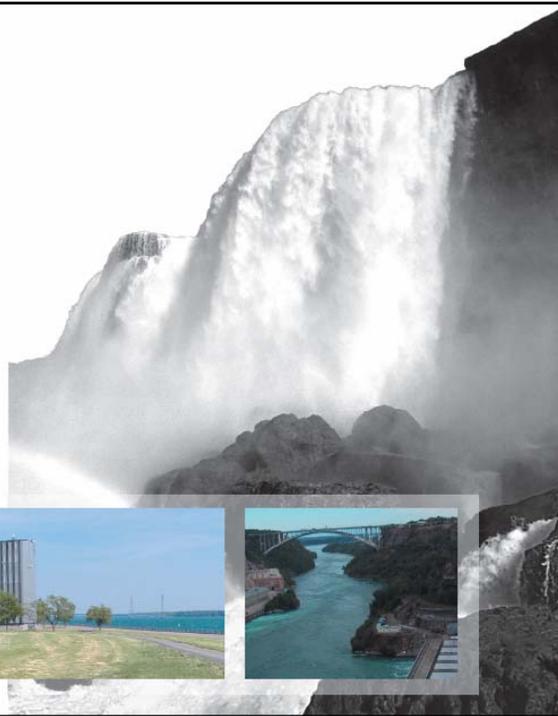


Ecological Standing Committee Meeting



February 15, 2008

ESC February 15, 2008 Agenda

- ❑ Update on Feasibility Study for Protecting and Restoring Native Plants in the Vicinity of the Niagara Gorge
- ❑ Review Pertinent Background Information, Work Plans, and 2008 Schedules for HIP Design and Implementation
- ❑ HIPs Expenditures to Date
- ❑ Meeting Wrap Up / Action Items

Update on Feasibility Study for Protecting and Restoring Native Plants in the Vicinity of the Niagara Gorge



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Prototype Fish Attraction Structures Shallow Water and Deep Water

Approach

- ❖ Design and install several prototypes
- ❖ Evaluate – qualitative observation by camera and/or SCUBA
- ❖ Use evaluation results for future installations

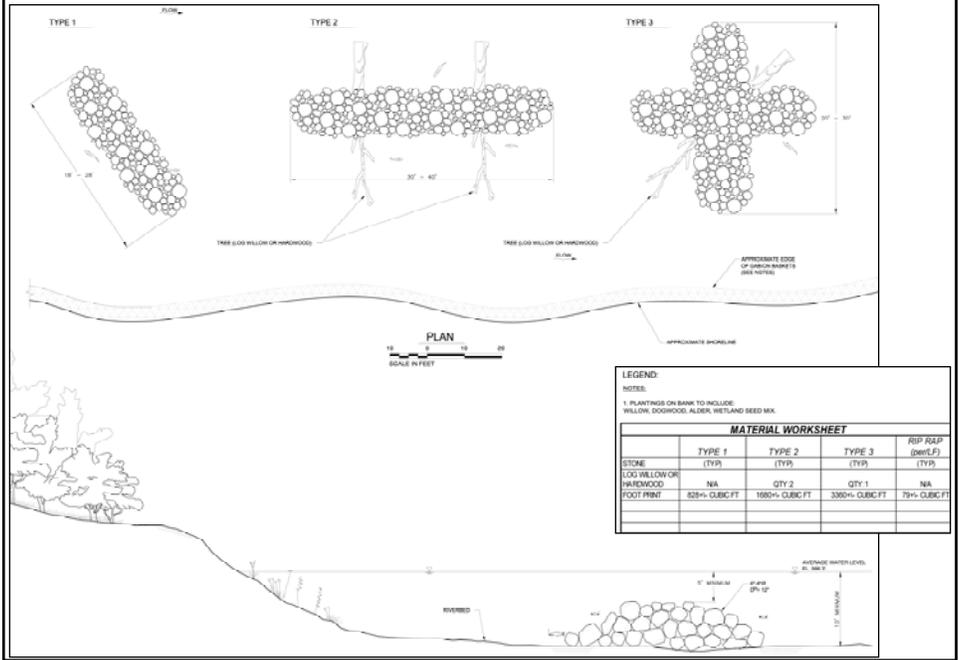
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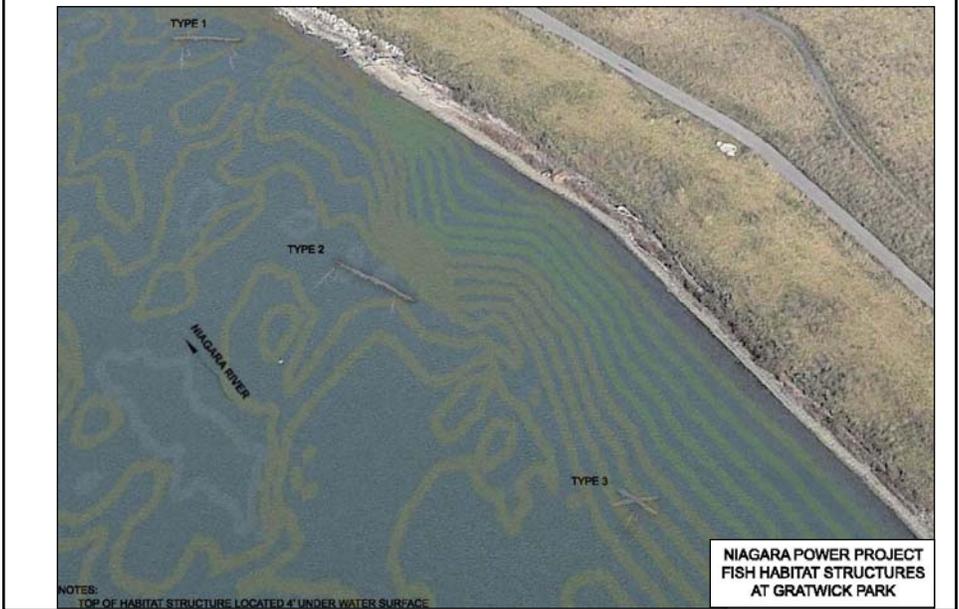
Ecological Standing Committee

