



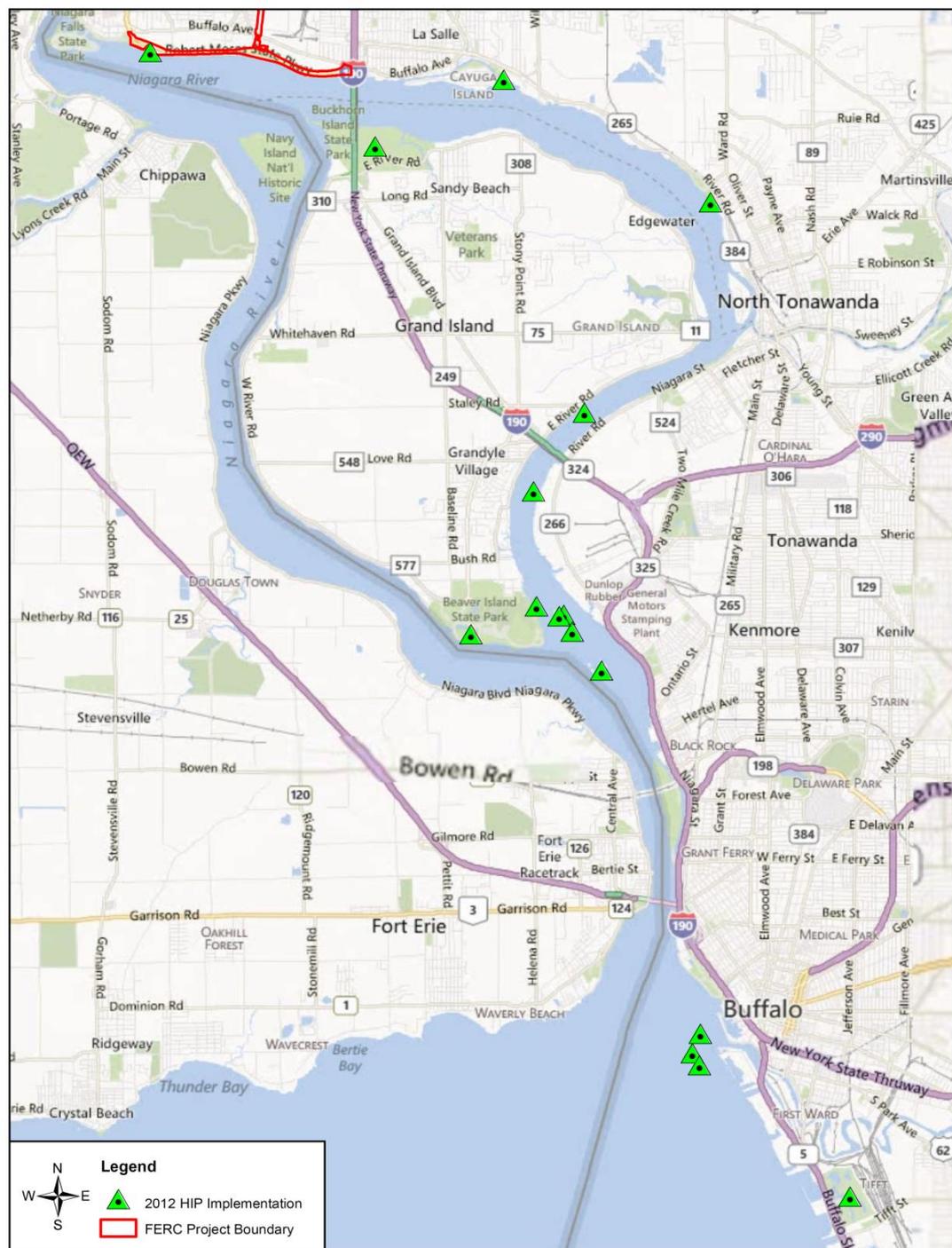
Ecological Standing Committee Meeting



December 17, 2012

2012 HIP Activities Summary

- **Motor Island**
 - Finished Excavation and Upland Planting on schedule - resuming Spring 2013
- **Little Beaver Island Wetland Restoration**
 - Wildlife Deterrence System (WDS) maintained, then removed; began monitoring
- **Invasive Species Control**
 - 3rd year of treatment complete
- **Common Tern Nesting**
 - Continued HIP monitoring
- **Osprey Nesting Platforms**
 - Monitored 5 installed platforms; 102nd St. Landfill platform pending landowner agreement
- **Fish Attraction**
 - Continued HIP monitoring
- **Frog Island**
 - Design completed; permit applications submitted
- **Strawberry Island**
 - Began water quality sampling and vegetation survey for preliminary design needs



