

Isle and Hasse Lakes Fisheries Restoration



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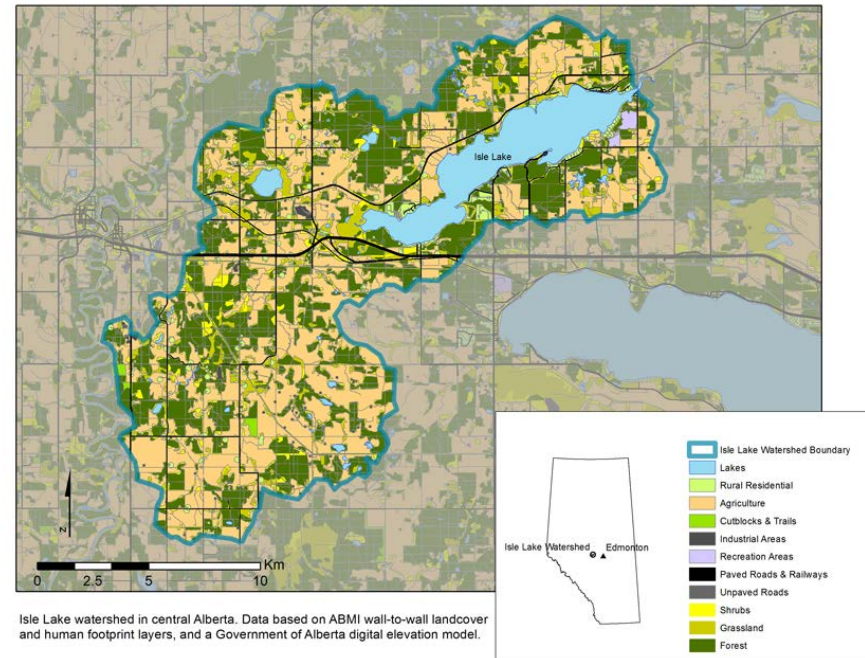
Backgrounder:

Isle Lake:

- 23 km² surface area, 246 km² drainage basin area
- 7.5 m maximum depth, 4.1 m average depth
- Hyper-eutrophic
- NRPK, WALL, YLPR

Hasse Lake:

- 0.9 km² surface area, 7.4 km² basin
- 9.4 m max depth, 3.5 m avg. depth
- Hyper-eutrophic
- RNTR... YLPR, NRPK, WALL



Isle Lake watershed in central Alberta. Data based on ABMI wall-to-wall landcover and human footprint layers, and a Government of Alberta digital elevation model.

Isle and Hasse Lakes Fisheries Restoration



- Project Motivation and Conservation Need
 - Water quality concerns
 - Eutrophication
 - Fish populations



“Hasse Lake Water Contaminated”

— Spruce Grove Examiner, 25 July 2014

“Public advised to stay out of Hasse
Lake’s Contaminated Water”

— Edmonton Journal, 27 July 2015

“Thousands of sucker fish gasping for air
because of oxygen deficiency at Lake
Isle” — Edmonton Journal, 10 April 2014



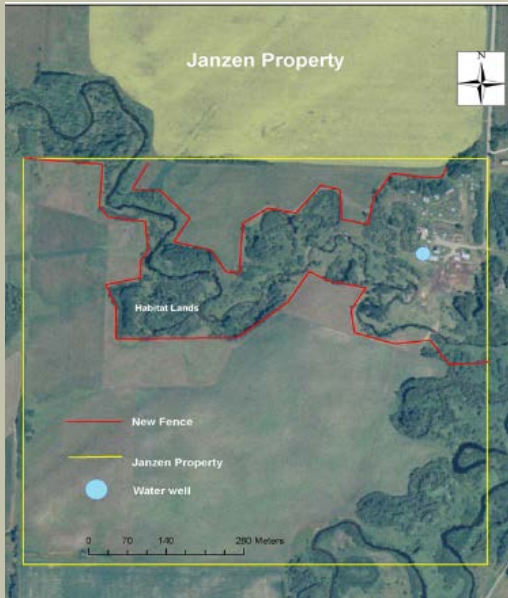
Isle and Hasse Lakes Fisheries Restoration



- Identified issues
 - Nutrient budget imbalance
 - Land use changes
 - Ecosystem changes
 - Interactions of economic, environmental, political issues



Isle and Hasse Lakes Fisheries Restoration



What role for ACA?

