# Newfound Hydroelectric LIHI (No. 82) Application

## Newfound Hydroelectric Project

FERC No. 3107

Prepared for:

**KTZ Hydro, LLC**

Prepared by:

**Kleinschmidt Associates**

April 2021

# EXECUTIVE SUMMARY

The Newfound Hydroelectric Project (Newfound Project) is applying for recertification with the Low Impact Hydropower Institute (LIHI) in accordance with Section 6.1 of the 2nd Edition LIHI Handbook. There have been no operational changes or drastic physical changes to the Project Boundary. The Newfound Project has had no compliance issues and adhered to all regulations set forth by the Federal Energy Regulatory Commission (FERC), as well as the guidelines put into place by the last LIHI certification.

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# ACRONYMS

| | |
|---|---|
| ***C*** | |
| cfs | cubic feet per second |
| ***E*** | |
| EPA | Environmental Protection Agency |
| ***F*** | |
| ºF | degrees Fahrenheit |
| FERC | Federal Energy Regulatory Commission |
| ft | feet/foot |
| ft/s | feet per second |
| ***I*** | |
| IPaC | Information for Planning and Consultation |
| ***K*** | |
| KW | kilowatt |
| kWh | kilowatt hour |
| ***L*** | |
| LIHI | Low Impact Hydroelectric Institute |
| ***M*** | |
| MW | megawatts |
| MWh | megawatts per hour |
| MSL | mean surface level |
| ***N*** | |
| NH | New Hampshire |
| NHDES | New Hampshire Department of Environmental Services |
| NHFGD | New Hampshire Fish and Game Department |
| N/A | Not applicable |
| ***P*** | |
| PSNH | Public Service of New Hampshire |
| ***R*** | |
| RM | river mile |
| ROR | run-of-river |
| ***S*** | |
| sq mi | square mile |
| ***U*** | |
| USACE | United States Army Corps of Engineers |
| USGS | United States Geological Survey |
| ***W*** | |
| WQC | Water Quality Certificate |

# 1.0 INTRODUCTION

The Newfound Hydroelectric Project (Newfound Project, or Project) is owned by KTZ Hydro, LLC (KTZ Hydro), a subsidiary of Eagle Creek Renewable Energy, LLC and located in Bristol, New Hampshire (NH). The Newfound Project is located on the Newfound River, a tributary to the Pemigewasset River in the headwaters to the Merrimack River Basin (Figure 1).

In 2011, the Newfound Project was certified with the Low Impact Hydropower Institute (LIHI) for five years. In 2016, the Project was reviewed and certified again using the revised criteria set forth in the Low Impact Certification Program 2nd Edition Handbook (March 7, 2016). The Newfound Project is seeking recertification again in 2021, in accordance with Section 6.1 of the 2nd Edition LIHI Handbook. As such, the application below provides information on key facility activities, changes that have occurred during the 2016 LIHI term and actions planned in the foreseeable future.

