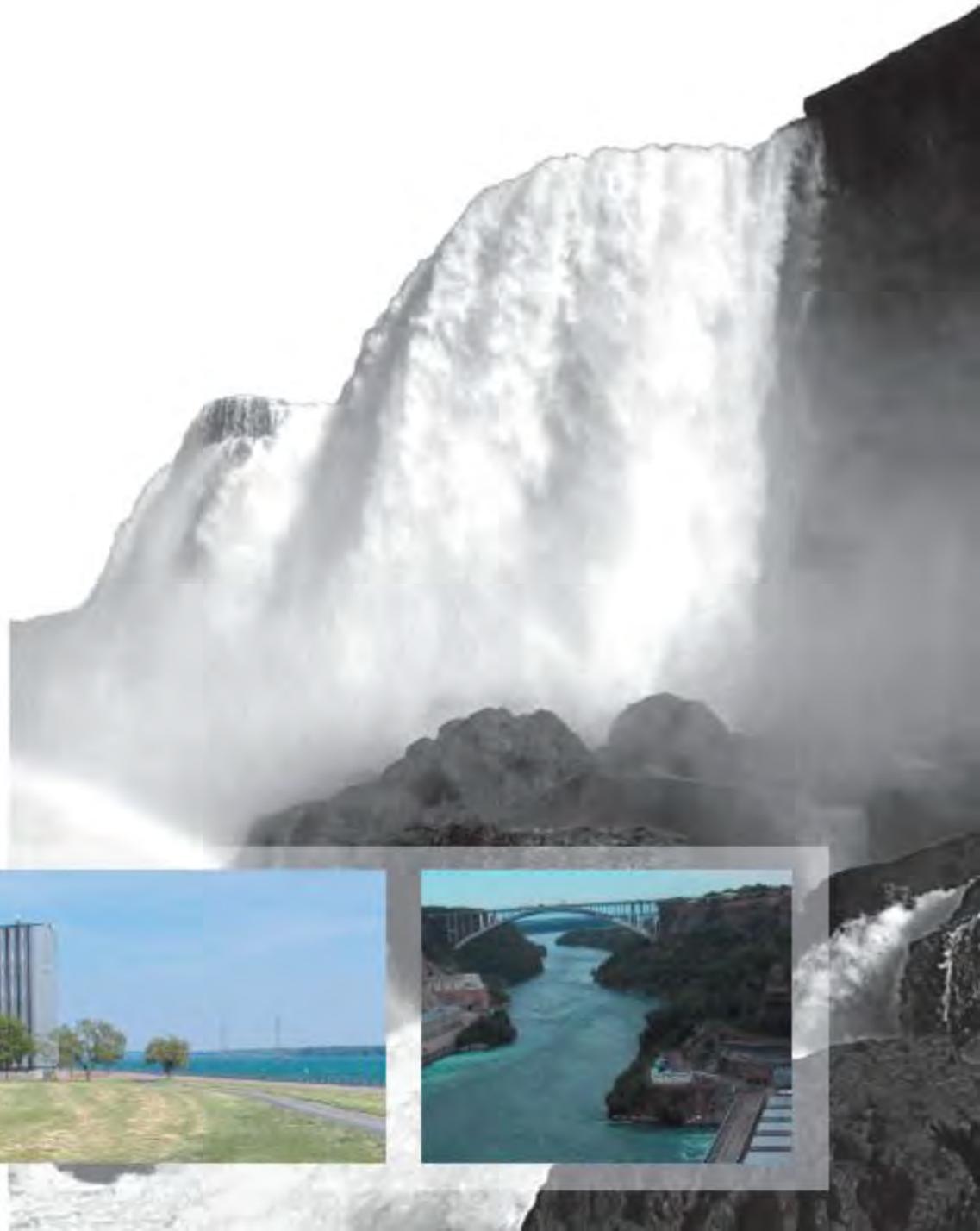




Ecological Standing Committee Meeting



November 17, 2011

Agenda

- **HERF Projects - Pre-proposals & Proposals**
- **HERF and Greenway Ecological Funds Discussion**
- **Habitat Improvement Project Progress**
 - **Fish Attraction**
 - **Strawberry Island**
 - **Common Tern Nesting**
 - **Little Beaver Island Wetland Restoration**
 - **Invasive Species Control**
 - **Osprey Nesting**
 - **Motor Island**
 - **Frog Island**
- **HIP Cost Updates**
- **Meeting Wrap Up / Action Items**

