



DFO Aquatic Species-at-Risk Assessment and Research at Long Point

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Overview

- DFO SAR Assessment and Research
- Fish Species at Risk in Long Point Biosphere
- General Assessments, 2002-2010
- Research Projects
- Fish Habitat Science Research



Assessment and Research

- Pre-COSEWIC Assessment
- COSEWIC Report
- Science in support of Minister's listing decision (recovery potential analysis), permitting, and recovery planning
 - recovery targets
 - allowable harm
 - critical habitat





Assessment and Research

- Research identified in recovery plans
 - Surveys
 - Critical habitat
 - Conservation genetics
 - Allowable harm
- Assessment of recovery activities





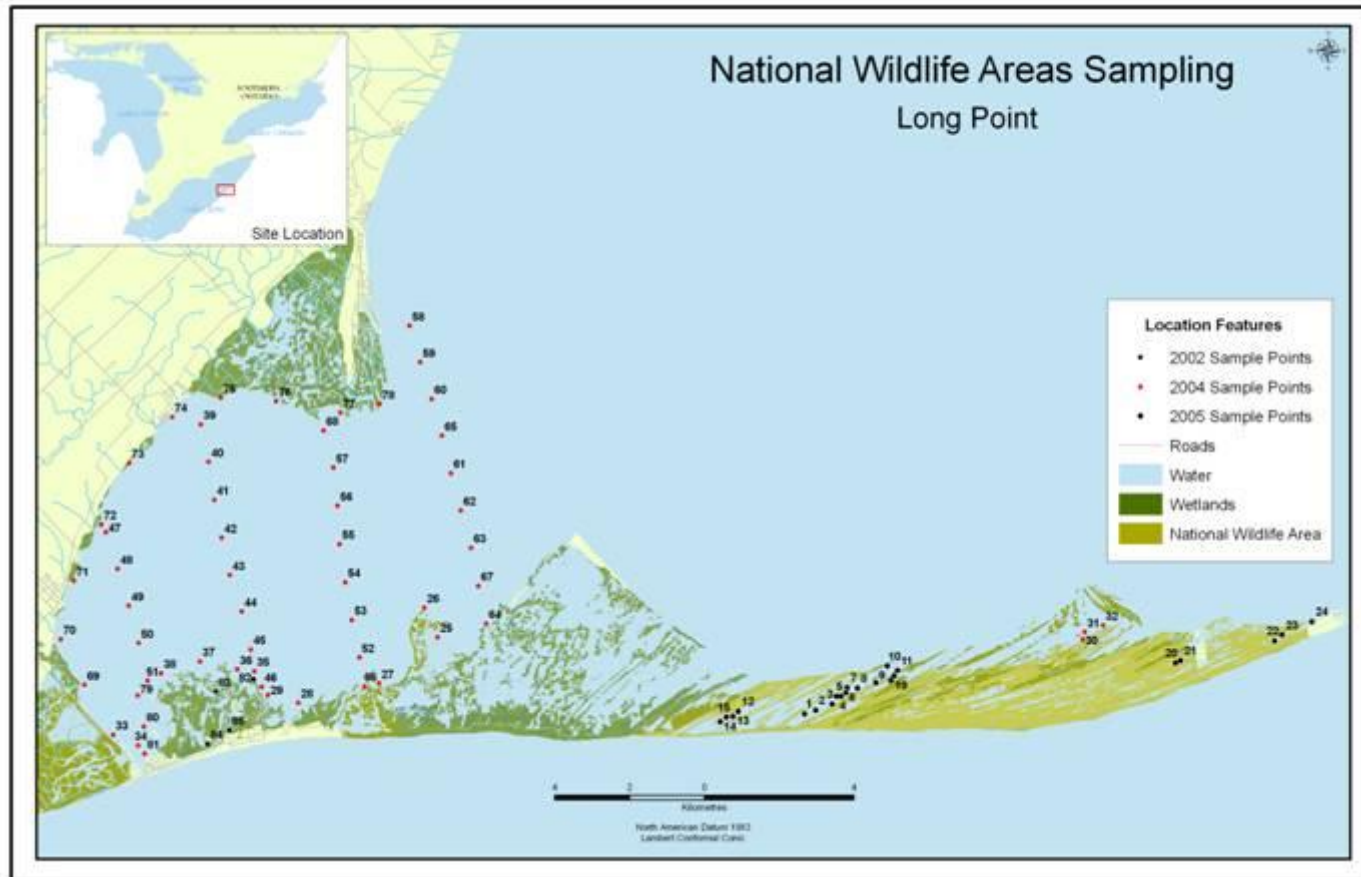
Fish Species at Risk in Long Point Biosphere

