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March 22, 2024

Debbie-Anne Reese, Secretary  
Federal Energy Regulatory Commission  
888 1st Street, N.E. – Room 1A  
Washington, D.C. 20426

Re: Comments on Applications for the Relicensing of the Turners Falls Hydroelectric Project (FERC No. 1889) (the “Turners Dam”) and the Northfield Mountain Pumped Storage Project (FERC No. 2485) (the “Northfield Facility”) and collectively with the Turners Dam, the “Facilities”)

Dear Ms. Reese,

Please accept this letter as public comments on the applications for relicensing of the Facilities, referenced above (the “Applications”), submitted by FirstLight MA Hydro LLC and Northfield Mountain LLC (collectively, “FirstLight”) to the Federal Energy Regulatory Commission (“FERC”). These comments are being submitted by two co-founders of Western Mass Rights of Nature, a local chapter of the global Rights of Nature movement which aims to reform Western-based laws and legal systems to grant legal rights and standing to elements of the natural world in order to better protect these natural systems. Members of our group are extremely concerned about the ecological damage to the Connecticut River caused by the FirstLight Facilities and we are writing to express these concerns.

**I. Preliminary Statement - The Connecticut River Should Have Standing**

“Contemporary public concern for protecting nature's ecological equilibrium should lead to the conferral of standing upon environmental objects to sue for their own preservation. The ordinary corporation is a "person" for purposes of the adjudicatory processes... So it should be as respects ... rivers, lakes, estuaries ...before these priceless bits of Americana (such as a valley, an alpine meadow, a river, or a lake) are forever lost or are so transformed as to be reduced to the eventual rubble of our urban environment.” -- Justice William Douglas, dissenting opinion in *Sierra Club v. Morton*, 405 U.S. 727 (1972).

Relicensing of the FirstLight Facilities as proposed will determine the fate of the Connecticut River for the next half century. For this reason, the Connecticut River should have a voice in the relicensing proceedings in the form of standing, as Justice Douglas so eloquently advocated for in the US Supreme Court case cited above; tragically, she does not. If FERC issues licenses for

the Facilities as proposed by FirstLight, the future of our beloved river and the ecosystem she supports looks grim indeed.

Concerned citizens and groups from across the Commonwealth continue to voice strong opposition to the relicensing of the FirstLight Facilities. Scientists, Indigenous Tribal members, boaters and fishermen, river front property owners and many others have testified to the tremendous damage these Facilities cause the river ecosystem, Indigenous cultural sites and traditions and river shorelines. But time and again, these concerns are dismissed or ignored altogether by FERC; drowned out by FirstLight's army of well-paid corporate lawyers, consultants, executives, and political influence.

It is past time that we reform our laws to recognize the inherent right of the Connecticut River and the myriad of life she supports to exist, flourish and regenerate, before we lose her altogether and she becomes, as Justice Douglas warned, "reduced to the eventual rubble of our urban environment."

## **II. Failure to Comply with Federal Power Act and Administrative Procedures Act**

Under Section 10 of the Federal Power Act (the "FPA"), the FirstLight Facilities must serve the public interest in the Connecticut River basin to be re-licensed, *not just FirstLight's interest in power generation*. The licenses to be issued must ensure that the Facilities -

"shall be such as in the judgment of the Commission will be best adapted to a *comprehensive plan* for improving or developing a waterway or waterways ... [including] ... *for the adequate protection, mitigation, and enhancement of fish and wildlife (including related spawning grounds and habitat) and for other beneficial public uses ...* "

Any new licenses issued to FirstLight would constitute a *privilege* to use public lands and waters. As such, FirstLight has the burden of proof under the federal Administrative Procedures Act (the "APA") to show through studies conducted and submitted in support of its applications that it should be granted *the privilege* to use the Connecticut River that the licenses would represent.