NIAGARA POWER PROJECT

RELICENSING IMPLEMENTATION

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

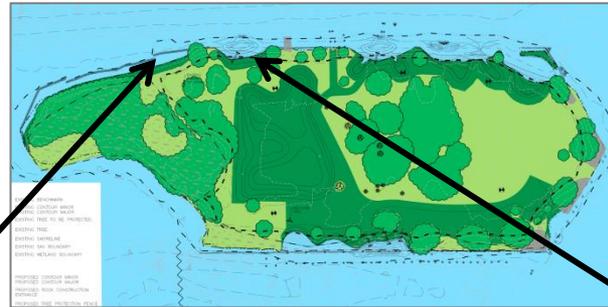
- Began construction in March with pier removal
- Construction of individual features began in July



*Photo credit:
Paul Leuchner/
USCGA*

Motor Island HIP - Excavation

Wetland habitat
behind berm

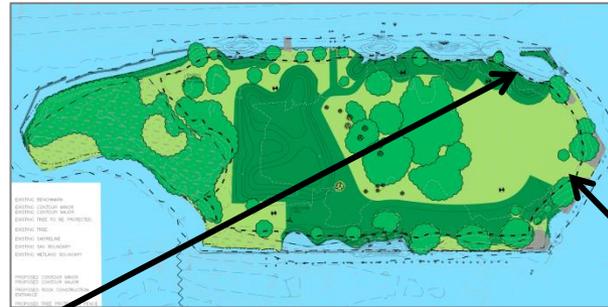


Habitat logs and
protective berms



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



Motor Island – Next Steps



- Finish emergent marsh plantings in Spring 2013
- Install WDS in June 2013
- Begin post-construction monitoring in 2014

Little Beaver Island Wetland Restoration

- Marsh and upland planting was completed in 2011
- Kayak launch, breakwaters, sledding hill and green parking lot were all completed and planted



- Wildlife deterrence system was repaired in Spring 2012, removed in late summer 2012
- Wetland signs installed in 2012

Little Beaver Island Wetland Restoration

- First year of Post construction monitoring is completed
 - Plant growth was monitored in September 2012 and it was determined that plant growth was healthy. WDS was subsequently removed
 - No replacement of marsh plants is required at this time
 - Due to dry summer conditions, some mortality occurred among trees and shrubs planted at the sledding hill and green parking lot. Replacement being planned
- Post-construction monitoring will continue through 2016



Invasive Species Control

- Conducted 3rd year of treatments to control invasive wetland vegetation
- In 2012, repeated 2011 treatments
- Treated Common reed and Japanese knotweed (~ 21 acres)
 - Buckhorn Marsh
 - Tifft Farm Nature Preserve
 - Other HIPs
 - Little Beaver – spot treatment
 - Motor Island – roots, seeds and soil isolated beneath soil pile



Invasive Control

- Stand size and density decreasing
- Only a few new sites identified



Invasive Control

- Clear signs that herbicide treatment is being effective
 - Decreased stand size and density; reduced herbicide use and cutting effort
 - Timing shift minimizes potential RTE effects and associated Sedge Wren monitoring
- Regrowth of natives observed, benefiting native wetland plant diversity
- Mechanical-only treatment at 4 stands at Buckhorn much less effective



Invasive Control - Next Steps

- In 2013, continue shift towards spot herbicide treatments. Widespread cutting not needed
 - Continue Southern Blue-flag iris monitoring at Buckhorn