- Pugnose Shiner (EN/EN)
- Lake Chubsucker (EN/TH)
- Eastern Sand Darter (TH/TH)
- Lake Sturgeon, UStL/GL DU (TH, awaiting listing decision)
- Spotted Gar (TH/TH)
- Grass Pickerel (SC/SC)
- Warmouth (SC/SC) (COSEWIC/SARA)





General Assessments





General Assessments

Catch Data	BEF (Inside)	BEF (Outside)	FN (Inside)	FN (Outside)
Total Fishes Caught	318	2390	501	1
Species Richness	24	33	16	1
Unique Species	2	8	1	0
Common Species	22	25	15	1
Total Species Richness	36			

2 Lake Chubsucker; 30 Pugnose Shiner





General Assessments





General Assessments

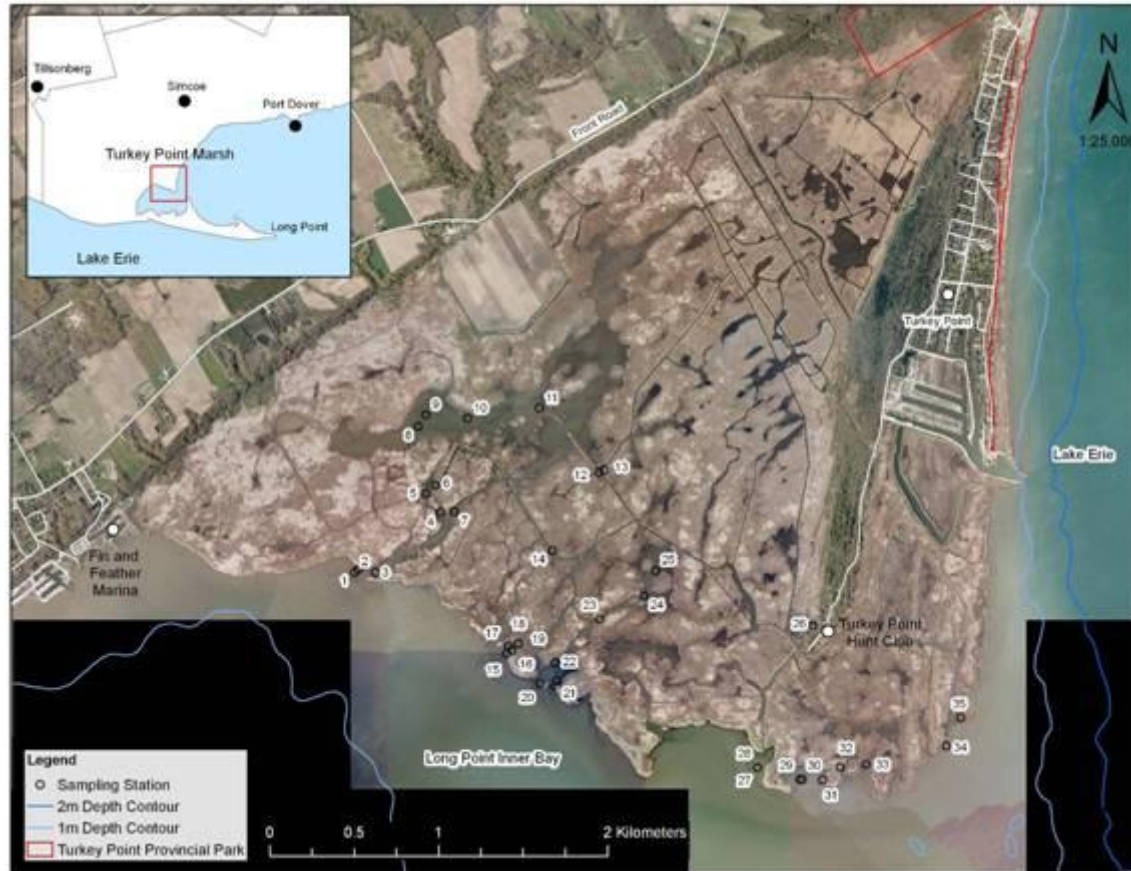
Catch Data	BEF (Inside)	BEF (Outside)	FN (Inside)	Seine (Outside)
Total Fishes Caught	43	97	345	22
Species Richness	8	16	18	6
Unique Species	0	5	8	0
Common Species	8	11	10	6
Total Species Richness	25			

