Aquatic Restoration at Tommy Thompson Park:
A Case Study of Essential Habitat Creation, Monitoring and Adaptive Management

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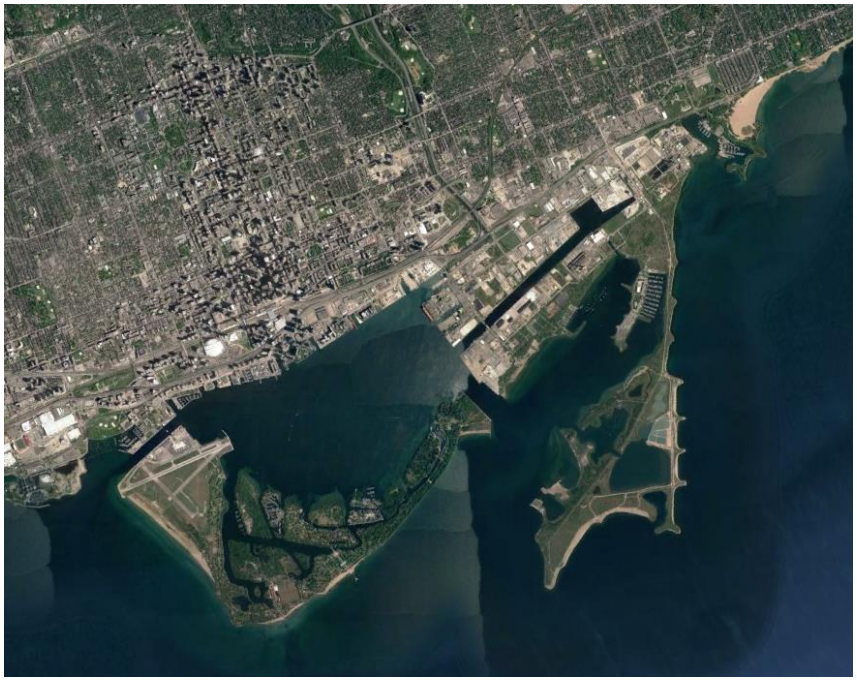
Tommy Thompson Park
Toronto's Urban Wilderness