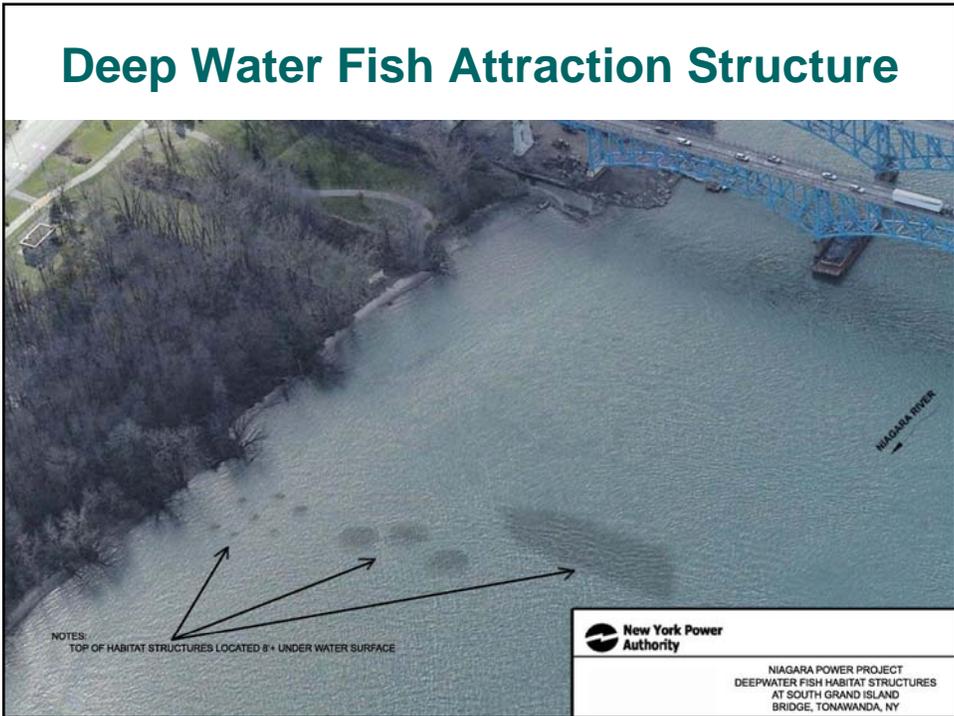
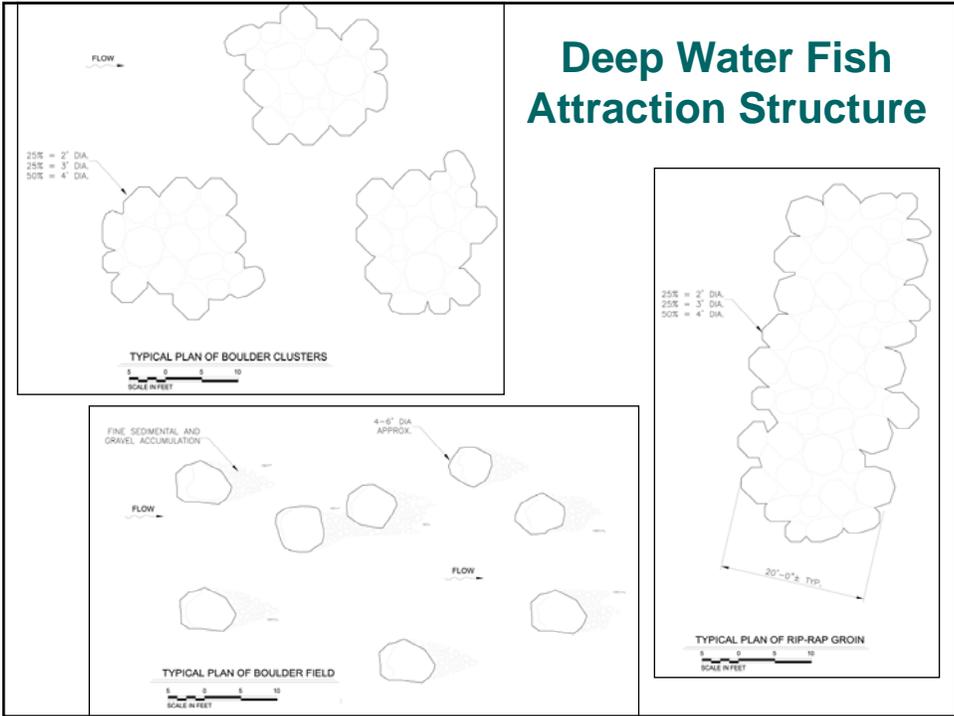
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Shallow Water Fish Attraction Structures



