



The Montsweag Brook Restoration Project

Don Hudson
The Chewonki Foundation
Wiscasset, Maine

The Montsweag Brook Restoration Project

- ✓ Decommissioning of Maine Yankee, 1997-2005
- ✓ Natural Resources Damages Settlement Agreement negotiated by MY and the Maine Department of Environmental Protection, 2005-2008
- ✓ Settlement partners, including Maine Department of Marine Resources, Sheepscot Valley Conservation Association, and Chewonki, begin to implement the agreement, 2009

The Montsweag Brook Restoration Project

- ✓ Montsweag Brook Restoration Project partners include the USDA Natural Resource Conservation Service, the NOAA Habitat Restoration group, Maine DEP, and Chewonki.
- ✓ Project advisors to date include The Nature Conservancy, the SVCA, the Sheepscot River Watershed Council, Trout Unlimited, and the Coast Conservation Association.

The Montsweag Brook Restoration Project

- ✓ The primary goal of the project is to restore fish passage to Montsweag Brook, as prescribed by the settlement agreement.
- ✓ An important additional benefit of the project is to restore natural ecosystem function to the watershed, allowing for natural flow and connectivity to the ocean.
- ✓ ME DEP's current Adaptation Plan for changes already in the "pipeline" as a result of climate change calls for barrier removal as an important first step for restoring a watershed's capacity to deal with increased water on the landscape.

The Montsweag Brook Restoration Project

- ✓ The secondary goal of the project is to facilitate public access to the brook and related lands.
- ✓ Property transferred to Chewonki by Maine Yankee includes the dam as well as the former waterline corridor east to the Ready Point Road and a thin strip of land along the impoundment and brook from the foot of the lower dam to the foot of the upper dam.
- ✓ The waterline corridor and the strip along the brook will be explored as potential routes for connection to the Back River Trail, which extends from Chewonki Neck north to the Mason Station.

The Montsweag Brook Restoration Project

- ✓ Feasibility Study completed, October 2009
- ✓ Long-term monitoring plan in progress
- ✓ Fund raising on-going for a total project expense expected to exceed \$750,000
- ✓ Preliminary discussions with CMP about the disposition of the upper dam on the brook, built in 1941 for the Mason Station

Fish Passage Restoration Feasibility Study Montsweag Brook Wiscasset and Woolwich, Maine