- Landscape Restoration
- Riparian habitat improvements
- Wetland retention / creation
- Public lands policy
- Examine wetland management
- Survey and data collection
- Provide communication tools

2015 – 2016 Project Activities

- Community engagement
- Isle Lake test netting
- Hasse Lake water quality



Isle and Hasse Lakes Community Engagement



Many Stakeholders

- Sturgeon River Watershed Alliance (TAC)
- Parkland County / County of Lac Ste. Anne ALUS programs
- Lakes of Parkland County
- Lake Isle and Lac Ste Anne Water Quality Management Society
- North Saskatchewan Watershed Alliance
- Alberta Environment and Parks
- Jack Pine Grazing Association

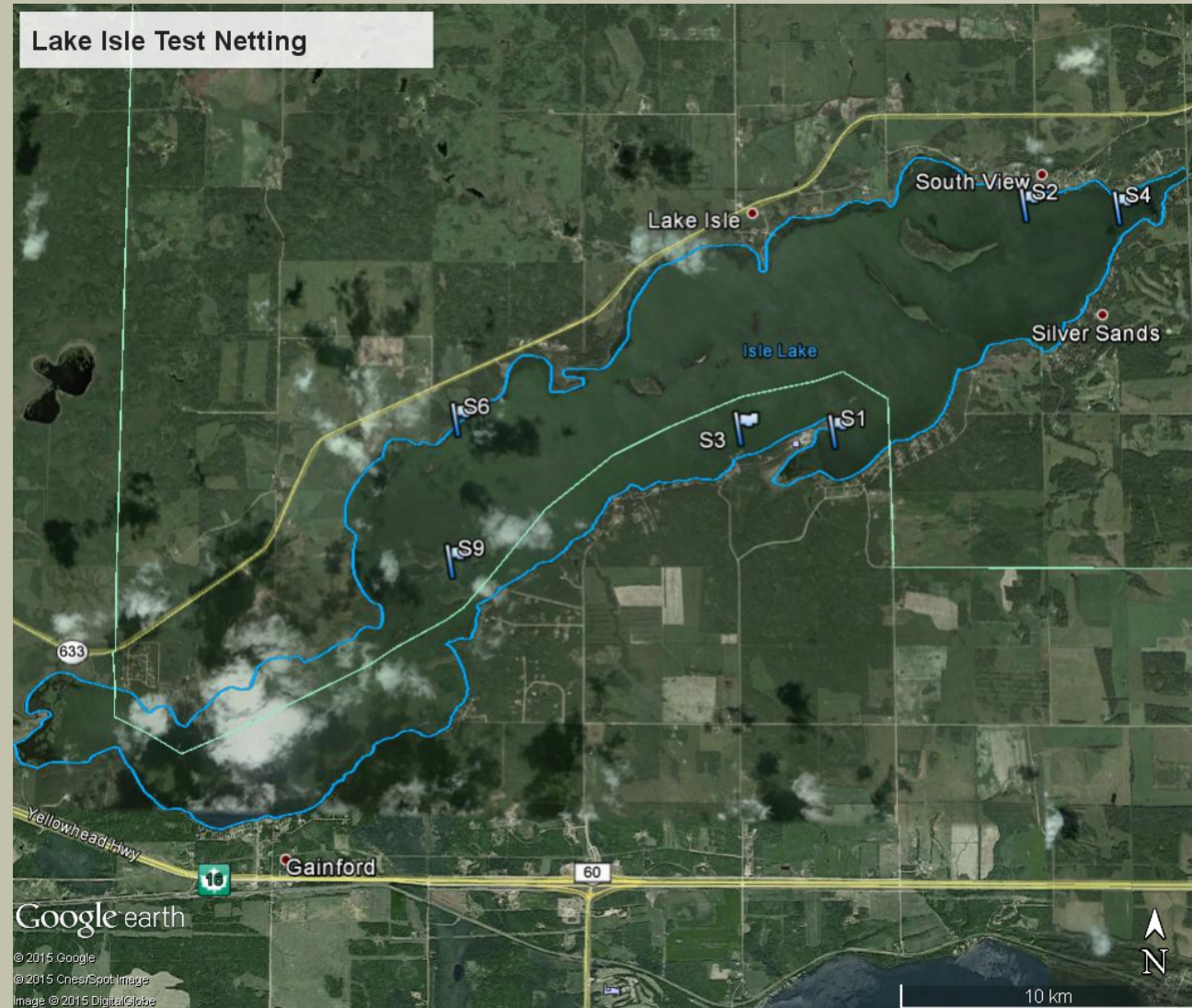
A very supportive network!



