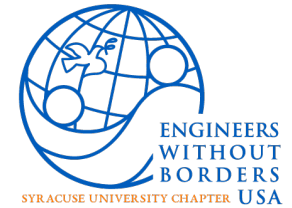


Little Salmon River: *Dams Designs for Discussion*

Engineers Without Borders at Syracuse University



Department of
Environmental
Conservation



Project Leads



Rylee Smith

Ecology Lead

M.S. Engineering Management '27

B.S. Environmental Engineering



Connor Moulton

Technical Lead

M.P.A. Public Administration '27

B.S. Environmental Engineering

Engineers Without Borders

What EWB does - Provide engineering design services to under-resourced communities across the globe.

Services Provided

- Environmental Engineering
- Geotechnical/soil analysis
- Structural/infrastructure stability
- Hydrology/Ecology Services (Water bodies, flora & fauna)
- Consulting (Client relations, community engagement)

The Little Salmon River: Information Collection

Areas of Focus - Dam Infrastructure

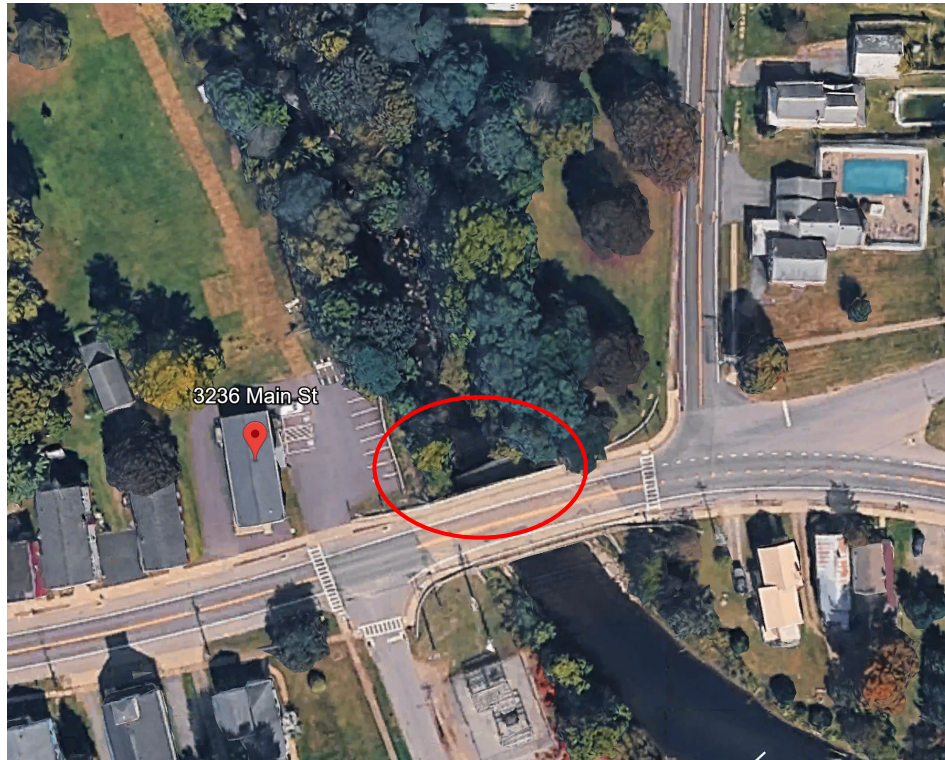


Aerial view of Syra-Canadian Club property and Ames Mill Dam location (2026).



Ames Mill Dam in Village of Mexico, NY (Fall 2024).

Areas of Focus - Dam Infrastructure



Aerial view of Village Hall property and Little Salmon Dam location (2026).



Little Salmon Dam in Village of Mexico, NY (Fall 2025).

Community Engagement – 2025 Survey to Now

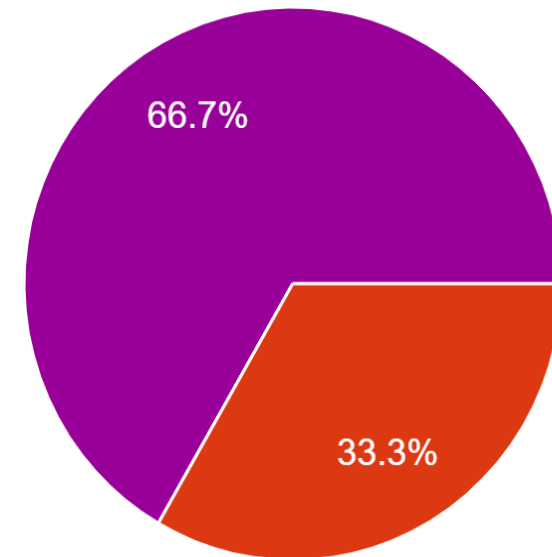
River is most used for:

- Enjoying wildlife and nature
- Relating to surrounding natural environment

Concerns on the river:

- Aquatic connectivity
- Sea lamprey treatment (questions on if pesticides enter ecosystem)
- Vegetation volume

How often do you use the Little Salmon River.
3 responses



Understanding the Ames Mill Dam



Upstream conditions directly above Ames Mill Dam (Fall 2024).



