Dewart Lake Engineering Feasibility Study

Presentation Overview

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PROJECT BACKGROUND

Dewart Lake Engineering Feasibility Study

- In 2024, a Diagnostic Study was completed for Dewart Lake
- In 2025, the Dewart Lake Protective Association (DLPA) received a LARE grant to complete an Engineering Feasibility Study
- Goal:
  - Improve water quality in Dewart Lake
- Approach:
  - Identify areas of concern/pollutant sources within the watershed
  - Identify potential improvement projects
  - Provide conceptual design for priority projects
  - Early coordination with agencies and landowners

Indiana DNR Lake and River Enhancement (LARE) Program

- DNR Department of Fish and Wildlife
- Funded by annual boating fees
- The goal of the LARE Program is to protect and enhance aquatic habitat for fish and wildlife and to ensure continued viability of Indiana's publicly accessible lakes and streams
- Projects:
  - Diagnostic Studies
  - Feasibility Studies
  - Engineering Design
  - Project Construction
  - Vegetation Management

PROJECT PURPOSE

Why do we care about water quality?:

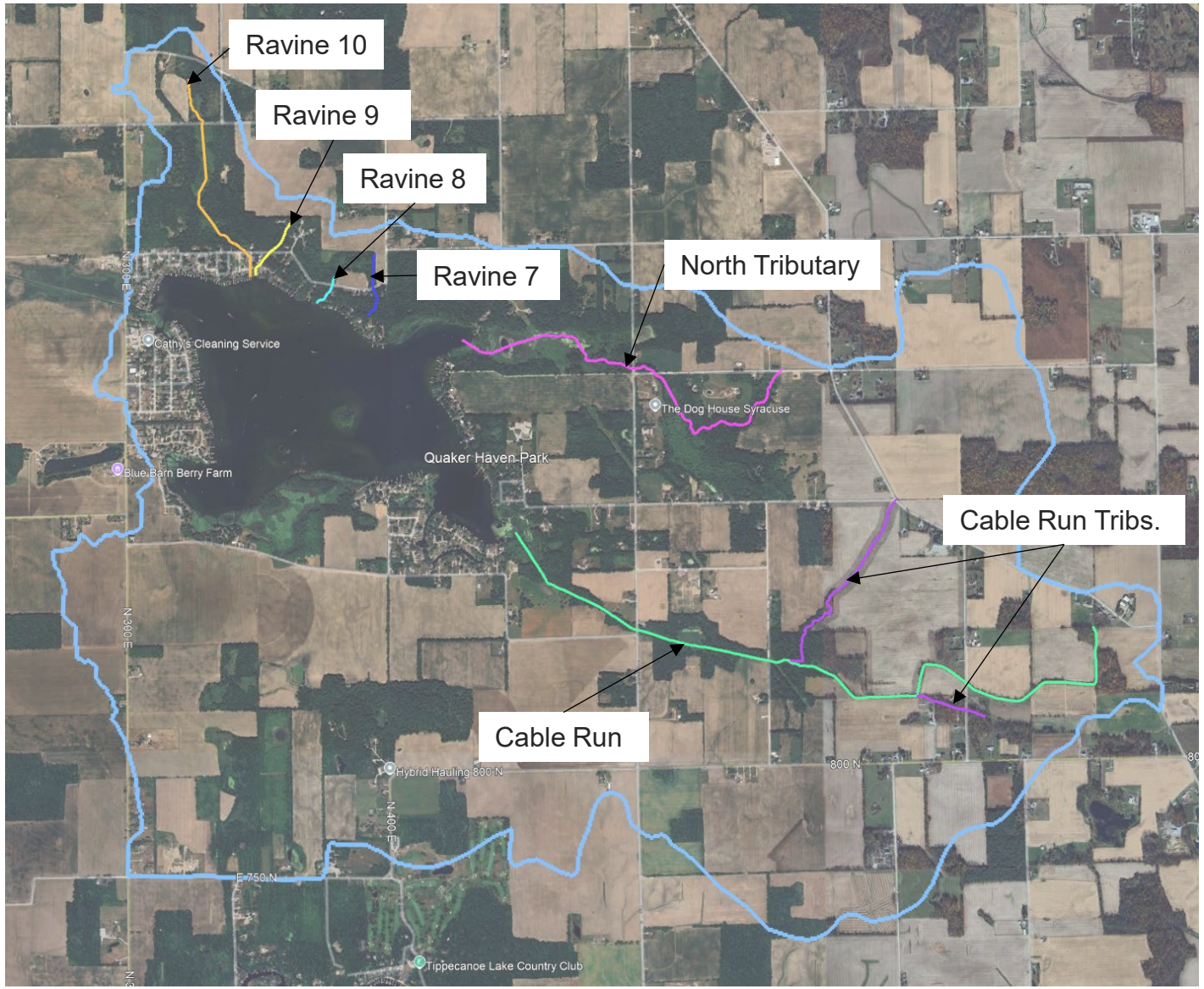
- Improved habitat:
  - Healthier for fish and wildlife
  - Fishing
  - Birding
- Safer for recreation including swimming and water sports
- Less invasive/nuisance aquatic vegetation

Diagnostic Study Water Quality Testing

Table 11. Chemical and bacterial characteristics of Dewart Lake Watershed storm sampling 2024. Shaded squares indicate those samples that measure above Indiana State Standards (■) or recommended target values (■; Correll, 1998; Dodds et al., 1998; Waters, 1998; USEPA, 2000).