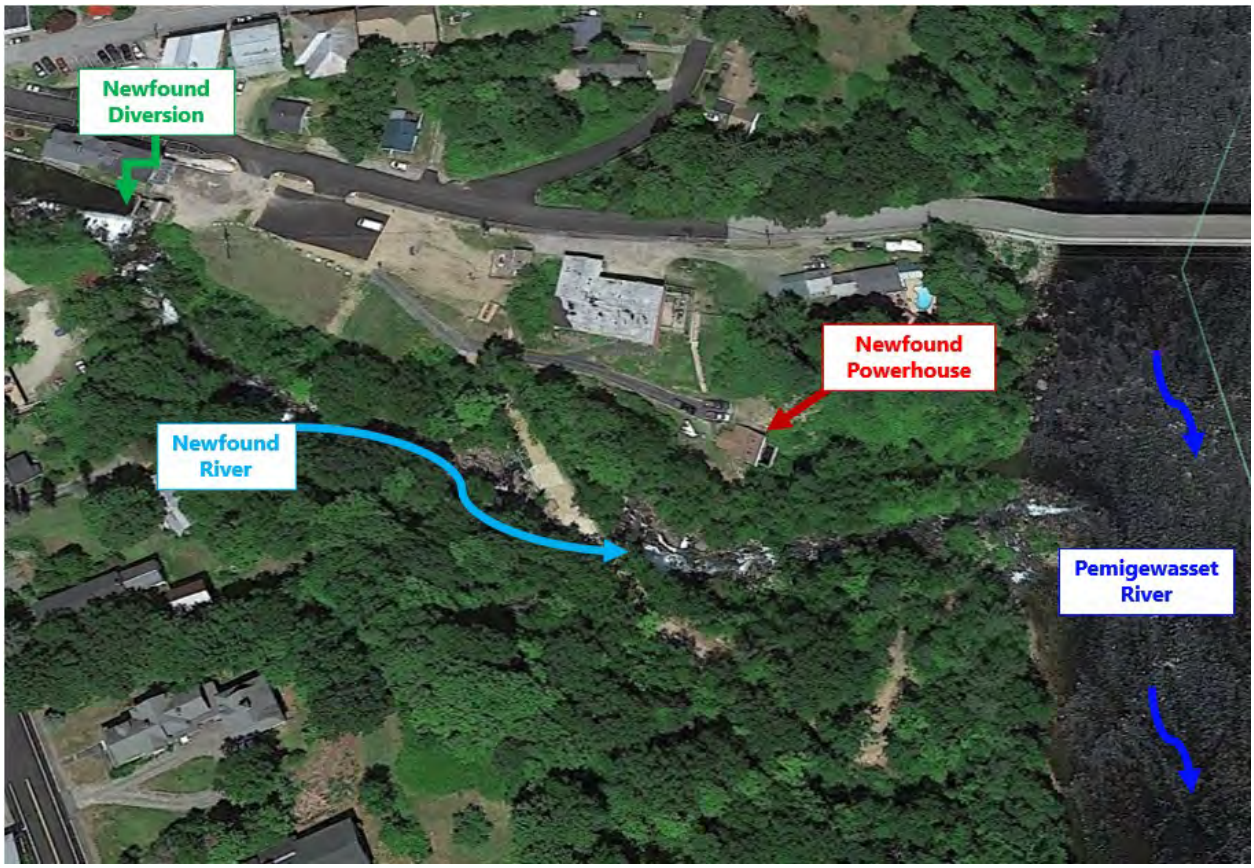


**Figure 1-1 Newfound Hydroelectric Project Layout**

# 2.0 APPLICATION TABLE AND CHECKLIST

**Table 2-1 Recertification Application Table and Checklist from the 2nd Edition LIHI Handbook**

| | |
|---|---|
| **Facility Name:** | Newfound Hydroelectric Project |
| **LIHI Certificate No:** | LIHI No. 82 |
| **Application Date:** | 4/30/2021 |
| **Application Fee Payment Date:** | 4/30/2021 |
| **1. Updates and Changes Needed to** Facility Webpage | ☐ N/A – webpage is accurate.<br>☒ Changes are needed.<br><br>Based on comments from the 2011 LIHI application, the licensee (KTZ Hydro) agreed to maintain a minimum flow of 12.7 cfs, or instantaneous inflow if less, through the penstock-bypassed reach of river. The LIHI webpage states 5 cfs is maintained, which was the original flow required by the FERC license. These new terms are listed in the certification history, but the summary paragraph still states 5 cfs is maintained, not 12.7 cfs. |
| **2. Updated Facility Information Table:** | ☒ Updated form attached, either the<br>Single Facility Form or Multiple Facility Excel sheet<br><br>(See Section 3) |
| **3. During the current LIHI term, have there been any:** | |
| FERC license or exemption proceedings, applications, amendments and/or FERC orders? | ☐ N/A, facility is not under FERC jurisdiction.<br>☒ No.<br>☐ Yes. |
| Water Quality Certification (WQC) or amendment proceedings? | ☒ N/A, no WQC for the facility.<br>☐ No.<br>☐ Yes. |
| FERC-required facility or operational changes? | ☒ No.<br>☐ Yes. |

