

Summary notes for the June 24, 2020 – Rumford Falls Project MDEP Site Visit

Attendees:

- Luke Anderson (Brookfield)
- Mike Billings (Brookfield)
- Kathy Howatt (Maine DEP)
- Rob Mohlar (Maine DEP)
- Chris Sferra (Maine DEP)
- Drew Trested (Normandeau)

Purpose: Visual evaluation of the bypassed reach downstream of the Middle Dam and the lower powerhouse tailrace area to determine sampling locations for three components of the proposed water quality study (temperature and dissolved oxygen monitoring, benthic macroinvertebrates, and outlet stream aquatic habitat study).

Temperature and Dissolved Oxygen Sampling:

Maine DEP originally requested two loggers – *...in the bypass reach below middle dam, and in the free flowing tailwater reach downstream of the confluence of the bypassed reach and the lower powerhouse discharge.*

- Logger downstream of Middle Dam – preferred location
 - See Figures 1 and 2.
 - Logger should be placed in location downstream of bypass pipes and dam spouts so that unit remains submerged for duration of monitoring period.
 - Normandeau to collect photos of this area during June 29 trophic sampling to provide to MDEP for confirmation that appropriate wetted habitat is available at this location when no spill flows are present over Middle Dam.
- Logger downstream of Middle Dam – secondary location
 - See Figures 2 and 3.
 - In the event it is determined that sufficient wetted area and water depths at the preferred location are not available then logger will be installed in pool habitat located just upstream of the bedrock cascade portion of bypassed reach.
- Tailrace Logger
 - Based on visual observation of the integrated nature of the ND Paper mill discharge and unit discharge from the lower powerhouse (Figure 4) it was agreed that it would not be informative to place a temperature/DO logger in that area. There is not a suitable location outside of the influence of the paper mill discharge.
 - Maine DEP indicated that the placement of a temperature/DO logger at the downstream end of the power canal (adjacent to the lower powerhouse intake) would be representative of water quality following discharge out of the lower powerhouse (Figures 5 and 6).

Benthic Macroinvertebrate Sampling:

Maine DEP originally requested two benthic macroinvertebrate sample locations - *...in the bypass reach below middle dam, and in the free flowing tailwater reach downstream of the confluence of the bypass reach and lower powerhouse discharge.*

- Sample location downstream of Middle Dam
 - Likely will install mesh bags rather than rock baskets due to the likely shallow water depths in this location.
 - Normandeau to select specific location with appropriate substrate and adequate water depth for deployment period in the vicinity of the temperature/DO logger (Figures 1 and 2).
 - In the event it is determined that sufficient wetted area and water depths at the preferred location are not available then invertebrate samplers will be installed in pool habitat located just upstream of the bedrock cascade portion of bypassed reach.
- Sample location downstream of bypass and powerhouse confluence
 - Based on their visual assessment, MDEP concluded that collection of a macroinvertebrate sample from the area downstream of the bypassed reach and powerhouse confluence would be influenced by effluent from the ND Paper mill.
 - Maine DEP has a macroinvertebrate index site located in the Androscoggin River approximately one mile downstream of the Project.
 - Maine DEP will provide coordinates for that sample location as well as the water quality standards attainment report for the most recent sampling event.
 - Maine DEP will consider their most recent sampling at their downstream index site as representative and are reducing their original request for macroinvertebrate sampling to the single location in the Middle Dam bypass reach.

Outlet Stream Aquatic Habitat Study:

Maine DEP originally requested assessment of aquatic habitat *...in the bypass reach below middle dam to demonstrate that minimum flows to the bypass reach are adequate to provide habitat for fish and other aquatic species.*

- Maine DEP typically requests a minimum of three cross sections be evaluated for aquatic habitat within a bypass reach habitat. However, following review of the available habitat types in the bypassed reach Maine DEP indicated that placement of two cross sections was sufficient to quantify adequacy of bypass flows.
 - Cross section 1 – to be placed towards center of the “pool” habitat immediately downstream of Middle Dam and upstream of the bedrock/cascade area (Figures 7 and 8).
 - Cross section 2 – to be placed through the cobble/boulder section of habitat located downstream of the bedrock/cascade area and upstream of the backwater effect of the lower powerhouse tailrace (Figures 8 and 9).
- “Bankfull” conditions will be visually determined through identification of staining marks on vertical rock faces as well as the transition from aquatic to terrestrial vegetation.
- Due to the inability to adequately identify bankfull conditions within the bedrock/cascade section of the bypassed reach, a cross section in that area was not considered.