Potential Location for Prototype Shallow Water Fish Attraction Structures





Fish Attraction Structures - 2008

Task	Time Frame
Preliminary Design (50%)	Q4, 2007 – Q1, 2008
ESC Review of Preliminary Design	February, 2008
Permitting	March – August, 2008
Final Design	March – May, 2008
Bid for Construction and Award	June – August, 2008
Update ESC	Q3
Construction	Q4, 2008
Update ESC	Q4 or Q1, 2009

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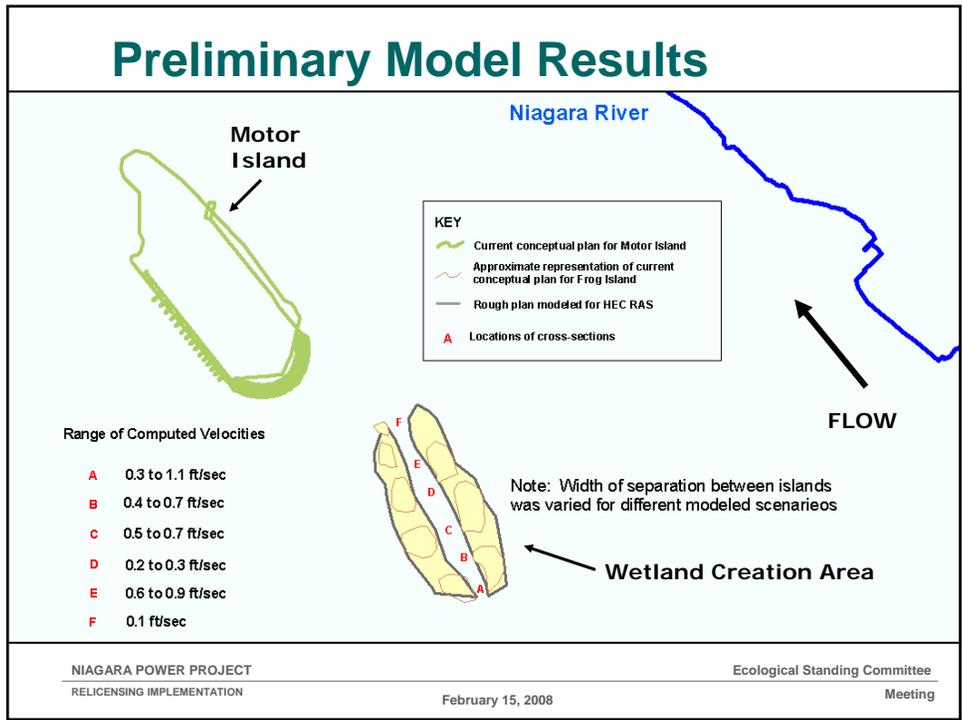
Area Upstream of Motor Island - 1938



