

Association of State Wetland Managers

Low-head Dam Removal: Technical Issues and Considerations for State/Tribal/Federal Review



Jeanne Christie photo

February 9, 2017

3:00 pm – 5:00 pm Eastern

Webinar Moderators

Jeanne Christie and Peg Bostwick

Association of State Wetland Managers

Webinar Agenda



Welcome and Introductions (10 minutes)

An Overview of Recent Policy and Regulatory Changes Affecting Dam Removal Projects, Serena McClain, American Rivers (40 minutes)

Special Consideration and Lessons Learned from Dam Removal Projects, Jim MacBroom, Milone & MacBroom, Inc. (40 minutes)

Questions (~30 minutes or until here are no more questions/comments)



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Initial Review Observations

What is a “Low Head Dam” ?

- Crest extends bank to bank
- Little water storage (how much?)
- Little sediment storage (how much?)
- In general, no separate spillway
- No spillway gates
- Dam crest from abutment to abutment

Pre-construction notification required

32 general conditions apply !

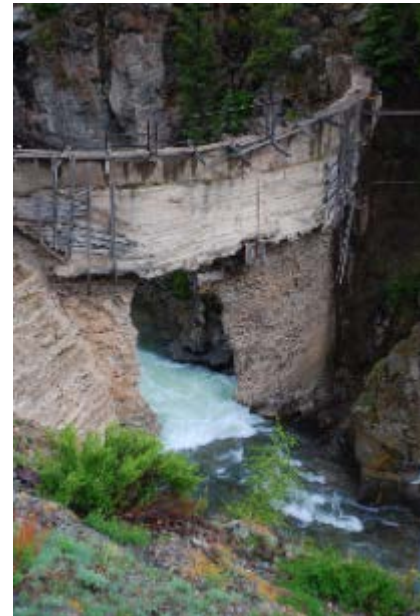


Is this a Low Head Dam ?



Pre-construction Notification Submissions

- Name, address, contact information
- Site location
- NWP type
- Activity data, impacts, wetland loss, impact area proposed mitigation, site sketches, concept plan
- Delineation of wetlands, water bodies
- If over 1/10th area impact, mitigation
- Endangered Species Act, Critical Species List
- Affect on historic properties
- National Wild and Scenic Rivers
- Identify Federal Lands & Projects



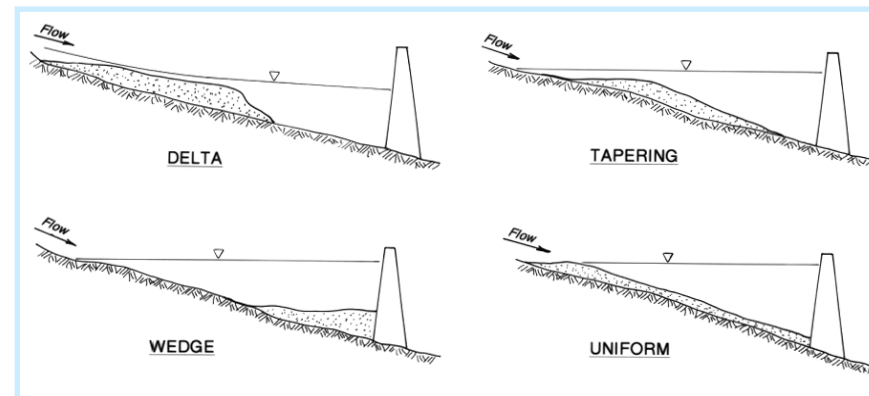
Common Dam Removal Concerns

(Tullos, 2016)

- Reservoir sediment erosion *
- Upstream channel incision *
- Downstream sediment deposition *
- Excessive turbidity *
- Groundwater drawdown
- Invasive plants
- Invasive fish



1 year after drawdown



* *NWP #53 assumes little sediment is present*

Modified from Morris, 1998

Practical Dam Removal Concerns

- Public safety
- Underground utilities
- Bridge or bank scour
- Water intake blockages
- Water discharge blockages
- Boating hazards
- Wetland drainage
- Experienced project manager
- Liability



NWP #53 Limitations

- Does not authorize streambank stabilization (see NWP 13)
- Does not authorize discharge of dredged or fill material (see NWP 18, 19)
- Does not authorize channel restoration
(see NWP 27)
- District Engineer has broad discretion
- Requires Section 401 Water Quality Certificate
- No Dimensional Size or Volume Thresholds

Low Head Dams?

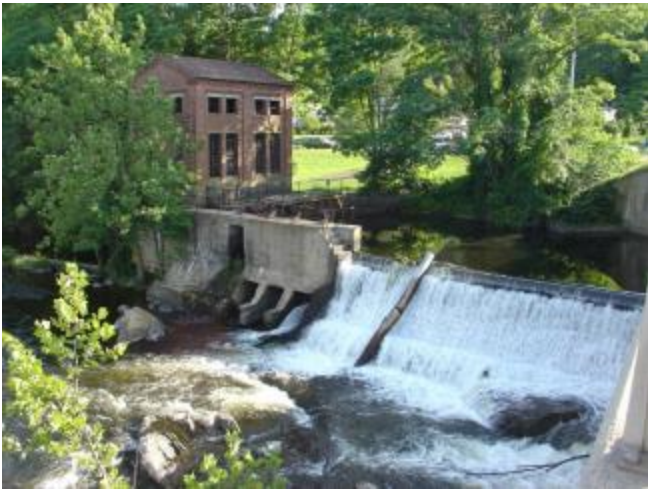
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Is this a Low Head Dam ?

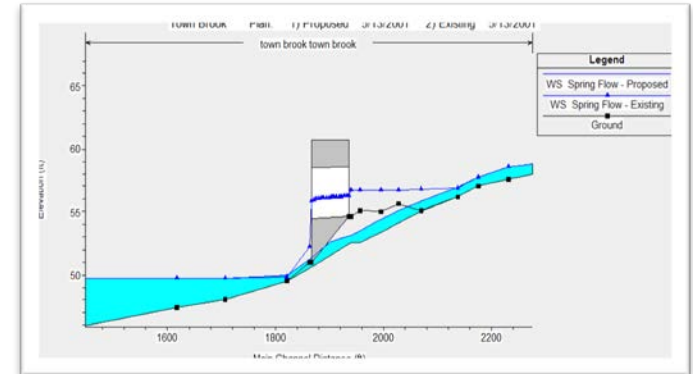


Old mill tailrace at right abutment
Fish bypass channel around left abutment

E

NWP #53 Applications

- No detailed engineering plan
- No hydrology studies
- No hydraulic evaluations
- No bank stabilization
- No active sediment management
- No fill allowed
- No sediment tests
- No mitigation
- No new dams



Note: Unless required by district Engineer or regional conditions

NWPs Related to Dam Removal May Supplement NWP #53 – Removal of Low Head Dams

- NWP #13 Bank stabilization
- NWP #18 Minor discharges
- NWP #19 Minor dredging
- NWP #27 Aquatic habitat restoration



Chase Brass “Low Head” Dam ?



Small amount of contaminated sediment (dredged)
Water intake pipe just upstream of dam
Broken sluice gate at end of dam
Federal Levee



Suggestions

- Hydraulic Height < Channel Bankfull Height
- Length < 2 Bankfull Width
- Water Storage < 0.5 Day Average Daily Flow
- Sediment Volume < 0.2 Water Storage Volume