The Facilities as proposed by FirstLight fail to meet the requirements of the FPA and FirstLight has failed to meet its burden of proof under the APA. This has been well-documented by many parties who have submitted comments to FERC, including the Connecticut River Conservancy ("CRC"), The Nolumbeka Project, Inc. (the "Nolumbeka Project") and faculty members and graduate students at UMass Amherst (the "UMass Group"). Here are a few examples -

### **1. Water Resources – Insufficient Minimum Flows to Support Aquatic Life (Turners Dam).**

The minimum flow of water that FirstLight proposes to release over the Turners Dam is insufficient to support aquatic species living below the dam. FirstLight proposes a minimum flow of 500 cfs from July 1 to November 15 – this is not even enough water to fill the riverbank for the 1 mile stretch from the Turners Dam to Station 1. FirstLight's proposed minimum flow

will cause severe impairment of the Connecticut River ecosystem below the dam due to dewatering and fails to provide sufficient habitat for fluvial species and macroinvertebrates.<sup>1</sup>

FirstLight's own study demonstrates that its proposed minimum flows are wholly inadequate to support fish species below the Turners Dam. In 2015, FirstLight conducted Study No. 3.3.11 which included electrofishing surveys of reaches downstream of the Turners Dam. Table 4.2.3.1-1 of this study depicts the species abundances at various sites downstream of the Turners Dam, showing high proportional abundances of smallmouth bass and low proportional abundance of native fluvial specialist fishes.

The Massachusetts Consolidated Listing and Assessment Methodology (CALM) Guidance Manual, updated Fall of 2022, uses fish community classifications as a metric for determining the attainment of Aquatic Life Use. The extremely low proportional abundance of native fluvial specialist fishes sampled by FirstLight in its 2015 study and the proportional dominance of generalist fishes such as smallmouth bass means that *according to FirstLight's own study*, river habitat downstream of the Turners Dam fails to meet the criteria for Aquatic Life Use attainment as defined by the Massachusetts CALM.<sup>2</sup>

Increasing minimum flows over the Turners Dam from 500 cfs, as proposed by FirstLight, to 1400 cfs would result in *significant increases in Weighted Usable Area for fluvial specialist fishes*. For example, Juvenile and Adult Longnose Dace would gain 54% and 51% more habitat respectively and Juvenile/Adult Tesselated Darter would gain 63% more habitat.<sup>3</sup>

Higher minimum summertime flows from the Turners Dam would also increase usable habitat for both adult and juvenile Shortnose Sturgeon, a fish species that is listed as endangered under the federal Endangered Species Act. Laboratory studies of juvenile Sturgeon documented that certain cohorts attempted upstream migration, while others migrated downstream.<sup>4</sup> This makes it likely that a proportion of juvenile Sturgeon hatching near the rock dam and cabot station Sturgeon spawning areas below the Turners Dam would attempt upstream migration given sufficient flows. Furthermore, the dualistic migration strategy of juvenile Sturgeon likely continues into adulthood, with adult Shortnose Sturgeon having been sited below the Turners Dam during the summer months. Higher base flows spilled over the Turners Dam during the summer would increase upstream foraging habitat for both juvenile and adult Shortnose Sturgeon. FirstLight's own Draft Biological Assessment shows a Weighted Usable Area for

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<sup>1</sup> Letter, dated May 25, 2023, from CRC to FERC re: Offer of Partial Settlement; Turners Falls Hydroelectric Project (FERC No. 1889-081) and Northfield Mountain Pumped Storage Project (FERC No. 2485-063) ("CRC Comments"), p.4.

<sup>2</sup> CRC Comments, Attachment A, p.5.

<sup>3</sup> CRC Comments, p.5.

<sup>4</sup> Kynard B. E. Bronzi P. & Rosenthal H. 2012. Life history and behaviour of Connecticut River Shortnose and other Sturgeons.

Sturgeon occurs with flow of around 2,000 cfs, far above the paltry 500 cfs proposed by FirstLight.<sup>5</sup>

Critical studies are also missing from the FirstLight study plan, including a survey of river macroinvertebrates and a study quantifying the impact of the long reduction of natural river inputs into the river of sediment and large wood.<sup>6</sup> But once again, the studies that FirstLight has provided demonstrate the inadequacies of FirstLight’s proposed minimum flows to support macroinvertebrate communities.<sup>7</sup>

Macroinvertebrate communities in the bypass reach contribute essential resources to higher organisms up the food web, such as fish. Maintaining adequate flows during the summer months is *essential* for sustaining the macroinvertebrate communities in the upper bypass reach. According to FirstLight’s own assessment, increasing minimum flows from the Turners Dam from 500 cfs to 1000 cfs would *double the Weighted Usable Area for macroinvertebrates in Reach 1*.<sup>8</sup>

## 2. Water Resources – Insufficient Minimum Flows to Protect Cultural Resources and Practices (Turners Dam).

The minimum flow of water that First Light proposes to release over the Turners Dam is insufficient to protect sacred Indigenous cultural resources and practices.

