Niagara River Partnership
~
Huron-Erie Corridor Initiative
Information Exchange

Lewiston, New York

Niagara Power Project – Power Vista Museum
5777 Lewiston Road
Lewiston, NY 14092-2199

June 21-22, 2011

Main Objectives:

1. To explore the formation of new partnerships in the Niagara River Corridor, and to determine the degree to which each entity/agency is willing to commit, and help to ensure a more coordinated approach to Niagara River restoration efforts
    - Explore commonalities and differences in organizational structure, governance, and focus

2. To facilitate the exchange of information between the Huron-Erie Corridor Initiative and the burgeoning Niagara River Partnership
    - Learn from one another and maximize potential for mutual benefit

3. To explore the unique funding opportunities available to connecting channel partnerships
    - Determine how to strategically position the partnership to be most competitive

Meeting Minutes:

I. Call to order

Tim DePriest called to order the **"*Niagara River Partnership* / *Huron-Erie Corridor Initiative*" Information Exchange** at **13:00** on **June 21, 2011** in **the Community Resources Room at the Niagara Power Authority Power Vista Museum in Lewiston, New York**.

II. Roll call

a) **Introductions - The following persons were present:**
- See sign-in sheets for Day 1 and Day 2 (attached)

III. Tuesday, June 21

Theme: Getting to Know the Connecting Channel Partnerships

a) **DePriest / Strach - Overview of Meeting Goals and Objectives; Review of Agenda**
- Tim DePriest:
  a. Would like to know "who is who," "who is doing what"
  b. Sees this meeting as an opportunity to build a learning community
  c. Goals – to improve communication and understanding, explore formation of new partnerships, learn from each other
- Russ Strach:
  a. HEC background – began in 2004
  b. Niagara River Partnership inception background – informal discussions between Don Einhouse (NY DEC) and Russ Strach (USGS GLSC). Don put Russ in touch with Tim DePriest (NY DEC) to plan this information exchange.
  c. Tomorrow will focus on the information exchange and the funding opportunities.
  d. End goal of the meeting is for the partnership itself to form (the "product")

b) **DePriest / Strach - Introduction to the Niagara River Partnership**
- Presentation: *"Niagara River Partnership – Forging an Aquatic Ecosystem Restoration Team"*
- Opportunity to create a "dream team"

- The Players:
    a. Government:
        i. DEC, State Parks
            1. Forgot to extend invitation to State Parks (i.e., Beaver Island)
        ii. USFWS, ACOE, USGS
        iii. Local/county municipalities
        iv. NYPA, BUDC, NFTA
    b. Seneca First Nations
        i. Tuscarora, Tonawanda
            1. Especially in regards to Niagara Greenway Project
            2. Unique perspective – traditional/cultural components
    c. NGOs
        i. Buffalo Niagara Riverkeeper, Sportsman's Groups, Conservation organizations, Tift Nature Preserves
    d. Academic institutions
        i. Buffalo State, ESF, SUNY Buffalo, NY Sea Grant
- Examples of Past Partnerships:
    a. Strawberry Island Restoration
    b. Remediation Sites
        i. Lessons learned from cleaning up contaminated sites
    c. Buckhorn Island wildlife improvement
        i. Collaborative project b/w DEC, State Parks, EPA
    d. Tift Wetland enhancement
    e. East River Marsh wetland protection
        i. DEC, State Parks
        ii. Protect shorelines from erosion
- Habitat is a central theme to all of these restoration efforts
- Current Partnerships:
    a. Niagara River RAC
    b. Niagara Power Project Relicensing Ecological Committees
    c. NFTA/DEC – Bell Slip (Buffalo Harbor)
    d. BUDC/DEC – Union Ship Canal
    e. Great Lakes Fishery Commission
    f. SUNY ESF/DEC – Fisheries Research
        i. Importance of prey fish and habitat to Muskie populations

