
To: Ray Senecal
 Kezar Lake Watershed Association

From: Jake Riley
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File: Stantec PN 195600843

Date: November 20, 2014

Reference: Summary of 1-day Salmonid Spawner and Habitat Survey in the Kezar Lake Watershed: Great Brook and Boulder Brook

Stantec Consulting Services Inc. (Stantec) and a member of the Kezar Lake Watershed Association conducted a 1-day salmonid spawner and habitat survey in the Kezar Lake Watershed on November 13, 2014. This memorandum summarizes the results of the fall 2014 survey and serves to complete the 2014 scope of environmental services provided by Stantec for the Kezar Lake Watershed Association, Greater Lovell Land Trust, and FB Environmental.

The results and observations of the salmonid spawner survey are presented below for each brook surveyed. Based on the results of the 2012 and 2013 surveys and direction from the Kezar Lake Watershed Association, the 2014 survey focused primarily on documenting landlocked salmon spawning in lower Great Brook and Boulder Brook. Cold Brook and Boulder Brook were not surveyed in 2012. The attached maps of Great Brook and Boulder Brook depict areas surveyed and the approximate locations of observed landlocked salmon redds.

Great Brook

Great Brook was surveyed from below Adams Road upstream of the first impediment to the riffles above Lucy LaCasse's camp, where spawning was observed in 2012 (see attached map). There were 51 redds, 30 adult landlocked salmon and 2 brook trout (7-9-inches) observed in the lower section of Great Brook, which had a higher density of redds per mile than the survey results from 2012 and 2013 (Table 1). Of the 30 fish observed, 17 had no adipose fin, 10 had an adipose fin, and 3 were unknown. It is presumable that the salmon with adipose fins were wild. The 30 landlocked salmon observed exceeded the 10 observed in 2013 and the 25 observed in Great Brook in 2012. Given the large size of the redds and their proximity to adult live landlocked salmon, it is likely that all 51 redds were constructed by landlocked salmon. Downstream of the Adams Road bridge, there were 10 redds in the pool/riffle areas compared to only 3 redds observed in 2013. Multiple redds were located in the first run and head of a riffle downstream of the "first impediment" conceivably indicating that spawning salmon migrated as far as possible upstream before spawning in the only available and limited habitat in Great Brook below the impediment. Downstream of these clustered redds, almost every pool tail or riffle head with suitable sized gravel had one or two redds.

Table 1: Redd counts and densities for Great Brook and Boulder Brook in 2012 and 2013