In 2008, the United States Department of the Interior (the “Department”) issued a Determination of Eligibility Notification for The Turners Falls Sacred Ceremonial Hill Site (the “Ceremonial Hill Site”).<sup>9</sup> The Department found that this site –

“is associated with events that have made a significant contribution to the broad patterns of Narragansett, Aquinnah-Wampanoag, and Mashpee-Wampanoag history”...[and that]...“the site may have sacred meaning to other tribes of the northeastern United States, including the Western Abenaki, Nipmuck, Wabenaki, and Mahican, who in part are believed to have common ancestry with the tribes of the Pocumtuck Confederacy (including the Pocumtucks, Nonotucks, and

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<sup>5</sup> Figure 7.2.2.2-1 of the Shortnose Sturgeon Draft Biological Assessment shows the habitat vs flow relationship for adult sturgeon in Reach 1 below the Turners Dam, where a maximum Weighted Usable Area occurs around 2,000 cfs.

<sup>6</sup> Letter, dated May 26, 2023, from the UMass Group to FERC re: Flows and Fish Passage Settlement Agreement, Turners Falls Hydroelectric Project (FERC No. 1889-081) and Northfield Mountain Pumped Storage Project (FERC No. 2485-063), p. 5.

<sup>7</sup> CRC Comments, Attachment B, p.2-3.

<sup>8</sup> FirstLight Relicensing Study 3.3.1, Appendix B-7.

<sup>9</sup> Determination of Eligibility Notification, The Turners Falls Sacred Ceremonial Hill Site (formerly, the Airport Improvement Project — Turners Falls Municipal Airport), dated December 11, 2008 (the “Determination of Eligibility”).

Norrotucks) who occupied the middle Connecticut River Valley at the time of first contact and Anglo-American settlement.”

The Department further recognized that the Ceremonial Hill Site is considered a contributing property within an expanded Turners Falls Cultural Landscape District (the “Landscape District”), eligible for registration with the National Register.<sup>10</sup>

As noted by both the Nolumbeka Project and CRC in comments to FERC<sup>11</sup>, the Landscape District extends out in a 16-mile radius from the Ceremonial Hill Site and includes the banks of the Connecticut River and the river herself at the very site of the Turners Dam where a natural waterfall once existed. The minimum flows proposed by FirstLight will leave this sacred area and its culturally significant artifacts dewatered, exposed and unprotected. Moreover, the dewatering of this sacred area will deprive Tribal groups of their ability to practice their ancient fishing and food processing cultural heritage.<sup>12</sup>

As the Department recognized in its finding, the site of the Turners Dam was the site of a massacre of Indigenous people on May 19, 1676, which signified -

“an important turning point in the conflicts between Indian tribes and Anglo-American settlers in the New World and brought an end to what seems to have been a long period of Native American settlement, farming, and seasonal encampment in the middle Connecticut River Valley.”

It is deeply and tragically ironic that *over 300 years after this massacre occurred*, the United States government, through FERC, is poised to issue licenses to FirstLight for its Facilities that will perpetuate the destruction of Indigenous cultural resources and prevent the practice of Indigenous cultural practices at the site of the Turners Dam for another half century.

### 3. Water Resources – Hydropeaking (Northfield).

An increase in the size of the upper reservoir storage at Northfield as proposed by FirstLight will inevitably result in increased operations of the Northfield Facility and this, in turn, will result in a significant increase in hydropeaking, the rapid increase in river flow that occurs when water is released from the Facilities to create electricity. Yet FirstLight asserts that increasing the size of the upper reservoir will have no adverse environmental impacts.<sup>13</sup> This is impossible to believe, as FirstLight’s own studies show that *existing* operations already negatively impact fish spawning, as outlined below.

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<sup>10</sup> Determination of Eligibility, p.17.

