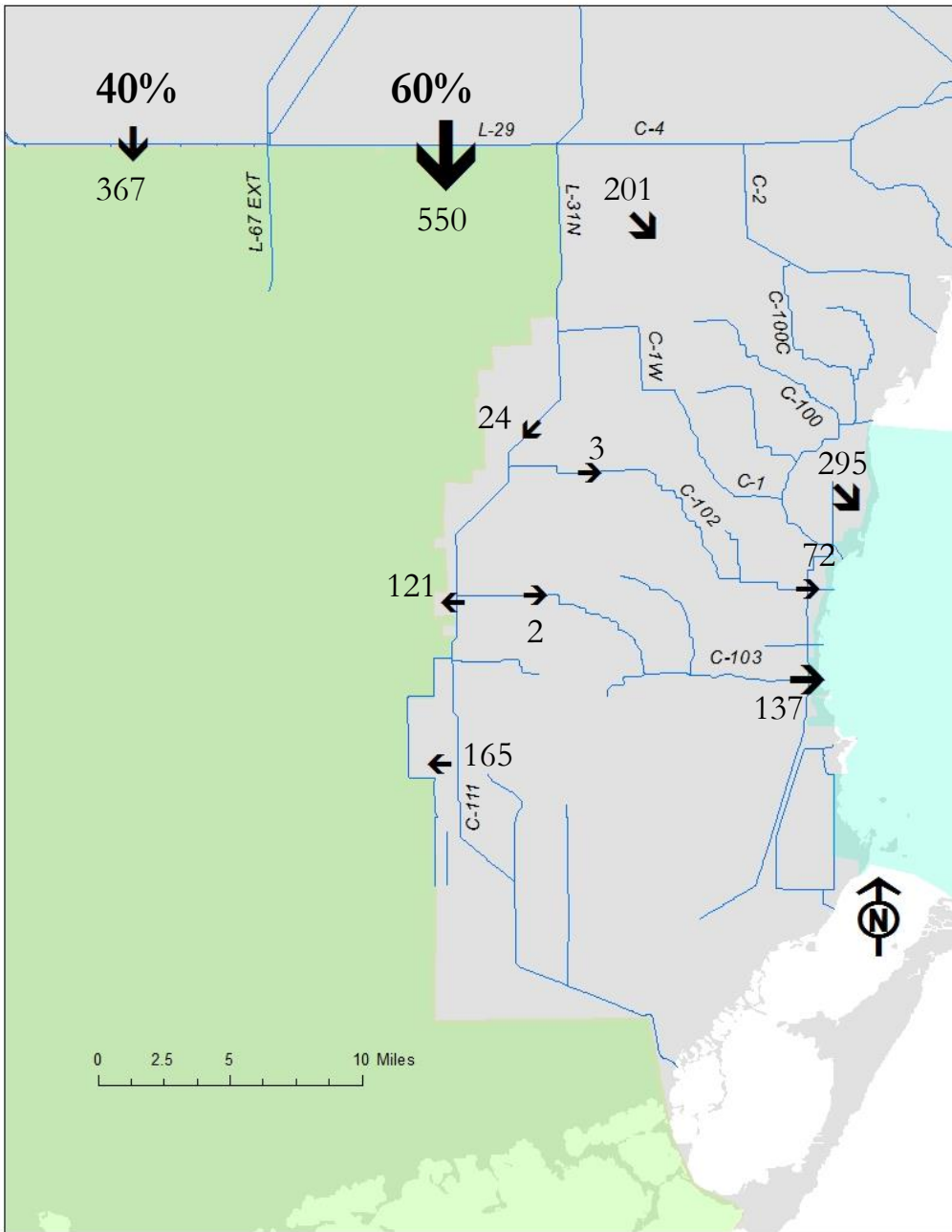
## Biscayne Bay

- Beneficial freshwater flows helped to lower salinity.
- Additional storage is needed to improve seasonal timing.

Annual Water Flows in WY2013 (in 1,000 acre-feet)



# Desired Surface Water Flow Patterns in South M-Dade (Composite of 2007 & 2013)



## Shark River Slough

- Re-directing excessive flows from western SRS into Northeast SRS (restores peat formation and slough development).
- Protection of Cape Sable Seaside Sparrows (sub-pop. A), by reducing prolonged flooding.

## South Dade Agricultural Lands

- Major reduction in excessive flows into south Dade via S-334 & S-331 pump station.

## Taylor Slough & Florida Bay

- Beneficial flows into Taylor Slough via the C-111 South Dade and C-111 Spreader Canal features.
- Source water is primarily from the upstream wetlands, less groundwater returned to east.

## Biscayne Bay

- Beneficial freshwater flows help to lower salinity in Dry Season & maintain in wet season.
- Additional storage is needed to improve seasonal timing.