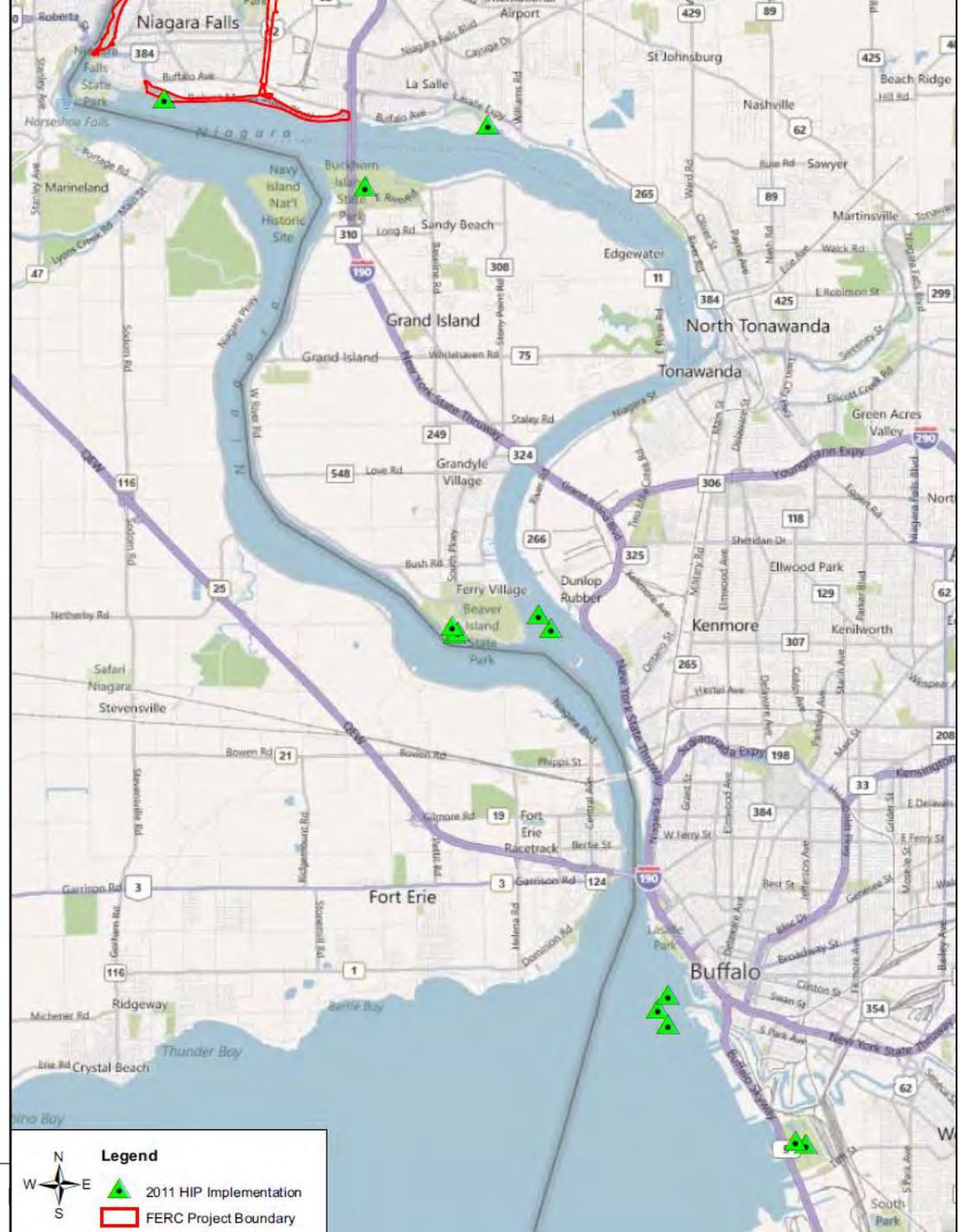
HERF and Greenway Ecological Funds Discussion

- HERF Projects – Pre-Proposals and Proposals
 - NYSDEC
 - SUNY-ESF
 - Tuscarora Nation (2)

- HERF and Greenway Ecological Funds Discussion
 - Portfolio Summaries for Existing Funds
 - Committee Views on Longer Maturity Options

2011 HIP Implementation Summary

- **Fish Attraction**
 - Done; monitoring in 2012
- **Strawberry Island**
 - Begin planning in 2012
- **Common Tern Nesting**
 - Done; monitoring in progress
- **Little Beaver Island Wetland Restoration**
 - Finished construction
- **Invasive Species Control**
 - 2nd year of treatment nearly done
- **Osprey Nesting Platforms**
 - 5 installed; monitoring underway
- **Motor Island**
 - Waiting for permits; out to bid
- **Frog Island**
 - Design complete; starting permitting and bid preparation



NIAGARA POWER PROJECT

RELICENSING IMPLEMENTATION



Fish Attraction Structures – Completed in 2008

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



Fish Attraction Structures

Post-Construction Monitoring

- Qualitative monitoring using SCUBA divers 4 times over first 10 years (years 1, 4, 7 & 10)
 - Installed October 2008
 - Monitored in 2009
 - Monitor in: 2012, 2015, and 2018



Small mouth bass at structure in 2009

Strawberry Island Wetland Creation

Project Description – create approximately 7 acres of new habitat and increase long-term stability of the Island

Primary Target Species – waterfowl, wading birds, native fish, and wetland plant community