<sup>11</sup> Letter, dated May 24, 2023, from The Nolumbeka Project in coalition with the Chaubunagungammaug Band of Nipmuck Indians and the Elnu Abenaki Tribe (the “Nolumbeka Project Comments”), p. 3 and CRC comments, p.5.

<sup>12</sup> Nolumbeka Project Comments, p.4-5.

<sup>13</sup> CRC Comments, p.10.

FirstLight Relicensing Study 3.3.13, entitled *Impacts of the Turners Falls Project and Northfield Mountain Project on Littoral Zone Fish Habitat and Spawning Habitat Study Report* (“Study 3.3.13”), investigated the impacts of existing water level fluctuations in the Turners Falls Impoundment (the “TFI”) on spawning site suitability for resident fish populations. Results showed that project operations significantly impact the suitability of spawning habitats in the TFI, especially for early spring spawning fishes such as Yellow Perch. The study showed one nesting site was mostly dewatered during the period of April-May 2015 due to fluctuations in TFI water levels.<sup>14</sup>

FirstLight claims that the increase in pump storage will have no adverse environmental impacts, yet no modeling studies were conducted to test the effects of this change in operations on the suitability for fish spawning habitats in the TFI. Since historical project operations already affect the suitability of spawning habitat for resident fish populations, any increase in water level stochasticity in the impoundment will compound the detrimental effects of spawning habitat dewatering events. Depending on the severity of the water level fluctuations, this could lead to recruitment failure for fish species in the TFI such as Yellow Perch which typically spawn on high elevation emergent plant stands that are most prone to water level fluctuations.

For these reasons, FirstLight’s proposal to increase the storage capacity of Northfield must be denied.

#### 4. Timeline for Construction of Fish Passage Facilities (Turners Dam).

FirstLight proposes installing a new and modernized fish passage facility but proposes taking almost a decade to construct it. This timeline is patently absurd, clearly motivated by FirstLight prioritizing profits over the protection of fish. This is especially obvious given that the Silvio O. Conte Research Laboratory, where state-of-the-art, world-class fish lifts are designed, is located right along the power canal of the Turners Dam.

The need to modernize the Turners Dam fish lift has been well-known for decades - the fish lift at the Holyoke Dam was modernized in 1955! FirstLight should be required to modernize its fish lift *immediately* as a condition of any new license.

#### 5. Inadequate Fish Intake Protection (Northfield).

The Northfield Facility is a death trap for all aquatic life down-river from the intake pipe. By FirstLight’s own admission, fish, eggs, larvae and all other aquatic life sucked up into this pipe have no expectation of survival. FirstLight’s proposed mechanism for mitigating this death trap is to install a barrier net at the intake pipe, however this net is untested technology that may have little success. The negotiated Settlement Agreement would allow the trial of this net to drag on for more than a decade. Given FirstLight’s acknowledgment of the environmental devastation caused by the Northfield Facility it is unacceptable that FirstLight be granted another ten years of this 100% death rate while they play around to see if their barrier net even works.

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<sup>14</sup> Study 3.3.13, Figure 4.3.2-11.

In addition, FirstLight has provided insufficient baseline studies to show the numbers and types of fish that successfully migrate up-river from the Turners Dam *without Northfield in operation*. Without this data, it is impossible for FERC to assess whether and how FirstLight’s interests in power generation can properly be balanced against the protection, mitigation, and enhancement of fish populations as required under the FPA.

The Northfield Facility was shut down for repair for three months at the end of 2023.<sup>15</sup> FERC should have required this shutdown to occur a few months later, during the 2024 fish migration season, and required FirstLight to conduct and provide FERC with the necessary baseline study data during this shut-down, referenced above. In the absence of this data, FERC cannot make its required assessment under the FPA and Northfield should not be relicensed.

#### 6. Incompatibility with Existing Comprehensive Plans (Turners Dam and Northfield).

Any determination by FERC that the licenses proposed by FirstLight will comply with the FPA must be based on FERC’s determination that the license terms are *consistent* with applicable comprehensive plans. However, the new licenses proposed by FirstLight are *inconsistent* with the existing comprehensive plans.

