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January 28, 2014

**VIA ELECTRONIC FILING**

Ms. Kimberly D. Bose  
Secretary  
Federal Energy Regulatory Commission  
888 First Street, NE  
Washington, DC 20426

Re: FirstLight Hydro Generating Company, FERC Project Nos. 2485-063 and 1889-081  
Response to National Marine Fisheries Service Supplemental Comments on Study Plan

Dear Secretary Bose:

On December 2, 2013, the National Marine Fisheries Service (NMFS) filed a letter with the Federal Energy Regulatory Commission (FERC or Commission) containing supplemental comments on FirstLight Hydro Generating Company's (FirstLight) study plan for relicensing the Turners Falls Hydroelectric Project (FERC No. 1889) and Northfield Mountain Pumped Storage Project (FERC No. 2485). NMFS's comments expressed concern that three of FirstLight's study plans; Study Plan 3.3.6, *Impact of Project Operations on Shad Spawning Habitat and Egg Deposition in the Area of the Northfield Mountain and Turners Falls Projects*; Study Plan 3.3.11, *Fish Assemblage Assessment*, and Study Plan 3.6.3; *Whitewater Boating Evaluation*—had the potential to adversely affect shortnose sturgeon, an endangered species under the Endangered Species Act. NMFS therefore suggested that these studies should be designed or modified to avoid effects to shortnose sturgeon. The purpose of this letter is to respond to NMFS's comments on two of these study plans, Study Plans 3.3.6 and 3.3.11, to enable the Commission's Director of the Office of Energy Projects to issue a study plan determination that directs FirstLight to implement studies that will avoid potential effects to shortnose sturgeon.<sup>1</sup>

***Study Plan 3.3.6, Impact of Project Operations on Shad Spawning Habitat and Egg Deposition in the Area of the Northfield Mountain and Turners Falls Projects***

Study Plan 3.3.6 addresses requests by resource agencies to determine if Turners Falls Project operations affect shad spawning, by conducting night time surveys to document shad spawning. The agencies requested that following this documentation, FirstLight observe spawning activity under a range of

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<sup>1</sup> FirstLight has already addressed NMFS's concerns on the third study plan, Study Plan 3.6.3, *Whitewater Boating Evaluation*, in its modified revised study plan filed on January 13, 2014, by proposing to conduct the evaluation outside of the April 15 – June 22 shortnose sturgeon spawning and rearing period.

operating conditions. FirstLight's revised study plan for Study Plan 3.3.6 includes these parts of the study as requested, during the May – June shad spawning time period.

The agencies also requested that shad egg collections be conducted in areas of spawning activity to further determine if spawning has occurred. It has been documented that shortnose sturgeon spawn in the vicinity of the Cabot Station tailrace (Kieffer and Kynard 2012). Kieffer and Kynard (2012) have documented a spawning period of 5-17 days during the same 26 day period each year (April 27-May 22). Early life history stages (eggs and larvae) are present in the project area for 20 to 30 days after spawning (Kynard et al. 2012a). So the period when shortnose sturgeon eggs and larvae are present overlaps with the proposed sampling period for shad egg collection. Consequently, the collection of shad eggs may have the potential to impact shortnose sturgeon, and NMFS recommended in its December 2 letter that the study be revised.

To address this potential concern, FirstLight proposes to replace shad egg collection efforts, which studies have shown are duplicative of visual observations of shad spawning, with enhanced visual observations and splash counts. Ross (1993) has quantified spawning of adult American shad by counting spawning splashes over 5-min intervals. Splashing events were verified to be spawning American shad through direct observations. Ross (1993) concluded that that this technique was valid and useful to quantify spawning activity for this species. FirstLight therefore believes that visual observations and splash counts of shad spawning, which will have no impact to shortnose sturgeon, will fulfill the goals and objectives of the study.

#### **Study Plan 3.3.11, *Fish Assemblage Assessment***

Study Plan 3.3.11 addresses regulatory agency requests to characterize the fish assemblage above and below the Turners Falls Dam. Although the study is not targeting shortnose sturgeon, NMFS has pointed out that non-targeted sampling in certain areas may have the potential to affect shortnose sturgeon, whose historic upstream range on the Connecticut River is Turners Falls. While sampling as proposed can occur in the Turners Falls impoundment because this is beyond the range of shortnose sturgeon, sampling efforts below Turners Falls Dam may need to be modified to avoid potential impacts to shortnose sturgeon.