The Living City Foundation

Toronto and Region Conservation for The Living City

TOMMY THOMPSON PARK



4,000,000 truck loads of
recycled construction material

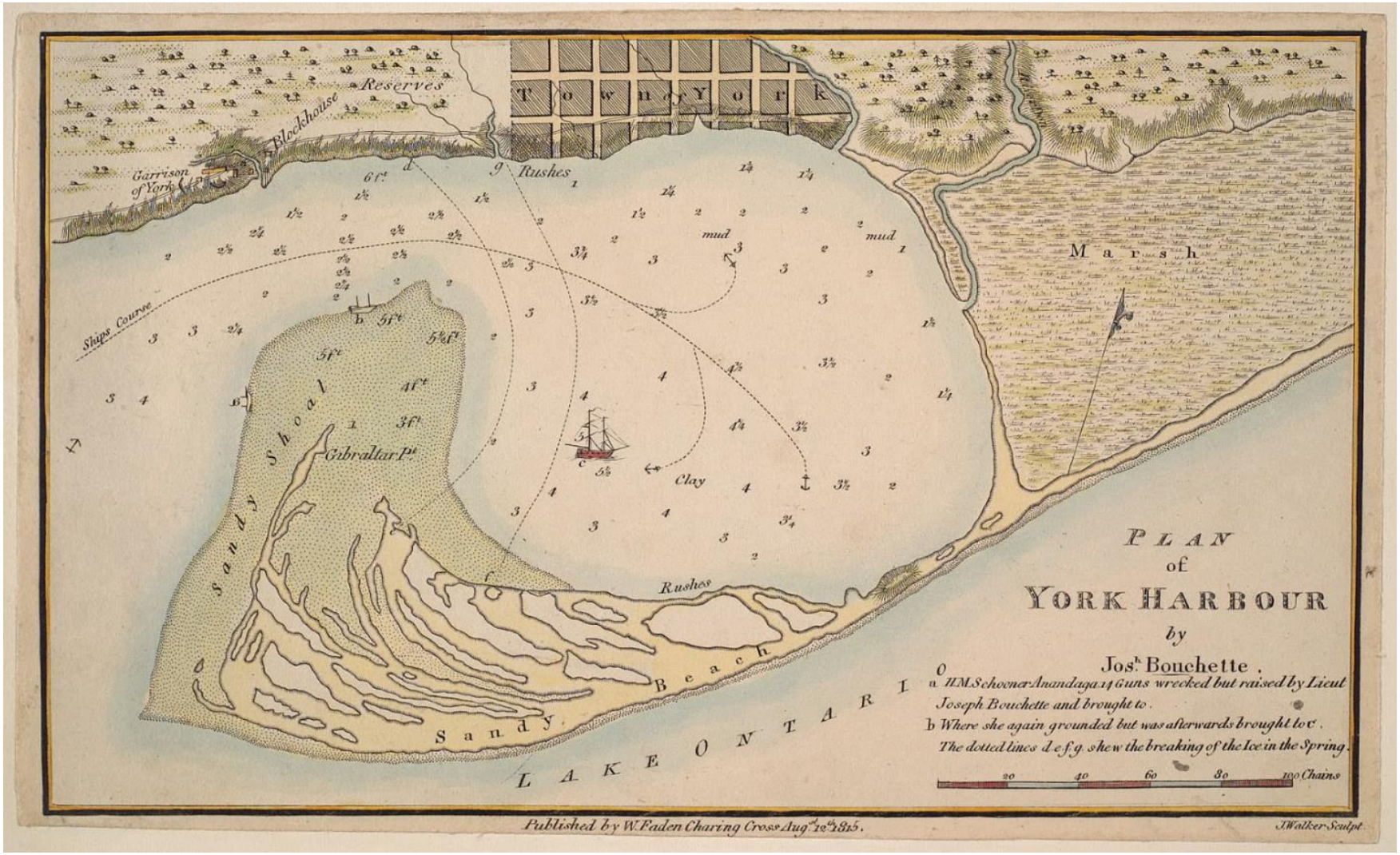
We have restored 60 Ha of
terrestrial and aquatic habitat

Evolution of the Approach to Restoration

- Restore Lost Habitat
- Critical Habitat Features
  - Structural habitat
  - Spawning Habitat
- Habitat Complexity
  - Full Life Stage Approach
- The A, B, and C's of Habitat Restoration
  - Abiotic, Biotic, Cultural
- Essential Limiting Features
  - Thermal Habitat (Thermal Refuge)
  - Aquatic Vegetation
  - Overwintering Habitat