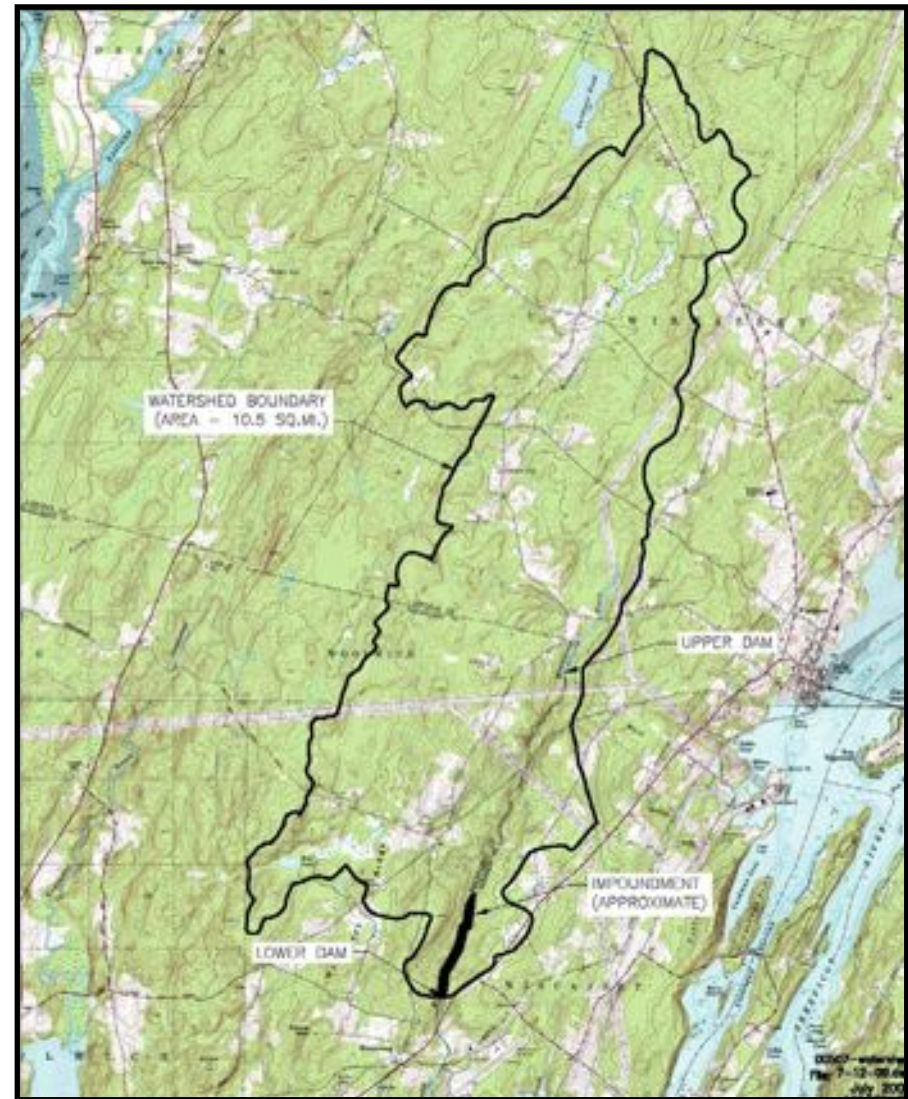
One Team. Infinite Solutions



Michael Chelminski. P.E. November 4, 2009

Montsweag Brook Watershed

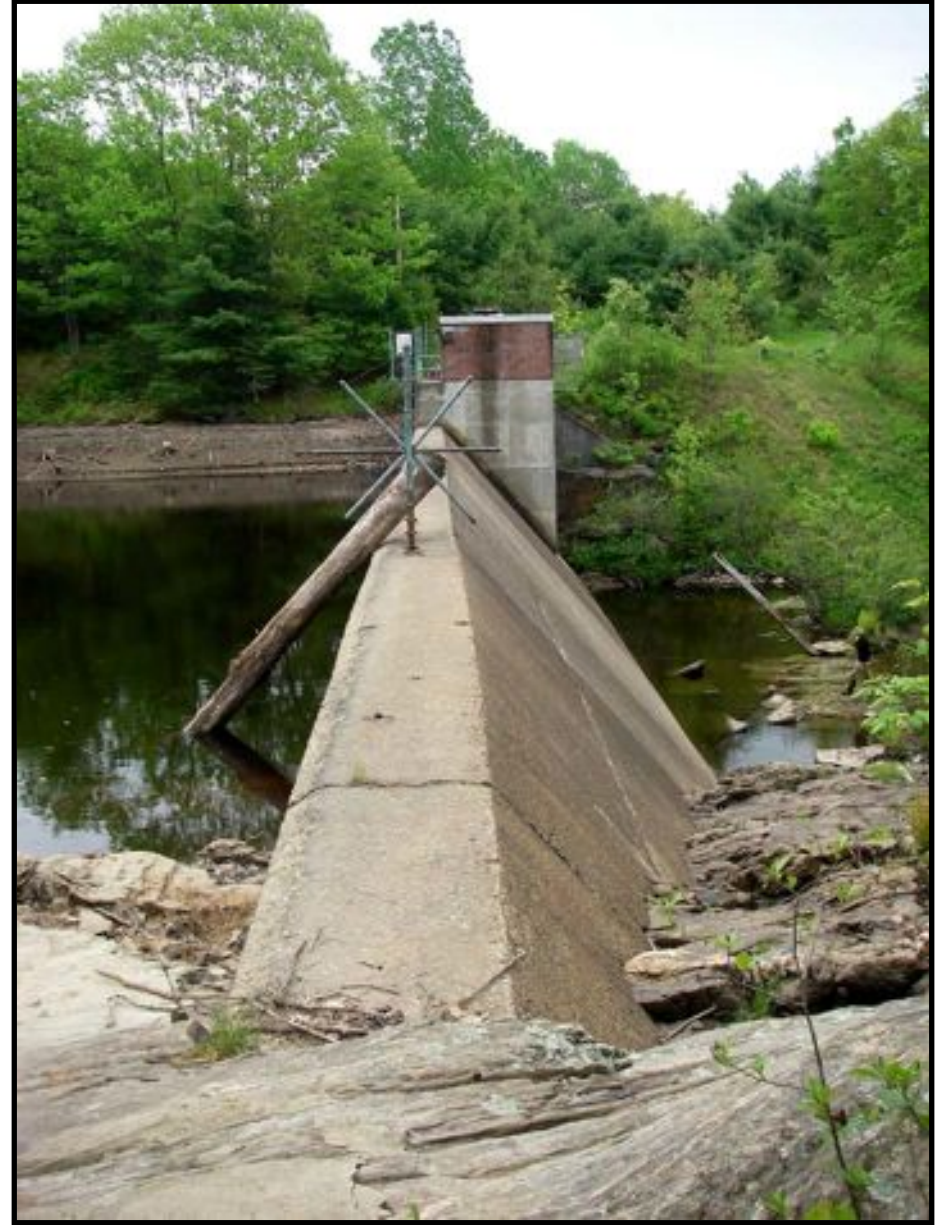
- *10.5 square mile watershed*
- *Headwaters in Wiscasset, Woolwich, and Dresden*
- *Mixed use in watershed with relatively low development density*
- *Lower dam 300 yards from Route 1 and head-of-tide*
- *Upper dam 3 miles upstream*