- If all of this work can already be underway, without a formalized partnership, think of the potential to move forward with a formalized partnership in place
- Priority: restoring nearshore backwater areas (challenge – how to reduce wave energy enough for plant survival. Focus on breakwater development and design)
- Vision for a formal Niagara River Partnership:
    a. Utilize unique strengths of the players
    b. Based on sound science
    c. Backed by the community
        i. Follow example set by Riverkeepers
        ii. Best example – Seneca Bluffs restoration project (local community member helping water plants without being asked – just wanted to see the project succeed)
    d. Recognized at a regional level
        i. More organized partnerships, more successful at getting funding
    e. Avoid redundancy
    f. Achieve synergy
- The time is now
    a. Connecting channels theme
        i. Theme highlighted recently at CLC meeting and IAGLR annual meeting this year
        ii. Great Lakes as a national agenda
            1. Funding is available now
        iii. Funding is plentiful
            1. Local – relicensing settlement agreement
                a. Available for next 50 years at substantial levels
        iv. AOC RAP gaining momentum
        v. Local support
        vi. History of success through partnership

c) DePriest / Einhouse - Introductions and Getting to Know Each Other

- Tim DePriest:
    a. Sit on two committees:
        i. Niagara Greenway Ecological Standing Committee
            1. Funding is open to any municipality, university, etc. interested in enhancing access to the river

ii. In charge of identifying land with either conservation or public access value

- Don Einhouse:
    a. There is an existing organizational structure for coordinating research – through GLFC Lake Erie Committee
    b. However, forming a new partnership is not a redundancy (for the large part have been ignoring the Niagara River)
    c. There really is no existing partnership
    d. Just be sensitive that there are other existing frameworks, like the GLFC LEC
- Kurt Oldenburg:
    a. Involved in fairly large ecological assessments in Long Point Bay area and ?
    b. Canada Ontario Agreement – pushes agencies
    c. Make sure recognition at regional level achieves high enough recognition that it enters the federal physique as well
- Bruce Manny:
    a. Importance of connecting channel to other water bodies should not be underestimated. Need to determine "who cares?"
    b. Primary driver in HEC was the common understanding that the rivers in the Corridor were severely degraded and the desire for improvement
    c. 1/3 of all fishing waters in the Great Lakes are part of the HEC
    d. How important is larval fish production in the rivers to populations in Lake Erie (it's connections like this that highlight the value)
- Chris Castiglione:
    a. Have done some habitat assessments in lower Niagara. Would like to understand how habitat restoration is affecting the fisheries.
    b. Interested in knowing what else is going on, so work isn't duplicated
- Margaret Wooster
    a. Is the HEC primarily fishery-focused?
- Sandy Morrison:
    a. The Detroit River Wildlife Refuge is a foundation of the HEC partnership
    b. Group did decide to focus on fish habitat, but that can change

- Bruce Manny:
    a. The Refuge is an important structure for waterfowl, songbird populations, and insects (migratory hotspot)
    b. A refuge would be a great addition to the Niagara River
- Russ Strach:
    a. Lake Erie Fish Community Objectives
- Ed Bugliosi
    a. Personal expertise is groundwater
    b. USGS Cooperative Water Program funding opportunity
- Sandra Kok
    a. Fish populations are one of the impairments for the Niagara River RAP (was one of the main foci)
    b. Is anyone studying relationship between deformities and pollution in the river?
    c. Welcomes bi-national cooperation
    d. Some funding available for joint habitat restoration work, shoreline restoration work
- Bruce Manny
    a. Worked with Sandra Kok on Fighting Island Project (~$260k) – in Canadian waters
    b. Example of success when organizations collaborate
        i. A Michigan-based private citizens group emerged and offered supplemental funding
        ii. Communications is a large part of it. Partners come out of the woodworks and see value for their organizations.
- Margaret Wooster
    a. HEC focus on islands. Niagara River has islands too.
    b. Should also keep plants in mind, as this is a part of the RAP.
- Scott Schluetter
    a. Environmental Contaminants Office is doing some work to look into fish deformities (there's also GLRI funding for this)
    b. Personally involved with St. Lawrence River (settlement with NYPA)
    c. Also sits on Greenway Committee
        i. Would like to see more and better project proposals being submitted for review
- Steve LaPan
    a. From a LOC perspective, didn't consider lower Niagara at all in forming Fish Community Objectives

b. Fish Community Objectives were developed for the St. Lawrence River, however (part of LOC jurisdiction)
c. HEC group should also consider developing Fish Community Objectives for their Corridor