Restore Lost Habitat Coastal Wetland

Toronto's Waterfront circa 1797



Deep Water and Shoreline Structural Habitat

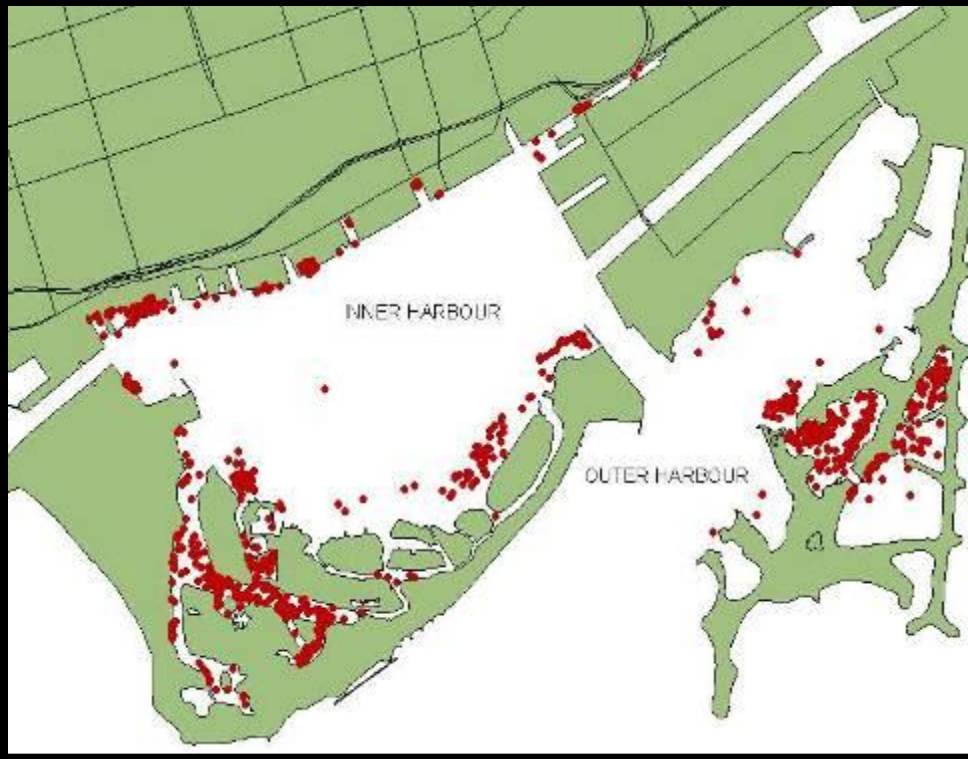
Northern Pike Restoration

Northern Pike in TTP Spawning Channel

Northern Pike Research

- 30 radio tagged northern pike supported the importance of Tommy Thompson Park

