Little Calfpasture Water Quality Improvement Plan

Lake Management Working Group Meeting

March 29, 2017

Attendees

Peter Olivares (VADEQ Intern)
Nesha McRae (VADEQ)
Jay Gilliam (Landowner, NBSWCD)
Gene Yagow (VATech)
Mike Jolly (Boy Scouts of America)
Lee Cummings (NBSWCD)
Brian Benham (VATech)
Lee Cummings (NBSWCD)
Karen Kline (VATech)
Sandra Stuart (NBSWCD)
Charles Simmons (NRCS)

Meeting Summary

Nesha McRae (VADEQ) welcomed the group and explained that the priorities for the meeting were to review lake management strategies implementation scenarios and associated costs, and to agree upon a timeline for implementation. Nesha explained that implementation of these practices would be voluntary, and thus up to the Boy Scouts to agree upon to implement. Consequently, DEQ and their contractor, VA Tech BSE, held a conference call with the Scouts the previous week to go over implementation options and ensure that those presented to the working group would be acceptable options for them to implement. Nesha also shared with the group that she had distributed an announcement about the availability of project funding from the National Fish and Wildlife Foundation's Chesapeake Bay Stewardship Fund. Proposals are due in May. She suggested working on developing a proposal to implement lake management and agricultural BMPs as part of a comprehensive plan.

Gene Yagow (VA Tech) began his presentation on implementation scenarios with a review of the TMDL and associated water quality issues in the river. Gene explained that the majority of instances during which there was a difference in total suspended solids concentrations above and below the lake occurred at very low concentrations of sediment, meaning that the overall difference was not that great with respect to the concentration of sediment. Thus it makes more sense to focus on making reductions to the overall sediment load rather than meeting an instream concentration of sediment. Gene also explained how the goal of a 34% reduction in sediment coming from the lake was calculated based on exposed acres of mudflats during drawdown periods. The mudflats were assigned a unit area sediment load, which was applied to the exposed acres. Based on these calculations and the load reductions expected to future loads from other sources, Gene determined that a 74.3% reduction was needed from the mudflats. A table showing a series of different drawdown scenarios for the lake was shared with the group, varying the length and depth of the drawdown. Any of these scenarios shown would be sufficient to meet the TMDL goal. One participant asked why the scenarios didn't start with having no

drawdown at all, or include 1 and 2 month drawdown periods as well. Gene offered to make these calculations, but explained that based on communications with the Boy Scouts, some drawdown of the lake is needed in order to clean out debris each year and deal with large rain events. Gene noted that the emergency spillway is a new source of sediment in the watershed below the dam, which is evident on aerial imagery showing the formation of rills. This site needs to be stabilized to avoid further erosion, which would cost approximately $15,000 per year, according to rough estimates by Gene.

Gene shared a table with the group showing the costs of implementing various practices over a period of two stages. Gene pointed out that we do not have cost data for the altered drawdown schedule. Mike Jolly (BSA) agreed that this would largely be a staff time expense. Mike is the primary operator of the dam. While there is other staff on hand who know how to operate it, they are not familiar enough with the hydrology of the lake and the river to make decisions regarding when to draw it down. Consequently, leaving the lake at full pool for longer may require training of additional staff in case Mike is not available to make these management decisions. Nesha noted that it would be good to include some degree of mudflat harvesting occurring in the first stage of implementation despite the higher cost of the practice. She explained that DEQ typically requests that proposals for implementation funds address stage 1 goals of implementation plans. Consequently, if the Scouts were interested in trying out this practice at a limited extent, it would be good to include a small number of acres in the first stage. One participant asked if the material removed from the mudflats would be considered dredged material since the lake will have been drawn down at the time of excavation. Nesha agreed to follow up on this.

The group discussed the drawdown scenarios presented, and the Boy Scouts suggested picking a wet weather scenario (Scenario A) and a dry weather scenario (Scenario B). Scenario A (wet weather) involved a drawdown time of 3 months, with a drawdown depth of 6.68 feet, while scenario B (dry weather) involved a drawdown time of 4 months, and a drawdown depth of 4.96 feet. The group was in support of this approach. Mike Jolly noted that they recently had an inspection of the dam by DCR and were told that they needed to operate the bottom gate at least once a year. The Scouts are reluctant to open this gate due to the large amount of sediment that is likely to be flushed out. There are 10 gates on the dam and Mike noted that they do not operate the two end gates due to increased scour of the shoreline that occurs when these gates are open. In order to complete much of the mudflat excavation, Mike thought that the lake would need to be lowered about seven feet, which would take some time as he is legally only allowed to lower the lake six inches per 24 hours. It was agreed that Stage 1 could focus on harvesting sediment from Area I on the map Gene shared with the group, which is at the uppermost portion of the lake.

One participant asked about the vegetative stabilization practice included in the implementation scenario and specifically, what types of plants could tolerate these conditions. Participants suggested cattails and cypress trees, but concerns remained about establishing these plants since they will be under water much of the year. UPDATE: Nesha and Gene spoke with NRCS staff about potentially trying to establish a cover crop of rye each year, broadcasting seeds by boat. If the lake is lowered 6 inches a day, the seed could be spread at the point in time when it would be submerged for a day or so. This could be tested out in a little pool prior to attempting it at the lake scale. This would be a relatively

inexpensive management strategy to provide some degree of cover on the mudflats during periods of exposure.

It was noted that there is significant value to the material that is dredged, which should be considered when estimating the cost. It was noted that there is a local excavator with a farm near the lake who might be interested in doing the excavating and could also use some of the material on his farm as well. It was also noted that a private company may have been contracted to clean up the debris dumped at the bluffs site, Mike offered to follow up on this possibility.

Nesha noted the importance of monitoring TSS concentrations below the dam both before and after implementation efforts begin. Any grant proposal for BMP implementation developed for the project should also include a request for monitoring funds. One participant shared that it would be nice to partner with the local universities on such an effort.

The group moved on to discuss a timeline for the two stages. Nesha noted that the agricultural working group had suggested a 10 year timeline for the agricultural practices. One participant suggested adopting a 10 year timeline with three stages (2 years, 4 year and 4 years). The first two years would be spent exploring the feasibility of the various strategies and how effective they will be. This could include a series of pilot projects to test such as dredging of the uppermost mudflat and establishment of a cover crop on a portion of this area. The group agreed on this timeline and approach.

One participant asked whether flood control is a permitted use of the dam and is thus described in their operational permit from DCR. Nesha offered to follow up on this. The group discussed whether it would have to be specifically identified as a designated use in order for the dam to be used in such a manner. Another participant suggested that it would be worthwhile to complete additional sediment monitoring beyond the confluence of the Little Calfpasture with the Maury River. This might inform us as to the impact of the sediment further downstream and the overall health of the river.

Nesha thanked the group for their participation and noted that the next step with the project will be a steering committee meeting to review the draft plan. This meeting will be held on April 11th at 1:30 at the Rockbridge Baths Fire Hall. Everyone is welcome to attend. During the meeting, the group with review the draft plan, which will be distributed the week prior to the meeting and discuss plans for the final public meeting.