Lower Dam

Concrete gravity dam built in 1968 for auxiliary water supply to Maine Yankee facility. The dam no longer serves its intended purpose.

- *Hydraulic Height: 22 ft (varies)*
- *Structural Height: 35 ft (?)*
- *Spillway Length: ~200 ft*
- *Normal Storage: ~200 acre-ft*
- *Impoundment Length: ~ 4,270 ft*
- *No Fish Passage Facilities*



Feasibility Study

PURPOSE

Project goals stem from NRDAR settlement between the Maine Yankee Atomic Power Company and State of Maine. This study evaluates approaches for restoring native diadromous and resident fisheries resources to Montsweag Brook, which are adversely affected by the presence of the lower dam on Montsweag Brook

PROJECT GOALS

- *Restoration of fish passage at the lower dam on Monstweag Brook and*
- *Restoration of resident and diadromous fish habitat.*



American eel in pool along right face of dam

Biological & Ecological Resources

- *Fisheries Resources*
- *Wetlands*
- *Wildlife*



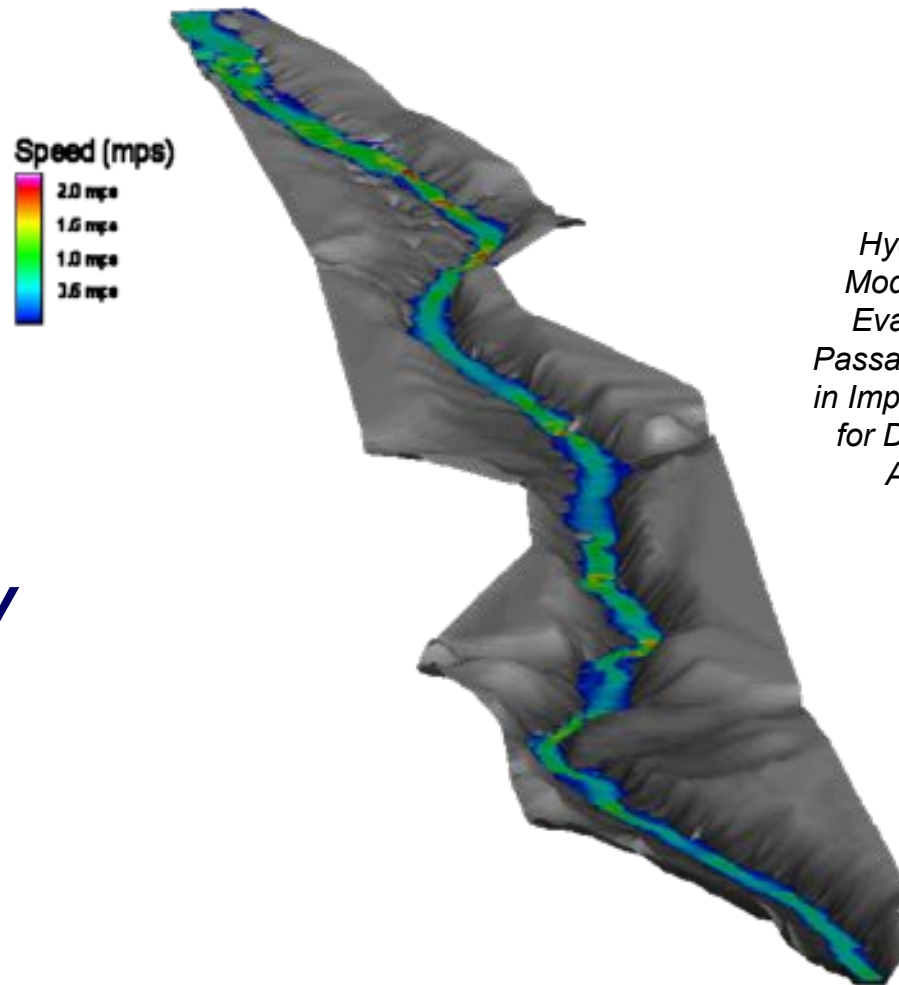
River herring found immediately downstream from dam