Downstream conditions with location of fishing spot (Fall 2024).



Concrete structure on inner bend of the Ames Mill Dam (Fall 2024).

- Increased water area upstream
- Downstream bridge considerations
- Membership values
- Identifying other infrastructure

Understanding the Little Salmon Dam



Upstream conditions
directly above Little
Salmon Dam (Fall 2025)
[left]. ←

Bridge overhead Little
Salmon Dam (Fall 2025)
[right]. →



- Bridge overhead dam
- Exposed sewer line
- Buried water line
- Plugged hole on top of dam
- Area of lamprey treatment



Downstream conditions
directly above Little
Salmon Dam (Fall 2025)
[left]. ←

Gravity fed sewer main
downstream (Fall 2025)
[right]. →



Expanding the Team's Network

- Weekly meetings with Syracuse University Team
 - Utilize faculty advisors and SU EFC P.E.
 - Evaluate project scope
- Ongoing coordination with NYSDEC and NYSWRI
 - Provides access to:
 - Geologic/hydraulic data
 - Regional context
 - Engineering processes (sediment control, monitoring, etc.)
 - Connecting with other entities (U.S. Fish and Wildlife Services, non-profits, etc.)



The Little Salmon River: Hands-On Involvement

Monitoring Endeavors



Connor sampling at the Little Salmon Dam,
(November 2025).



Rylee and Jeremy Dietrich sampling at the
Black Creek (August 2026).



Crawfish at Black Creek (2026).



Water snake at Black Creek (2026).

Beginning Conceptual Designs

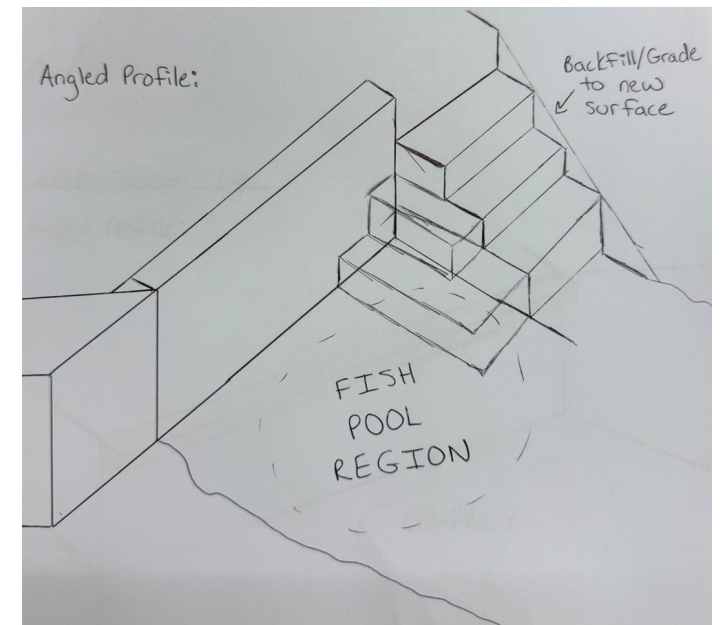
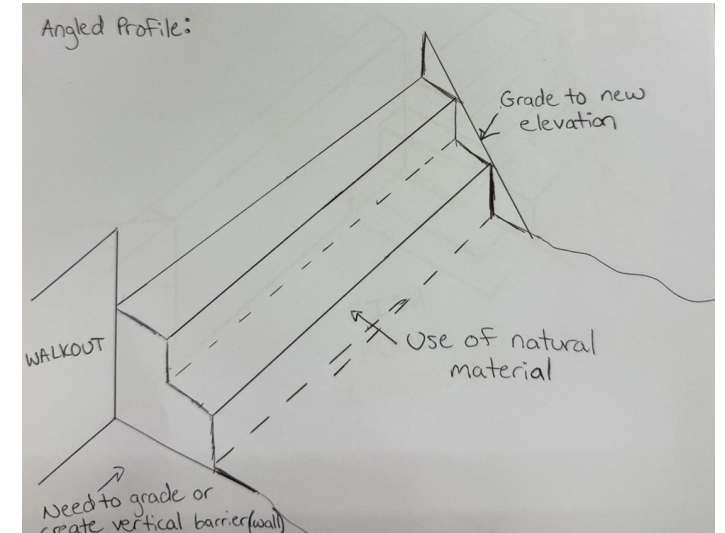
Ames Mill Dam Concepts