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Wetland Creation Area - 2008

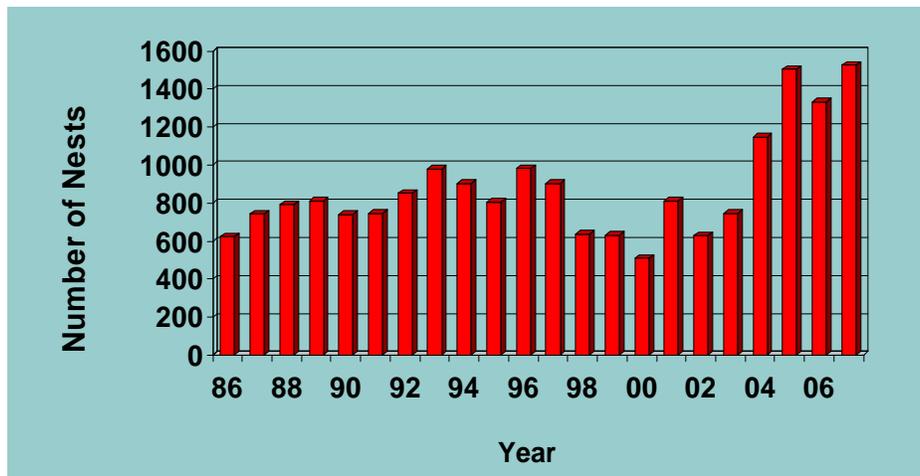
Task	Time Frame
Conceptual Design (Footprint, Material Evaluations)	Q1 – Q3
Hydraulic Modeling (Ice, Wind Elevations)	Q2 – Q4
Pre-application Permit Consultation	Q2 – Q4
Constructability Review	Q3
Update ESC	Q3
Cost Opinion	Q4
Update ESC	Q4
ESC Conceptual Design (10%) Review	Q1, 2009

Status of Common Tern (*Sterna hirundo*) on the Niagara Frontier

- NYS threatened species
- Monitored annually since mid 1980s by NYSDEC
- Restricted to artificial sites
- Terns nest on breakwalls, water intakes, and power tower cribs
- Buffalo Harbor is the largest tern colony in the entire Great Lakes (N=1525 nests)
- Productivity low due to poor habitat, predation, weather, and human disturbance



Number of Tern Nests on the Niagara Frontier



**Niagara Tern Nests (N=1525): Harbor breakwalls (81%),
water intakes (12%), cribs (7%)**

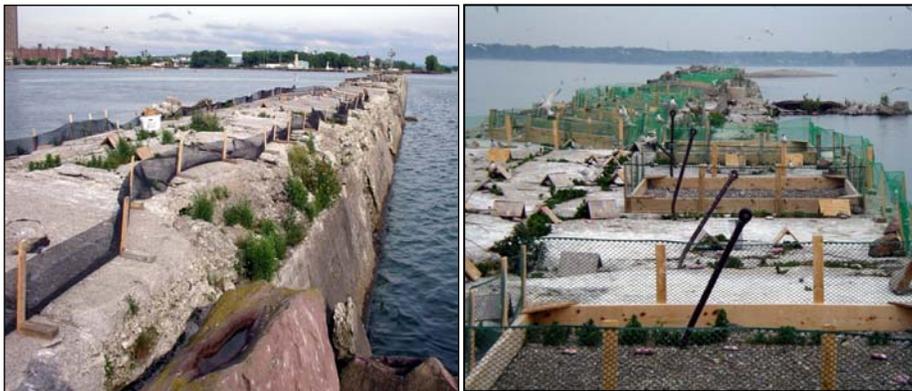


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Buffalo Harbor Breakwalls (2004-2007)