- Adult pike tagging and tracking through Harbour



Cell 1 Wetland Creation Project

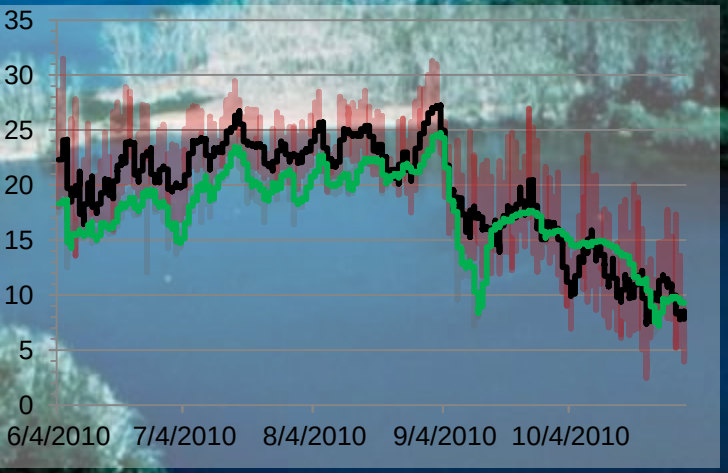
Full Life Stage Approach

- 7.7 Ha Wetland

Restoring Aquatic Habitat Complexity

Embayment B Coastal Wetland

Embayment A Coastal Wetland



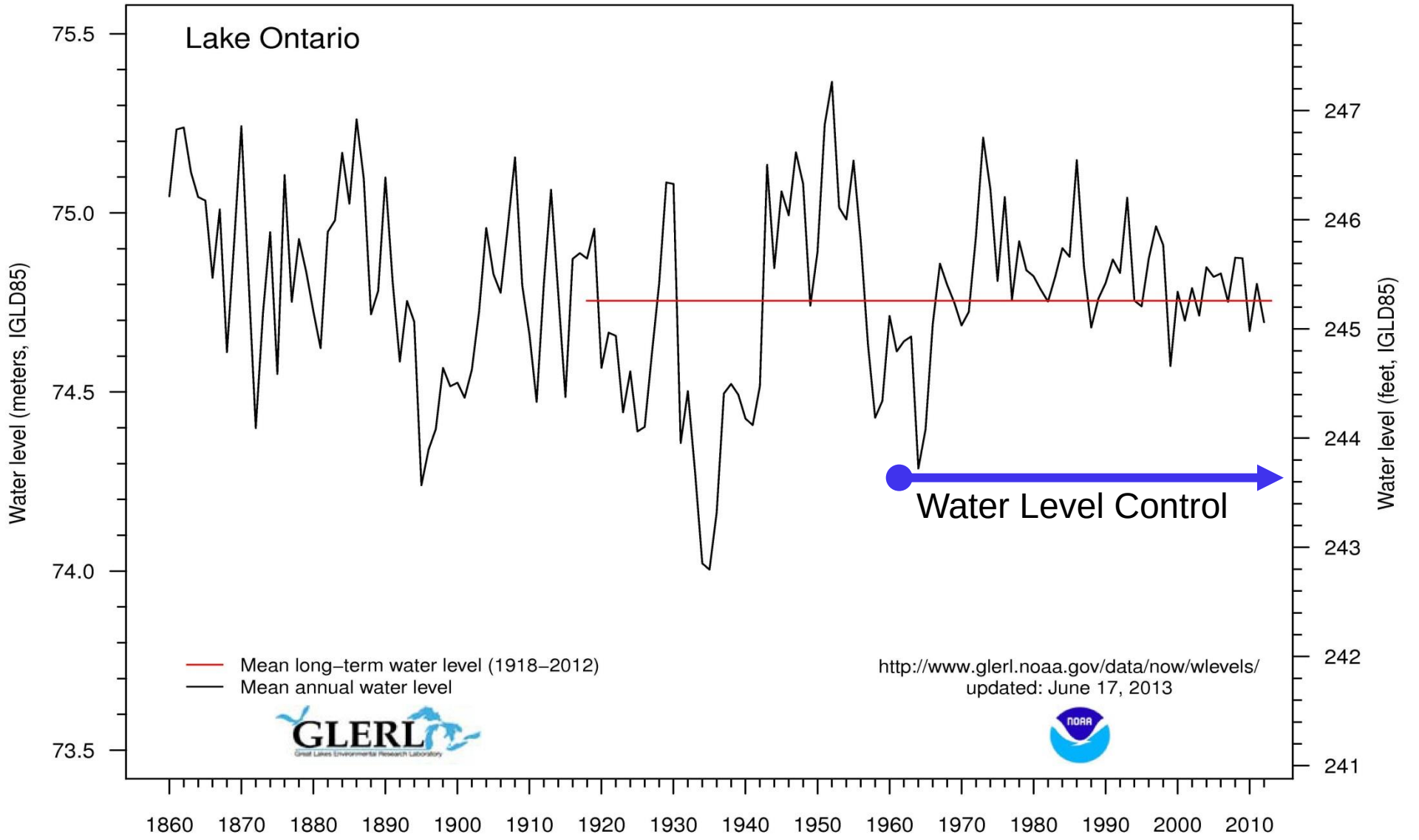