- Kurt Oldenburg
  a. Synergy is important
- Gavin Christie
  a. DFO interest is habitat management, sea lamprey control (St. Marys River)
  b. Lake-wide Area Management Plans (LAMPs) in Lake Ontario and Lake Erie – another framework to consider

d) Morrison / Manny / Hondorp - Huron-Erie Corridor Initiative and its Unique Governance Structure

- Sandy Morrison – Introduction and Overview:
  a. The HEC
     i. Economic, ecological, societal value
     ii. Multiple uses
  b. Initiative Overview:
     i. 2003 – Vision/purpose: framework process
        1. Multi-disciplinary steering committee
           a. Guides direction
        2. Consensus-based decision making; democratic
        3. Adaptive management approach
     ii. 2004 - Assessed interested
        1. Internally – feedback on science issues, identify partners
        2. Wrote draft prospectus – defining document
           a. Partner feedback critical (need buy-in)
     iii. 2005 – Held organizational meeting
        1. Meeting format and outcomes
        2. Consistent each year
        3. Build trust (nobody took credit/ tried to take over)
     iv. Annual meetings since 2006
     v. MI Sea Grant suggested Communications Tools be developed:
        1. Marketing document
        2. Logo
        3. Website (www.huron-erie.org)
        4. Common message

5. Equal partners

vi. HEC Events – "The Hook"
1. Lake sturgeon, lake whitefish
2. Detroit River International Wildlife Refuge
3. Ecological recovery of the Detroit River
4. Great public and Congressional support of partnership
5. Generate a lot of press – helps with funding support

vii. Funding Research
1. Grants – coordination
2. Stakeholders – various pots of money
3. Agency funding and in kind support
4. Sharing resources – increased efficiency

- Manny – Science Perspective
  a. Publications:
     i. The USGS HECI (Carl, Morrison, et al. ~2005)
        1. Describes goals and objectives of Initiative
     ii. Creation of Habitat in the Detroit River
     iii. Remediation of Fish Habitat in the Detroit River
  b. 1900 Bathymetric Map in Detroit River
     i. Before shoreline hardening
     ii. Compared bathymetry (historical vs. current) – can do the same for the Niagara River
  c. Major impacts on fish productivity
     i. 97% loss of coastal wetlands
     ii. Shoreline hardening
     iii. Channelized of shipping channel
  d. Diversity of YOY fishes in HEC coastal wetland nursery areas:
     i. Surveys done by MI DNRE
     ii. Complex of young fish disappeared with loss of wetlands
  e. 1907-1916
     i. Creation of Livingston Channel changed hydrology
     ii. Used to be honeycomb limestone rock (ideal habitat) – lost after dredging
     iii. Channel impacts:
        1. Excavation of bedrock
        2. Growth of dumping grounds

3. Change in discharge (historic = diffuse; present day = linear) – impacts on larval fish survival in western L. Erie

f. Fishery research summary and directions
   i. Publications
   ii. Collaboration and partnerships
   iii. Importance of pre-/post- construction assessment (without it, can't validate science behind restoration)
   iv. Timelines for BUI #14 remediation
      1. 1980s – US/Can agreement for listing of Areas of Concern.
      2. BU#14 was implemented for each of the AOC
      3. 1982 – Atlas of fish spawning and nursery areas in the Great Lakes
      4. Identified 9 sites for sturgeon (Goodyear et al.)
      5. Set lines, underwater video to determine substrates
      6. Manny & Caswell determined only 2 of the 9 appeared to be being used
      7. Transmitters on lake sturgeon determined that only one site was being used – Zug Island (fish were using man-made coal cinders)
         a. Natural substrates must be lacking
      8. 2004 – decided to build new spawning sites for lake sturgeon at Belle Isle
      9. 3 substrates: broken limestone, cobble, coal cinders
      10. Sturgeon showed up in spawning-ready condition, but didn't spawn. However, substrate did benefit other species (walleye etc)
      11. 2008 – Fighting Island Project
      12. Expecting to build a third site at St. Clair River

g. Publication in JGLR special issue coming out this year (Bennion and Manny)
   i. Only 2.7% of two rivers are suitable from hydrodynamic standpoint for spawning in the HEC
   ii. A similar model could be created for the Niagara Corridor (build on existing model)
   iii. Cost was reasonable (<$5K)