The license terms proposed by FirstLight are inconsistent with the Silvio O. Conte National Fish and Wildlife Refuge Comprehensive Conservation Plan, issued January 2017 (the “Conte Plan”). A primary objective of the Conte Plan is to –

“protect and restore in-stream and riparian habitat structure and function, and restore aquatic species passage and water quality within the Connecticut River watershed to improve the ecological integrity and environmental health of the river ecosystem and enhance habitat for migratory and inter-jurisdictional fish, mussels, and other native aquatic species of conservation concern.”

The list of goals set forth by the Conte Plan in order to achieve this primary objective, include –

- Eliminate barriers to fish and other aquatic species passage
- Protect and increase spawning habitat for aquatic species
- Protect and increase hard bottom substrate for spawning aquatic species

However, as illustrated above, the provisions of the licenses proposed by FirstLight are woefully inadequate to protect and restore the Connective River and her ecosystem and wholly inconsistent with the primary objective of the Conte Plan, quoted above.

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<sup>15</sup> Letter, dated August 25, 2023, from FERC to FirstLight re: Dam Safety Inspection Follow-up (2023), and follow-up confirmation by Mark Wasmer at Gomez and Sullivan (FirstLight’s engineers) that the Northfield Facility was shut down from September 16, 2023 through December 27, 2023.

The license terms proposed by FirstLight are also inconsistent with the Massachusetts Farmland Action Plan, 2023-2050, issued December 2023, sponsored by the Massachusetts Department of Agricultural Resources (the “Farmland Plan”). The first of the three goals of the Farmland Plan is *the permanent protection and stewardship* of Massachusetts farmland. The Farmland Plan recognizes that Massachusetts farmland is –

“a threatened and critical infrastructure that supports food security, natural systems and climate resilience, and Massachusetts’ economy, public health, and quality of life.”

The farmland property bordering the Connecticut River and included within the project boundaries of the FirstLight Facilities is some of the most fertile farmland in New England and includes farmland protected by State acquired agricultural preservation restrictions. Yet the FirstLight licenses, if issued, will threaten this farmland with flooding and erosion from the Facilities, as FirstLight itself has indicated.<sup>16</sup> This flooding and erosion is set to dramatically increase in frequency and severity with the increased impacts of climate change. The flooding of Western Massachusetts farmland and destruction of food crops along the Connecticut River in July of 2023 is a recent and ominous example of this.<sup>17</sup>

The licenses as proposed by FirstLight contain no mechanisms for addressing the negative impacts of the Facilities from flooding and erosion of Massachusetts farmland, the protection and stewardship of which is critically important to the Commonwealth under the Farmland Plan.

The Applications proposed by FirstLight are wholly inconsistent with the Conte Plan and the Farmland Plan, and therefore should be denied.

#### 7. License Term (Turners Dam and Northfield).

FirstLight proposes a 50-year term for its licenses without evidence to support this request. In fact, no justification exists for FERC to issue licenses of such length. We are living in an era of rapidly changing climate conditions, resulting in weather patterns such as the severe flooding of the Connecticut River that we experienced just last summer, referenced above. Flooding is significantly worsened by high-impact hydropower facilities like the Turners Dam and Northfield Facility and should cause FERC to question the advisability of issuing any new licenses for the Facilities and certainly ones for the duration proposed by FirstLight. We are also living through a period when the region’s energy needs and sources of supply are rapidly changing, making issuance of 50-year licenses for the antiquated and destructive FirstLight Facilities inadvisable.

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<sup>16</sup> In its letter, dated June 18, 2021, to FERC re: Response #2 to FERC’s April 19, 2021 Letter Regarding Additional Information Requests, FirstLight states in response to TF-AIR#20, “based on a hydraulic assessment of the 50-year flood conducted in the 1970’s, these parcels [land on both sides of the CT River] could be flooded, which is why FirstLight would seek to acquire flowage rights”, p.4.

<sup>17</sup> Western Mass. flooding: Farms tally the losses (bostonglobe.com)



8. Inadequate Evidence of Site Control (Turners Dam and Northfield).

Under the FPA and its regulations, FirstLight must hold fee title or perpetual rights to use all property within its project boundaries, however it does not hold such rights. The project boundary maps submitted by FirstLight as part of its Applications depict the shoreline of the river for many miles as included within the project boundary of the Facilities (the “Shoreline Property”). This Shoreline Property is private property, not owned by FirstLight, and is very negatively impacted by operation of the Facilities, subject to severe erosion which is set to substantially increase under the new licenses as proposed.