Vernal pool along brook upstream from impoundment

Hydrology, Hydraulics, and Physical Processes

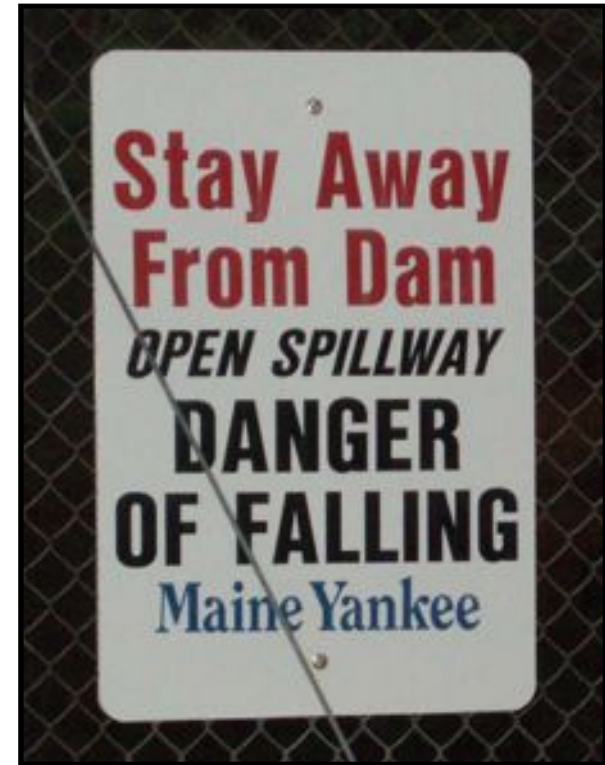
- *Hydrology*
- *Flooding*
- *Water Quality*
- *Morphology*
- *Sediment Quality*



Hydrodynamic Model for Use in Evaluating Fish Passage and Habitat in Impounded Reach for Dam Removal Alternative

Recreational Use and Other

- *Fishing*
- *Boating*
- *Other Recreational Uses*



Historical Resources

Potential Future Uses of the Lower Dam

Evaluated Alternatives

General Alternatives

- *Installation of Fish Passage Facilities*
- *Partial Dam Removal and Installation of Fish Passage Facilities*
- *Dam Removal*
- *No Action*

General alternatives were pared down following their review and determination as unfeasible options due to project or resource constraints.