- Darryl Hondorp – future direction

a. Native species rehabilitation (Ebersole et al. 1997)
    i. Quickly becoming the primary focus of management
    ii. Shifted from species- to ecosystem approach
    iii. Expensive and probability of success is uncertain (not an ideal combination)
    iv. Conceptual foundations of habitat restoration is unclear
b. Example - Restoration of Columbia River salmon
    i. Example of a restoration project that flowed from a solid conceptual foundation
    ii. Started with knowledge of life cycle and habitat use
    iii. Without a lot of research/effort - decided that stream-going phase is where to focus energy
    iv. Such a large system – need some sort of framework to defend where you're focusing efforts and why
    v. The streams are a mosaic of constantly changing variables – need to restore this sort of variable environment
    vi. Can provide a defense in one slide
    vii. Not an easy task, but very important for moving forward

e) DePriest / Strach - Informal Group Discussion

- Scott Schluetter: was the habitat suitability study for multiple species?
    a. Manny: primary focus on 3 species (sturgeon, walleye, lake whitefish) in particular, but indirectly benefitting benthic, lithophilic guild of species (at least 14 other species)
- Bruce Manny: Niagara River system is really two systems (upper and lower). The natural barriers (Falls) is the primary difference between the two Corridors. Don't let that deter you – just think of it as two separate systems and move forward.
- Tim DePriest: when dealing with adaptive management approach, you're dealing with some level of uncertainty. When dealing with the public, how do you acknowledge that without appearing like you don't know what you're doing.
    a. Sandy Morrison: use the Belle Isle and Fighting Island projects (trial and error aspects) to the public. If you explain to the public that we're learning, they'll understand.
- Bruce Manny: another connection between the two corridors – genetically speaking, the lake sturgeon are identical, so we're working with the same stock (Welsh GSU study). What the HECI does, will have affects on the Niagara Corridor and vice versa.

- Margaret Wooster: How important are the tributaries to the fish spawning?
    a. Bruce Manny: there's a lot of patchiness (side rivers/small streams are very important for certain species of fish)
- Gavin Christie: another consideration is the canal (flux and flow of invasive species through it) – a consideration when starting to think about scope and scale
- Darran Crabtree: when is objective 2 (formation of new partnerships) going to be addressed?
    a. DePriest: Hoping this meeting will set the spark. Hope to identify next steps.
- Chris Castiglione: have there been any mistakes along the way from which we can learn?
    a. Bruce Manny: we were inclusive. Didn't know who would show up, but offered invitation to all. Nobody had a hidden agenda. Sort of evolved naturally, they way friendships develop. Plan the meetings so they're short and not time-consuming.
    b. Darryl Hondorp: suggestion to find some folks who will ask you the hard questions. Not always comfortable, but important for the science.
    c. Russ Strach: HEC weekly updates are helpful. Keep people informed and engaged.
    d. Sandy Morrison: it's important to have someone to coordinate/facilitate the group to keep things moving. Communications occasionally.
    e. Gavin Christie: it's important to not just be "meeting with friends." Need to be able to justify to superiors why we're getting together to meet.
    f. Bruce Manny: Could have been much more coordinated with the GLFC Lake Committees. Now regret not having more regular communications with them.
- Gavin Christie: unable to be here tomorrow to discuss risk assessment tools for aquatic invasive species. Can learn more from SARA website.