Secondary Target Species – passerines, muskrats, and herpetofauna

Initiate Planning in 2012 – Construction not until 2015

Strawberry Island Wetland Creation



2005 Concept Plan from Settlement Agreement

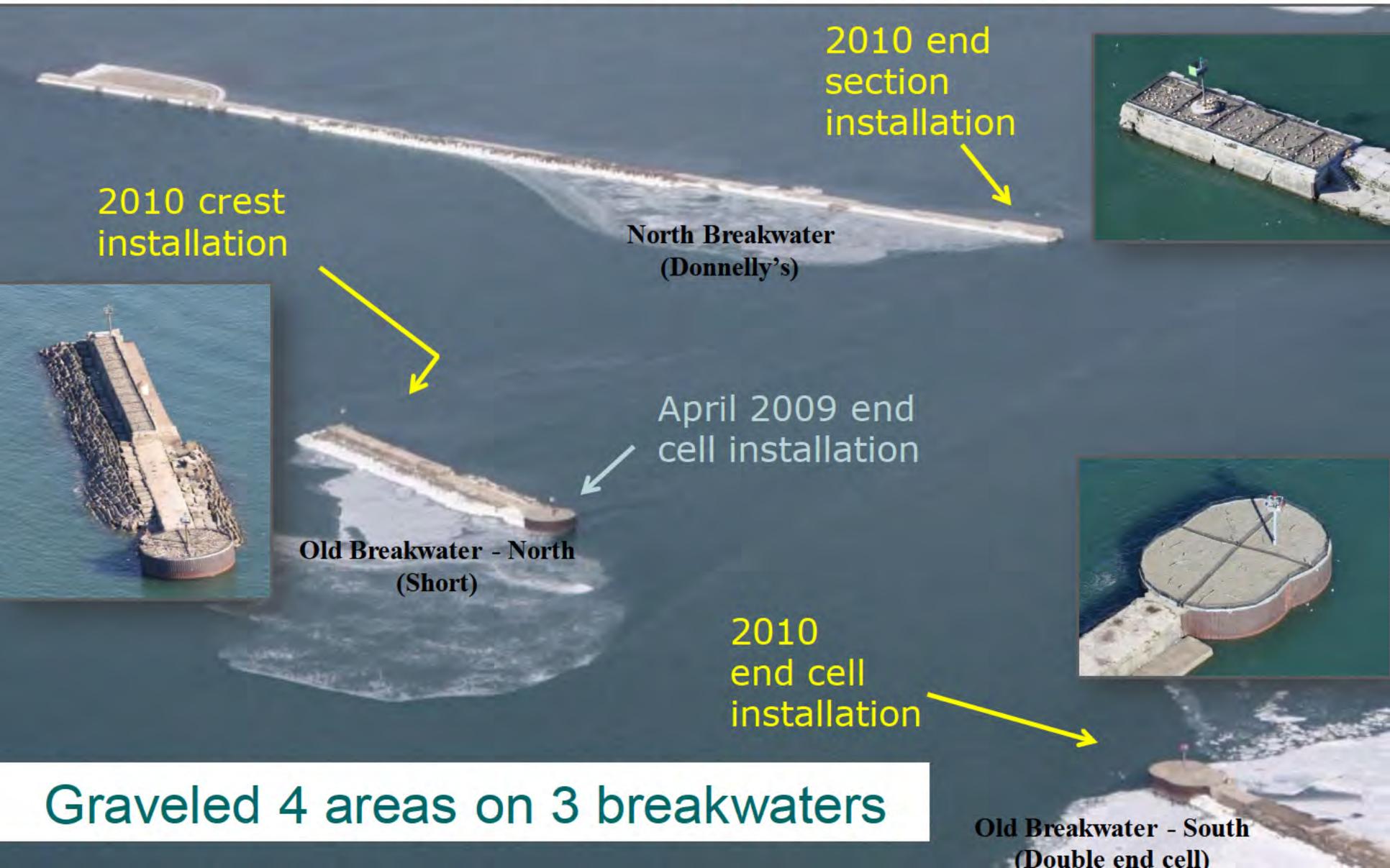
Common Tern HIP

- Construction is complete:
 - **4 areas on 3 breakwaters were graveled in spring 2009 and fall 2010**
 - **10,500 SF total improved habitat**
- Post-construction monitoring required
- In 2011, prepared for nesting and monitored all 4 enhancements during breeding season



Common Tern HIP Enhancements

Construction completed Fall 2010



2010 crest installation

2010 end section installation

North Breakwater (Donnelly's)

April 2009 end cell installation

Old Breakwater - North (Short)

2010 end cell installation

Graveled 4 areas on 3 breakwaters

Old Breakwater - South (Double end cell)

Annual Installation - Fencing, Driftwood, and Shelters



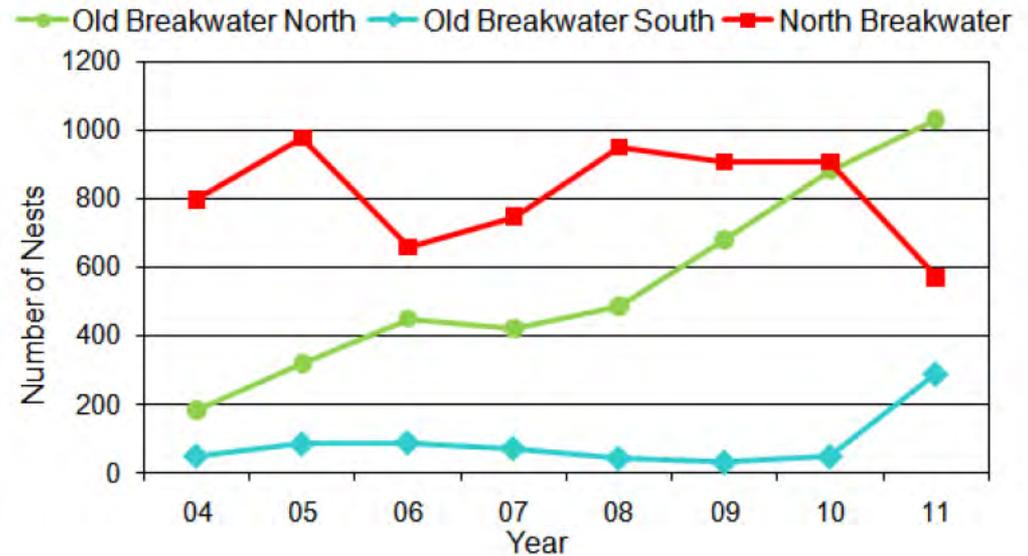
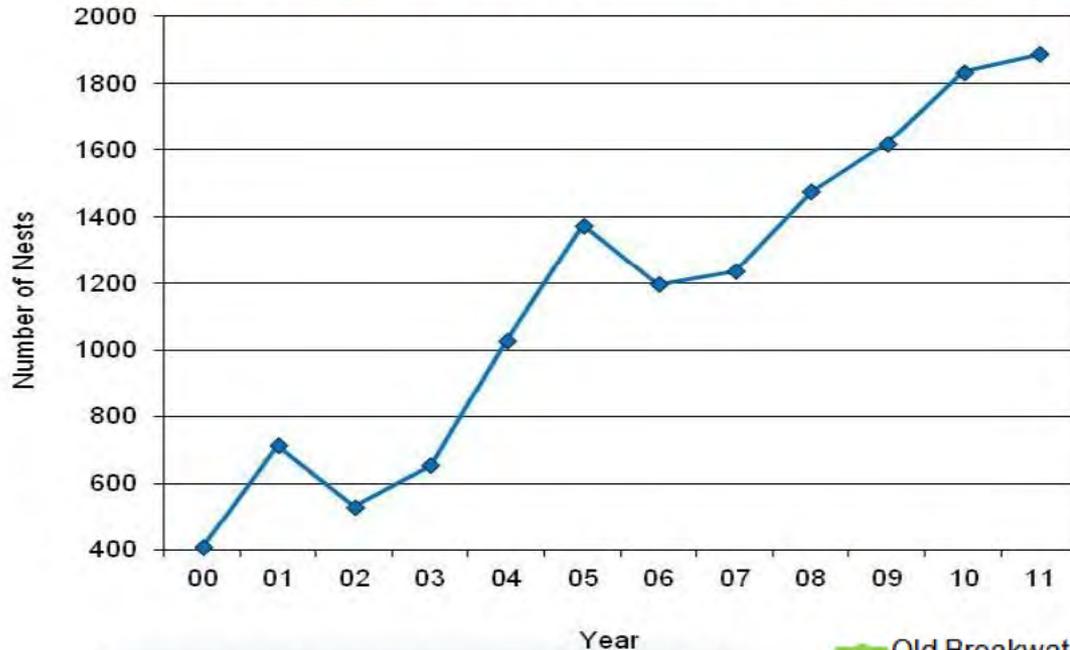
2011 Tern Monitoring