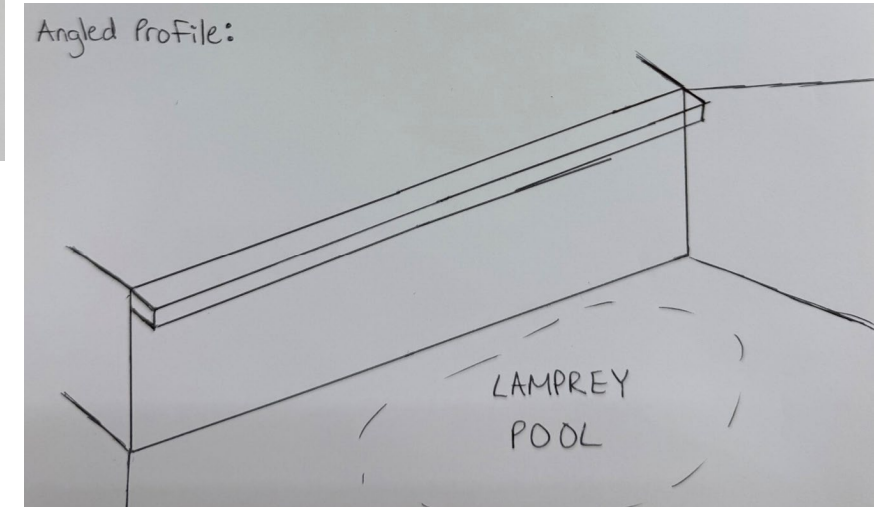
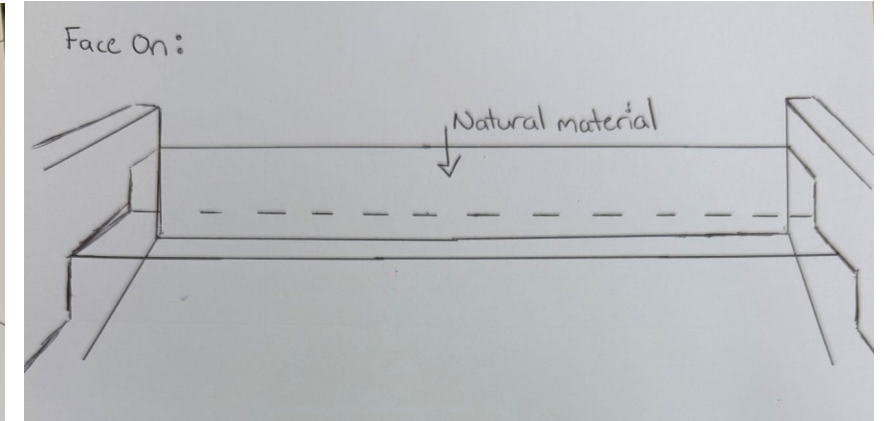
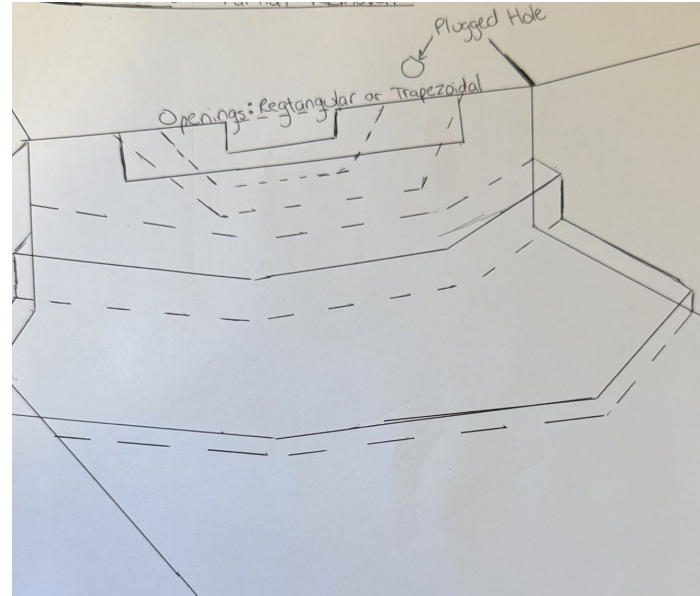
Ames Mill Dam [left], full removal sketch [top right], and partial removal sketch [bottom right].