13 Lake Chubsucker; 11 Warmouth





General Assessments





General Assessments

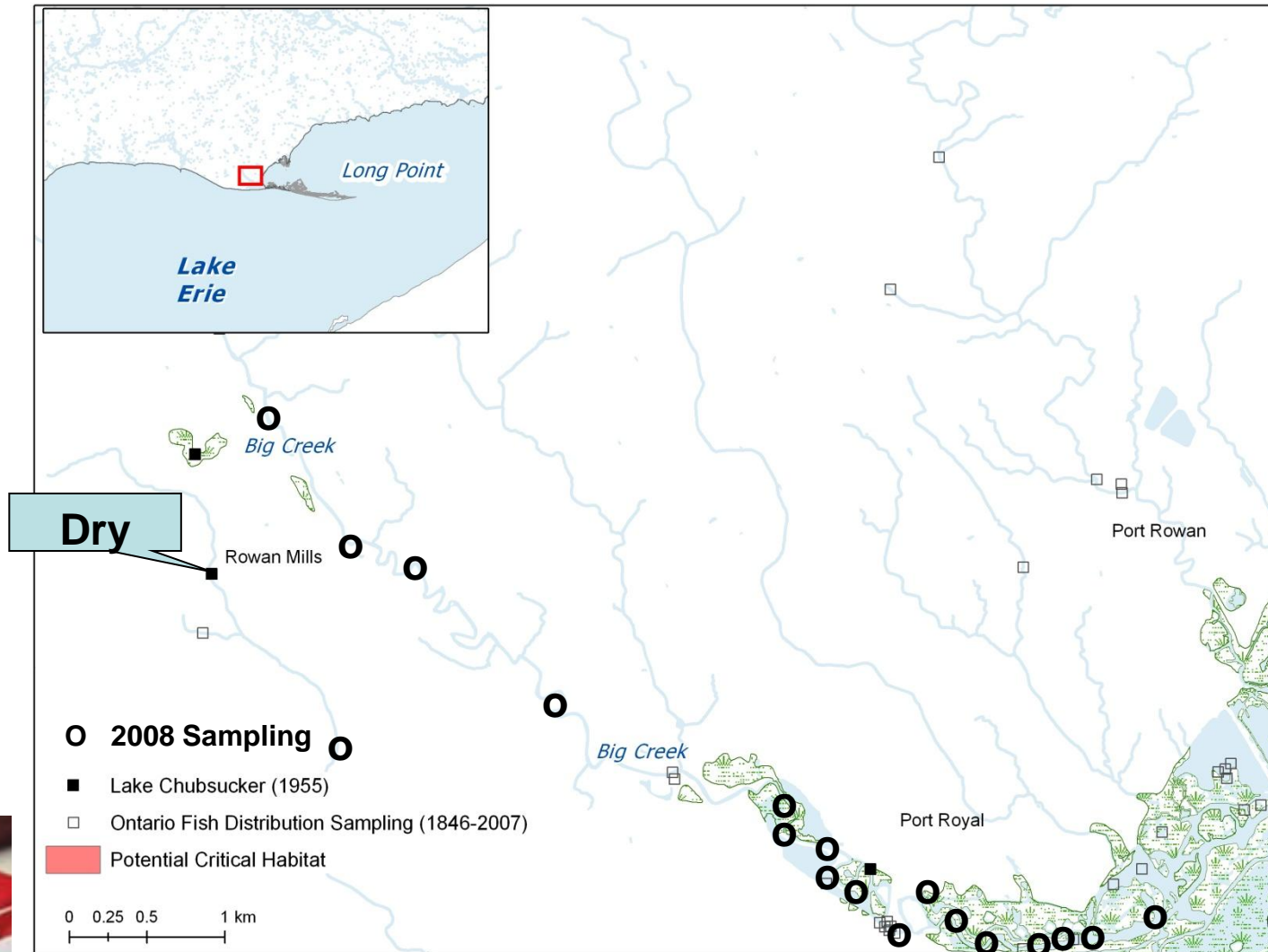
Catch Data	BEF	FN	Seine
Total Fishes Caught	549	331	3633
Species Richness	17	19	22
Unique Species	2	0	4
Common Species	15	19	18
Total Species Richness	29		