- Monitored 3 key measures
 - Number of nests
 - Productivity (average number of chicks fledged/nest)
 - Survivorship of chicks
- Signs of Predators
 - Old Breakwater South monitored with cameras

2011 Results: Number of Nests in Buffalo Harbor

New Record High = 1,888 Nests; Largest in Great Lakes



2011 Results: Major Events

- **April 15-30 winds**
(75% days >25 mph)
Fencing torn, moved eggs and gravel (53 mph April 28)
- **Mortality/Depredation**
Exposure (May, Donnelly's) and predation (August, South) chick mortality at 2 sites (>600 chicks)
- **Other Major Events**
 - Donnelly's completely abandoned (569 nests) – Terns moved to South and Short to re-nest
 - Unusually asynchronous nesting
 - Unusually late nesting



2011 Results: Productivity

- 1.8-2.2 chicks/nest on Short and South for early nesters
- Higher than in 2009 (1.4) or 2010 (1.6); highest ever recorded
- Over 1,300 chicks present on June 7 (>50% increase from 2010)
- Survivorship of early banded chicks ~ 95%
- Very productive year; >2,200 chicks fledged



2011 Results: Depredation Monitoring

- Results of previous years' monitoring suggested predators, Mink or Raccoon
 - Time lapse and motion triggered cameras
 - Deployed April 2 for 110 days on South (only)
 - Recorded over 1,000,000 pictures
 - No pictures of mink or raccoon recorded
 - DEC issued nuisance permit - to help terns
 - Traps deployed on April 10
 - Two mink removed, one from South and one from Donnelly's, both in July
 - Depredation of *young* chicks on South in August suggests other mink were present
 - Over 2,200 banded chicks survived to fledging
 - Late season mortality of *older* chicks may be food and heat related



Monitoring Camera Pictures from South Breakwater



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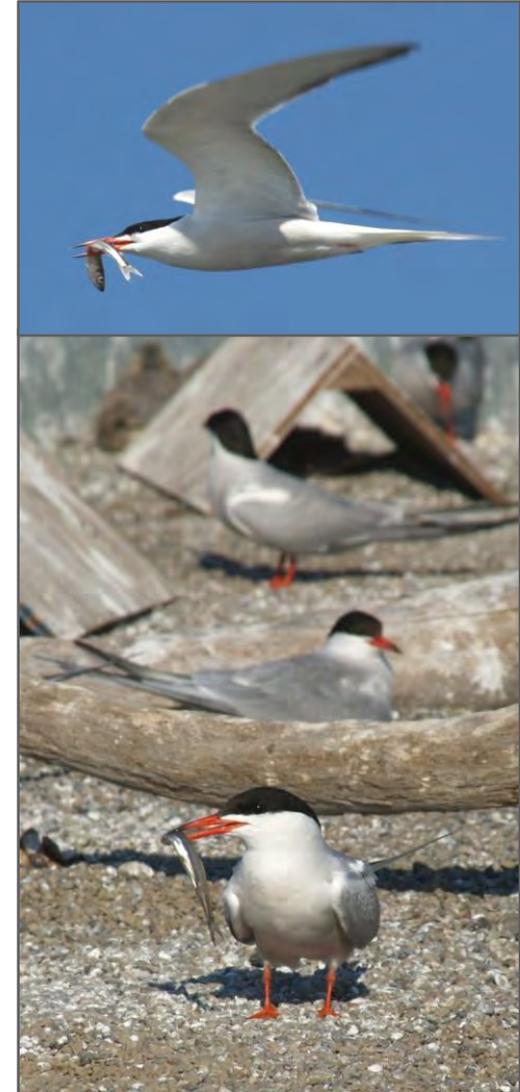


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Common Tern Nesting HIP - 2012



- Continue monitoring during 2012
- Nest monitoring will continue through 2015
- Operation and Maintenance will continue through the life of the license



Little Beaver Island Wetland Restoration



Earthwork Construction



Plant Installation & Wildlife Deterrence System



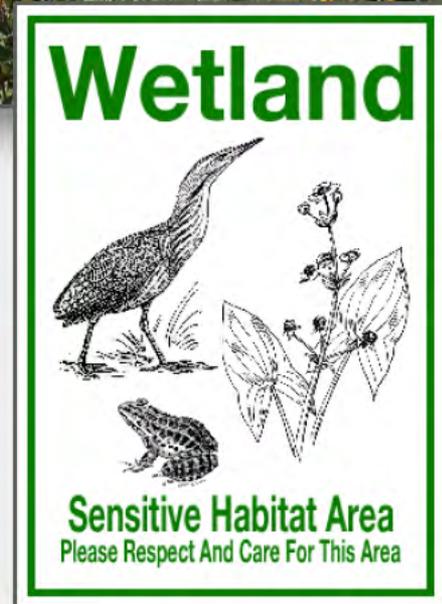
Kayak Launch, Breakwaters, Sledding Hill and Green Parking Lot



Wetland Restoration Area



Next Step: Monitoring Program



5 Year Post-Construction Monitoring Period

- **Annual visual inspections in the spring and late summer**
 - Hydrologic conditions
 - Structural inspection of breakwaters and stream banks
 - Wildlife use
 - Wildlife deterrence system
- **Annual quantitative assessments in late summer**
 - Specific % cover for shallow emergent, deep emergent, and SAV areas
 - Exotic and invasive species
 - Survival of woody species planted along the southern bank
- **Wetland delineation in year 5 (2016)**
- **Assessment of wetland function, in years 3 (2014) and 5 (2016)**
- **Adaptive management**

Invasive Species Control

Objective - Control invasive wetland species to promote growth of functionally valuable wetlands characterized by diverse community of native wetland vegetation.