***Gravel nesting boxes, fenced enclosures, chick
shelters***

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**Water
Intakes
(2007)**



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RESULTS	Productivity (chicks/nest)
No enhancements	0.0 - 0.5
Fenced enclosures	1.0 – 1.3
Enclosures + gravel	1.3 – 3.0

Enhancements Work

- Create new habitat
- Higher nest density
- Higher hatching rates
- Higher fledging rates
- Very high productivity



BUT, current methods are very labor intensive and temporary

Common Tern HIP: Design and Build *Permanent* Habitat Improvements

- What
 - Gravel
 - Fencing
 - Shelters
- Where
 - **Breakwalls**
 - Water Intakes
 - Power Tower Cribs
- Other Methods or Locations?
 - Islands (Frog, Tower)
 - Nesting rafts (Black Rock Canal, Buckhorn or Tiffth Marsh)
 - Nesting barges (Buffalo Harbor)



Common Tern HIP: Challenges



January 9, 2008 photo by Mike Cook, NYSDEC

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Tern HIP: Conceptual Design #1

Steel nesting boxes filled with gravel, high sides, and shelters



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TERN NESTING HABITAT
BUFFALO HARBOR SHORT BREAKWATER
NEW TERN NESTING BOXES

Tern HIP: Conceptual Design # 2

Nesting barge filled with gravel, fenced, with shelters



Tern HIP: Conceptual Design #3

Breakwall end cells – steel perimeter fence, filled with gravel, and shelters



Common Tern - 2008

Task	Time Frame
ESC Pre-conceptual Design Review	February, 2008
Army Corp Consultation	Q1 – Q2
Conceptual Design (10%) – Option Dependent	Q2 – Q4
Army Corp Consultation - Conceptual Design	Q3
ESC Conceptual Design (10%) Review	Q3
Preliminary Design	Q4 into 2009

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Invasive Species - 2008

- Common Reed and Purple Loosestrife control
- Conduct winter baseline survey work at Tiff and Buckhorn
 - ground survey over frozen marsh
- Conduct summer survey
 - baseline monitoring plots
 - survey other (non-marsh) locations
- Develop Invasive Species Control Action Plan
 - detail specific control approaches



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Invasive Species Schedule - 2008

Task	Time Frame
Baseline Survey - Buckhorn and Tiff	Q1 – Q3
Update ESC	Q3
Draft Action Plan	Q3
ESC Review Action Plan	Q4
Finalize Action Plan	2009



Osprey

- ❖ Selection of one location for installation in 2008
- ❖ Preliminary location - East River Marsh



Osprey - 2008

Task	Time Frame
Platform Engineering	Completed
Confirm Site Selection	March – April, 2008
Update ESC	Q2
Site Specific Geotechnical Design	May – June, 2008
Archeological Investigations	May – June, 2008
Bid for Construction and Award	June – July, 2008
Construction	Q3, 2008
Update ESC	Q4

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HIPS Capital Cost Expenditure Report for 2007

HIPS	Estimated Capital Cost	Spent To Date (12/31/2007)
Beaver Island Wetland Restoration	\$2,700,000	\$77,024
Strawberry Island Wetland Restoration	\$2,300,000	\$28,812
Area Upstream of Motor Island	\$4,200,000	\$144,839
Motor Island Shoreline Protection	\$1,900,000	\$86,121
Invasive Species-Buckhorn and Tiff Marsh	\$350,000	\$7,209
Osprey Nesting Platforms	\$70,000	\$18,434
Common Tern Nesting	\$560,000	\$19,600
Fish Attraction Structures	\$310,000	\$13,685
Total HIPS	\$12,390,000	\$395,700

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Review Action Items