38 Pugnose Shiner; 22 Lake Chubsucker;
24 Grass Pickerel; 1 Warmouth



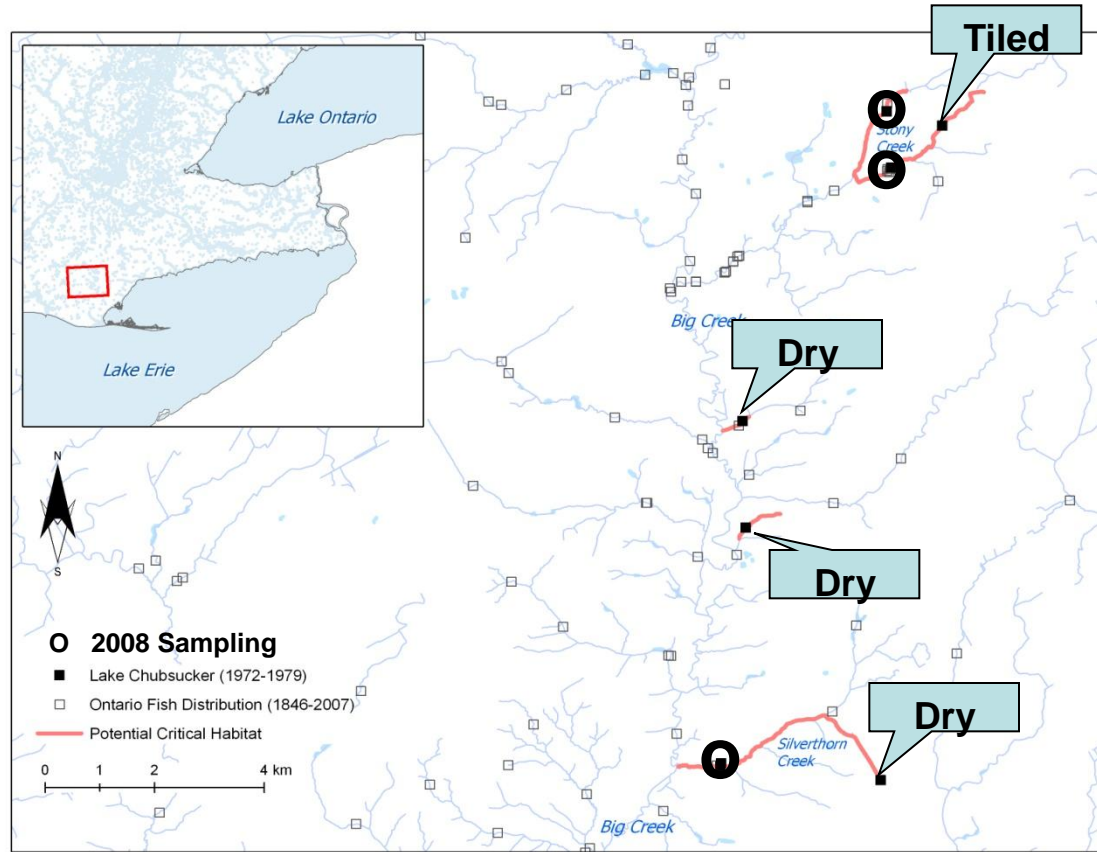


General Assessments





General Assessments





General Assessments

Gear type	Bag Seine	Boat Seine	Backpack EF	BEF
Total Fishes Caught	66	441	20	346
Species Richness	7	22	5	16
Fish SAR Detected	0	3	0	1
Unique Species	1	13	2	6

6 Pugnose Shiner; 2 Lake Chubsucker;
2 Grass Pickerel; 2 Eastern Sand Darter





Research Projects

- Identifying the Critical Habitat, Limiting Factors, Threats, and Conservation Genetics of Spotted Gar
- Bill Glass, Nick Mandrak, Lynda Corkum; University of Windsor, GLLFAS
 - 2009 - none caught in LPB
 - 2010 - 7 caught in LPB