Target areas

- Buckhorn Marsh
- Tifft Farm Nature Preserve
- Other HIPs (Motor, Little Beaver)

Target species

- Common reed
- Japanese knotweed
- Buckthorn



Implementation Schedule

- Initiated in 2010
 - Treat ~ 50% of stands
 - Treatment effective
- 2011
 - Re-survey in June
 - Treat more area (100%)
 - Adjust timing to increase effectiveness
- 2012 and beyond
 - Spot treatment



Invasives - 2011 Treatment

	Species	# of Sites	Acres
Buckhorn Marsh	Phragmites	66	12.22
	Knotweed	3	0.02
Tifft Marsh	Phragmites	43	9.00
Little Beaver	Phragmites	3	0.04
Motor Island	Phragmites	1	0.05
	Knotweed	1	0.03
	Buckthorn	1	0.20
TOTAL		118	21.5

Invasives - Other 2011 Tasks

- RTE monitoring at Buckhorn (Southern blue-flag iris, Sedge wren)
- Continued partnerships with National Grid and Thruway Authority to treat on adjacent ROWs
- Renewed/modified DEC Article 15 and 24 permits, City of Buffalo Waiver and Thruway Authority Permit
- Continued using Allied Biological to implement the control work (Yr 2 of 3 Yr Contract)

Invasives - 2011 Success Stories

- Clear signs that 2010 treatment was effective
- Benefitting RTE species and native wetland plants
- In 2011, aggressively treating stands (using accelerated schedule)
- Partners
- Adaptive Management



NIAGARA POWER PROJECT

RELICENSING IMPLEMENTATION



Ecological Standing Committee

Meeting

Buckthorn Control at Motor Island

- Added per DEC request for Motor Island HIP



Knotweed Control

- 2010 treatments so effective, only spot treatments needed
- Various species filling in from seed bank



Phragmites Control

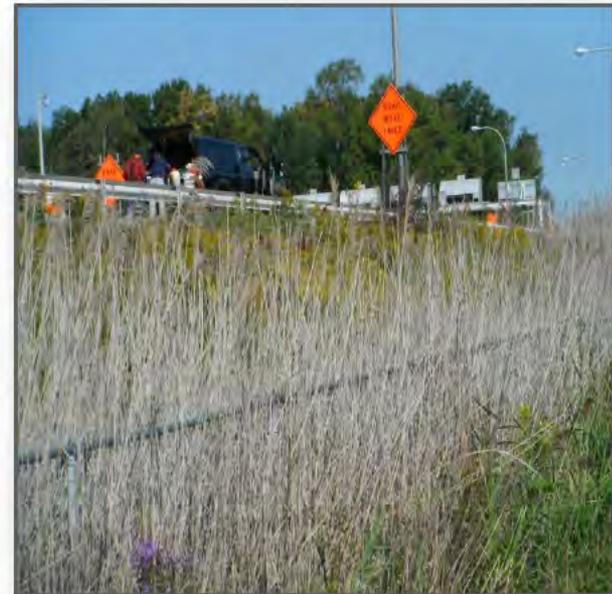


Compare Different 2010 Treatments

July Cut → Herbicide



Herbicide Only



Adaptive Management

(Conventional *Phragmites* Treatment)

Change Timing of Cutting from July to mid-fall:

- Significantly better effectiveness
- Minimize potential RTE effects (and associated monitoring)



Phase-Out Bird Surveys and Mechanical-Only Treatments in 2012?

- With change from July cut to fall cut, the only summer cutting left is at four mechanical-only sites at Buckhorn.
- Mechanical only sites are all on spoil piles (not marsh or sedge meadow) and therefore provide poor habitat.

Invasives - Planning for 2012

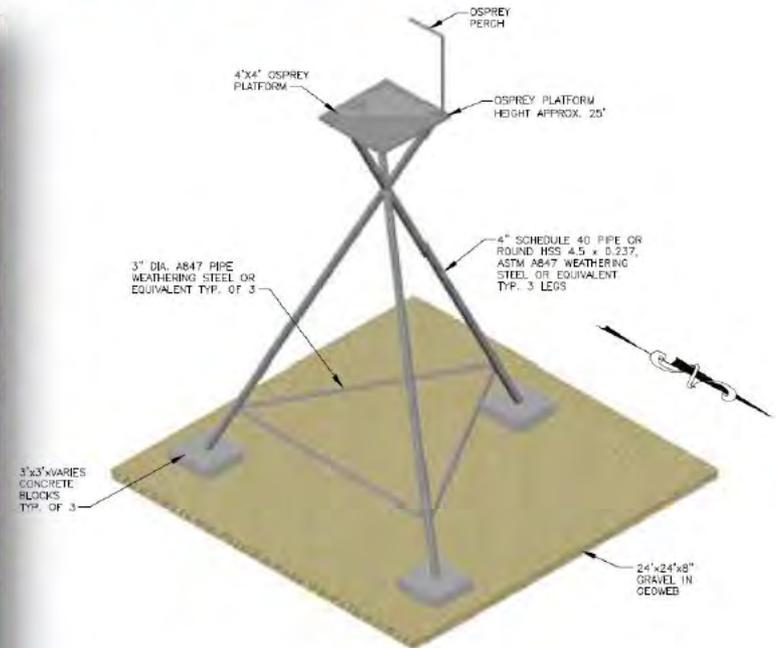
- Monitor
 - Efficacy
 - Native plant succession
 - RTE species (propose Southern Blue-flag only)
- Spot treat 2010-2011 treatment areas
- No treatment at Motor Island in 2012 during construction
- Phase out mechanical treatment?