IV. <u>Wednesday, June 22</u>

Themes:

1. **Restoration Tools and Strategies**
2. **Coordinating Restoration Strategies for Wide-Ranging Aquatic Species**

3. **Group Discussion – Funding Opportunities**

a) **Strach / Hondorp - Setting the Stage: Cornerstones of Scientifically Defensible and Cost-effective Fisheries Restoration Strategies**

- Overview of West Coast conservation biology principles
- Restoration of habitat/native fishes – common concepts:
    a. How much is enough?
    b. Where do we get the biggest bang for our buck?
    c. Need for a scientific framework
- 1991 AFS report in *Fisheries* Magazine(214 Stocks at Risk)
    a. Led to:
        i. What is a stock?
        ii. Distinct Population Segment (DPS)?
        iii. Beginning of an intense investigation of population structure
- DPS defined: reproductively isolated, large ecological legacy
    a. Applies beyond fish (birds, mammals…)
    b. Different DPS exist in same geographic area (i.e., spawn in different seasons)
- Pacific Coastal Salmon Recovery Fund - ~$800M over 10 years
    a. These dollars were previously being spent with the best knowledge available, but uncertainty existed
    b. 2005 – Norm Dicks questioned why species weren't restored. Assessments were being completed around this time.
    c. 3 major rivers (Columbia, Klamath, Sacramento) – 2/3 were beginning to collapse
    d. Began to look at causes behind the collapse (ocean conditions were considered originally; later it was determined that synchrony) – only hatchery, fall-run Chinook left (within-species diversity had crashed)
- 2005 was a year of tremendous progress – understanding of within-species diversity, starting to use GSI
- GSI results for California commercial fishery (May 2007) – used fin clips from commercial fishery to determine stock composition (~40% of catch was non-targeted fish, ~14% was endangered fish,…)
    a. Could move harvest season accordingly
- Conservation Assessment Planning (CAP) workbook dashboard output diagram
    a. Areas of red = areas in need of most repair
    b. Areas of green = areas most suitable for the species

    c. Need to consider that some of the areas might be urban areas / areas where it's not logical to focus restoration energy
- Another CAP dashboard output, but with threats across the top instead of tributaries
    a. Another powerful schematic of where to focus energy (i.e., where to build roads)
- Southern Distinct Population Segment of the North American Green Sturgeon
- Population diversity and stability in variable environments (Liss et al. 2006 diagram)
    a. Different groups of fish perform/survive better in different conditions
    b. Population structure changes based on changes in environmental variables
    c. Under habitat loss scenarios, populations can crash
- Contrast Bristol Bay sockeye (stable) vs. Sacramento River fish community
    a. Asynchrony within Bristol Bay population leads to high performance, stronger fishery
    b. Want synchrony at the local level, asynchrony at the broader scale
- 4-step approach flow diagram:
    a. Prioritize threats > look at population structure > …
- Ecological processed triangle – another way to sum it up
    a. Everyone wants abundance. Need to think about ecological processes, diversity, spatial structure, productivity, and how they all fit together to influence abundance
- More tough questions:
    a. Which populations are we targeting?
    b. How much is enough?
    c. How do we avoid practicing "random acts of restoration?"
- Delineation of Coregonids in the Great Lakes – historic vs. current
    a. Lake whitefish share common characteristics with other species (like walleye)
        i. Restoration efforts will benefit entire guild
    b. Lake sturgeon population structure (Welsh et al. 2009)
        i. HEC sturgeon are genetically similar to sturgeon in upper Niagara
        ii. Restoration efforts in HEC could benefit entire range

iii. Proposal submitted to GLFT – describe sturgeon meta-population structure in the HEC
    1. Evidence that there may be as many as 3 local populations within the HEC
    2. If this is the case, separate management actions may be necessary for each

c. Evidence of genetic diversity in walleye / yellow perch populations as well (Stepien, U. Toledo)
d. Risk spreading – walleye
    i. Example of asynchrony
e. Lessons learned:
    i. Take an ecosystem approach – range of species
    ii. Process-based, physical-based, complex connected habitat
    iii. Within populations, diversity tracks environmental change
f. Closing thoughts:
    i. Professionalism to use best available information
    ii. Invest resources wisely to achieve Fish Community Objectives
    iii. Is a systematic threats assessment the way to go?
    iv. Be prepared to answer questions such as, "why aren't they recovered yet?"
    v. Bring to you innovations and advancements in habitat restoration on front end of the Niagara River

