Niagara River Habitat Improvement Projects

Niagara Relicensing
Environmental Coalition
May 12th 2015

Tim DePriest
NYS DEC / NY Natural Heritage Trust
Background– NYPA Niagara Power Project 2007 Relicensing Settlement Agreement

- NYPA requirement: address ecological impacts of power plant operation
- Agreed to 8 Habitat Improvement Projects (HIPs)
- Formation of “Ecological Standing Committee”: USFWS, NYSDEC, NYPA, NREC, Tuscarora and Seneca Nations
2012 HIP Activities Summary

- **Fish Attraction**
  - Continued HIP monitoring

- **Common Tern Nesting**
  - Continued HIP monitoring

- **Little Beaver Island Wetland Restoration**
  - Wildlife Deterrence System (WDS) maintained, then removed; began monitoring

- **Invasive Species Control**
  - 3rd year of treatment complete

- **Osprey Nesting Platforms**
  - Monitored 5 installed platforms; 102nd St. Landfill platform pending landowner agreement

- **Motor Island**
  - Finished Excavation and Upland Planting on schedule - resuming Spring 2013

- **Frog Island**
  - Design completed; permit applications submitted

- **Strawberry Island**
  - Began water quality sampling and vegetation survey for preliminary design needs
Fish Attraction Structures – Completed

Four Designs Installed:

- Gratwick Park – Shallow Water Stone and Log Groin
- Downstream of the South Grand Is. Bridge - Boulder Field
- Upstream of the South Grand Is. Bridge, near Cherry Farms – Rock Wing
- Motor Is. – Rock Slope
- Aqua Lane Park—Boulder Field
Rock Wing – Upstream of South Grand Is Bridge

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<th>MATERIAL WORKSHEET</th>
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<tr>
<td>STONE</td>
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<td>FOOT PRINT (FT²)</td>
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Common Tern HIP Enhancements

Construction completed Fall 2010

2010 end section installation

North Breakwater (Donnelly’s)

2010 end cell installation

April 2009 end cell installation

Old Breakwater - North (Short)

2010 crest installation

Graveled 4 areas on 3 breakwaters

Old Breakwater - South (Double end cell)
Annual Installation - Fencing, Driftwood, and Shelters
2012 Results: Number of Nests in Buffalo Harbor
New Record High = 2,107 Nests; Largest in Great Lakes

HIP & HERF enhancements

3 locations & HERF
end cell & barge prototype

(An additional 319 tern nests were recorded on Niagara River)
Common Tern Nesting HIP - 2013

- Continue monitoring during 2013
- Continue efforts to control mink
- Nest monitoring will continue through 2015
Little Beaver Island Wetland Restoration

Pre-Construction

Mid-Construction
Earthwork Construction
Phragmites Control
Osprey Nesting Platform HIP

- Five of six platforms installed
- Finalizing agreement with owners at 102\textsuperscript{nd} Street Landfill for last platform
  - Target construction for summer 2013
- Continued platform monitoring (5 NYPA and 2 DEC)
Osprey Platform – 2012 Monitoring Results

- Observe use and maintenance needs over 5-yr period
- Monthly surveys during April-August 2012 season
  - Platforms in excellent condition
  - Nesting observed at West Buckhorn and Tifft platforms, but no chicks fledged
  - Osprey activity observed at or near East River Marsh, Little Beaver Island and Adams Slip platforms
  - No Osprey observed at older platforms at Mid- and East Buckhorn Marsh
Motor Island Habitat Improvements

- Proposed wetland
- New upland forest habitat
- Remove concrete blocks; protect toe of existing cribwall
- Protect toe of existing cribwall
- Protected pools behind cribwall
- Protected pools
- Invasive species control
- Round Ice protection rocks
- Pilings to remain; Piers to be removed
- Invasive species control
Motor Island Shoreline Improvement HIP

- Awarded Contracts to selected bidders
  - Excavation: LDC Construction
    Grand Island, NY
  - Planting: Applied Ecological Services
    Waterloo, NY

Photo credit: LDC Construction
Motor Island HIP – Excavation

- Began construction in March with pier removal
- Construction of individual features began in July
Motor Island HIP - Excavation

Shallow wetland area

Root protection at upstream end of the island
Motor Island HIP - Excavation

Protected pools behind existing cribwall

Rounded ice protection boulders
Motor Island HIP - Planting

- Planting began in October
  - Planted all trees, shrubs, and live stakes (~ 8,500)
  - Installed wildlife deterrent fence posts for use next spring
Frog Island Habitat Improvement Project

Final Design

- Restore ~2 acres of emergent/submergent marsh and SAV lost from this area (total area 3.4 acres)
- Provide coarse bottom substrate for fish, habitat logs, and other structural habitat
- Increase habitat diversity – depth, substrate, vegetation
- Protect ~1.4 acres of downstream unvegetated habitat to see if SAV will grow
Frog Island HIP

Niagara River

Fish

Habitat

Logs

Attraction

Boulders

Gaps in

Berm

Flow

Through

Channels

Bare

Substrate

(existing)

SAV Beds

(existing)

Raised

Planting Beds

Large

Boulders
Strawberry Island Wetland Creation - Objectives

Purpose
Create additional complex marsh & high-energy wetland for fish & wildlife

Short-Term Objective
Construct shoreline protection structures downstream & contiguous with Strawberry Island to create wetlands in footprint of new breakwaters & island interior located between new breakwaters

Long-Term Objective
Maintain/increase total wetland area of island. Enhance foraging, nesting/spawning, and cover habitat for fish and wildlife.
Questions?

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Photo: Paul Leuchner