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|---|---|
| Changes to facility-related management plans, settlement agreements, MOUs or other agreements? | ☐ No.<br>☒ Yes.<br><br>Three small changes have been made since the last LIHI application:<br><br>1. On July 24, 2018 the Licensee (KTZ Hydro) submitted a Notice of Intent (Accession No. 20180724-5030) to Convey an Easement of Project Lands to Vacation Paradise Realty Trust (VPRT), a neighboring landowner, of a 50-feet by 50-feet (250 square foot) strip of land located in the extreme northeastern portion of Project Lands to facilitate egress/ingress to VPRT's property. On August 20, 2018, FERC responded stating the licensee "may convey the easement without prior Commission approval and no further Commission action is necessary". Additionally, FERC requested an updated Public Safety Plan due to the addition of a fence and signage to prevent public access to the intake area.<br><br>Link to Notice of Intent:<br>https://elibrary.ferc.gov/eLibrary/filedownload?fileid=14979333<br><br>Link to FERC Response:<br>https://elibrary.ferc.gov/eLibrary/filedownload?fileid=15000132<br><br>2. On September 21, 2020 the Public Safety Plan was revised (Accession No. 20200921-5192) and submitted to FERC. This Plan was approved by FERC on October 7, 2020 (Accession No. 20201007-3016).<br><br>Link to Public Safety Plan:<br>https://elibrary.ferc.gov/eLibrary/filedownload?fileid=15626852<br><br>Link to FERC Response:<br>https://elibrary.ferc.gov/eLibrary/filedownload?fileid=15636551<br><br>3. Upon the completion of a safety audit, on December 1, 2020 the Dam Safety Surveillance and Monitoring Plan (Accession No. 20201201-5176) was updated and submitted to FERC. This Plan was approved by FERC on December 7, 2020 (Accession No. 20201207-3040). |

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| | Link to Dam Safety Surveillance and Monitoring Plan (CEII):<br>https://elibrary.ferc.gov/eLibrary/filedownload?fileid=15669902<br><br>Link to FERC Response:<br>https://elibrary.ferc.gov/eLibrary/filedownload?fileid=15673980 |
| Any formal or informal resource agency communications related to the LIHI criteria? | ☐ No.<br>☒ Yes.<br>In 2018, KTZ Hydro performed a water quality analysis upstream and downstream of the Newfound Dam to provide evidence of suitable water quality. Studies were done based on New Hampshire Department of Environmental Services (NHDES) recommendations and standards. Results were approved on April 7, 2020. (Appendix A) |
| **4. During the current LIHI term, have there been any activities or changes at the facility:** | |
| Environmental upsets (e.g., oil spills, erosion events, damaging flood events)? | ☐ No.<br>☒ Yes.<br>Two culverts failed on Newfound Project Lands which resulted in a sinkhole and depression in the soil. See below for more details. |
| Changes in the environmental conditions at the facility (e.g., significant land clearing, dredging, flood damage repairs, construction activities)? | ☐ No.<br>☒ Yes.<br>On June 12, 2019 the Licensee filed a Pre-Construction Document (Accession No. 20190612-5155) which states "two culverts have deteriorated to the point of failure and assisted in the formation of a sinkhole and depression in the soil above the culverts". This resulted in a shutdown of the Project's generating units until the replacement culverts were installed. On July 11, 2019 FERC responded with a letter (Accession No. 20190711-3028) stating "D2SI-NYRO considers the in-kind replacement of the culverts as maintenance not requiring FERC approval". The new culverts were successfully installed on December 19, 2019. Project shutdown occurred between April 20, 2019 to December 19, 2019, but a continuous flow of 12.7 cfs was maintained. All river inflow was passed over the diversion weir through the bypass reach during construction.<br><br>Link to Accession No. 20190612-5155:<br>https://elibrary.ferc.gov/eLibrary/filedownload?fileid=15271004<br><br>Link to Accession No. 20190711-3028:<br>https://elibrary.ferc.gov/eLibrary/filedownload?fileid=15305507 |