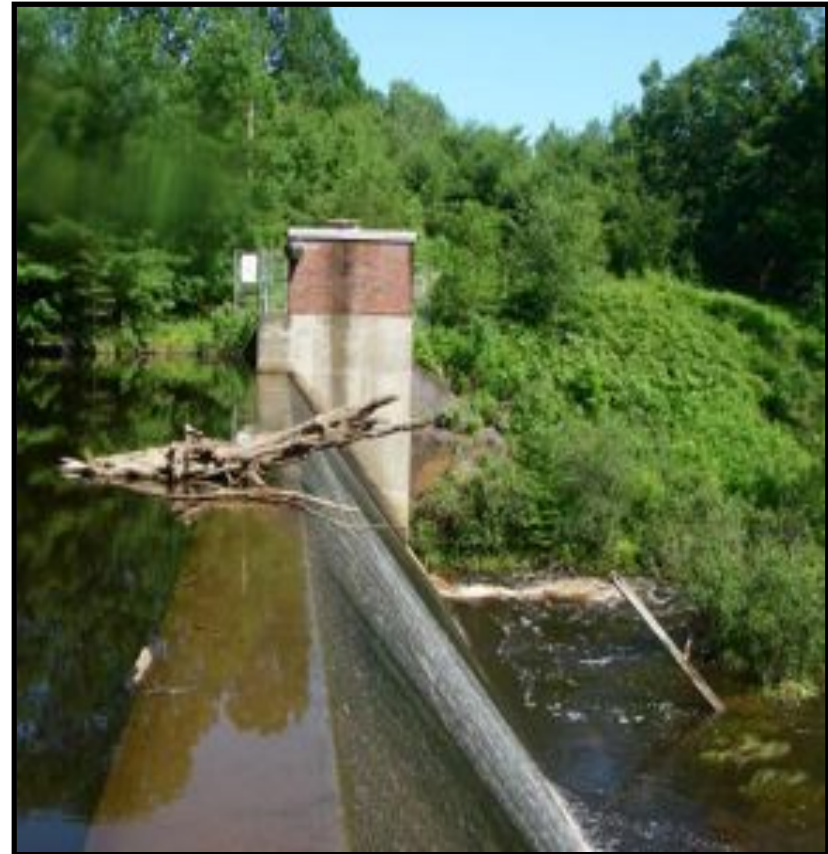
*Denil Fishpass
Yarmouth, Maine*



Evaluated Alternatives

Project Alternatives

- *No Action*
- *Installation of Fish Passage Facilities*
- *Removal of the Lower Dam*



Dam and pumphouse from right abutment

Project Alternative 1:

No Action

- *Baseline for comparing the effects of other alternatives*
- *Would not meet the project goal of restoring resident and diadromous fisheries.*
- *Avoids short-term, temporary impacts associated with the other alternatives.*
- *Does not address:*
 - *Existing impacts to fisheries resources*
 - *Loss of riverine continuity and habitat*