Figure 1. Preferred deployment location downstream of Middle Dam for the temperature/DO logger and macroinvertebrate samplers.

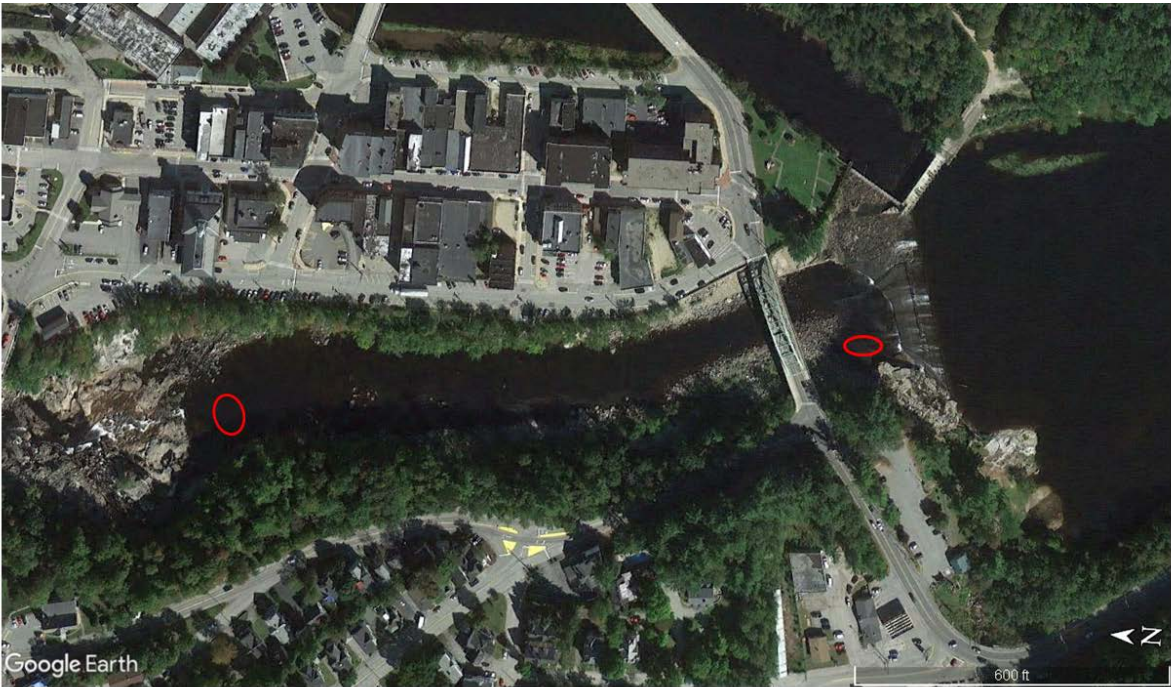


Figure 2. Preferred and alternate deployment location downstream of Middle Dam for the temperature/DO logger and macroinvertebrate samplers.



Figure 3. Alternate deployment location downstream of Middle Dam for the temperature/DO logger and macroinvertebrate samplers.