In its comments dated July 15 on proposed Study Plan 3.3.11, NMFS recommended the study be modified to eliminate the potential for effects on shortnose sturgeon. Specifically, NMFS recommended that: (1) no electrofishing occur in the reach of the Connecticut River below the Deerfield River (which NMFS refers to as Transect 6); and (2) a seasonal restriction be placed on sampling in the bypass reach (which NMFS refers to as Transect 5) to ensure that no electrofishing is carried out when shortnose sturgeon may be present (April 15 – June 30).

In its revised study plan, FirstLight noted that the geographic scope of the study was being reviewed by NMFS, and that the potential impact on shortnose sturgeon may result in modifying the geographic area. FirstLight therefore agreed not to perform any electrofishing in the bypass reach from April 15 – June 30.

While NMFS did not provide any additional comments on FirstLight's revised study plan for Study 3.3.11, FirstLight believes that additional modifications to the plan may be necessary to avoid potential impacts to shortnose sturgeon in both the bypass reach and the reach of the river below the Turners Falls Dam. To avoid any potential impacts to sturgeon, FirstLight proposes to conduct all sampling in the bypass reach after June 30, and in the reach below the Deerfield River, FirstLight proposes to use both existing data and the data it obtains in the Turners Falls Impoundment.

A 2009 electrofishing survey of the area below Turners Falls Dam downstream to the Route 116 Bridge was conducted as part of a larger Environmental Protection Agency effort to sample the entire Connecticut River from Lake Francis to the freshwater extent of the tidal estuary. Sampling occurred at three 1-km stations in the bypass reach and eight 1-km stations between the bypass reach and the Route 116 Bridge in Sunderland (Figure 1). The species composition and relative abundance (Table 1) is typical of fish assemblages described for inland fishes of Massachusetts (Hartel et al. 2002). FirstLight believes that these recent data, coupled with the data FirstLight will obtain in the Turners Falls Impoundment will provide sufficient information on species composition and relative abundance in the Project area to accomplish the study's goals and objectives.

If you have any questions regarding this filing, please feel free to contact me.

Sincerely,

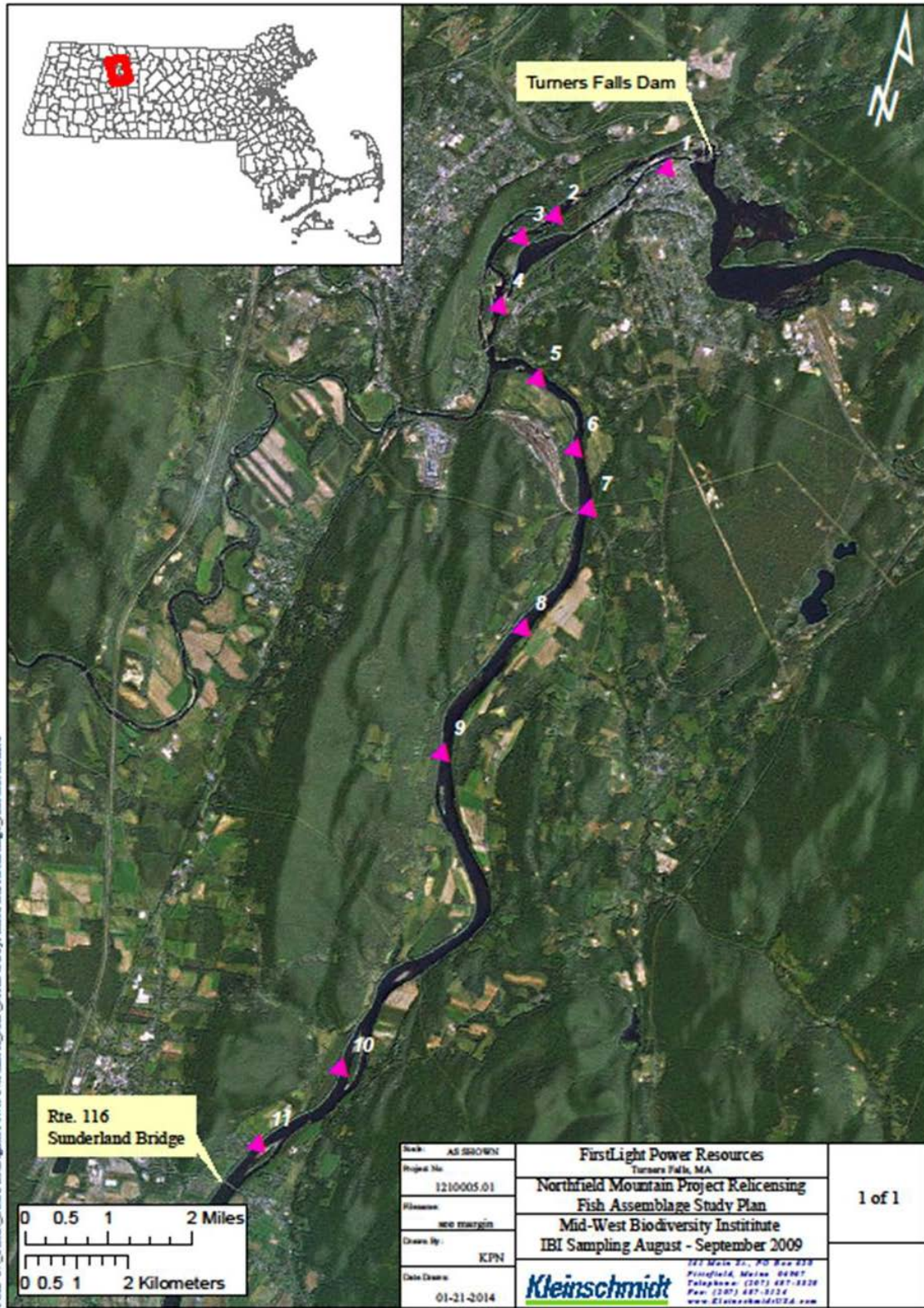
A handwritten signature in black ink, appearing to read "John Howard". The signature is fluid and cursive, with the first name "John" being larger and more prominent than the last name "Howard".