The A, B, and C's of Habitat Restoration

Wetland health and restoration success in Coastal Wetlands are driven by:

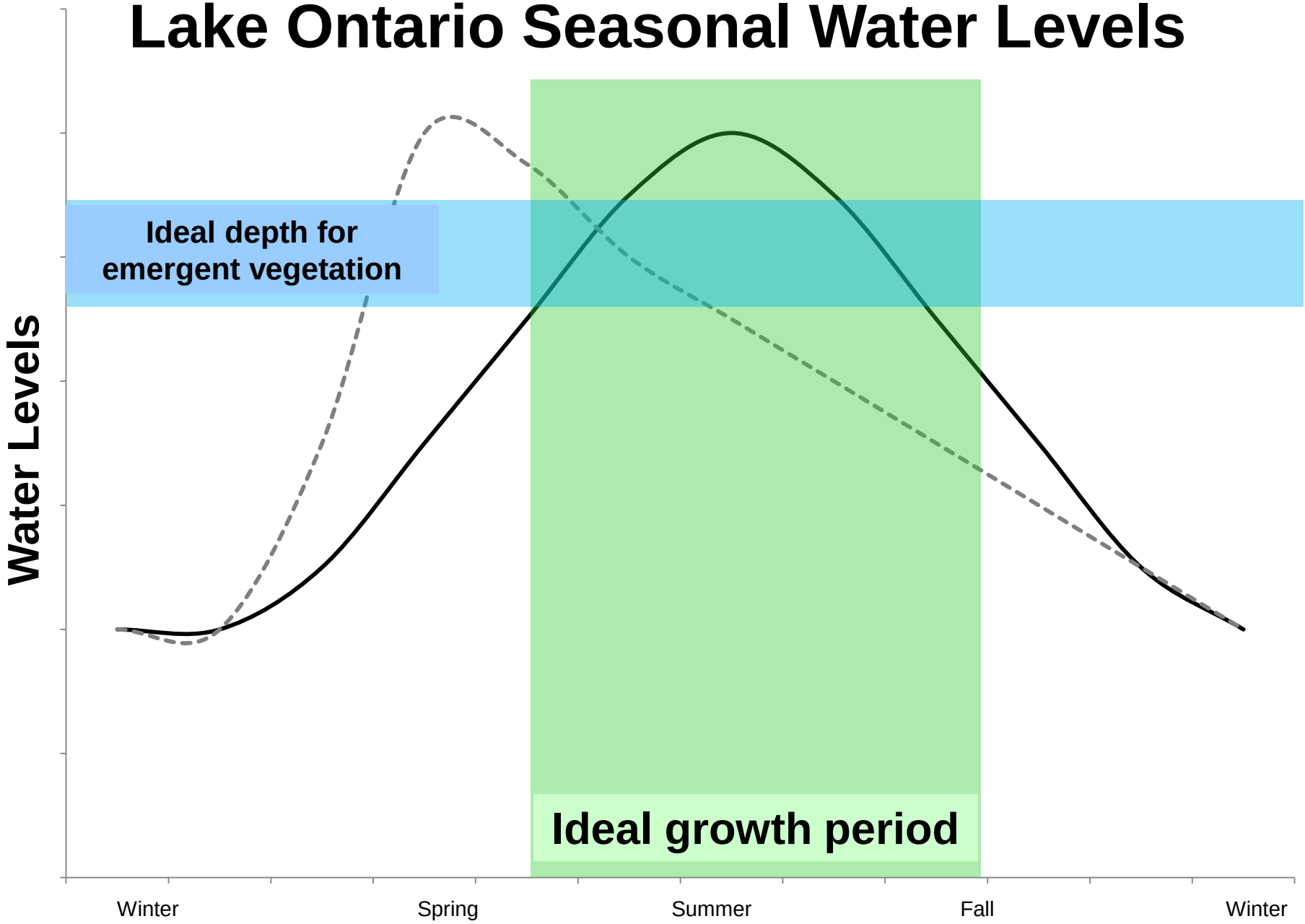
1. **Water levels**
   - **Aquatic Growth Conditions**
   - **Temperature**
2. **Water quality (Turbidity)**
3. **European Carp populations**
4. **Structural Complexity / Essential Habitat**