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|---|---|
| Any other issues related to the LIHI criteria that have arisen (e.g., agency comments or new recommendations, stakeholder inquiries, etc.)? | ☒ No issues have arisen.<br>☐ Yes. |
| **5. During the current LIHI term have there been any:** | |
| Deviations or excursions from regulatory requirements? | ☒ None have occurred.<br>☐ Yes. |
| FERC compliance orders, notices of non-compliance or violations from FERC, from regulatory agencies, or from stakeholders or the general public? | ☒ None received.<br>☐ Yes. |
| **6. Ecological Flows (if not captured above):** | |
| Are there any temporary or permanent changes in impoundment operations that have occurred or are planned, including significant drawdowns (planned for maintenance or dam repairs or extended flashboard removal); and/or changes in flow release quantity or schedules, including white water releases? | ☒ No changes have occurred or are planned.<br>☐ Yes. |

| **7. Water Quality:** | |
|---|---|
| If applicable, are there any amendments or applications for amendment to the facility's Water Quality Certification (WQC) during the current LIHI term? | ☒ N/A, no WQC for the facility.<br>☐ No WQC amendment proceedings.<br>☐ Yes, there have been amendment proceedings. |
| If there is a WQC and you selected Standard B-2, Agency Recommendation in the prior LIHI application, is the WQC is now > 10 years old?<br><br>Provide a letter from the state water quality agency confirming that the terms and conditions of the existing WQC are still valid and applicable to the facility. | ☒ N/A, no WQC for the facility.<br>☐ No, did not select Standard B-2.<br>☐ No, WQC is still < 10 years old.<br>☐ Yes, WQC is > 10 years old, and agency letter is attached. |

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| Review the most recent published state impaired waters list (draft or final).<br><br>Have there been any changes in the listing (new impairments, impairments removed, etc.) for the facility vicinity since the prior LIHI application? | ☐ No changes.<br>☒ Yes.<br><br>New Hampshire's Watershed Report Cards built from the DRAFT 2020, 305(b)/303(d)<br><br>Link to Report<br>https://www4.des.state.nh.us/onestoppub/SWQA/010700010603_2020.pdf<br><br>See PDF pages 2 – 4, Page 8, and Page 35 for sites related to the Newfound Project. (Appendix B)<br><br>Station NHIMP700010603-04 is located in the Impoundment directly above the Newfound Dam. The aquatic habitat classification changed from "Likely Good" to "No Current Data" since the last LIHI report. Chlorophyll-A was tested for the first time in 2018. Other water parameters in the Aquatic Life Integrity category have not been tested since 2011.<br><br>Draft 2020 Categories are listed below:<br><br>Aquatic life Integrity - "No Current Data"<br>Fish Consumption - "Poor",<br>Potential Drinking Water Supply - "Good"<br>Primary Contact Recreation - "Likely Good<br>Secondary Contact Recreation - "No Current Data"<br>Wildlife - "No Current Data"<br>Overall Site: 3-PASS<br><br>Station NHRIV700010603-12 is downstream of the Newfound Dam. Aquatic habitat dropped from "Good" to "Likely Good" since the last LIHI report. This seems to be based solely on phosphorus testing done in 2018, which had not been done previously. Other water parameters in the Aquatic Life Integrity category have not been tested since 2011.<br><br>Draft 2020 Categories are listed below:<br><br>Aquatic life Integrity - "Likely Good"<br>Fish Consumption - "Poor"<br>Potential Drinking Water Supply - "Good"<br>Primary Contact Recreation - "Likely Good<br>Secondary Contact Recreation - "No Current Data" |