John Howard

**Table 1. Fish collected at eleven 1 km sample sites on the Connecticut River below the Turners Falls Dam to the Route 116 Bridge in Sunderland MA by electrofishing (2009).**

Species	Stations											Total
	1	2	3	4	5	6	7	8	9	10	11	
Date Sampled (2009)	8/31	9/28	8/15	8/16	8/16	9/2	8/16	10/5	8/17	8/17	8/17	
American eel	13	12	5	14	0	0	3	2	29	0	0	<b>78</b>
American shad	0	0	0	7	7	6	0	0	0	1	25	<b>46</b>
Atlantic salmon	0	8	0	1	0	0	0	0	0	0	1	<b>10</b>
Black crappie	0	0	0	0	1	0	0	0	0	0	0	<b>1</b>
Bluegill	15	0	3	5	7	8	8	0	12	14	9	<b>81</b>
Brown trout	1	0	0	0	0	0	2	0	0	0	0	<b>3</b>
Chain pickerel	0	0	0	0	0	1	0	1	0	0	0	<b>2</b>
Channel catfish	0	0	0	0	0	0	1	0	0	0	0	<b>1</b>
Common carp	1	0	0	2	0	0	0	0	0	0	0	<b>3</b>
Common shiner	0	0	0	4	0	0	0	0	0	0	0	<b>4</b>
Fallfish	0	0	14	4	29	150	10	10	99	128	8	<b>452</b>
Largemouth bass	0	0	0	0	2	0	0	0	0	4	0	<b>6</b>
Longnose dace	11	0	1	0	0	0	0	0	0	0	0	<b>12</b>
Northern pike	0	0	1	0	1	0	0	1	0	2	0	<b>5</b>
Pumpkinseed	0	0	1	0	0	0	0	0	2	0	0	<b>3</b>
Rock bass	2	3	8	1	3	3	4	0	12	0	0	<b>36</b>
Sea lamprey	14	1	1	0	0	0	0	2	3	0	2	<b>23</b>
Smallmouth bass	85	56	70	42	45	46	81	19	12	33	25	<b>514</b>
Spottail shiner	13	0	133	0	9	354	0	8	53	10	0	<b>580</b>
Tessellated darter	17	0	8	3	1	2	1	4	1	0	0	<b>37</b>
Walleye	0	0	0	0	0	0	1	0	0	0	0	<b>1</b>
White sucker	6	5	9	5	4	23	9	3	1	4	2	<b>71</b>
Yellow perch	1	1	3	0	0	2	1	2	1	7	5	<b>23</b>
<b>Total</b>	<b>179</b>	<b>86</b>	<b>257</b>	<b>88</b>	<b>109</b>	<b>595</b>	<b>121</b>	<b>52</b>	<b>225</b>	<b>203</b>	<b>77</b>	<b>1992</b>
<b>Sampling effort (Seconds)</b>	<b>9272</b>	<b>3356</b>	<b>4856</b>	<b>3298</b>	<b>3495</b>	<b>6360</b>	<b>4415</b>	<b>6578</b>	<b>3708</b>	<b>3595</b>	<b>3441</b>	<b>52374</b>

**Figure 1: Locations of fish collection sites on the Connecticut River below the Turners Falls Dam to the Route 116 Bridge in Sunderland MA by electrofishing (2009).**



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