Isle Lake Test Netting



- Objective to determine fish community composition
- Multi-mesh, gill nets used
- Random locations selected
- Six overnight sets fished



Isle Lake Test Netting

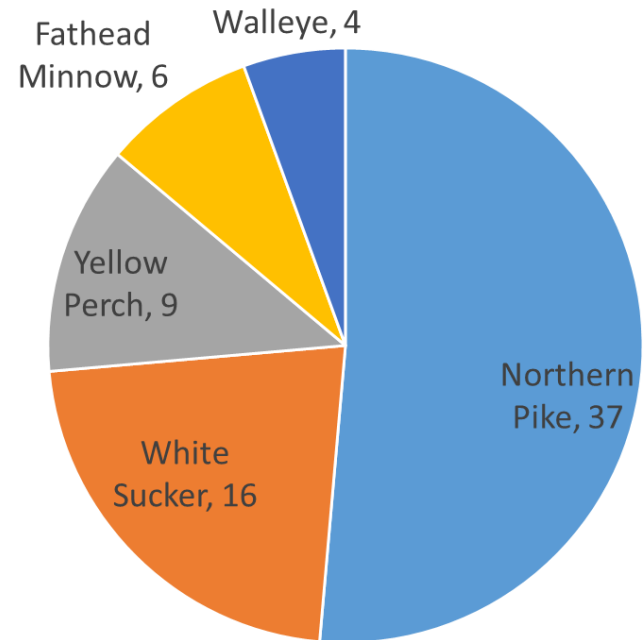


2015 Test Netting Results

- “Pleasantly Shocked”
 - suspended netting after one day, based on catch and with confidence we had a snapshot of the current community