Osprey Nesting Platform HIP

- Five of six platforms installed
- Finalizing design and agreement with owners at 102nd Street Landfill for last platform
- Continued platform monitoring (5 NYPA and 2 DEC)



102nd Street Site – Osprey Platform



- Gravity based design
- Good foraging areas
- No tall trees nearby
- Barrier-free viewing opportunities from Griffon Park and river

Osprey Platform – 2011 Monitoring

- Observe use and determine maintenance needs over 5-yr period
 - Includes use at 2 existing DEC platforms in Buckhorn Marsh
- Monthly surveys during May-August 2011 season
 - May 10, June 16, July 14, and August 12



Osprey Platform – 2011 Monitoring Results

Location	Condition/Status	Activity
West Buckhorn Marsh	Installed 2007; excellent condition	Osprey nested on platform; 2 chicks fledged
Mid Buckhorn Marsh	Pre-HIP	None observed
East Buckhorn Marsh	Pre-HIP	Osprey in the area
East River Marsh	Installed 2009; excellent condition	None observed
Tifft Marsh	Installed March 2010	Osprey nested on platform; 1 chick fledged
Adams Slip	Installed March 2010	Adult in June
Little Beaver Island	Installed October 2010	3 Osprey observed in area



Osprey Platform – 2011 Monitoring



Osprey Nesting HIP – Next Steps

- Continue monitoring installed platforms
- Last platform – 102nd Street Landfill
 - Final design in late fall 2011
 - Plan for construction in early 2012



Motor Island Shoreline Improvement HIP

- In 2011, finalized design of shoreline embayments to provide habitat and prevent erosion
- Submitted Joint Application to USACE, USACE, and NYSDOS in May 2011
 - Received Consistency determination from NYSDOS
- Sept. 1 field tour per request from USACE permitting staff
 - Indicated permit in December

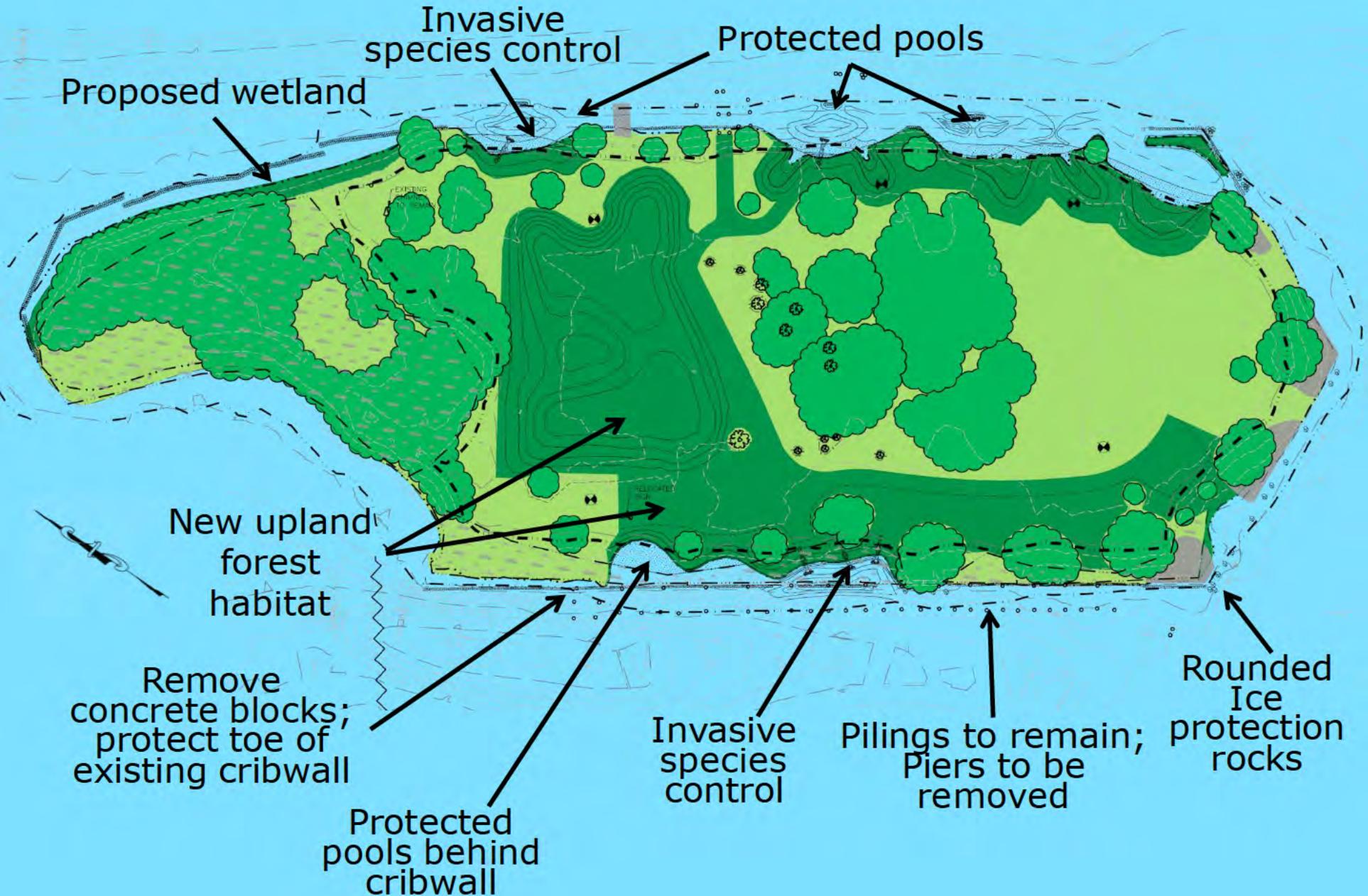


Motor Island HIP

- Treated invasive Buckthorn in September 2011 as requested by DEC in August 2010
- Issued two RFQs (Excavation and Planting) in early November and held pre-bid meetings last week. Bids due in several weeks.



