



WETLAND AND STREAM RESOURCES IN NEW YORK CITY,

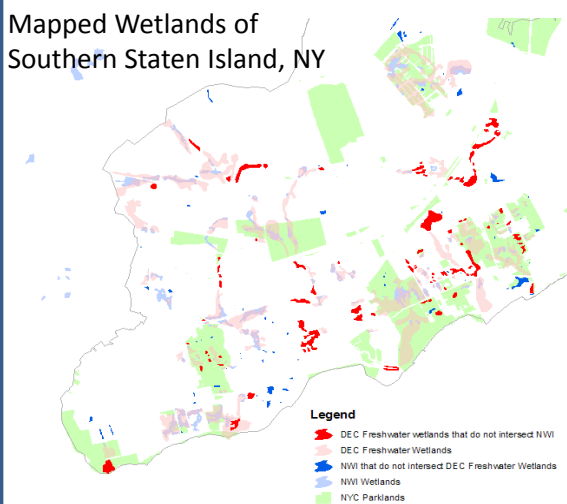
MONITORING, PROTECTION AND MANAGEMENT PRIORITIES IN THE FACE OF LAND USE AND CLIMATE CHANGE

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Mapped Wetlands of Southern Staten Island, NY



Legend
 DEC Freshwater wetlands that do not intersect NWI
 DEC Freshwater Wetlands
 NWI that do not intersect DEC Freshwater Wetlands
 NWI Wetlands
 NYC Parkslands

| Map Type | Acres with No Intersection | Total Acres | Percent |
|----------------------------------|----------------------------|-------------|---------|
| National Wetland Inventory (NWI) | 184 | 864 | 21 |
| NYSDEC Freshwater Wetlands | 530 | 2413 | 22 |

To assess which wetlands receive regulatory protection, the wetlands mapped by NYS Dept. of Environmental Protection (NYSDEC) were compared to those mapped under the National Wetlands Inventory (NWI). NWI wetlands receive no state protection and are more vulnerable. These sites will receive particular consideration in the wetland monitoring protocol being developed.

Climate Change Impacts to Freshwater Wetlands:

- Warming climate changes plant (and animal) species range, and eventually composition.
- Increased extreme events could result in longer periods of drought and or inundation which could yield favorable conditions for some species over others.
- Extreme events could result in more frequent and larger volumes of stormwater runoff, thus increasing erosion potential, sedimentation and pollutant loading to riparian wetlands.

Objectives

- Develop Wetland Rapid Assessment (WRA) protocol for urban wetlands to help prioritize wetlands for protection and restoration

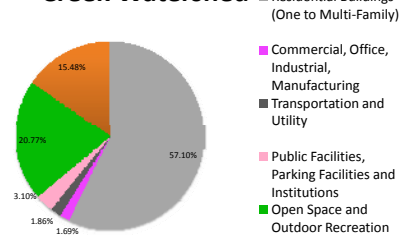
Approach

- Develop and conduct WRA at 37 Wetlands
- Analyze, rank and prioritize sites
- Compare results to expert/professional opinion of sites
- Modify protocol as needed and add desktop/GIS WRA of landscape characteristics
- Develop final rankings and recommended protection and management actions
- Provide outreach on WRA and results within NYC Parks and to other agencies



Legend
 State Parks of Wetlands
 State Dept. of Parks, Recreation and Historic Preservation (NWI)
 NYSDEC All Freshwater Wetlands
 2006 Landuse
 Unknown
 One and Two Family Buildings
 Multi-Family Walkup Buildings
 Multi-Family Elevator Buildings
 Mixed Residential and Commercial Buildings
 Commercial and Office Buildings
 Industrial and Manufacturing
 Transportation and Utility
 Public Facilities and Institutions
 Open Space and Outdoor Recreation
 Parking Facilities
 Vacant Land

Land Use in the Lemon Creek Watershed



The imperviousness associated with the land use characteristics of each wetland watershed will be estimated based on assumptions used in the PlaNYC Sustainable Stormwater Management Plan. Land use and imperviousness will be compared to wetland conditions across wetland sites and their watersheds.

The drainage areas, or watersheds, of each wetland site or cluster of wetlands can be difficult to determine due to the flat topography in the southern half of Staten Island and the built drainage infrastructure that ignores topographic boundaries. We are investigating whether watershed area and watershed characteristics are important in ranking and prioritizing wetlands.

Results of WRA for 38 Staten Island wetlands: Some parameters may be more useful than others in characterizing wetlands and prioritizing them. Characteristics assessed in the field, such as buffer width, theoretically indicate the degree of disturbance, but will be verified through GIS analysis. Presence of invasive species may be a more useful indicator, and suggest that many of the wetlands visited are not excessively degraded. An assessment of hydrologic disturbance indicators such as fill, weirs, culverts, pipes or dikes (not show here) in the wetlands showed that all wetlands were disturbed to some degree.