Isle Lake Test Net Catch Summary

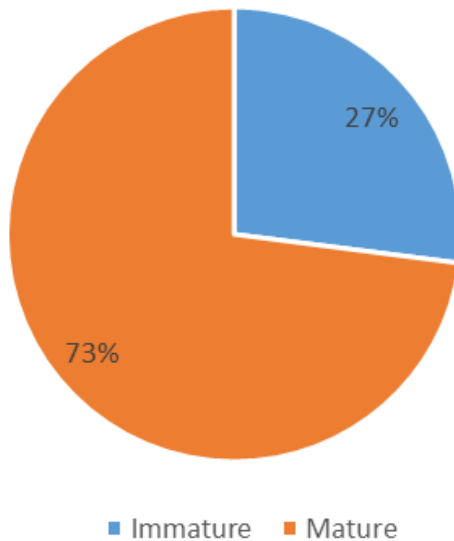


Isle Lake Test Netting

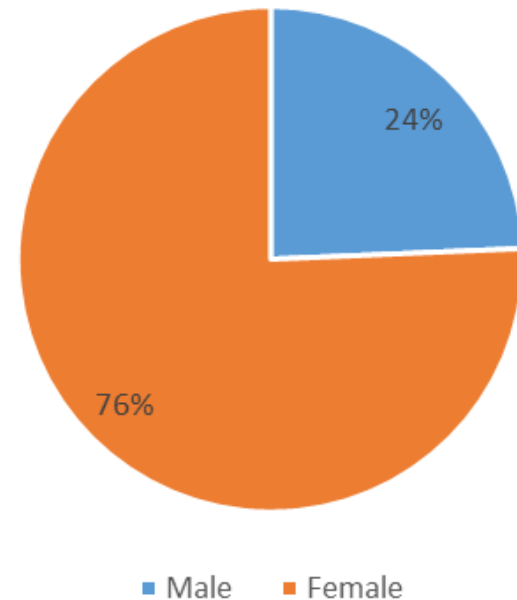


- Some questions...
 - Most fish were mature
 - Most fish were female

Northern Pike Catch



Northern Pike Catch



Isle Lake Test Netting



- Some (more) questions... potential answers?
 - Most fish were large



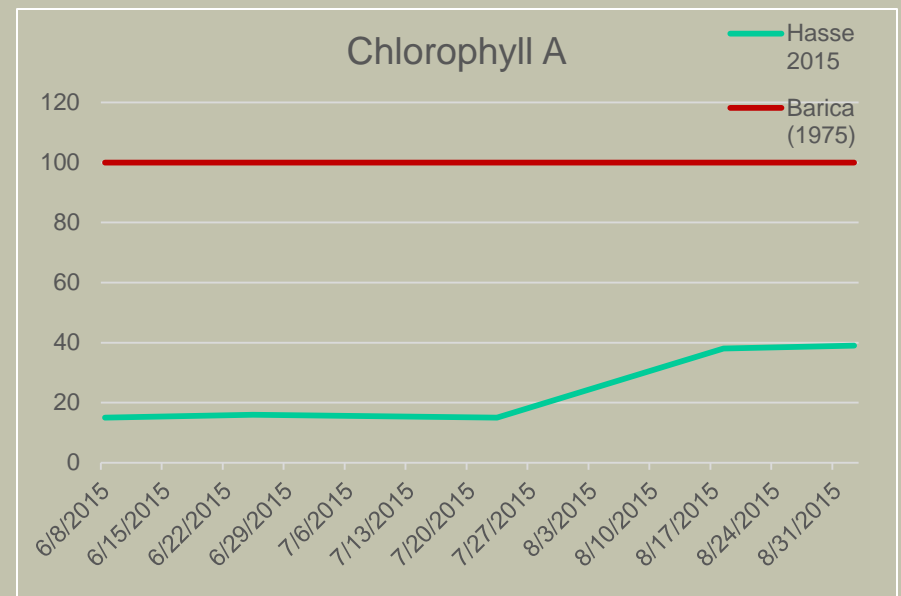
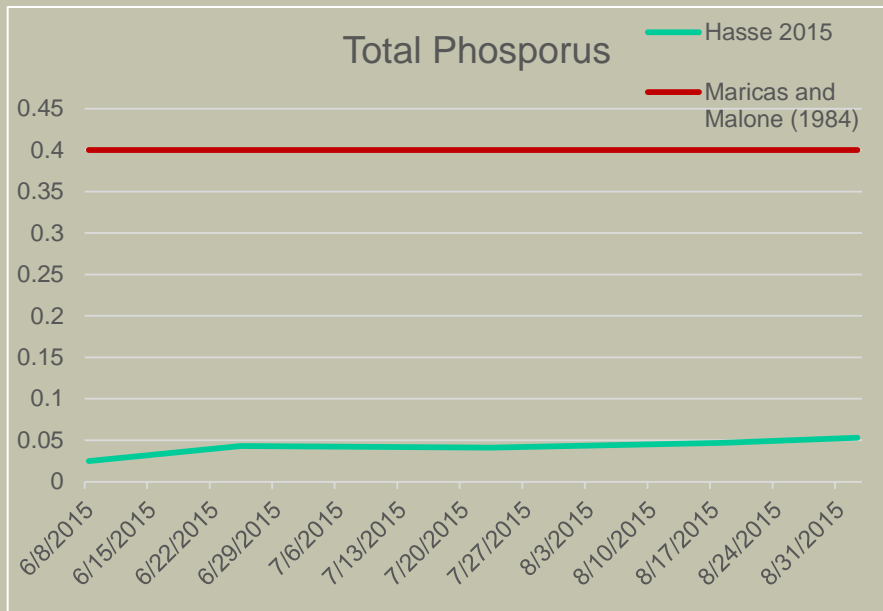
Northern Pike		
	length (mm)	weight (g)
min	388	375
max	803	3364
avg	604	1527
	length (in)	weight (lb)
min	15	0.8
max	32	7.4
avg	24	3.4

Walleye		
	length (mm)	weight (g)
min	565	1737
max	622	2550
average	589	2045.25
	length (in)	weight (lb)
min	22	3.8
max	25	5.6
average	23	4.5