Vegetation is the key !

Lake Ontario Water Levels



Lake Ontario Seasonal Water Levels

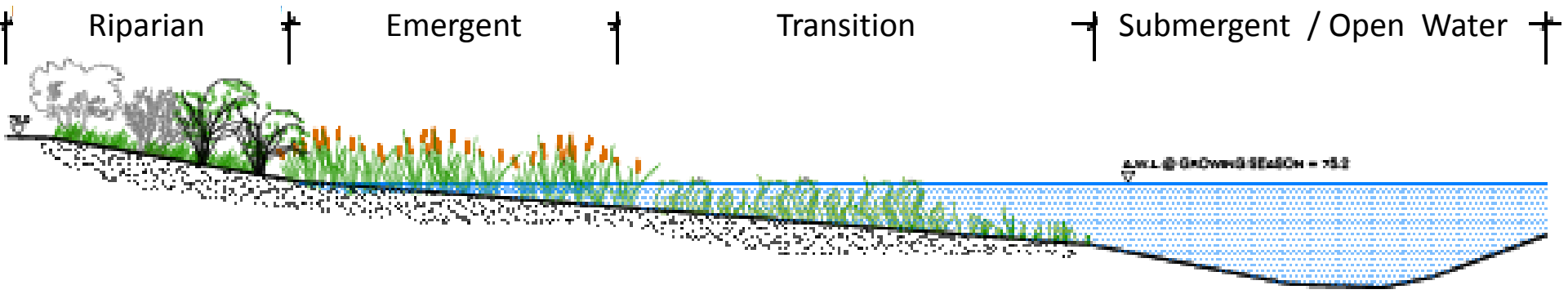


Costal Wetland Project Design Depths

76.0 - 75.2 Riparian Shrub or Wet Meadow

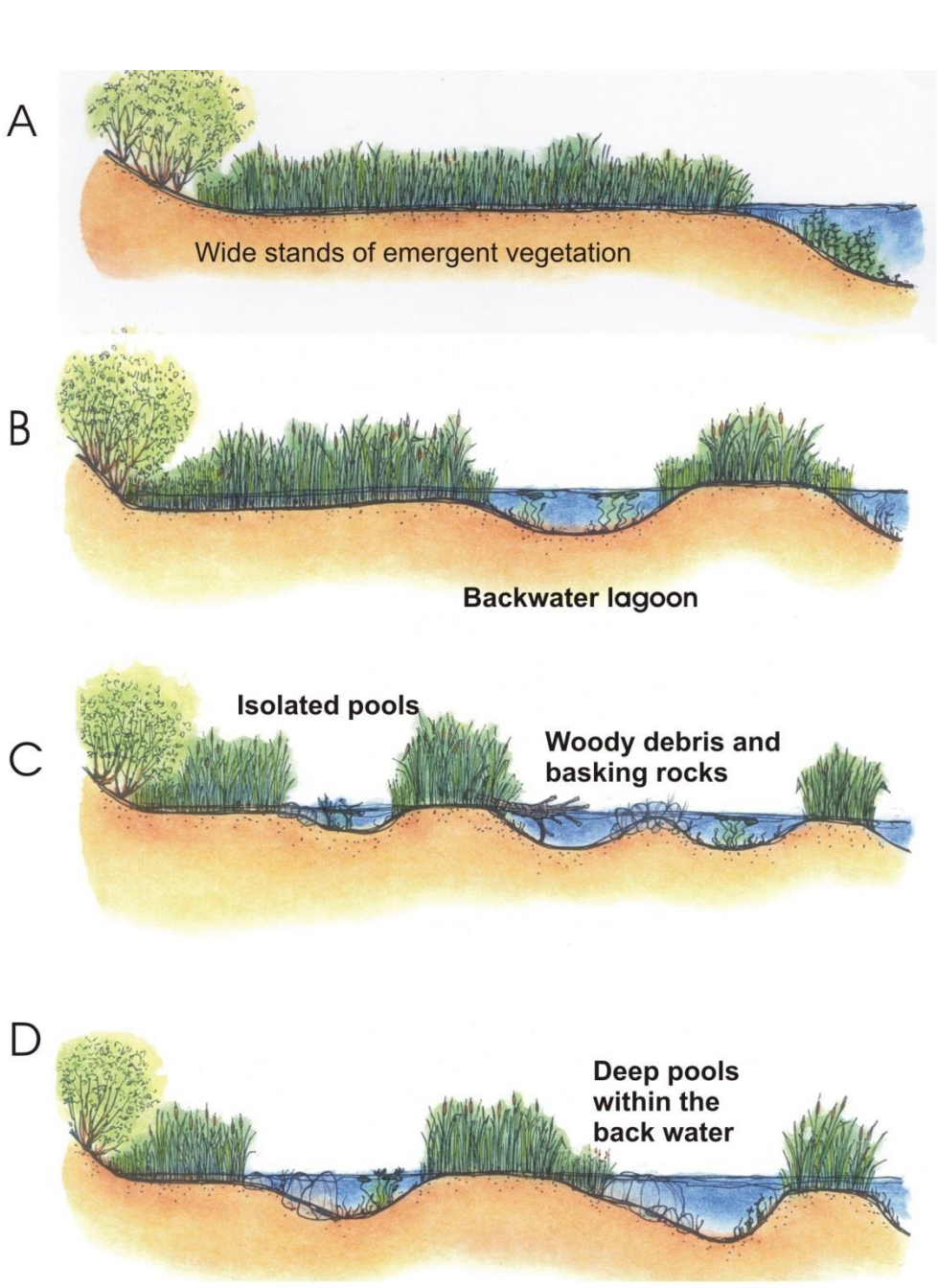
74.8 - 74.2 Transition Submergent and Floating Lily Planting Nodes

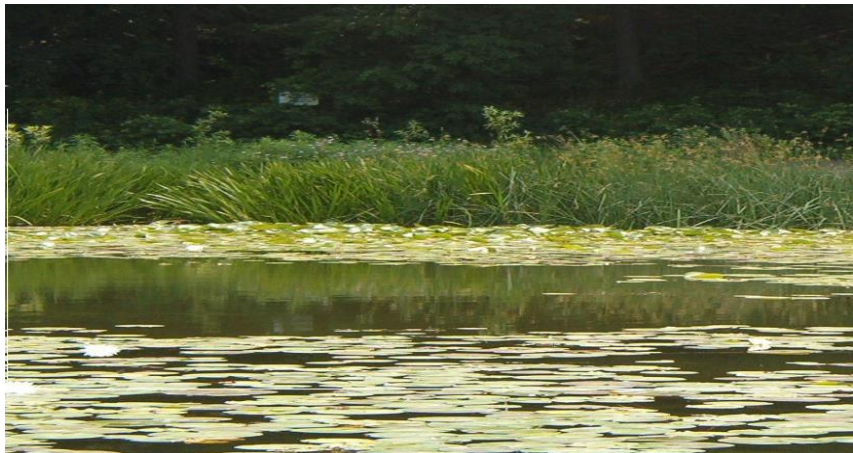
74.2 - <72.6 Submergent / Open Water Overwintering habitat (Fish)



D1 **SHORELINE HABITAT ZONES**
TYPICAL N.T.S.