- Questions/comments:
    a. Alicia Pérez-Fueutetaja: Might need to look at more than endangered species for restoring the Niagara River (a more ecosystem-wide approach) – look at entire fish community
        i. West Coast restoration efforts were largely focused on physical characteristics of the streams
    b. Alicia Pérez-Fueutetaja: Ecosystem working together (diverse species representative, more than fish only) gets more public support
    c. Jim Markham: Random acts of restoration – this is sort of what's happened in the 30 years of lake trout restoration in L. Erie (lesson learned)

b) Crabtree - Use of the Conservation Assessment Planning (CAP) Workbooks and Miradi

- There is a CAP workbook that is free to download
- Miradi – new tool evolving. Takes information from workbook
- CAP addresses these key questions:
    a. What are the resources of interest and their status?
    b. What threats exist and what's their importance?
    c. Which stakeholders should be engaged, what underlying causes and opportunities warrant attention?
    d. What specific outcomes are we trying to achieve?
    e. What actions are we trying to achieve, and what are their outcomes?
- Define project > develop strategies and measures > implement > adapt and improve
- CAP dashboard (abbreviated) – overall biodiversity health rank is fair
- Threat status for targets and projects – overall threat status for targets and projects rank is very high
    - Threats are more difficult to quantify
- Niagara River example: steps along the way rank effectiveness, ease of doing each action
- Craft measurable objectives and action steps
    - Helps develop strategic plans
- Analyze results and data, learn from results, adapt project, …
- ConserveOnline (Conservation by Design Gateway) – http://conserveonline.org/workspaces/cbdgateway/cap/resources/index.html
    - Can upload your CAPs; can also download other people's

c) McKenna - Aquatic GAP Analysis Procedures

- Tool to assess information you have on hand
- Ecological valuation – a way to simplify information:
    a. Universal set of nested, multi-scale spatial units (for both riverine and open great lake habitats)
    b. Habitat and landscape attributed for each spatial unit
    c. Biotic data and species habitat predictive model
- Lotic habitat classification
        i. Region > sub-region > watershed > sub-watershed > valley segment > stream segment
    b. Fish database – helps predict abundance at a given location
        i. Could also work for insects, water quality (anything that has geo-referenced information)

    c. Can use array of habitat characteristics to predict fish assemblage
    d. Fisheries conservation and management units
    e. Can work from on the ground up, or top down
- Coastal and open water zones classification
    a. Lake Erie example
    b. Approximately 40 species
    c. Can be extrapolated to entire Great Lakes system
- GAP has created an extensive analysis platform and tools for use:
    a. Ecological system biodiversity
    b. Can break species into guilds
    c. Assessment of habitat types
- FEMRA funding of St. Lawrence – used GAP model predictions to determine where models say species should be, then ground-truthed to determine what factors may be limiting the models
- Which habitat units have the best restoration potential?
    a. Criteria:
        i. For Gamefish/Migratory species?
        ii. For T & E species habitat?
        iii. For Optimum Diversity?
        iv. For Maximum Integrity (IBI)?
        v. Within Accessible Areas and Compatible with Management Policies
        vi. Can also look over a certain Congressional district
- Tools that might be useful to this group:
    a. Summer stream water temp. model for all streams in NY
    b. Fish abundance models
    c. Brook trout habitat
    d. Hydro-spatial framework
    e. Fish0based habitat classification
    f. Rare darters models
    g. SGCN density

d) Margaret Wooster - Development of a Niagara River Habitat Restoration Strategy (using the CAP process)

- Niagara Habitat Conservation Strategy (GLRI-funded)
- Purpose: to provide a science-based, collaborative blueprint …
- Project Need:

    a. Niagara River RAP delisting criterion (BUI 14): "Develop measurable targets for habitat types within the AOC."
    b. Niagara River Greenway Plan priorities for funding: …projects involving "restoration of the Niagara River ecosystem"
    c. NYS Comprehensive Wildlife Conservation Strategy recommendations: 'Determine current historic extent of habitat types; set goals…"
- Scope:
    a. As a Great Lakes connecting channel, the Niagara:
        i. The upper GLs supply >85% of
        ii. Supplies 83% of the tributary flow to Lake Ontario;
        iii. Is a significant habitat for migratory birds and fish.
    b. Greeenway view of the Niagara:
        i. A 37-mile long lake-to-lake connecting channel
        ii. 13 municipalities signed off on Greenway plan
- Focus:
    a. NYS Niagara River watershed
- Methodology: CAP
    a. Identify species, communities that represent biodiversity
    b. Determine attributes and indicators to help rate health status
    c. Identify critical threats and rank according to potential severity of impact.
    d. Develop conservation measures and priority areas to focus limited resources.
    e. Implement, adapt, improve.
- Want to bring initial list of biodiversity features to the Technical Committee meeting in July.
    a. Many are from Lake Ontario CAP
    b. Sample features:
        i. Benthic/pelagic offshore
        ii. Nearshore/shallows
        iii. Islands
        iv. Riparian habitats (e.g., wetlands, grassland, floodplain forest)
        v. Upland forest
        vi. Unique habitats (e.g., Niagara Gorge)
        vii. Native communities (or selected species)
        viii. Important Bird Area (IBA) bird species
- Examine one biodiversity feature (wetland areas in the Corridor) in depth:

    a. Wetland landcover in the river corridor:
        i. 2% NYS regulated
        ii. 6% NOAA-identified
        iii. At least 60% is now hardened shoreline
    b. In the watershed:
        i. 4% NYS regulated
        ii. 8% NOAA-identified
- Dredging will begin this July
- Buffalo River - decided to look at habitat up to first impassable barrier
    a. Looking at West Seneca as important area for restoration ("habitat opportunity area") – working with the town
    b. Not many wetlands in this zone
- Abandoned flood plain – area with majority of habitat opportunity
- For more information: Kerrie Gallo (Habitat Project Director) – kgallo@bnriverkeeper.org
- Questions/Comments:
    a. What are the funding opportunities?
        i. GLRI, NOAA
        ii. Funding will come as long as the strategies are thought through and in place
        iii. Conservation Reserve Program – region hasn't taken much advantage of this yet (maybe one farmer in the area)
    b. Pocket wetlands
        i. Can be a good opportunity if connectivity is not an option
        ii. Prioritization is only an option when choice exists

e) Markham - Reestablishment of Native Coregonids

- Coldwater species used to be the main fishery in Lake Erie
- Native Lake Erie Salmonids:
    a. Lake trout
    b. Lake whitefish – have come back on their own; commercial fishery exists
    c. Cisco
- Lake Erie Cisco Fishery – the beginning
    a. Historically supported the most productive fishery in Lake Erie
    b. Most harvest began in 1890s following decline of whitefish and lake trout
    c. Survived commercial exploitation due to cyclic nature

- OMNR biologist compiled old newspaper clippings, quotes etc. into a book
- History:
    a. Until the book came out, nobody knew such large lake trout (76 lbs) were in the lake, how high catches were (several tons/day), etc.
    b. 1925 – species decline
    c. Small resurgence 1945-46
    d. 1960s – population extinct/extirpated
    e. Collapse across all the Great Lakes
- Historical spawning and nursery areas (Goodyear)
    a. Used to have diversity
    b. HEC used to be prime spawning area
- Lake Erie cisco phenotypes
    a. Cisco are very plastic (can adapt to various habitat types)
    b. Descriptions by Clemens (1922), Koeltz (1929), Trautman (1957)
    c. More recent research suggests…
- In search of *Albus*, a morphometric analysis to determine the status of cisco species?
    a. Determine if historic forms exist, and if so, where? – useful in identifying potential brood stocks
    b. Found morphotypes described by Koeltz still exist
    c. Still processing samples to determine if they're genetically distinct
    d. When choosing a brood source, important to consider:
        i. Fish that are morphologically similar to historic cisco
        ii. Fish with similar genetics to preserved specimens
        iii. Fish that fulfill a similar ecological niche to that of historic specimens based on stable isotope signatures
- Current status of cisco in Lake Erie:
    a. Cisco reported in commercial fisherman catches in 9 out of 14 years
    b. Mostly around Long Point (commercial smelt trawls)
- Is the population remnant or transient from L. Huron?
    a. Rocky Ward (USGS Leetown) did genetic analysis using microsatellite markers. Compared to recent and museum specimens from Great Lakes and Lake Erie.
        i. Erie old/new were most similar on genetic tree
        ii. Also similar to other lakes, except for Superior

iii. Current existing population that's more similar = Lake Huron
iv. Suggests a remnant L. Erie population does exist (but only based on 9 samples)