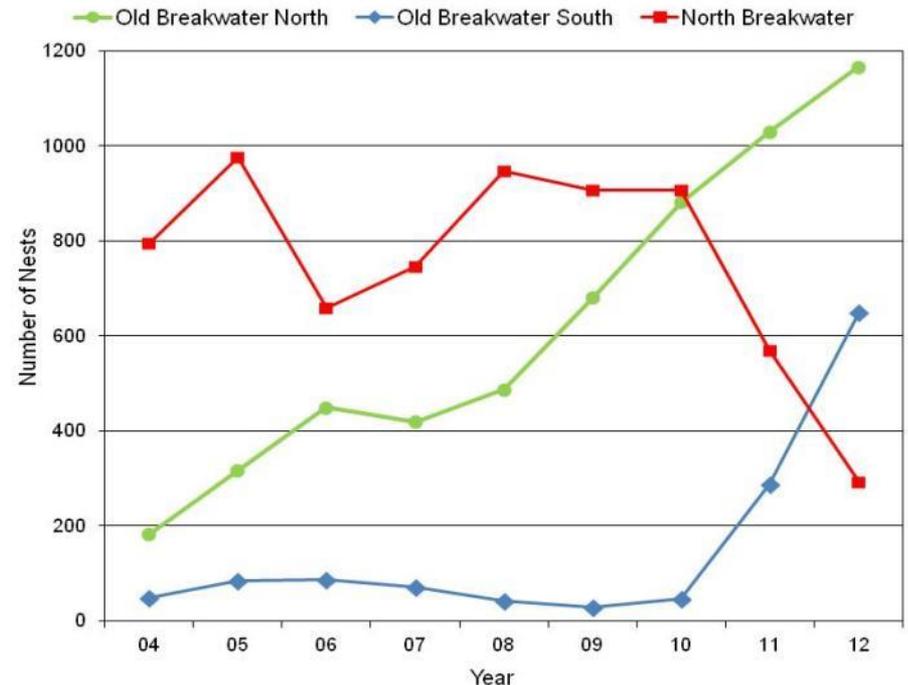
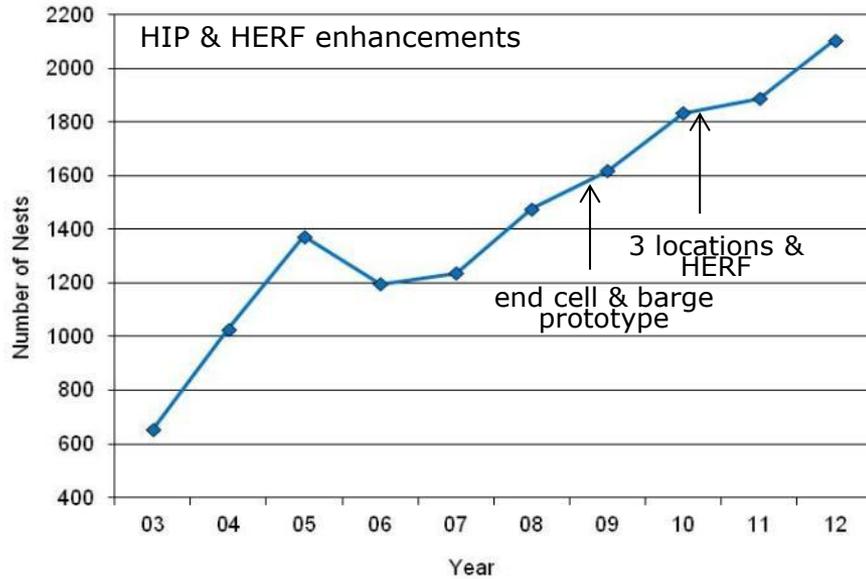
Common Tern HIP - 2012

- Gravel nesting areas on Buffalo Harbor Breakwaters ready mid-April



2012 Results: Number of Nests in Buffalo Harbor

New Record High = 2,107 Nests; Largest in Great Lakes



(An additional 319 tern nests were recorded on Niagara River)

2012 Results: Major Events

- New record high number of nests
- Mink recorded on cameras - mid-May on South, early-late June on North Breakwater (>125 dead chicks June 6)
- North Breakwater abandoned (292 nests in 2012, 569 nests in 2011)
- Mink trapped on July 25
- Terns did well on Old Breakwater North and South
- Continued late nesting and asynchrony – chicks still present in mid-August
- Generally good weather, 50% of July highs 85-91°F; Aug 3-4 were 95-96 °F