Considerations

- Native species passage
- Construction costs and impacts
- Environmental alterations
- Maintaining Club incentives



Little Salmon Dam Concepts



Little Salmon Dam [left], partial removal sketch [center], full removal sketch [top right], and lip addition [bottom right].

Considerations

- Invasive and native species passage
- Construction costs and impacts
- Environmental alterations
- Surrounding infrastructure

Identifying Funding Opportunities

Developing the “Correct Narrative”

Course of Action	Developable Narrative
Site visits, meetings, and surveys	Community priorities and considerations
Monitoring and sampling	Ecological restoration considerations
Design alternatives	Riverway passage and/or structural “risks”

WQIP

• Water Quality Improvement Project

- NYSDEC grant → Aquatic connectivity
- Purpose: Fund projects that improve aquatic habitat connectivity at dams
- Maximum award amount: \$2,000,000
 - 25% award match
- Primary Priority
 - Focus on dams, culverts, or bridges
 - Use DEC accepted site assessment report or feasibility study
- Goal: Identify >40 points in early stages
 - Dam barrier (25)
 - Open 18 miles of riverway (15)
 - Enhance passage to numerous species (5)

AQUATIC CONNECTIVITY SCORING CRITERIA

Agency Points		Up to 115 points are available, as defined below. Applications must receive a minimum of 40 points to be eligible for funding. Applications that receive 0 points for Reasonableness of Cost, Project Readiness or Experience and Ability will not be funded.			
Barrierity ¹⁵⁶ <i>25 to 0 points possible</i>	25 POINTS: Significant or severe	20 POINTS: Moderate	10 POINTS: Minor OR Replacement of failing stream crossing structure	0 POINTS: Insignificant or no barrier	
Connected Stream Miles ¹⁵⁷ <i>15 to 0 points possible</i>	15 POINTS: 3 or more miles	10 POINTS: 2 to 2.9 miles	8 POINTS: 1 to 1.9 miles	5 POINTS: Less than 1 mile	
Species of Management Concern ¹⁵⁸ <i>5 to 0 points possible</i>	5 POINTS: 2 or more species of management concern will benefit from aquatic organism passage at the project site.	3 POINTS: 1 species of management concern will benefit from aquatic organism passage at the project site.	0 POINTS: No identified species of management concern that will benefit from aquatic organism passage at the project site.		
Reasonableness of Cost <i>25 to 0 points possible</i>	25 POINTS: Exceptional value for the cost as it applies to both achieving the project objectives and being a fiscally sound project. WQIP budget includes no ineligible activities.	15 POINTS: Cost is good as it applies to both achieving the project objectives and being a fiscally sound project.	10 POINTS: Cost is reasonable as it applies to both achieving the project objectives and being a fiscally sound project.	5 POINTS: Budget is missing some detail but provides reasonable value for the cost as it applies to achieving project objectives.	0 POINTS: Budget is not completed and/or costs are not justified and/or project costs do not provide a reasonable value as it applies to achieving project objectives. Applications that fall into this category will not be funded.
Project Readiness <i>10 to 0 points possible</i>	10 POINTS: Project has all necessary permits (or does not need permits) and approvals. The project is ready to move forward with construction.		5 POINTS: Project is not ready to proceed with construction but has some of the necessary approvals and is expected to lead to construction without delay.		0 POINTS: Project has none of the necessary approvals and is not expected to be completed within 5 years. Applications that fall into this category will not be funded.
Experience and Ability <i>5 to 0 points possible</i>	5 POINTS: Applicant has shown the ability to complete state-funded aquatic connectivity restoration projects in the past 10 years in a timely manner. OR		3 POINTS: Applicant has not been awarded a state grant related to aquatic connectivity in the past 10 years but appears to have the experience and ability to carry out the project.		0 POINTS: Applicant has demonstrated poor management of WQIP contract(s) in the past 10 years. OR Applicant has not been awarded a WQIP grant in the past 10 years

Next Steps and Looking Towards a Final Deliverable

Develop appendix

- Community priorities overview
- Existing conditions of both dams
 - Photographs, documentation and relevant reports
- Dam alternative recommendations
- Grant recommendations



Utilize in a Preliminary Engineering Report

- Work done is allocated towards a standard “30% design completion”

Identify appropriate entities

- Establish non-profits entities that realistically could take over a project if implemented

Thank you to Dr. Trimmer, Dr. Carter, Susan McGrattan, Emily Fell, Jared Popoli, Tim Koch, and all the other staff at NYSDEC, the Water Resources Institute, the Tug Hill Commission and Syracuse University for providing the opportunity to support students to engage in technical work and help build our skillset.

Thank you!

Questions? Please
contact ewb@syr.edu

Check us out on
Instagram: [@su_ewb](https://www.instagram.com/su_ewb)