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|---|---|
| | Wildlife - "No Current Data"<br>Overall Site: 3-PASS<br><br>Facility Operations are not likely the cause of these impairments. In 2011 and 2018, water quality samples were collected as recommended by the NHDES. Based on this sampling, NHDES concluded that the Newfound Project was not violating water quality criteria. (Appendix A) |
| Identify any changes in stream designation such as state water quality classification changes for the river, Wild and Scenic Rivers designation, or other protected river status changes. | ☒ None identified.<br>☐ Yes. |
| If water quality monitoring has been conducted at or near the facility by you or others during the current LIHI term, provide links to, or copies of, the final monitoring report, and if applicable, all related FERC and agency consultation and communications. | ☐ N/A, no monitoring conducted.<br>☒ Yes.<br><br>Water Quality sampling was conducted in 2018, based on a study plan from the New Hampshire Department of Environmental Services (Appendix A). Additionally, New Hampshire's Watershed Report Cards built from the DRAFT 2020, 305(b)/303(d) incorporates data collected in 2011 and 2018 for the water quality assessment (Appendix B).<br><br>Link to New Hampshire's Watershed Report Cards built from the DRAFT 2020, 305(b)/303(d):<br>https://www4.des.state.nh.us/onestoppub/SWQA/010700010603_2020.pdf |

| **8. Upstream and Downstream Fish Passage:** | |
|---|---|
| Have there been any completed or ongoing fish passage studies during the current LIHI term, including any data collected on fish passage (e.g., return numbers, changes made in seasonal operations, mortalities reported, effectiveness results)? | ☒ N/A, no fish passage.<br>☐ No studies have occurred or are planned.<br>☐ Yes, studies have occurred or are planned. |
| Have there been any temporary or permanent changes in passage facilities or related operations that have occurred during the current LIHI term, or that are planned? | ☒ N/A, no fish passage.<br>☐ No changes have occurred or are planned.<br>☐ Yes, changes have occurred or are planned. |

| **9. Shoreline and Watershed Protection:** | |
|---|---|
| Are there any new or revised agency watershed-related management plans that may affect the facility (e.g., watershed management plan, fishery restoration plan, recovery plan for threatened or endangered species, or other agency plans)? | ☐ None identified.<br>☒ Yes.<br><br>In October 2019, the NHDES published the "New Hampshire Non-Point Source Management Program Plan – 2020 -2024". This plan was developed for the entire state of New Hampshire to restore water quality in degraded watersheds, while ensuring water quality in already healthy watersheds are not degraded. This would not impact facility operations, but may improve water quality within the Newfound Project Boundary.<br><br>Link to the New Hampshire Non-Point Source Management Program Plan – 2020 -2024: https://www4.des.state.nh.us/blogs/watershed/wp-content/uploads/2019/09/2020-2024-New-Hampshire-Nonpoint-Source-Management-Program-Plan-DRAFT.pdf<br><br>Additionally, there is a watershed plan published in December 2014 by Newfound Lake Region Association titled "Newfound Lake Watershed Management Plan Implementation: Phase II". This plan is partially funded by the Watershed Assistance Grant from the NHDES with Clean Water Act Section 319 funds from the U.S. Environmental Protection Agency. This plan was not developed by a State or Federal Agency and will not impact Newfound Project operations but may improve water quality within the Newfound Project Boundaries.<br><br>This Watershed Management Plan is for the Newfound Lake which is located directly upstream of the Newfound Project. While the Newfound Project is not within the watershed boundary outlined in this plan, water quality within the Newfound Project Boundary may improve based on improvements happening upstream. The primary goal of this Watershed Management Plan is to address stormwater run-off issues, focusing on phosphorus, E. coli, and turbidity.<br><br>Link to Newfound Lake Watershed Management Plan Implementation: Phase II: http://www.alexandrianh.com/attachments/File/WMP3-A_through_I_Final_Rpt-30Dec14.pdf |