2012 Results

- More nests and more chicks fledged than any other year
- Over 3,000 chicks banded by June 7 (on OB North & South) - only 1,300 by June 7, 2011
- Survivorship of early banded chicks high
- Another very productive year with 1.6-1.9 chicks fledged per nest on OB North and South (about same as 2011)
- Late season mortality of older chicks was lower than in 2011



Common Tern Nesting HIP - 2013



- Continue monitoring during 2013
- Continue efforts to control mink
- Nest monitoring will continue through 2015



Osprey Nesting Platform HIP

- Five of six platforms installed
- Finalizing agreement with owners at 102nd 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

Adam's Slip



Osprey on platform.
August 9, 2012

December 17, 2012

Tifft Marsh



Two Osprey at nest.
April 13, 2012

NYPA Fish Attraction Structures

Four Prototype Designs
Installed in 2008:

- 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 Island – Rock Slope

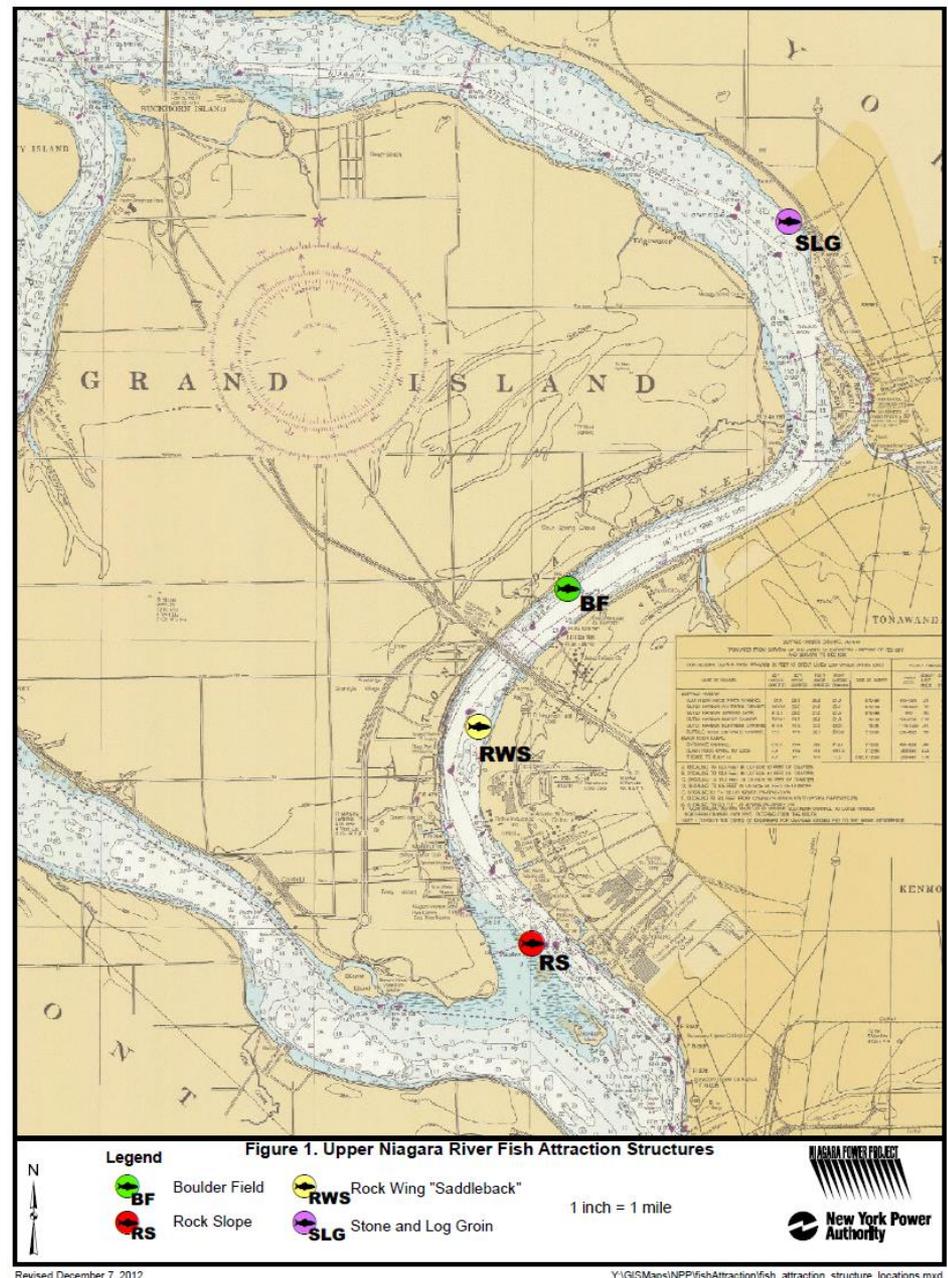


