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To: Interested Parties
Subject: Sediment Sampling of the Royal River above the Bridge Street Dam with DEP Review and Comment

EXECUTIVE SUMMARY

In 2015, The Nature Conservancy (TNC) hired the consultant Stantec to perform sediment sampling and analysis of sediment behind the Bridge Street Dam. Once TNC received the results, we asked the Maine Department of Environmental Protection (DEP) to review the results and sampling methodology. The DEP's review supports Stantec's conclusion of minimal potential risk to aquatic life related to impounded sediments at the Bridge Street Dam. Moreover, the Department concluded that overall, the site is clean, and is in fact cleaner than sediment tested prior to the harbor dredge in winter 2015-2016.

BACKGROUND

The Royal River's watershed covers about 141 square miles, flowing from its headwaters at Sabbathday Lake in New Gloucester and traveling nearly 40 miles to Casco Bay. The river has been integral to the history of Yarmouth and the remaining two dams in town (Bridge Street and East Elm Street) that once provided power to former mills are the subject of ongoing community discussions.

Previous studies included sediment sampling in the lower reach of the river and adjacent to the two dams in Yarmouth. Following these studies, the Town appointed a stakeholder committee to review existing information about Bridge Street Dam and explore next steps. The dam committee recommended additional sediment sampling and testing in the impoundment to determine whether high contaminant levels were present. In 2015, TNC hired Stantec, consultants with an office in Topsham and a history of previous studies on the dams, to perform sediment testing behind the Bridge Street Dam and provide an analysis of results.

RESULTS OF THE STANTEC STUDY

Results were released in a March 2016 report by Stantec. The company's analysis was thorough and more extensive than standard practice. Stantec started with the industry standard of one sample per 1,000 cubic yards of material, it then doubled the number of samples sites to two samples per 1,000 cubic yards. With an estimated 5,000 cubic yards of sediment above the dam, a total of 10 samples were taken.

Two stations (S-4 and S-5) of ten showed exceedances of the PEC for PAHs which indicates a local source near those areas. The overall concentration of the whole body of sediment behind the dam (i.e., the mean of all ten stations), would be much lower, below the PEC if not the TEC.

That there is some contamination of PAHs is not surprising given the industrial history and current vehicle traffic and other human activity in the watershed.

DEP REVIEW AND COMMENTS

TNC and Stantec worked with DEP to develop the scope of work used to complete this study. Following receipt of the Stantec report, TNC asked DEP to review the study and comment both on the findings and on the veracity of the sampling protocol. DEP completed its review of the sediment analysis and lab methods, and released findings via email, which we summarize here:

DEP confirmed that the study was properly designed and executed. Previous work determined that the Bridge Street impoundment contains approximately 5,000 cubic yards of sediment. An industry standard of one sample per 1,000 cubic yards of material was considered, then doubled to ensure greater resolution, resulting in two samples taken for each 1,000 cubic yards of material. Stantec collected ten samples in total in December 2015. The analysis of the sediment behind the Bridge Street Dam was therefore thorough and more extensive than standard practice.

DEP's analysis of the sediment data shows that the Royal River behind the Bridge Street Dam is in fact clean and relatively free of contaminants in the sediment. The analysis of 10 samples found elevated PAHs (polycyclic aromatic hydrocarbons) in two samples. PAHs are a group of over 100 chemicals that are typically produced from the incomplete burning of coal, oil, and gas, and from products made from fossil fuels such as asphalt. Although the two samples were found to have measureable PAH values, the total average concentration of PAHs in all of the sediment samples is relatively low.

DEP suggests that the elevated PAH result likely resulted from the stormwater runoff rather than past industrial uses. That there is some contamination from PAHs is not surprising given the nearby impervious surface (roads/parking lots), current vehicle traffic, industrial history and other human activity in the watershed. DEP observed that the one sample with higher PAH values is located directly adjacent to a drainage that funnels runoff from Route 1 into the river.

DEP agrees that Mercury concentrations are below risk concentrations. A single sample showed slightly elevated levels of mercury. DEP considers an insignificant exceedance of the TEC (threshold effects concentration for mercury, below which effects on biota are unlikely), and well below the PEC (probable effects concentration, above which effects are likely). The PEC level for mercury is 1.06 while the sampled mercury level was 0.27, well below the PEC level.

The DEP review concluded that the site is overall clean, and is in fact cleaner than sediment tested from the harbor as part of the dredge in winter 2015-2016. The Maine

Department of Environmental Protection analysis of the sediment findings shows that the Royal River behind the Bridge Street Dam is in fact clean and relatively free of contaminants in the sediment. They provide residents and neighbors assurance that our river is safe.

Sincerely,

Jeremy M. Bell
River and Coastal Restoration Program Director