- Future prospect for re-establishment
  a. List of questions arises
     i. What role are smelt playing, and can we afford to wipe them out?
- Cisco Management Plan
  a. Unknown questions slowing down process
- Activities to follow include discussion of:
  a. Locating and sampling extant populations
  b. Determining genetics of sampled fish, other cisco populations
  c. Completing follow up assessments, management evaluations
  d. Potential for cisco reintroduction
- Phil Ryan – always stressed importance of cisco restoration
- Questions/Comments:
  a. What is the spawning habitat of cisco?
     i. Smaller than cobble, larger than gravel. Start out as warm water species.
     ii. A lot of variation in Lake Ontario
  b. General thought that high smelt population has high tendency to depress cisco populations (except for Lake Superior) – might be suppressing successful year classes. Maybe need to try to bring smelt populations down and see if cisco population rebounds

f) Strach / DePriest - Funding Opportunities for Connecting Channel Restoration and Research

- Email from Jen Read: key to our funding success – we develop…
- The future of Niagara River Habitat Restoration:
  a. Greenway Ecological Fund
     i. $1 Million per year for next 47 years
     ii. Not available for State of Federal agencies, but can be partners
     iii. Examples: Farrell/Kapusinski research, Tuscarora research
  b. Habitat Enhancement and Restoration Fund (HERF)
     i. $16 Million lump sum (available until used up)
     ii. Also available to State/Federal agencies

iii. Not limited to Greenway, only limited by watershed (includes headwater tributary areas)

c. See NYPA relicensing website

- Overview of federal funding opportunities (Strach)
- Great Lakes Restoration Funds opportunity (Einhouse)
  a. 2 projects underway currently

g) DePriest / Einhouse – Next Steps / Summary of Follow-Up Actions and Decisions

- Increase communication (share work via email)
- Future goal - development of a prospectus
- Alicia Pérez-Fueutetaja: We should start by defining the words we use (i.e., what is "restoration"?). What do we want to restore? Need to develop a restoration vocabulary.
- Bruce Manny: HEC started by selecting a signature species (lake sturgeon). Could also start by focusing on sturgeon in the Niagara River.
- Bruce Manny: How does one pursue the Greenway Ecological Fund funding? Information is readily accessible on website.
- Margaret Wooster: Sturgeon is the logo for one of the river associations; however, the fishermen would prefer to hear about the species they catch. Maybe focus on edible fish instead (commercial fishery) as the charismatic mega-fauna.
- Jim McKenna: Need to compile a list of aquatic resources and perceived issues before we begin (not really sure what the situation is)
- Steve LaPan: Can be done through Fish Community Objectives
- Kurt Oldenburg: need to define vision and partner with Sea Grant to develop communications tools. Need some form of structure/coordinating agency
- Brian Lantry: Communication structure is of utmost importance so you can connect the dots
- Sandy Morrison: First step before communications structure is to develop a prospectus and define who you are. Also need someone to keep things going (facilitator)
- Chris Castiglione: Need to define our area of focus first before we can define our key players
- Russ Strach: Could start with a small working group:
  a. Don Einhouse
  b. Chris Castiglione
  c. Kurt Oldenburg

    d. Margaret Wooster – maybe (already over committed)
        i. Would like to bridge the gap between remediation and restoration
    e. Mark Clapsdal
    f. Jim McKenna
- Russ Strach: suggestion to start with a 2-page synopsis and send to entire group from email
- Brian Lantry: GLFC provides funds for groups like this to get together (could help get around inter-jurisdictional issues) – Science Transfer Program
- Tim DePriest will organize another meeting next year

V. Adjournment

Tim DePriest adjourned the meeting.

Minutes submitted by: Holly Patrick