Figure 1. Upper Niagara River Fish Attraction Structures

Legend

- BF Boulder Field
- RS Rock Slope
- RWS Rock Wing "Saddleback"
- SLG Stone and Log Groin

1 inch = 1 mile

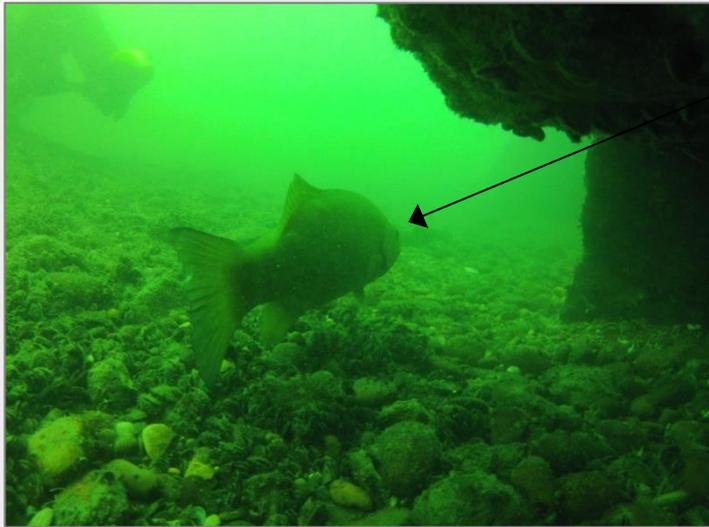
NIAGARA POWER PROJECT
New York Power Authority

Revised December 7, 2012

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Fish Attraction Structures

- Qualitative monitoring in years 1, 4, 7 & 10 following construction in 2008
 - 2012 - second monitoring event 4 years post-construction



**Smallmouth bass
at Boulder Field
in 2012**



**Log at Motor Is.
Rock Slope**

Fish Attraction Structures: 2012 monitoring



- Structures mostly intact and stable four years after installation
 - Stone and Log Groin – logs lost, top of pile flattened
- Provide good large-object cover
 - Smallmouth bass at all structures; musky at Boulder Field
- Some scour and deposition of sediment
- SAV growing in/near most structures
- Increased fish diversity since 1st year monitoring



