

The Removal of the Kinneytown Dam

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Project Motivation & Goals

As a result of climate change, the United States is experiencing unpredictable weather patterns including heavy rainfall, putting dams at risk.¹ Heavily aged dams are vulnerable to succumbing to the effects of extreme weather, including a dam local to Seymour, CT, the **Kinneytown Dam** (Fig. 2a). The Kinneytown Dam has not been properly operated since 15 years ago due to inoperable turbines, but it is important to understand the ecological and community hazards that the idle dam is causing. My project will focus on exploring the reasons the Kinneytown Dam is being removed and sharing this information with my community.

Personal Motivation:

I am a Mechanical Design and Engineering Technologies Senior enrolled at Emmett O'Brien Technical High School with a goal of pursuing a career in aeronautical engineering. I am interested in the connection between the environment and human life, and the Kinneytown Dam was the perfect opportunity to study a local infrastructure and its impact on my community.

Project Goals:

- 1) Complete a field visit (Fig. 1) to **locate a pipe outlet** that could be used to control water levels during dam removal.
- 2) Develop a **presentation for young adults** to learn about dams, their uses, careers related to dam construction, and their hazards.
- 3) Present information relating to Kinneytown Dam to two high school classes.

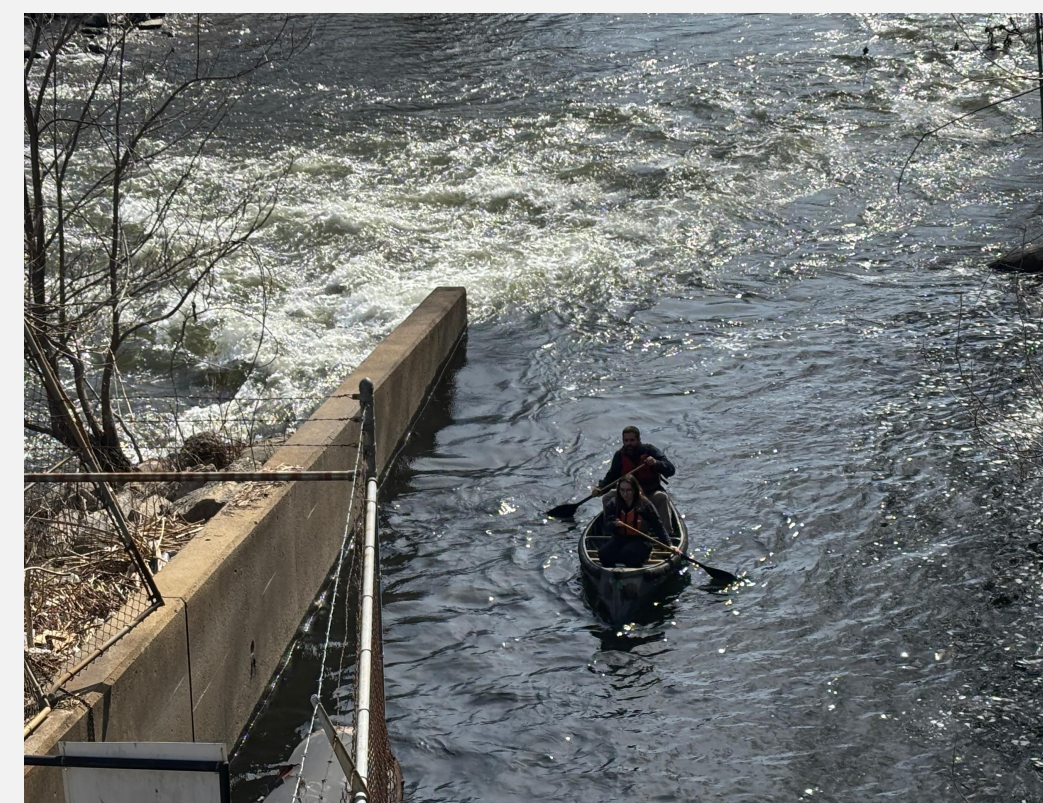


Fig 1. Me on the canoe during the field visit to Kinneytown Dam.

Engineering & Field Visit

Dam Construction:

- o The Kinneytown Dam is **hydroelectric** and considered to be a **concrete gravity dam** (Fig. 2a and 2b).
- o The first use for the dam was in the 19th century, when it was built to divert water into Coe Pond. Coe pond itself was created by the construction of an earthen dam called Coe Pond Dam.
- o In 1980, Kinneytown dam was converted into a hydroelectric facility.