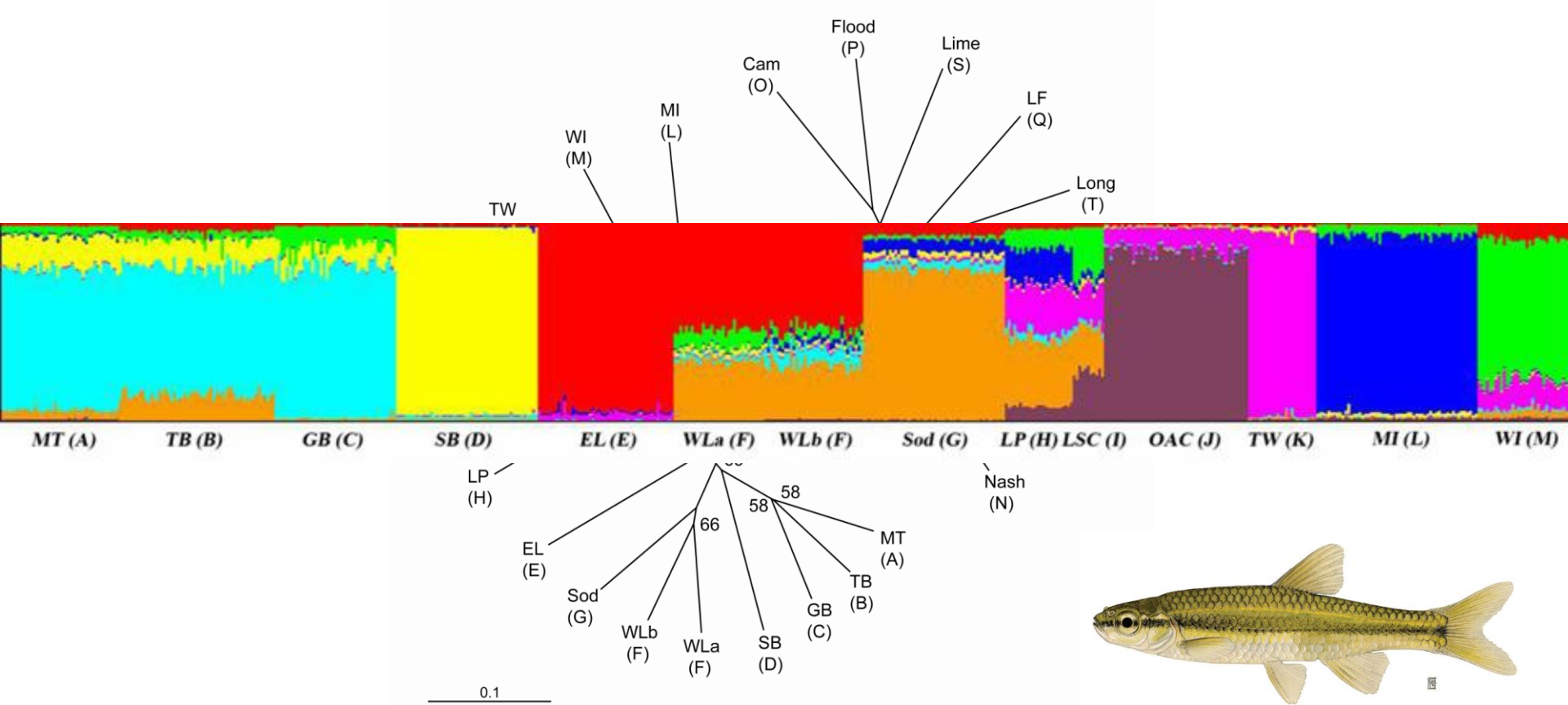
Research Projects

- Conservation Genetics of the Pugnose Shiner
- Megan McCusker, Nick Mandrak, Nathan Lovejoy; UTSC, GLLFAS