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|---|---|
| **10. Threatened and Endangered Species:** | |
| Conduct a U.S. Fish and Wildlife Service IPaC online data check (https://ecos.fws.gov/ipac/) for newly observed or newly listed federally threatened and endangered species. | ☒ IPaC report attached.<br><br>The only species identified by the IPaC Report (Appendix C) that could potentially be found within the Newfound Project Boundary is the Northern Long-eared Bat (Myotis septentrionalis), which is currently listed as federally threatened. No critical habitat was designated within the Newfound Project Boundary. It is unlikely that Newfound Project operations has an impact on this species. |
| Conduct a state threatened and endangered species data check (may require payment of fees) for newly observed or newly listed state threatened and endangered species. | ☒ State listed species report attached.<br><br>No listed species were found using the Data Check Tool from the New Hampshire Natural Heritage Bureau (Appendix D) |
| Describe and summarize any studies of protected species at the facility that were completed or are ongoing during the current LIHI term. | ☒ No studies have occurred or are planned<br>☐ Yes, studies have occurred or are planned.<br><br>No protected species have been identified within facility boundaries. |
| **11. Cultural and Historic Resources:** | |
| Are there any structural or operational changes that have occurred or are planned that affect or could affect cultural or historic resources? | ☒ No changes have occurred or are planned.<br>☐ Yes, changes have occurred or are planned. |
| Describe and summarize any cultural or historic resource studies at the facility, that were completed or are ongoing during the current LIHI term including mitigation measures taken or planned. | ☒ No studies have occurred or are planned<br>☐ Yes, studies have occurred or are planned. |

| **12. Recreational Resources:** | |
|---|---|
| Provide a description and current photos of formal and informal recreation areas/facilities along with a description of any temporary or permanent changes in recreational facilities or services, including consultation with recreational stakeholders during the current LIHI term or planned in the foreseeable future. | ☒ N/A, the facility has no formal or informal recreation access.<br>☐ Yes, recreation area photos attached.<br>☐ No changes have occurred or are planned.<br>☐ Yes, changes have occurred or are planned. |
| Provide a summary of inquiries and comments received from stakeholders about recreation sites during the current LIHI term, including any changes made as a result. | ☒ No inquiries received.<br>☐ Yes, inquiries were received. |
| If applicable, provide links to or copies of, any FERC Environmental and Recreation Inspection reports and reports of follow up activities during the current LIHI term. | ☒ N/A, no FERC inspection has occurred<br>☐ Yes, FERC inspection occurred on: |
| If there is a recreation management plan for the facility, provide any updates to the plan that have occurred during the current LIHI term. | ☒ N/A, no recreation management plan for the facility.<br>☐ No changes have occurred or are planned.<br>☐ Yes, updated recreation management plan attached. |

| **13. Other:** | |
|---|---|
| Provide updated photos of key project features. | ☒ Yes, photos attached. |
| If the FERC boundary has changed during the current LIHI term, provide updated maps. | ☒ No FERC boundary changes have occurred.<br>☐ Yes, FERC boundary has changed, map attached. |
| Review and update the facility, agency and stakeholder contact lists from the prior LIHI application, including all requested contact information therein. | ☐ No changes in any contacts.<br>☒ Yes, updated contact list(s) attached.<br><br>(See section 4) |
| Provide a signed Sworn Statement and Waiver Form. | ☒ Signed statement attached.<br><br>See Appendix H |

# 3.0 FACILITY INFORMATION

**Table 3-1 Table B-1.1 Facility Information from LIHI Handbook 2nd Edition – Revision 2.04, April 1, 2020**

| *Item* | *Information Requested* | *Response (include references to further details)* |
|---|---|---|
| ***Name of the Facility*** | Facility name (use FERC project name or other legal name) | Newfound Hydroelectric Project |
| ***Reason for applying for LIHI Certification*** | 1. To participate in state RPS program<br>2. and specify the state and the total MW/MWh associated with that participation (value and % of facility total Mw/MWh).<br>3. To participate in voluntary REC market (e.g., Green-e)<br>4. To satisfy a direct energy buyer's purchasing requirement<br>5. To satisfy the facility's own corporate sustainability goals<br>6. For the facility's corporate marketing purposes<br>7. Other (describe) | LIHI Recertification and to participate in voluntary REC market (e.g., Green-e) |
| | If applicable, amount of annual generation (MWh and % of total generation) for which RECs are currently received or are expected to be received upon LIHI Certification | Amount of annual generation (MWh and % of total generation) for which RECs are currently received or are expected to be received upon LIHI Certification: 100% of generation—approximately 5,800 MWh/year |
| ***Location*** | River name (USGS proper name) | Newfound River |
| | Watershed name - Select region, click on the area of interest until the 8-digit HUC number appears. Then identify watershed name and HUC-8 number from the map at: https://water.usgs.gov/wsc/map_index.html | HUC 01070001 - Pemigewasset |
| | Nearest town(s), county(ies), and state(s) to dam | Bristol, Grafton County, New Hampshire |