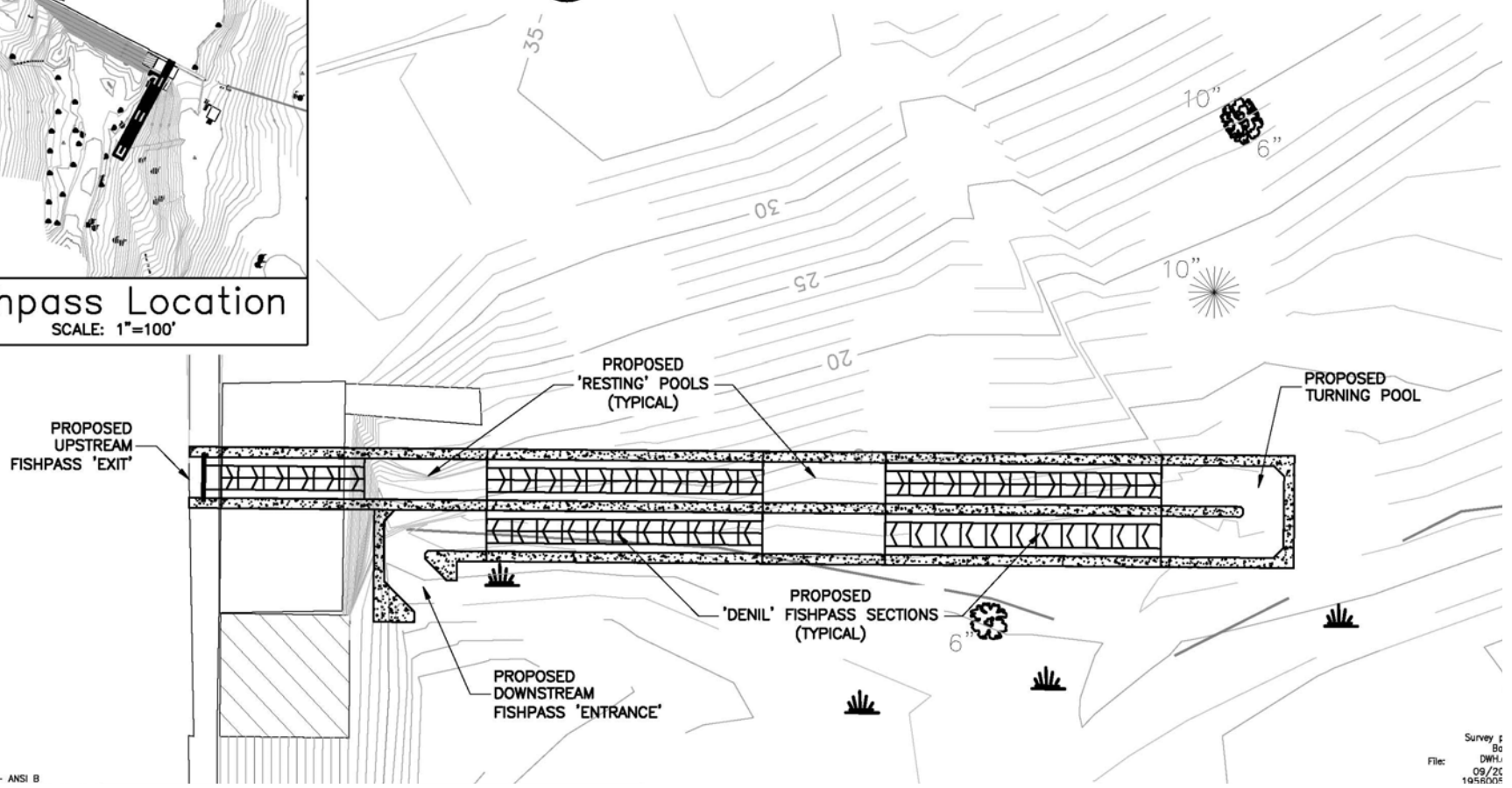


American eel from Montsweag Brook

Project Alternative 2: Installation of Fish Passage Facilities



1 Fishpass Plan View
SCALE: 1"=10'



ORIGINAL SHEET - ANSI B

Survey g
Bo
File: DWL
09/20
1056025

Recommended Alternative

Project Alternative 3: Removal of the Lower Dam

Removal of the lower dam is the project alternative recommended to Project Partners.

Removal of the Lower Dam will restore instream fish passage in the brook and habitat in the impounded reach.



Brook Upstream from Impoundment

Project Goals		Alternative 1 (No Action)		Alternative 2 (Installation of Fish Passage)		Alternative 3 (Removal of the Lower Dam)	
Goal 1: Restoration of Fish Passage		Does not achieve		Partially achieves		Substantially achieves	
Goal 2: Restoration of Ecological Continuity		Does not achieve		Does not achieve		Substantially achieves	
Project Resources		Impact Intensity					
Resource Categories	Resources	Adverse Impacts	Beneficial Impacts	Adverse Impacts	Beneficial Impacts	Adverse Impacts	Beneficial Impacts
Ecological	<i>Fisheries</i>	Major	Negligible	Major	Moderate	Minor	Major
	<i>Wetland</i>	Negligible	Negligible	Moderate	Negligible	Moderate	Major
	<i>Wildlife</i>	Moderate	Negligible	Moderate	Negligible	Minor	Major
Hydrology and Hydraulics	<i>Hydrology and Hydraulics</i>	Negligible	Negligible	Negligible	Negligible	Negligible	Minor
	<i>Flooding</i>	Major	Negligible	Major	Negligible	Negligible	Major
	<i>Water Quality</i>	Major	Negligible	Major	Negligible	Negligible	Major
	<i>Morphology</i>	Major	Negligible	Major	Negligible	Moderate	Major
	<i>Sediment Quality</i>	Negligible	Negligible	Negligible	Negligible	Moderate	Major
Recreational Use	<i>Fishing</i>	Negligible	Negligible	Negligible	Negligible	Negligible	Major
	<i>Boating</i>	Negligible	Negligible	Negligible	Negligible	Negligible	Minor
	<i>Other Recreational Uses</i>	Negligible	Negligible	Negligible	Negligible	Negligible	Major
Historical		Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Future Uses		Negligible	Major	Moderate	Moderate	Major	Negligible

Estimated Costs

Alternative	Construction	Capitalized Cost	Total
Project Alternative 1	-	\$500,000	\$500,000
Project Alternative 2	\$700,000	\$1,000,000	\$1,700,000
Project Alternative 3 (<i>mechanical removal</i>)	\$900,000	-	\$900,000
Project Alternative 3 (<i>mechanical with blasting demolition</i>)	\$450,000	-	\$450,000

Next Steps...

- *Final Design*
- *Permitting*
- *Project Implementation*



*Deteriorated Splash Pad
at Base of Dam*