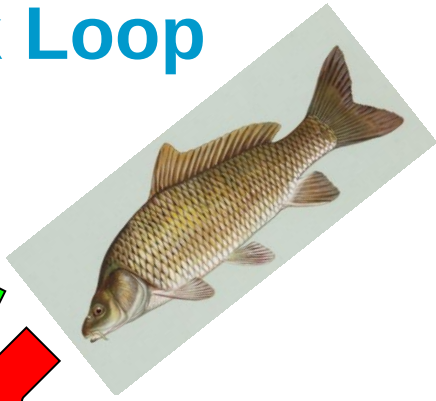
Coastal Wetland Vegetation Design





Tommy Thompson Park Carp Gate

Turbidity Positive Feedback Loop



Watershed Inputs

Tubidity

Poor quality

Low Light

High Water Levels

Cold Temperature

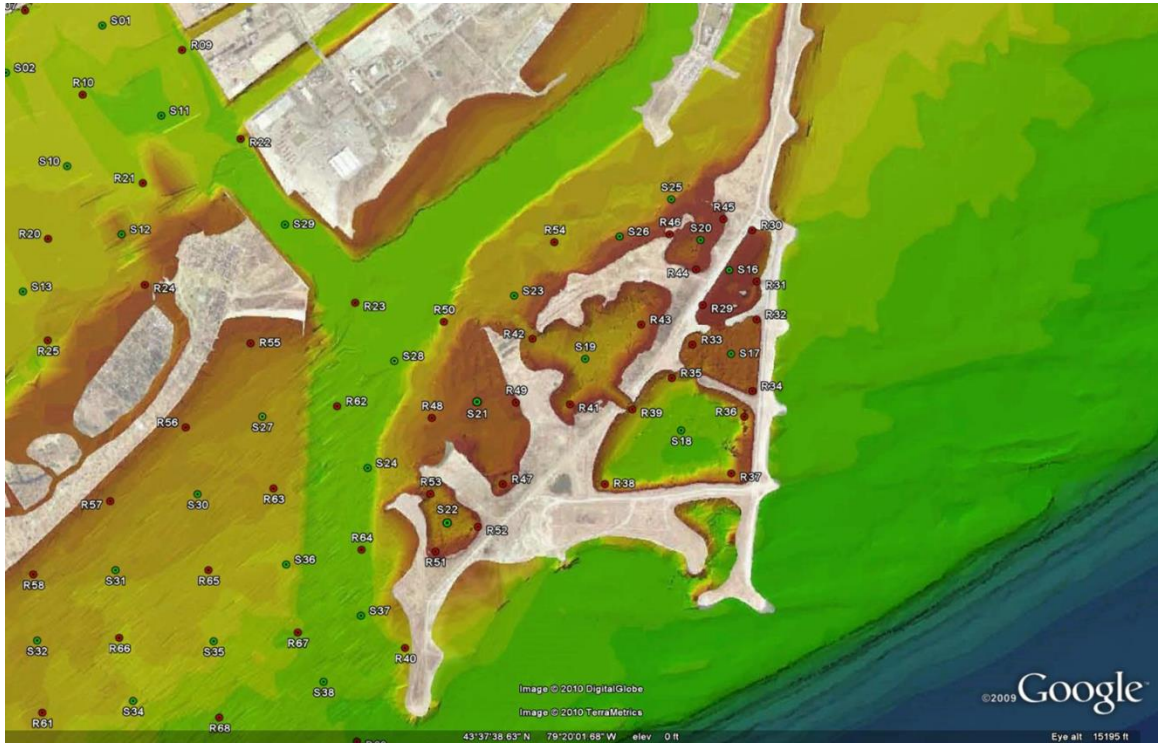
Vegetation Growth

Re-suspend

Seiche

Unstable Sediments