Research Projects





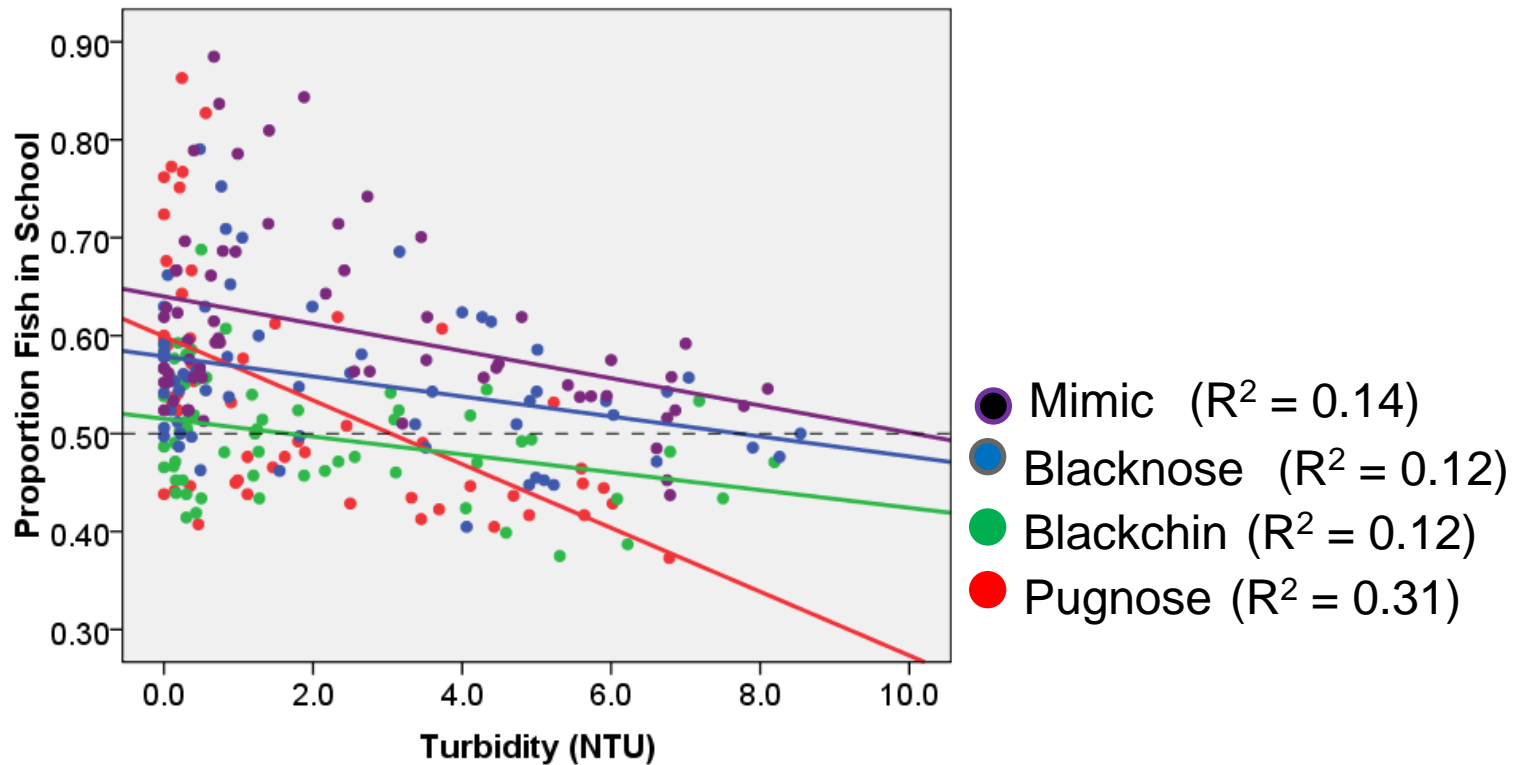
Research Projects

- The effects of turbidity on blackline shiners and Spotted Gar
- Suzanne Gray, Lauren Chapman, Nick Mandrak; McGill University, GLLFAS





Research Projects





Research Projects

- Eastern Sand Darter Habitat Modeling and Repatriation
- Al Dextrase, Nick Mandrak; Trent, GLLFAS





Research Projects

- Eastern Sand Darter Habitat Modeling and Repatriation
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International Upper Great Lakes Study (IJC) Long Point Bay, Lake Erie



Team:

Susan Doka, Erin Gertzen
Fisheries & Oceans Canada

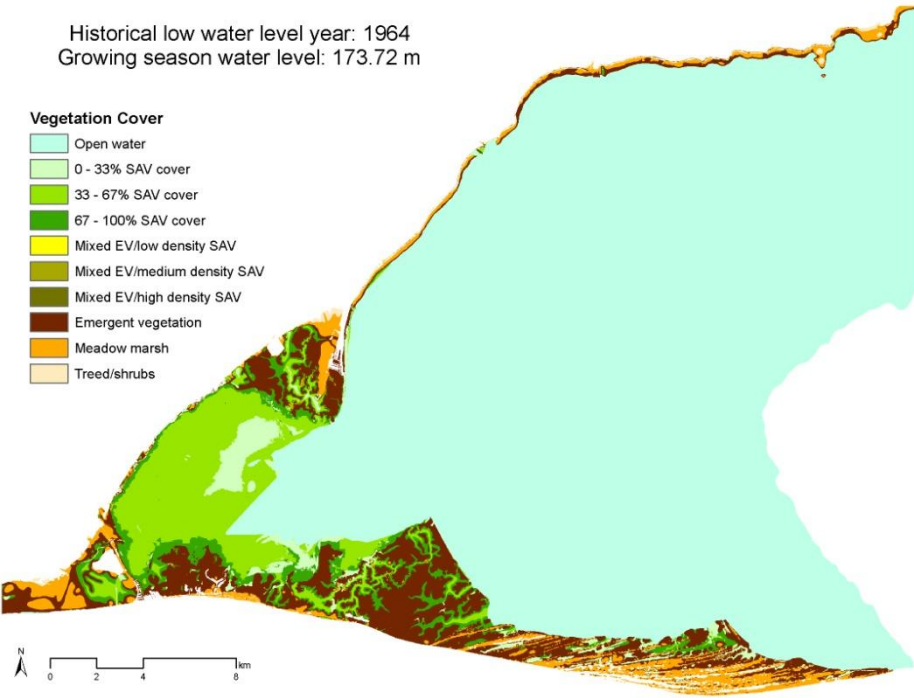
Linda Mortsch, Peter Deadman, Raymond Cabrera
University of Waterloo/Environment Canada