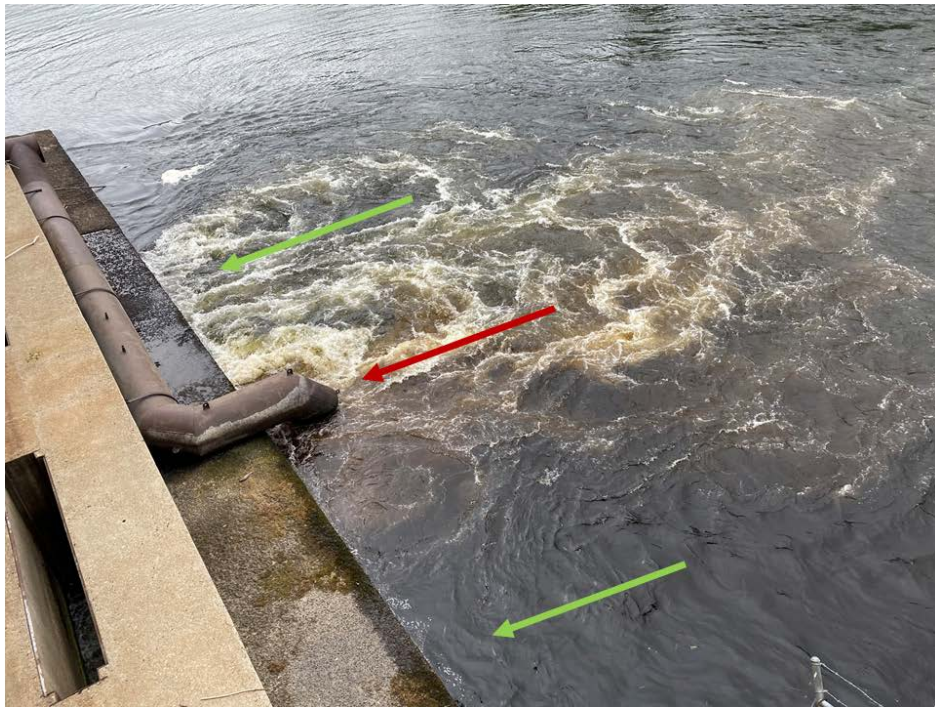


Figure 4. Lower powerhouse turbine unit (green arrows) and ND Paper mill (red arrow) discharge.



Figure 5. Power canal deployment location for the temperature/DO logger to be considered representative of conditions downstream of the confluence of the bypassed reach and lower powerhouse discharge.

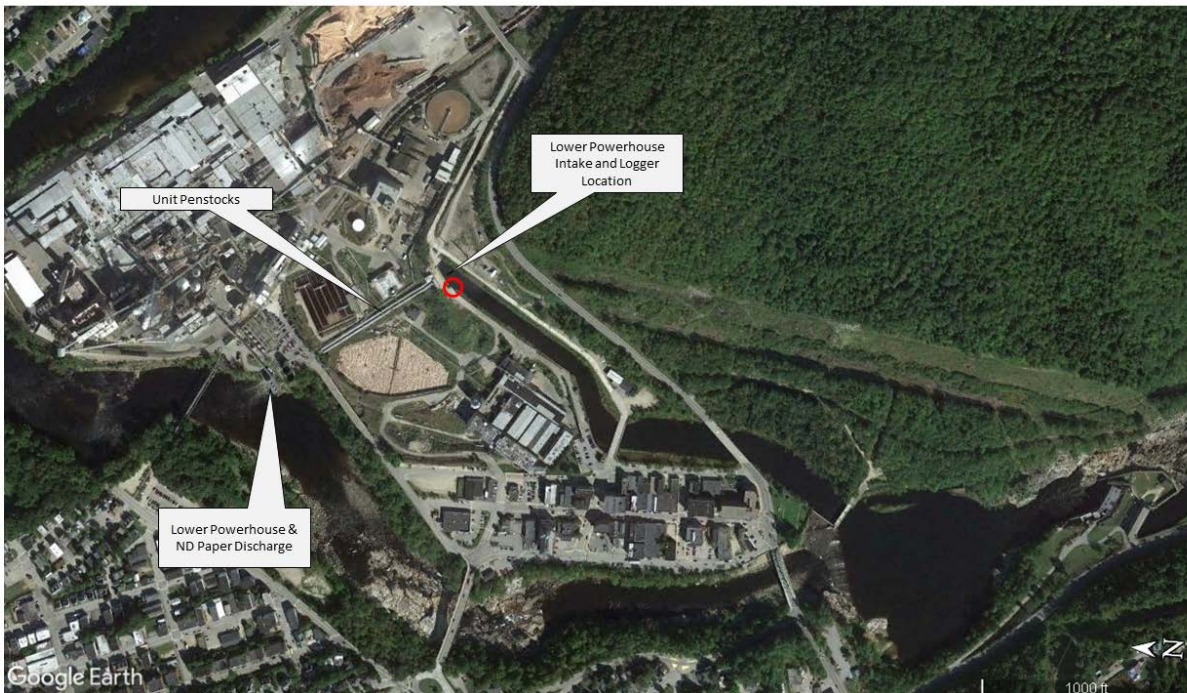


Figure 6. Relative position of the power canal deployment location for the temperature/DO logger to be considered representative of conditions downstream of the confluence of the bypassed reach and lower powerhouse discharge.



Figure 7. Approximate location of the upper cross section for evaluation of aquatic habitat within the bypassed reach.



Figure 8. Approximate locations of the upper and lower cross sections for evaluation of aquatic habitat within the bypassed reach.



Figure 9. Approximate location of the lower cross section for evaluation of aquatic habitat within the bypassed reach.