Essential Limiting Features



Thommy Thompson Park Turtle Study

Cell Two Coastal Wetland Restoration Project

Oct. 22, 2014
Google earth
Image ©2016 DigitalGlobe

May 5, 2015
Google earth
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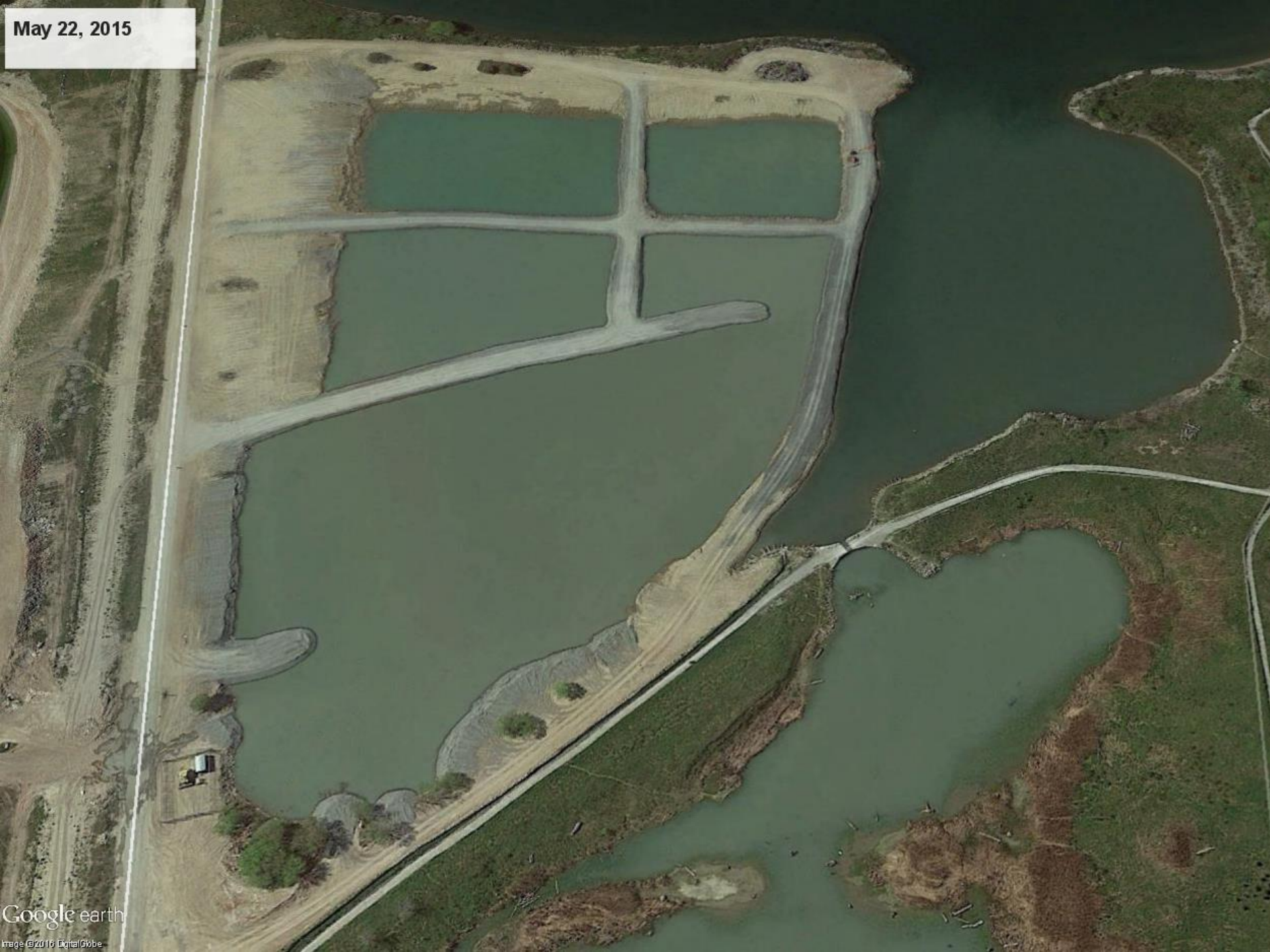
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