Fish Ladder:

- o Ideally, a **fish ladder in dams will encourage fish to overcome obstacles and continue their upstream migrations**. However, a fish ladder can become ineffective due to a lack of maintenance.
- o In Kinneytown Dam, the flow is not being diverted into the Coe Pond Dam, which causes spillage over the Kinneytown dam, attracting the fish towards the dam.
- o The fish ladder at Kinneytown Dam has multiple sharp corners (Fig. 2c), which make it harder for the fish as they attempt to travel up it.

Exploration to Locate Pipe Outlet:

- o On March 14th, I went to the Kinneytown Dam with Laura Wildman, Kevin Zak, and Paul Woodworth to confirm the location of a pipe outlet. **The location of the pipe outlet will be crucial for the removal team.**
- o Paul Woodworth and I took a canoe down to the bottom of the Kinneytown Dam (Fig. 1). We rowed into the fish ladder and then took a 12 foot pole with a GoPro on the end of it. We used the GoPro to locate opening to the pipe outlet (Fig. 2d).

The dam has have not been maintain and has not been fully operable for around 15 years. Based on data from our field visit and conversations with my community partners, it is confirmed that dam removal is the best option ecologically and economically for the surrounding areas.

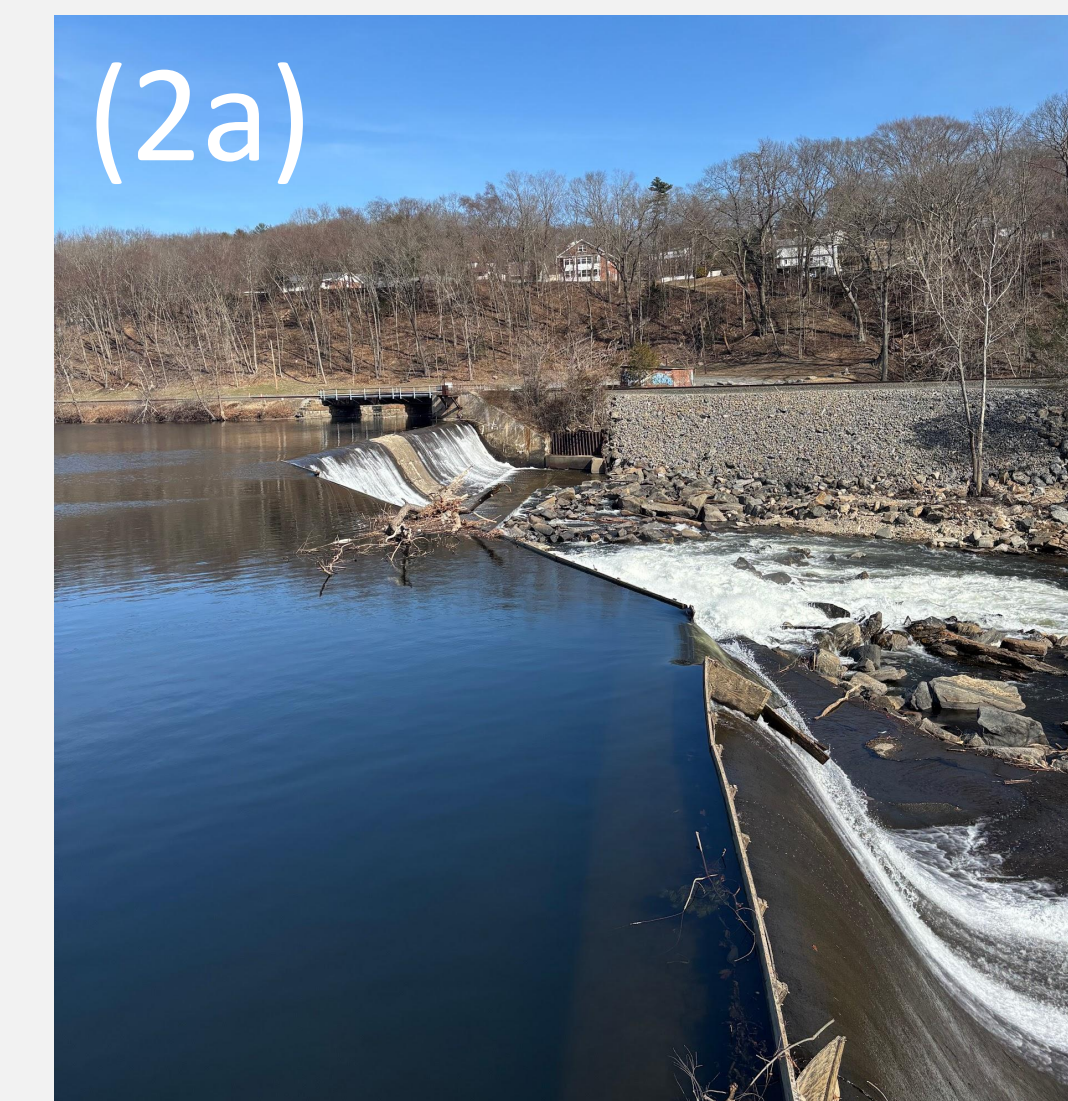


Fig 2. (a) Photo of Kinneytown Dam structure. (b) Internal structure of the powerhouse. (c) Top view of fish ladder. (d) Photo from the GoPro of the pipe outlet found on field visit.

Outreach & Community Involvement

The **Kinneytown Dam is local to my community, but few people know about the hazards associated with the dam**. While the Naugatuck Valley Council of Governments (NVCOG) and Save the Sound host bi-monthly community meetings to discuss the removal, the population of **young people in our area are missing key information** about the removal.

To share more information about the dam, I presented to two biology classes at my school, **Emmett O'Brien Technical High School**. In total there were about 36 participants.

Community Outreach (Fig. 3):

- o My presentation highlighted details about the **history of Kinneytown Dam, dam removal, dam engineering, hazards associated with dams, and careers related to technical skills**.
- o My presentation highlighted key issues like dam **flooding**, which would directly impact our Seymour community by **putting our infrastructure at risk, including houses, schools, and main roads**.
- o Another key issue I focused on was **ecological concerns**, specifically relating to fish, as **the dam is blocking 32 miles of upstream fish passage**. **The dam is unsafe to fish**, specifically the part referred to as the **"fish graveyard"**.