International Upper Great Lakes Study

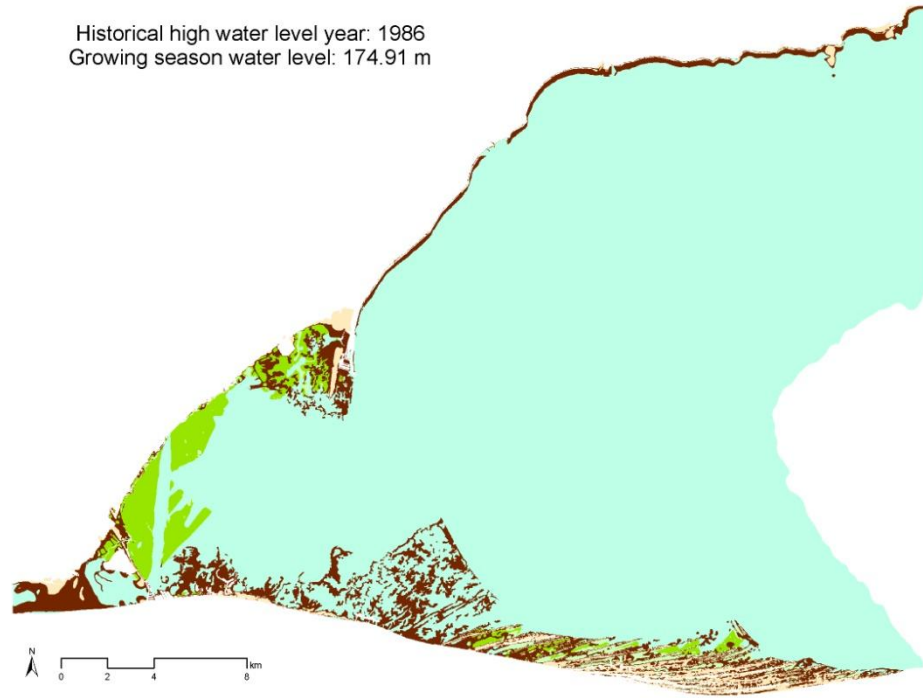
- IJC commissioned study
- Examine how changing Lake Superior's water level regulation plan would affect Upper Great Lakes ecosystems (incl. Lake Erie - above Niagara Falls)
- Lake Erie levels not highly affected by regulation; climate change important
- *Our role:* examine response to water level scenarios in Long Point Bay
 - Wetlands vegetation (Waterloo/EC; see *Cabrera et al. poster*)
 - Submerged aquatic vegetation (SAV) (DFO)
 - Fish habitat supply (DFO)

Historical low water level year: 1964
 Growing season water level: 173.72 m

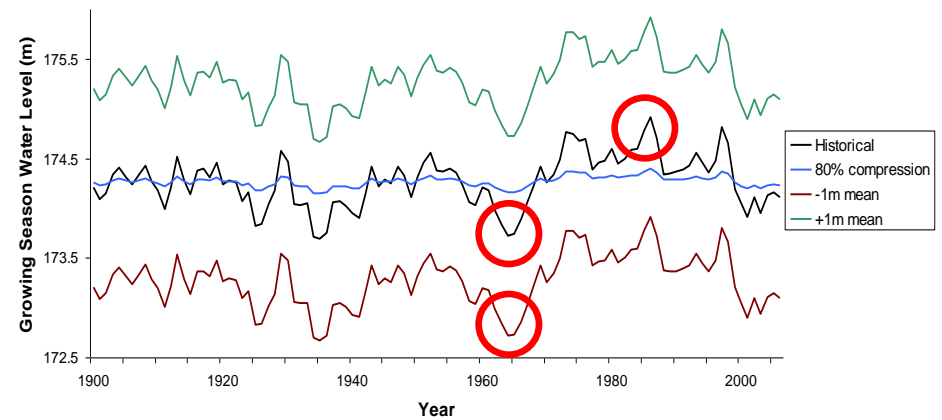
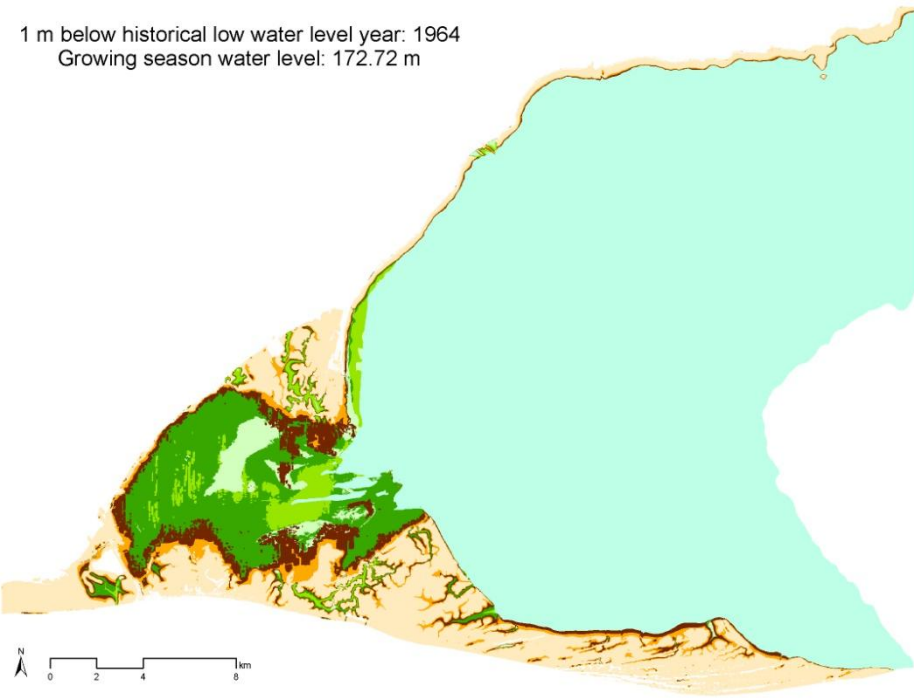
- Vegetation Cover**
- Open water
 - 0 - 33% SAV cover
 - 33 - 67% SAV cover
 - 67 - 100% SAV cover
 - Mixed EV/low density SAV
 - Mixed EV/medium density SAV
 - Mixed EV/high density SAV
 - Emergent vegetation
 - Meadow marsh
 - Tree/shrubs



