Restoring Water Ecosystems in NYC Parks

Hooked on our Waters Con
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NYC Parks
Landscape and ecosystem focus

Watershed

Streams

Freshwater wetlands

Tidal wetlands / salt marsh
WATERSHED RESTORATION

Maximize ecological health and social value of the Bronx River from headwaters to estuary
Typical Urban Stream Problems

- Combined Sewer Overflows
- Invasive species
- Floatable pollutants
- Misguided management
Typical Urban Stream Problems

Armored banks, built floodplain

Straightened channels

High sediment loads

Misguided management
Invasive plant control and native plant restoration

Pre-project
Knotweed

As-built
Feb 05

After 7 months
Floodplain forest restoration

Before

After
Floodplain reconnection and Access

Before

After
Fringe salt marsh establishment

Concrete Plant Park
Soundview Park Salt Marsh Restoration

Partners:
U.S. ACE / NYSDOS / DSNY

3 acres of salt marsh completed July 2012

12 acres of restored upland habitat on former land fill completed Oct 2012
River Herring rearing and over wintering…

Spring spawning migration…

Anadromous Fish Restoration
River Herring:
Alewife (*Alosa pseudoharengus*) Blueback Herring (*Alosa aestivalis*)


- Fish Stocking & Monitoring
  200 Alewife (2006)
  400 Alewife (2007)
  Monitoring 2009-2011
Dams on the lower Bronx River

NYCParks

BRONX PARK (X002)


NYCParks
182nd Street Dam Fish Passage: In Construction
Fish Passage & Monitoring Design Elements

Steep-pass fishway and walkway

Walkway on steep-pass

Video and counter design for 182nd St Dam
American eel habitat Restoration

Queens College
WCS
NYSDEC
Oyster Reef Habitat Restoration

- Project Site

NY-NJ Baykeepers
HRF
USACE
Rocking the Boat
Bronx River Alliacen
NYSDEC
ORRP (Oyster Reef Restoration Partnership)

NY-NJ Baykeepers, HRF, USACE, Rocking the Boat, Bronx River Alliance, UNH, NYSDEC
Watershed Management and Habitat Restoration Plan

Alley Creek / Little Next Bay

Establish ecological and habitat goals to protect and restore water resources

Identify opportunities

Develop implementation strategy

Alley Creek Watershed
WETLANDS RESTORATION

**Wetland Inventory**

- Estuarine marsh (4,070 ac)
- Emergent (500 ac)
- Open water (490 ac)
- Scrub Shrub (110 ac)
- Forested (570 ac)

**TOTAL** 490 acres

- **Harlem River, East River, Long Island Sound**: 781 acres
- **Arthur Kill**: 1,690 acres
- **Jamaica Bay**: 1,961 acres
- **Lower Bay**: 1,197 acres
Freshwater wetlands restoration

Flooded ballfields

Restored Kettle Pond
Meadow Lake Restoration

Wetland/wet meadow (1ac)
Forest/shrubland (1ac)

Stormwater bioretention
Freshwater wetlands condition assessment

Assessment scores in Staten Island

Types of impacts in Forested Wetlands
Tidal Wetlands

Tidal Wetland Categories: http://www.dec.ny.gov/lands/5120.html
Salt marsh condition assessment

- Tidal wetlands
- NYC parkland
- Salt marsh assessments
  - Bronx = 6
  - Queens = 5
  - Brooklyn = 3
  - Staten Island = 11
Salt marsh vulnerability assessment

Loss over time
1974: 16 acres
2006: 6 acres

Decline of 10-60% at NYC wetlands since 1974
On-going loss of 0.5-2% area/year

Inundation risk

Modeling future inundation
Constraints to and Opportunities for Migration
Salt Marsh Restoration – Jamaica Bay Opportunities
Salt Marsh and Grassland Restoration

Gerritsen Creek Wetland Restoration (with U.S. ACE)
20 acres saltmarsh;
22 acres of grassland;
6 acres of forest
Sunset Cove Salt Marsh Restoration: $5-7M needed; survey, sampling and preliminary design in progress

RESTORATION OPPORTUNITIES

Sunset Cove, Broad Chann Jamaica Bay 11/5/12

Remnant Sp. alterniflora edge at along the shore of our planned salt marsh restoration site.
Sunset Cove Salt Marsh Restoration: $5-7M needed
Spring Creek Restoration (ca. 11ac salt marsh, 15ac upland): Need $2.5M to leverage $5M from USACE
Where should we prioritize restoration and protection actions?

Build out eroded shoreline

Remove wrack and debris and replant

Protect

Plan for salt marsh migration
Partners

Natural Areas Conservancy
U.S. EPA
NYS DEC
Brooklyn College
The Nature Conservancy
USGS
National Park Service
NYC DEP
US Army Corps of Engineers
NYS Dept of State
NFWF

Columbia University
Queens College
Bronx River Alliance
Rocking the Boat
Sustainable South Bronx
Hudson River Foundation
NEIWPCC
APEC
American Littoral Society
Baykeepers
and many more….