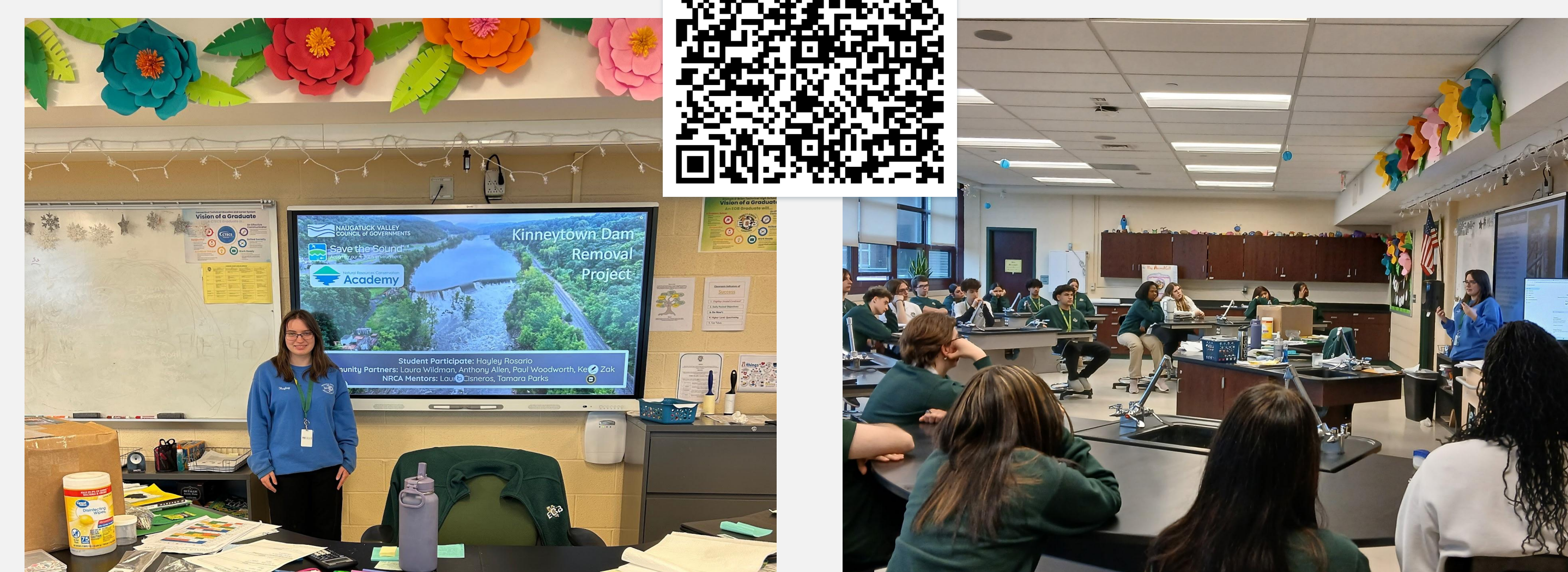
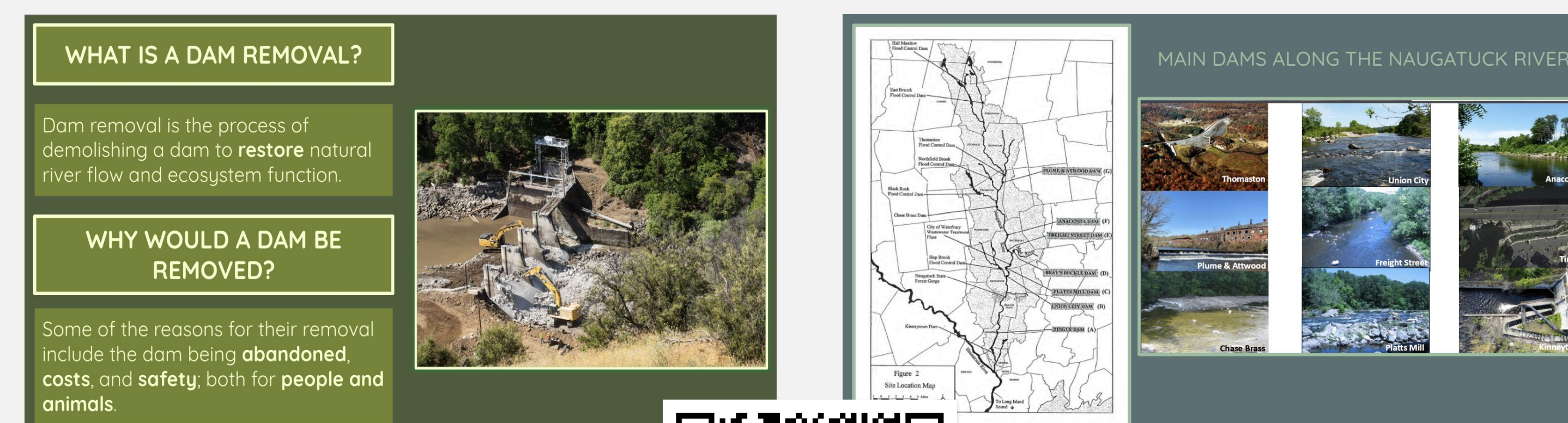


Fig 3. Photos of my slideshow (top left and right) presentation to students at my school and photos of the session I held about Kinneytown Dam (bottom left and right).

Scan the QR CODE to see the full Kinneytown Dam Presentation

Outcomes, Conclusion and Next Steps

As an engineer, I believe it is our duty ensure our work prioritizes and considers human and environmental life.

This project reflected that belief perfectly, as dams provide benefit for humans and can become hazardous to the environment if they are not developed or maintained properly. If the Kinneytown Dam were to breach, it would affect my everyday life as it is located within my community - close to my house, school, and major roads.

While the **Kinneytown Dam is set to be removed in 2027 and 2028**, informing the local community of its impact is essential to ensuring that the dam removal process is understood. **As dams continue to be removed across the United States due to our changing climate, other locations may consider outreach similar to what I did for Kinneytown Dam in Seymour, CT.**

Acknowledgements and References

Thank you to NRCA CAP for the opportunity to participate in the program. Special thank you to Laura Cisneros for and my Difference Maker Mentor, Tamara Parks for their guidance on the project. This project would not have been possible without my community partners from Save the Sound, and NRRG, who shared information about the harmful impacts of the Kinneytown Dam. Through this collaboration I learned why dam removal is important to share. Kevin Zak, from NRRG, has been documenting the dam for over 20 years, and Laura Wildman, who is the Vice President of Ecological Action at Save the Sound, assisted me with the technical aspects of this project. Paul Woodworth from Save The Sound, has assisted me with the field visit, and Anthony Allen, from Save the Sound, shared outreach information for me to learn from.

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