Site Name	Sample Date	Nitrate-N (mg/L)	Ammonia-N (mg/L)	TKN (mg/L)	Ortho P (mg/L)	Total P (mg/L)	TSS (mg/L)	E. coli (col/100 ml)
Cable Run	March 25	6.6	0.10	0.50	0.05	0.05	2.6	153
	April 12	7.7	0.10	1.00	0.09	0.14	9.3	na
	May 10	8.5	0.10	0.89	0.10	0.12	6.3	na
	June 24	6.2	0.10	0.50	0.06	0.08	2.5	921
Cable Run Trib.	March 25	7.5	0.10	0.50	0.05	0.05	3.3	37
	April 12	8.5	0.10	1.20	0.13	0.42	4.5	na
	May 10	9.3	0.10	1.00	0.08	0.12	7.4	na
	June 24	7.2	0.14	0.5	0.05	0.08	15.0	1410
Cable Run Trib.	March 25	0.2	0.11	3.2	0.09	0.12	6.8	150
	April 12	0.2	0.10	2.9	0.08	0.16	4.1	na
	May 10	0.1	0.50	3.4	0.18	0.25	2.5	na
	June 24	Dry						
Cable Run Trib.	March 25	2.9	0.10	0.77	0.05	0.07	2.6	56
	April 12	5.3	0.10	1.20	0.09	0.48	3.6	na
	May 10	4.6	0.10	1.50	0.11	0.15	2.6	na
	June 24	1.3	0.10	2.50	0.24	0.68	559	2420
Cable Run Trib.	March 25	13.0	0.10	0.50	0.05	0.05	2.5	1410
	April 12	9.6	0.10	0.59	0.05	0.56	7.5	na
	May 10	8.9	0.10	0.50	0.05	0.15	4.8	na
	June 24	14.0	0.10	2.50	0.05	0.12	19.8	816
North Tributary	March 25	0.2	0.10	0.50	0.05	0.05	3.4	na
	April 12	0.2	0.10	0.72	0.05	0.05	4.4	na
	May 10	0.1	0.10	0.81	0.05	0.09	6.6	na
	June 24	Dry						
Ravine 7	March 25	0.7	0.10	0.50	0.05	0.06	144	4
	April 12	1.2	0.10	0.50	0.05	0.05	13.5	na
	May 10	1.3	0.10	0.50	0.05	0.05	18.0	na
	June 24	dry						
Ravine 8	March 25	0.2	0.10	1.40	0.05	0.21	116	3
	April 12	0.2	0.10	0.61	0.05	0.06	6.6	na
	May 10	0.1	0.10	0.50	0.05	0.05	14.9	na
	June 24	0.1	0.10	0.50	0.05	0.06	13.4	1300
Ravine 9	March 25	1.7	0.10	0.50	0.05	0.05	10	20
	April 12	3.1	0.10	0.50	0.05	0.05	2.9	na
	May 10	2.9	0.10	0.50	0.05	0.05	6.4	na
	June 24	0.1	0.10	11.70	0.05	4.70	145	242
Ravine 10	March 25	0.2	0.15	3.00	0.05	0.35	257	1
	April 12	0.2	0.10	0.54	0.05	0.05	3.6	na
	May 10	0.1	0.10	0.82	0.05	0.10	41.9	na
	June 24	0.1	0.18	3.90	0.05	0.76	174	2420

STUDY LOCATION



IMPROVEMENTS EXAMPLES

Types of Potential Improvement Projects

- Manure management and livestock exclusion
- Streambank stabilization/restoration
- Increasing vegetative buffers
- Agricultural BMPs maintenance and installation (grassed waterways, WASCOBs, conservation tillage, cover crop planting)
- Structural enhancements (drop structures, culverts, rock chutes, fencing)
- Stormwater retention strategies (wetlands)

SCOPE OF STUDY

First Public Meeting

- Introduce study
- Gather public input

Field Investigation

- Walk drainages, visual assessment
- Landowner notifications/permissions
- BANCS analysis – method for estimating streambank erosion potential
- Review existing studies and historical information
- Photo documentation

Project Prioritization

- Evaluate project feasibility based on:
  - Cost
  - Sediment and nutrient reduction potential
  - Landowner support
  - Regulatory feasibility
  - Constructability

Concept Planning

- Landowner coordination
- Preliminary design
- Conceptual design plans
- Early regulatory coordination (as-needed)
- Cost estimates

Final Public Meeting and Project Report

- Final public meeting to present study results
- Final report to be provided to DLPA and LARE

Cost Share Program Information

Conservation Reserve Program (CRP) – *Land conservation*

Conservation Reserve Enhancement Program (CREP) – *Land conservation*

Wetlands Reserve Easements (WRE) – *Wetland protection and restoration*

Environmental Quality Incentives Program (EQIP) – *Land conservation*

Lake and River Enhancement Program (LARE) – *Lake and stream restoration*

Great Lakes Commission (GLC) – *Habitat restoration, nutrient reduction*

National Fish and Wildlife Foundation (NFWF) – *Land conservation, habitat restoration*

EPA/IDEM 319, Clean Water Indiana (CWI) grants – *Nonpoint source water quality*

Questions

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