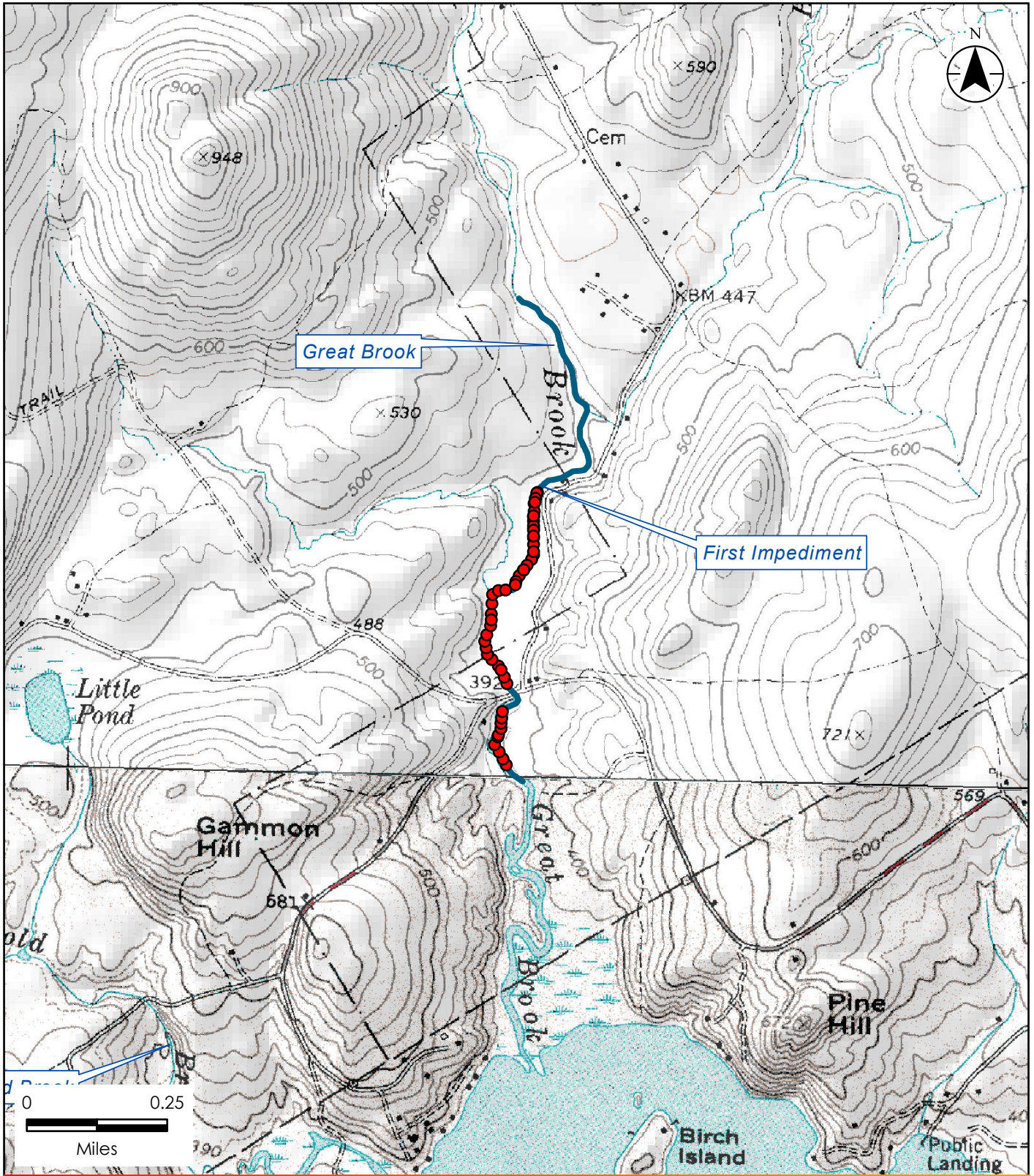
Stream Section	Year	Number of Landlocked Salmon Redds	Redds/Mile
Great Brook* (Kezar Lake to Dwyer's Falls)	2012	20	10.8
Great Brook* (Kezar Lake to "First Impediment")	2013	36	48.6
Great Brook* (Kezar Lake to "First Impediment")	2014	51	68.9
Boulder Brook* (Kezar Lake to Route 5)	2013	17	44.7
Boulder Brook* (Kezar Lake to Route 5)	2014	12	31.6

*Stream section that contained redds observed during the yearly survey.

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Boulder Brook

On November 13, 2014, approximately 0.4 RM were surveyed in Boulder Brook upstream from its confluence with Kezar Lake and Route 5 (see attached map). Boulder Brook has a smaller watershed than Great Brook and the section surveyed does not contain as high quality salmonid spawning habitat (e.g., pools/riffles, large woody debris cover, and gravel substrate). Twelve salmonid redds were observed between the confluence with Kezar Lake and the Route 5 crossing compared to 17 in 2013. The densities observed in Boulder Brook are similar to the density of redds in Great Brook in 2013 (Table 1). No spawning fish were observed in Boulder Brook during the survey, but it is likely that the redds were constructed by landlocked salmon based on their size and anecdotal information from representatives of the Kezar Lake Watershed Association. The redds were typically found in clusters in slower moving habitats with smaller spawning substrate (e.g., gravel). Three redds were surveyed within a run 50 feet upstream of the recently rehabilitated small pier in Boulder Brook. Landlocked salmon spawning activity was observed in this location in previous years (Ed Poliquin, personal communication).



