Fecal Coliforms in Wagner Creek

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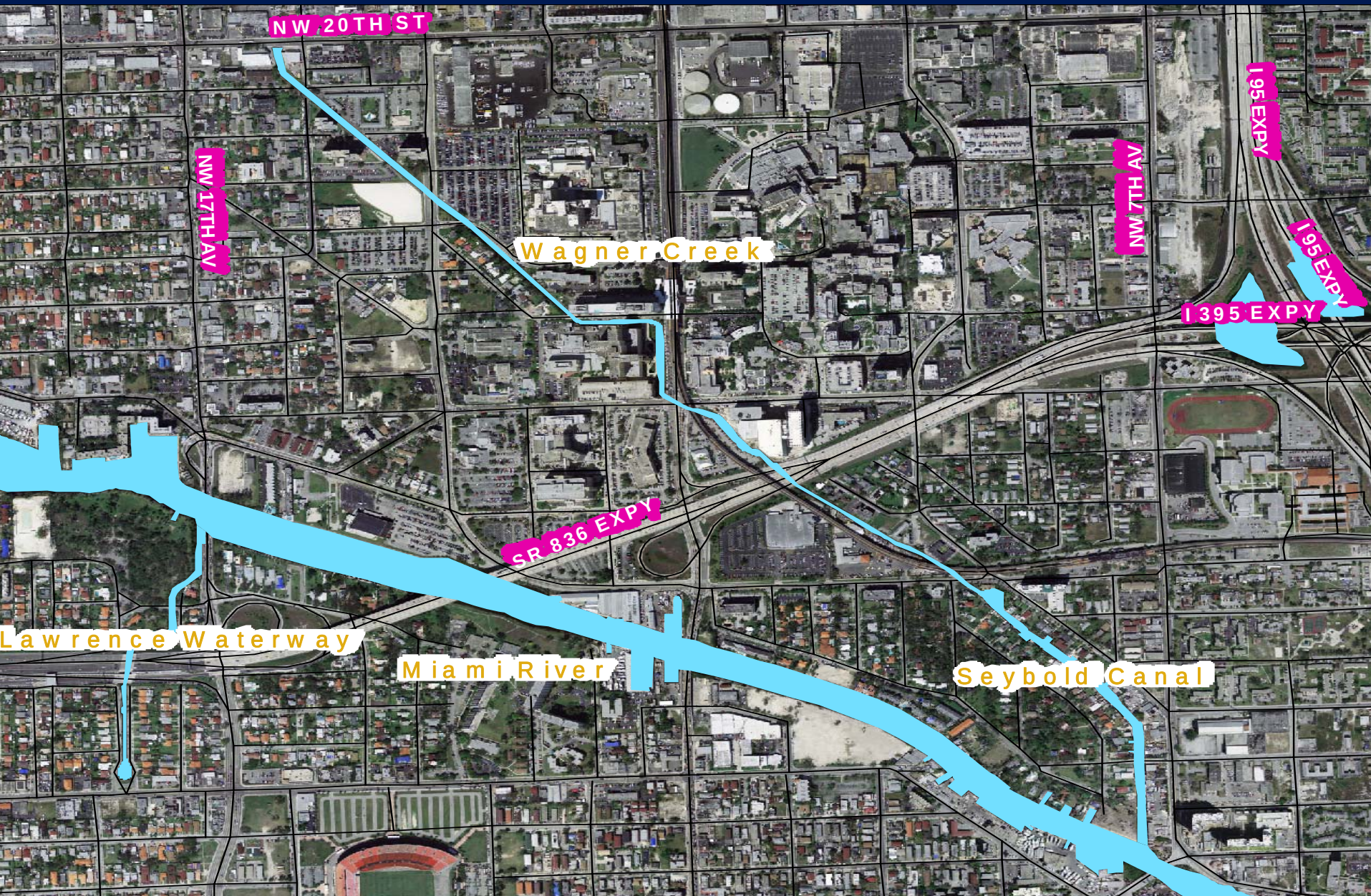
Wagner Creek



Possible Sources of Fecal Coliform

- Human Waste from Sewers or Septic Systems
- Animal Sources
- Illicit Discharges
- Decaying Vegetation in Storm Sewer System
- Naturally-Occurring Soil Bacteria
- Creek Sediments

Human Wastes

- Previous Biological Source Tracking Revealed no Significant Human Sources
- Smoke Testing Revealed a Few Relatively Minor Deficiencies Which were Repaired
- Fecal Coliform Counts Remain Elevated After Repairs
- Sanitary Sewer Overflows
- Septic Tanks

Potential Animal Sources

- Chickens
- Birds
- Dogs
- Cats
- Rats
- Raccoons
- Manatees

Illicit Discharges

- Wagner Creek's Watershed Encompasses Residential Areas, the Health District and Highly Industrialized Areas
- Possible Illicit Discharges or Illegal Connections by Area Businesses, Apartments, or Homes

Decaying Vegetative Wastes in Storm Drain

- Allapattah Marketplace
- Leaves
- Composting Bacteria Show up in Fecal Coliform Assay Even Though They Are not Fecal or Enteric in Nature
- Anaerobic Conditions

Creek Sediments

- Persistent Bacteria
- Warm Water
- Nutrient Availability
- Regrowth

Natural Source

- Soil Bacteria
- Not Anthropogenic

Fecal Coliform – What is it?

- Bacteria that can grow under conditions similar to those found in an animal's digestive tract
- Indicator bacteria – ***Not*** Pathogens
- Assumed that Fecal Coliform come from same source as pathogens
- Assay Developed in Temperate Climates
- Not All Bacteria Identified as Fecal Coliform are from a Fecal Source

Caveats to the Fecal Coliform Assay

- Cannot Determine Actual Source of Bacteria.
- Does Not Detect Pathogens
- Indicator Bacteria May Be Present in the Absence of Pathogens or Fecal Matter
- Fecal Matter May be Present and Fecal Coliforms May not be Detected.
- Assumes that Fecal Coliform Bacteria Do Not Persist and Will not Regrow in the Environment

Confounding Factors in Wagner Creek

- Higher Water Temperatures
- Brackish Water
- No Winter Die-off

Source Identification

- Document Research
- Water Quality Testing
- Possible Genetic Testing
- Spatial Analysis with GIS

Source Identification

- Historical Documents
- Contemporary Documents
- Field Spot Checks
- Tracing Backwards from Areas with High Levels of Fecal Coliform

Water Quality Testing

- Nutrients
- BOD and COD
- Solids
- Detergents
- Oil and Grease
- Specialized parameters based on results of Historical and Contemporary Research
- Genetic Testing, if Warranted

Potential Animal Sources

- Chickens
- Birds
- Dogs
- Cats
- Rats
- Raccoons
- Manatees

Quantifiable Genetic Testing Available in South Florida

- Human
- Cow
- Dog
- Bird

$500 - $1500 *per sample*

GIS Analysis

- Allows User to Bring Data from Different Sources and Formats into a Single Analysis Tool
- Correlate Elevated Levels of Fecal Coliform Bacteria with One or Several Other Parameters

Thank You