Planned Habitat Improvements



Motor Island – Next Steps

- Work with Agencies to finalize Permits
 - Nationwide Permit from USACE
 - Protection of Waters Permit from DEC
- Select and Award contracts (Excavation and Planting) early 2012
- Start growing plants late spring 2012
- Begin construction in late summer 2012
 - Excavation work from mid-July to October 2012
 - Planting in fall 2012 and spring/summer 2013



Frog Island – 90% Final Design

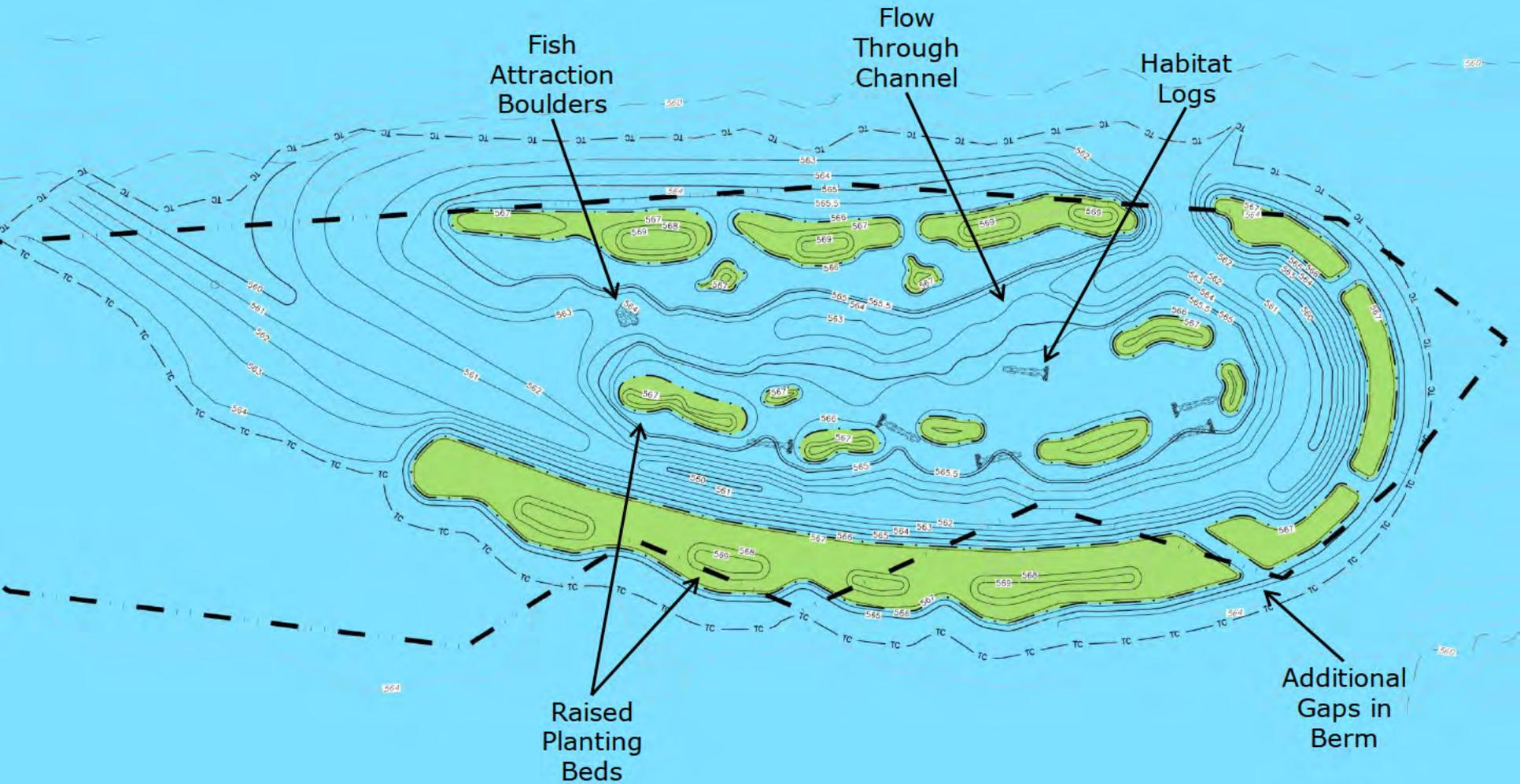
Project Objective – Create emergent wetland and submerged aquatic vegetation habitat

- 90% Design presented at October 18, 2011 ESC meeting and field tour
 - Moving forward to finalize and apply for permits
- Comments included:
 - NYPA and DEC acknowledge challenge of location and HIP will be maintained over long-term
 - Berm stone will be mix of sizes
 - Can adjust openings later
 - Reduce number of willows & plant based on water depths