Because FirstLight does not own the Shoreline Property, the FPA requires Firstlight to hold perpetual rights to use this property, such as in the form of flow easements, however in many cases FirstLight does not hold these required rights either. By letter, dated April 19, 2021, FERC identified Shoreline Property on 10 of FirstLight’s 13 project boundary maps that FirstLight does not hold any rights to, as follows -

<i>Sheet #</i>	<i>Description</i>
<i>1</i>	<i>No issues</i>
<i>2</i>	<i>No issues</i>
<i>3</i>	<i>No issues</i>
<i>4</i>	<i>Parcel(s) along Millers River</i>
<i>5</i>	<i>Parcel(s) on both sides of CT River</i>
<i>6</i>	<i>Parcel(s) on both sides of CT River</i>
<i>7</i>	<i>Parcel(s) on west side of CT River</i>
<i>8</i>	<i>Parcel(s) on both sides of CT River</i>
<i>9</i>	<i>Parcel(s) on west side of CT River</i>
<i>10</i>	<i>Parcel(s) on west side of CT River</i>
<i>11</i>	<i>Parcel(s) on both sides of CT River</i>
<i>12</i>	<i>Parcel(s) on both sides of CT River</i>
<i>13</i>	<i>Parcel(s) on both sides of CT River</i>

FERC asked FirstLight to explain how it plans to acquire rights to use this Shoreline Property as required under the FPA, and FirstLight responded -

“Following issuance of the FERC license and establishment of the new Project Boundary, FirstLight will seek acquisition of flowage rights on the parcels listed in FERC’s AIR (see table above). Based on a hydraulic assessment of the 50-year flood conducted in the 1970’s, these parcels could be flooded, which is why FirstLight would seek to acquire flowage rights.”

The above response from FirstLight is wholly unacceptable. The Facilities are not newly constructed projects. The Turners Dam has been in existence for over a hundred years and construction on the Northfield Facility was completed in 1972. FirstLight has had ample time to acquire the perpetual property rights it must hold in the Shoreline Property in order to operate

the Facilities in compliance with the requirements of the FPA. Without these rights, FirstLight's Applications must be denied.

#### 9. Absence of a Shoreline Management Plan.

Shoreline Property owners have for years protested to FirstLight and to FERC about the erosion of their land by operation of the Facilities, but to no avail. FirstLight has had many years to acquire the rights it is required to hold in the Shoreline Property under the FPA, as noted above, and to develop and implement a Shoreline Property plan with erosion controls and mitigation measures in collaboration with the Shoreline Property owners, and as approved by FERC, but it has thus far failed to do so. FirstLight's claim that increased operation of the Northfield Facility will have "no adverse environmental effects" is based on a flawed relicensing study and modelling reports.<sup>18</sup>

Unless and until FirstLight acquires fee title or perpetual rights to use *all* of the Shoreline Property within its project boundaries and develops a proper Shoreline Management Plan, with the input and approval of the Shoreline property owners and FERC, any new licenses must be denied as failing to meet the requirements of the FPA cited above.

### III. Failure to Protect Endangered or Threatened Species and their Habitat

The Facilities should not be re-licensed as proposed by FirstLight because the Applications fail to include sufficient measures to protect threatened and endangered species under the federal Endangered Species Act (the "ESA"). Under Section 7(a)(1) of the ESA, FERC, like any other federal agency, *must protect and contribute to the recovery* of all threatened and endangered species affected by its actions. Under Section 3(3) of the ESA, FERC must "*use... all methods and procedures which are necessary*" for this purpose. The licenses as proposed fail to comply with these requirements as they pertain to protection of the endangered Shortnose Sturgeon.

As mentioned above, FirstLight's own studies demonstrate that the minimum flows they propose are inadequate to protect and contribute to the recovery of Shortnose Sturgeon. For this reason alone, FERC's issuance of the licenses as applied for would violate the requirements of the ESA.