Hasse Lake Water Quality



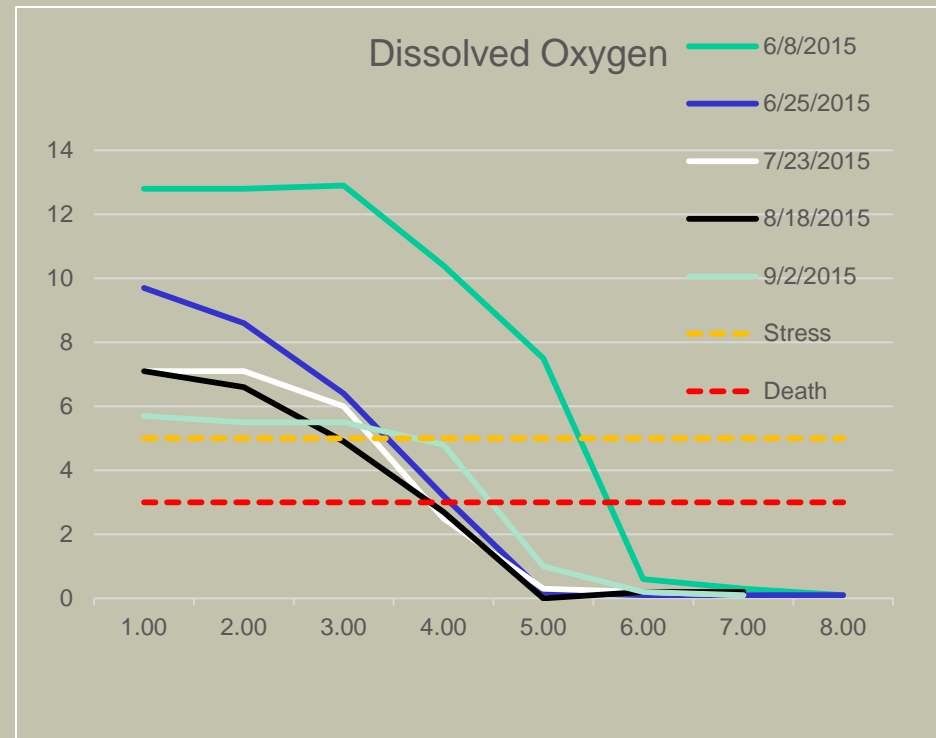
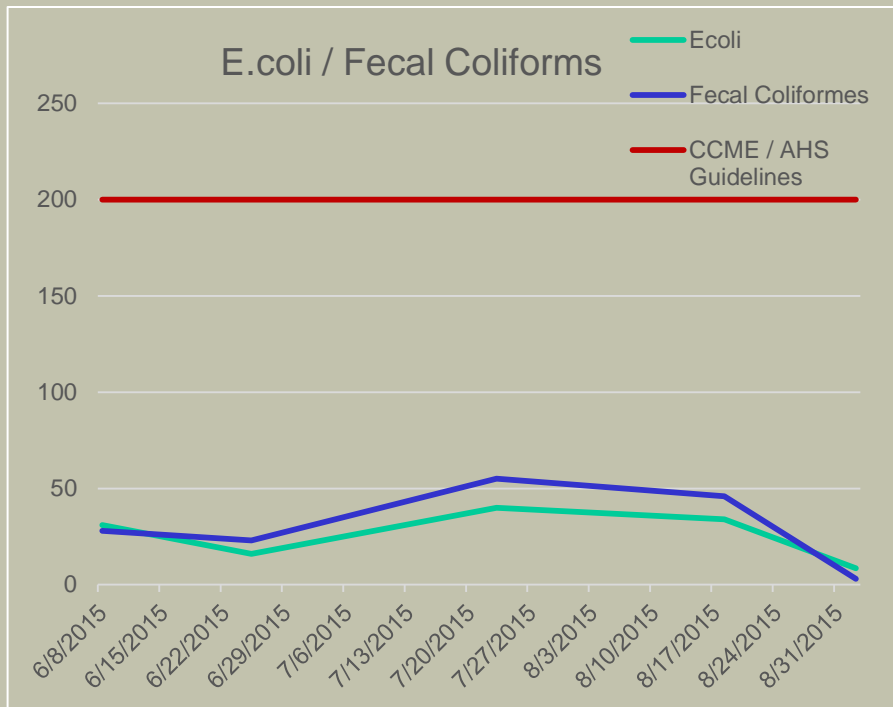
- What did we see?



Hasse Lake Water Quality



- What did we see?



Hasse Lake Water Quality



- Questions to explore...
 - Source of fecal coliforms
 - Potential for gull management
 - Effect trophic interaction manipulation
 - Potential for Aeration
 - Potential for other in-lake manipulations

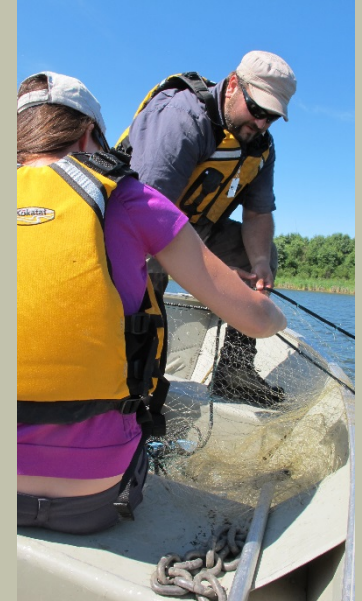


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Going Forward...

- 2016 – 2017 Project Activities
 - Riparian health assessments (Isle Lake and SR upstream)
 - Water quality data collection
 - Investigate potential restoration opportunities and complete habitat projects



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Questions / Comments
Many Thanks!