Historical high water level year: 1986
 Growing season water level: 174.91 m



1 m below historical low water level year: 1964
 Growing season water level: 172.72 m

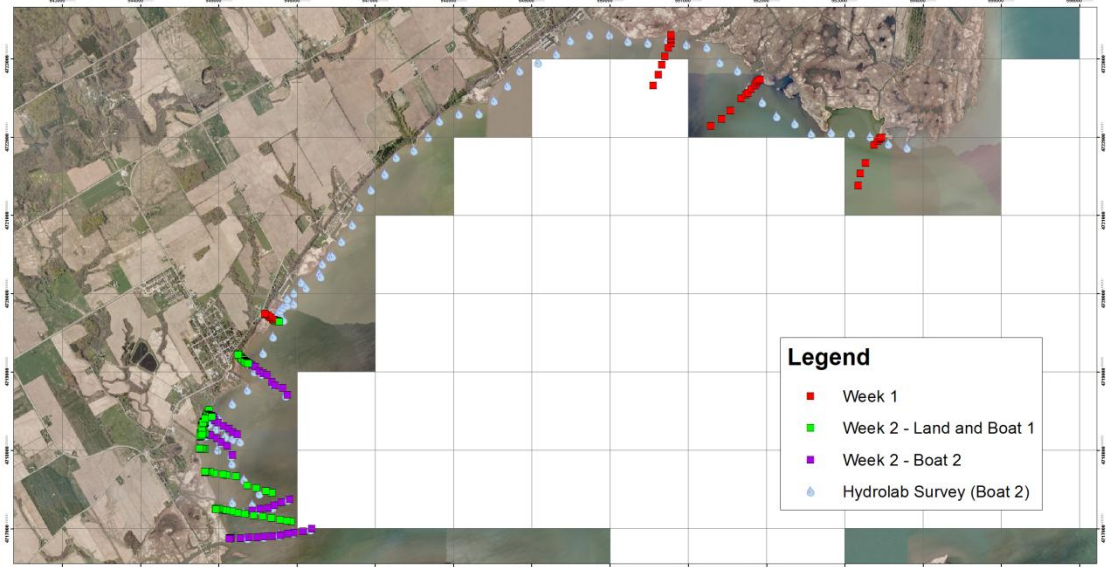


Lake Erie water levels (LimnoTech)

Field work: filling in data needs

- Elevation/bathymetry
- Substrate
- Water quality
- Vegetation

Inner Bay July/August 2010 field work data points



Raymond Cabrera, Adaptation and Impacts Research, Environment Canada
c/o Department of Geography and Environmental Management, University of Waterloo
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November 25, 2010

0 0.5 1 2 Kilometers



Ongoing work & other opportunities

- Refine/Calibrate/Validate Wetlands (Waterloo/EC) & SAV (DFO) models (input from LPWF, Gilbert/OMNR, others?)
- Fish habitat supply (guilds)
- Incorporation of climate change scenarios (EC)
- Fish population dynamics; currently unfunded (pike, perch, basses etc.?)
- Fish habitat supply (SAR?)