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

1954

3/20/2009

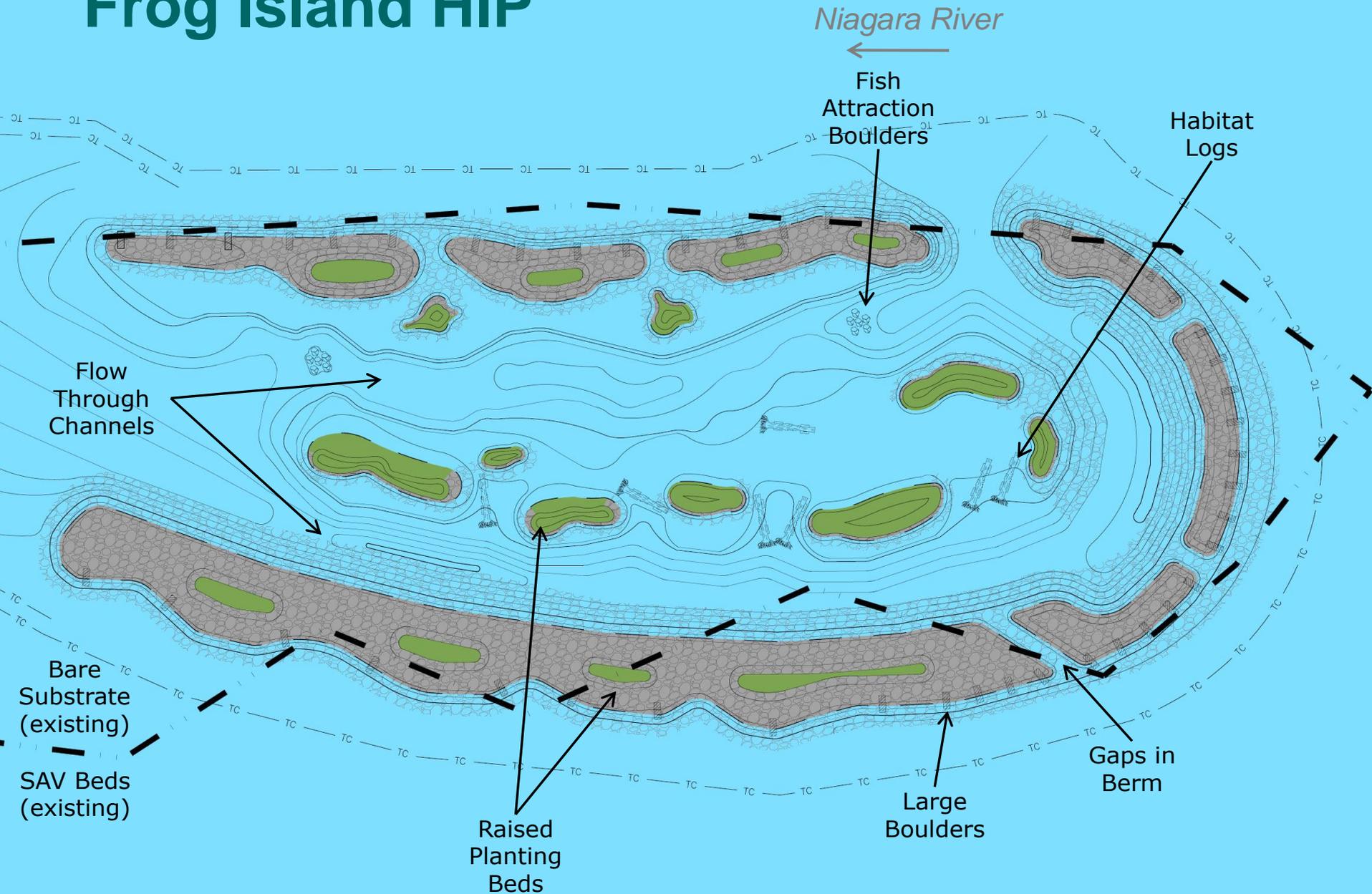


Frog Island HIP

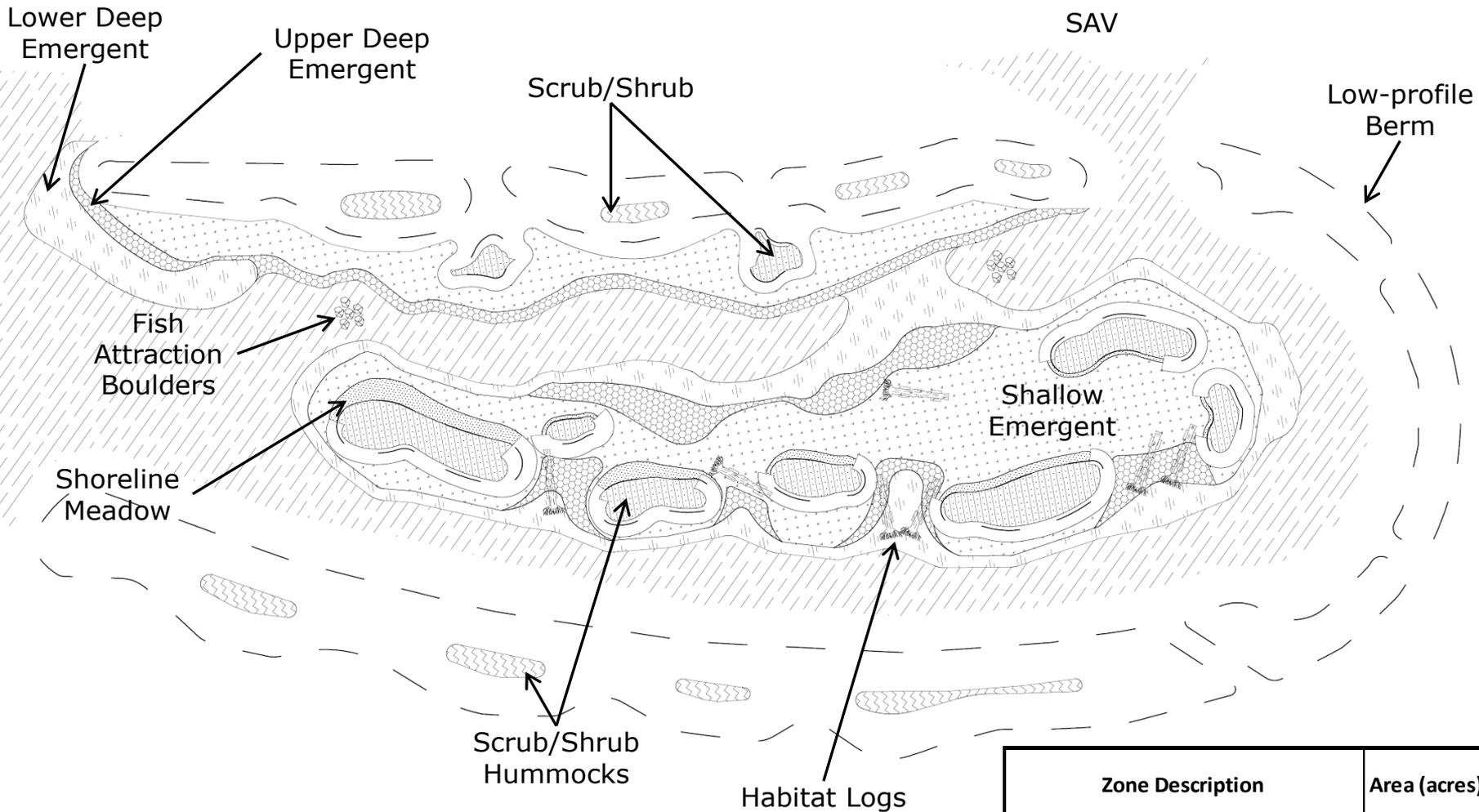
- Submitted permit applications in July
 - USACE – pending review
 - NYSDEC – public comment period closed
 - NYSDOS – consistency concurrence received
 - US State Department – concurred that IJC review not warranted
- Preparing bid packages
 - Dredging and Construction RFQ ~ March 2013
 - Planting RFQ ~ April 2013
- Schedule
 - Dredging and Construction: July-November 2013
 - Planting: May – July 2014



Frog Island HIP



Habitat Zones



Zone Description	Area (acres)
Breakwater Scrub/Shrub Hummocks	0.04
Interior Scrub/Shrub Hummocks	0.10
Shoreline Meadow	0.03
Shallow Emergent	0.34
Upper Deep Emergent	0.12
Lower Deep Emergent	0.21
SAV	1.18

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.

Strawberry Island – Concept Plan



- Emergent and shallow marsh, exposed substrate
- Deep water pools

HIP Cost Updates

	Estimated Capital Cost	Spent To Date
Beaver Island Wetland Restoration	\$2,700,000	\$2,924,706
Strawberry Island Wetland Restoration	\$2,300,000	\$157,064
Frog Island	\$4,200,000	\$850,526
Motor Island Shoreline Protection	\$1,900,000	\$1,919,998
Invasive Species-Buckhorn and Tifft Marsh	\$350,000	\$653,440
Osprey Nesting Platforms	\$70,000	\$388,355
Common Tern Nesting	\$560,000	\$1,075,963
Fish Attraction Structures	\$310,000	\$219,419
<u>Total HIPs:</u>	<u>\$12,390,000</u>	<u>\$8,189,471</u>