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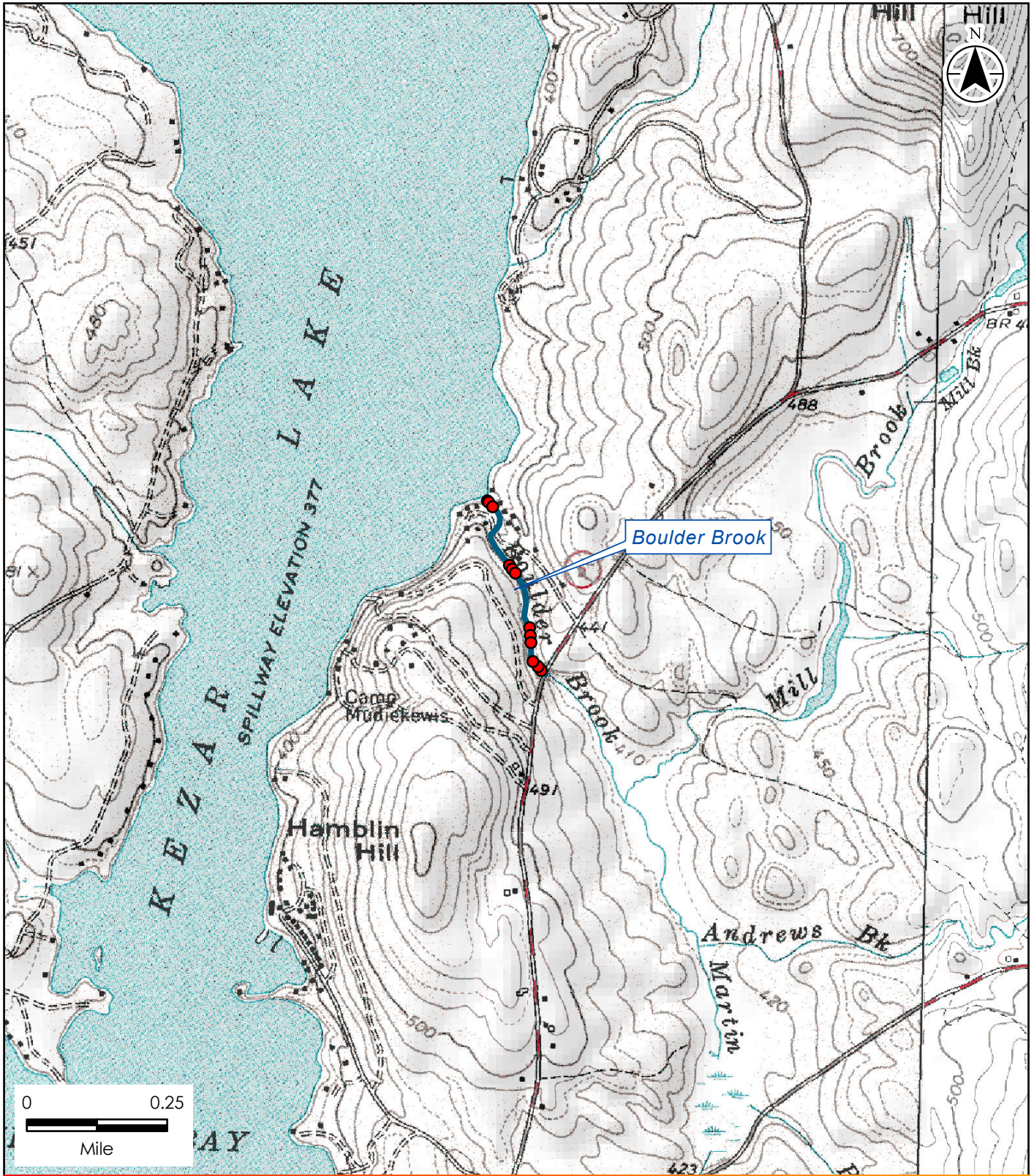
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 Topsham, ME USA 04086
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Legend

- 51 Landlocked Salmon Redds Observed
- Stream Segments Surveyed on 11/13/2014

Title
 2014 Great Brook
 Salmonid Spawn Survey
 11/18/2014

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30 Park Drive
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Legend

- 12 Landlocked Salmon Redds Observed
- Stream Segments Surveyed on 11/13/2014

Title

2014 Boulder Brook
 Salmonid Spawn Survey
 11/18/2014

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