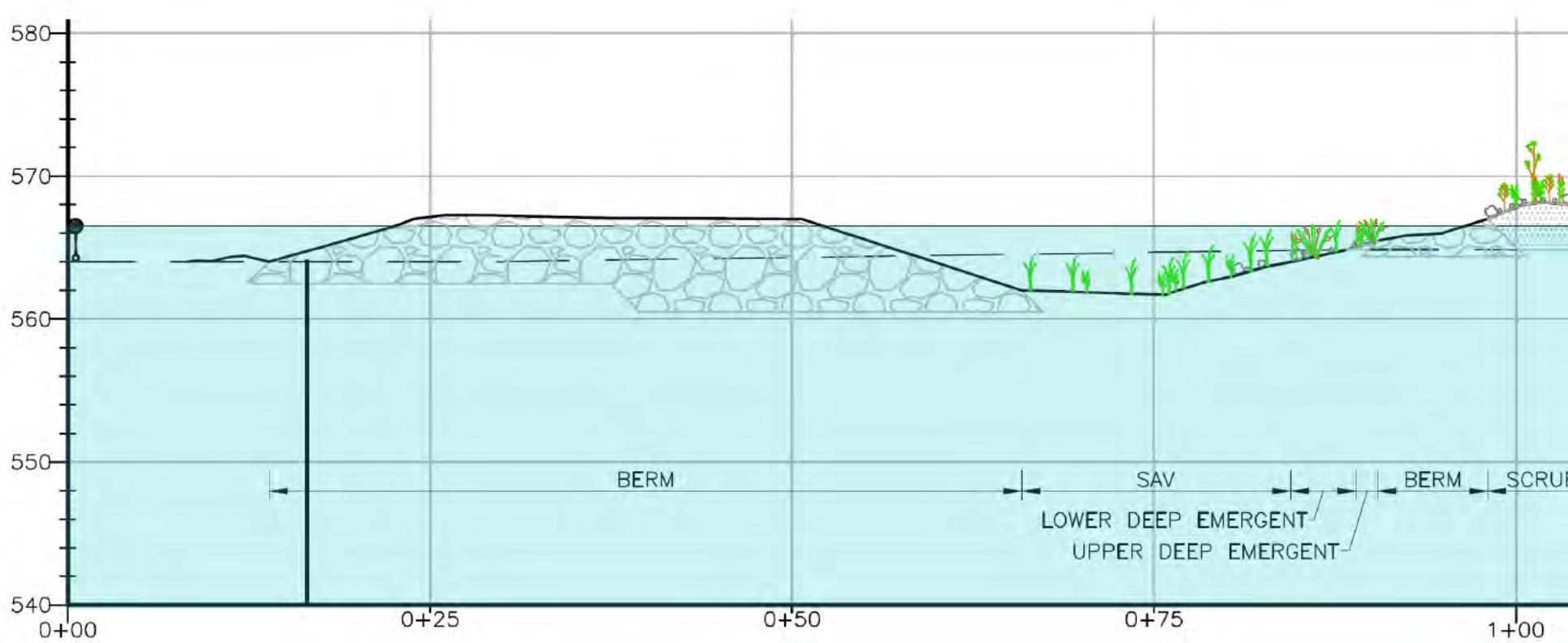
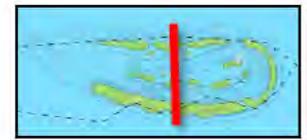


Frog Island HIP

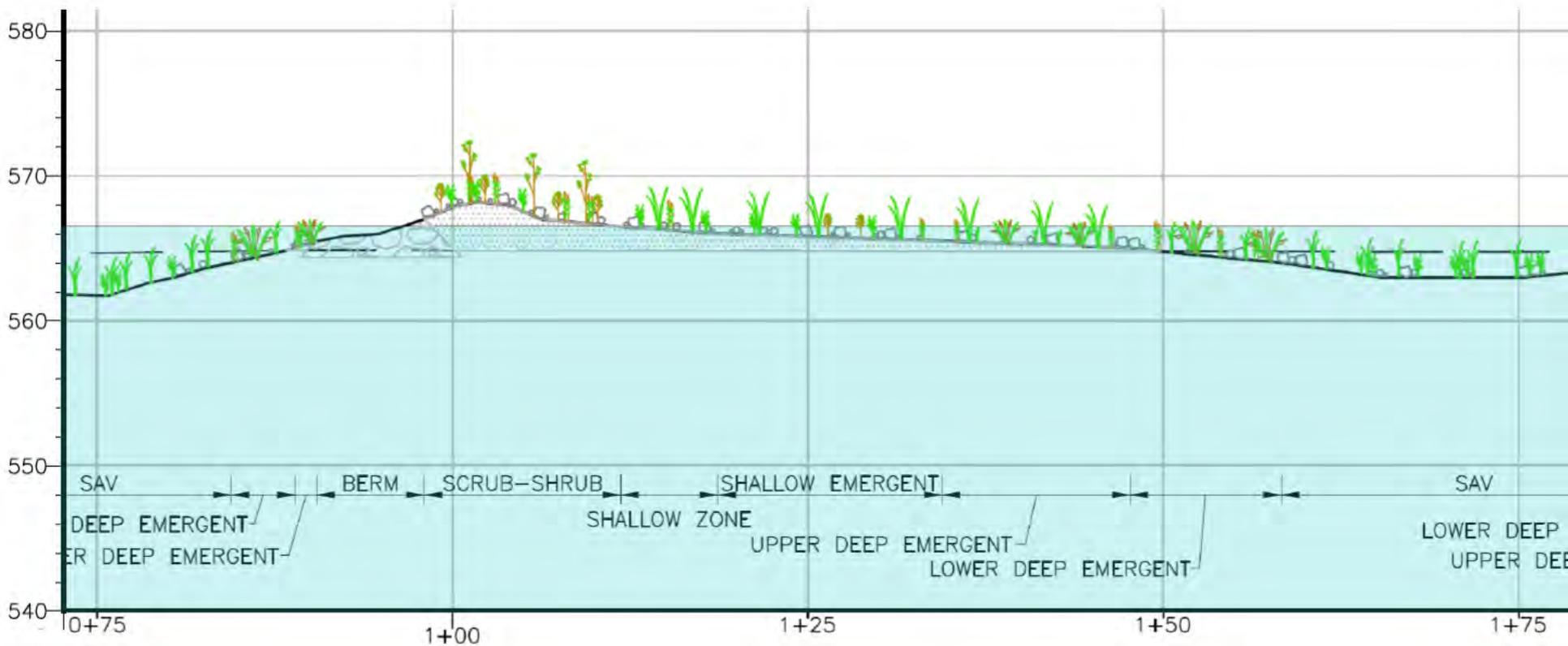
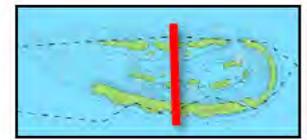
Niagara River



Section B



Section B



Frog Island – HIP

Next Steps:

- Consult with DEC and DOS on timing constraints
- Submit Permit applications in mid-2012
 - Consult with US Coast Guard
 - Joint Application to USACE, DEC and DOS
 - IJC/River Board of Control
- Plan for construction in 2013-2014

Action Items / Meeting Wrap-Up