In addition, the Northfield Facility threatens the existence of Shortnose Sturgeon above the Turners Dam. For years anglers fishing above the Turners Dam have reported the catch and release of endangered Shortnose Sturgeon. In August of 2017, a fisherman caught a Sturgeon above the Turners Dam which researchers at the USGS Conte Anadromous Fish Lab confirmed as a Shortnose Sturgeon.<sup>19</sup> Following this documented catch, in January of 2018, FERC denied FirstLight permission to increase pumping operations at Northfield, citing the potential impingement and entrainment of the endangered Sturgeon. But despite this very real and documented concern, FERC is poised to issue FirstLight a license to *continue and increase* Northfield operations without adequate evidence that doing so is safe for Sturgeon.

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<sup>18</sup> CRC Comments, p.10-11.

<sup>19</sup> Surprise Catch: First Shortnose Sturgeon Documented Above Dam in Connecticut River | NOAA Fisheries

In response to FERC’s expression of concern in 2018 about the impact of Northfield operations on Sturgeon populations, FirstLight conducted a deeply flawed study based on a wholly inadequate single round of eDNA sampling for Sturgeon about the Turners Dam. Shortnose Sturgeon are a *bottom dwelling species*. In a large, deep river like the Connecticut River, Sturgeon will be living at the bottom of the deepest channels of the river. Detection probability for eDNA samples is directly related to a target species’ preferred habitat type, so eDNA testing for Sturgeon should prioritize bottom water samples with mid-water and surface water samples collected as controls in a river system as large and deep as the Connecticut.

Either due to poor study design or for more nefarious reasons, the FirstLight study did just the opposite, *collecting only surface water samples*. FirstLight’s study report notes (italics added) –

“For each sampling event, no more than two liters of water were directly filtered *approximately 6 inches below the water surface...*”<sup>20</sup>

No bottom water samples were taken and tested by FirstLight. Based on a handful of surface water testing for fish that live at the bottom of deep river channels, the study then goes on to use a probability of detection estimate in its table that assumes an equal likelihood of Sturgeon DNA presence in surface waters as water collected at any other depth. This assumption is simply and demonstrably inaccurate. The report then concludes -

“...based on FirstLight’s eDNA testing, the likelihood of a shortnose sturgeon population being present in the TFI is extremely low.”

FirstLight’s conclusion that no Sturgeon are present above the dam based on its deeply flawed eDNA sampling study is utter nonsense. Demonstrating the *absence* of a fish species using eDNA techniques is technically and methodologically very difficult. Sampling *surface waters* for a *bottom dwelling fish species* in a deep and stratified river system like the Connecticut River is very unlikely to result in a positive eDNA detection, which was the result of the FirstLight sponsored study. One can’t help wonder if the study was deliberately designed to reach this result.

In recent years, eDNA testing for fish populations has advanced and met with recognized success. In order to comply with the requirements of the ESA, FirstLight should be required to conduct a proper and robust eDNA sampling study, conducted at varying locations and depths both above and below the Turners Dam and at regular biologically relevant intervals throughout the year (robust sampling through time and space). Unless and until FirstLight increases its minimum flows to adequately support populations of Shortnose Sturgeon below the Turners Dam and conducts scientifically rigorous testing for Shortnose Sturgeon both above and below the

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<sup>20</sup> Environmental DNA Sampling for Shortnose Sturgeon Study Report, prepared for FirstLight by Kleinschmidt, November 2018 (p. 2)

Turners Dam coupled with the incorporation of adequate methods of protecting and promoting the recovery of these endangered fish, FERC must deny the issuance of licenses to FirstLight as failing to comply with the requirements of the ESA.

#### IV. Conclusion – Balance of Beneficial Uses

Under Section 4(e) of the FPA, FERC must give “equal consideration to energy conservation, the protection, mitigation of damage to, and enhancement of, fish and wildlife (including related spawning grounds and habitat), the protection of recreational opportunities, and the preservation of other aspects of environmental quality”. Thus when issuing a licensing decision, FERC must ensure that the project achieves *a balance of beneficial uses of the affected waters and lands*, as required by the FPA. The terms of the licenses proposed in the FirstLight Applications do not achieve this balance for all the reasons stated above and should be denied.

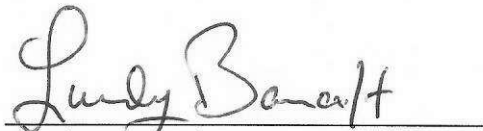
Respectfully submitted,



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