| *Item* | *Information Requested* | *Response (include references to further details)* |
|---|---|---|
| | River mile of dam above mouth | Newfound Dam is located approximately 0.16 miles upstream of the confluence of the Pemigewasset River |
| | Geographic latitude of dam | 71°44'05.50" W<br><br>State plane Coordinate NAD83 x-966,000 |
| | Geographic longitude of dam | 43°35'25.93" N<br><br>State plane Coordinate NAD83 y-397,495 |
| ***Facility Owner*** | Application contact names (Complete the Contact Form in Section B-4 also): | Jody Smet, VP, Regulatory Affairs<br>KTZ Hydro, LLC |
| | Facility owner company and authorized owner representative name.<br><br>**For recertifications: If ownership has changed since last certification, provide the effective date of the change.** | KTZ Hydro, LLC owns and operates the facility<br><br>KTZ Hydro is a subsidiary of Eagle Creek Renewable Energy, LLC |
| | FERC licensee company name (if different from owner) | KTZ Hydro, LLC |
| ***Regulatory Status*** | FERC Project Number (e.g., P-xxxxx), issuance and expiration dates, or date of exemption | FERC P-3107<br>Issuance Date: November 6, 1981<br>Expiration Date: October 31, 2031 |
| | FERC license type (major, minor, exemption) or special classification (e.g., "qualified conduit", "non-jurisdictional") | FERC issued a 50-year license (Minor) for the Newfound Project (Appendix E) |

| Item | Information Requested | Response (include references to further details) |
|---|---|---|
| | Water Quality Certificate identifier, issuance date, and issuing agency name. Include information on amendments. | As noted in the November 10, 2011 LIHI Reviewer's Report, the Newfound Project was issued a Water Quality Certificate in 1981 by the NHDES; because the certification pre-dates 1987, it cannot be used for the purposes of LIHI criteria compliance. The Newfound Hydroelectric Corporation (owner at the time of previous LIHI Certification) was unable to furnish a copy of the Water Quality Certificate. KTZ Hydro, also, does not have a copy of the Water Quality Certificate.<br><br>To compensate for this, KTZ Hydro has performed water quality analysis upstream and downstream of the Newfound Dam in 2011 and 2018 to provide evidence of suitable water quality. Studies were done based on NHDES recommendations and standards and results were approved on November 14, 2011 and April 7, 2020 for each respective study. (Appendix A) |
| | Hyperlinks to key electronic records on FERC e-library website or other publicly accessible data repositories.[1] | September 8, 2011 Order approving transfer of license P-3107 from Newfound Hydroelectric Company to KTZ Hydro, LLC https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=12759193<br><br>July 17, 2015 Notice by Eagle Creek Renewable Energy, LLC of acquisition of KTZ Hydro, LLC, P-3107 https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=13934823 |

[1] For example, the FERC license or exemption, recent FERC Orders, Water Quality Certificates, Endangered Species Act documents, Special Use Permits from the U.S. Forest Service, 3rd-party agreements about water or land management, grants of right-of-way, U.S. Army Corps of Engineers permits, and other regulatory documents. If extensive, the list of hyperlinks can be provided separately in the application.

| *Item* | *Information Requested* | *Response (include references to further details)* |
|---|---|---|
| ***Powerhouse*** | Date of initial operation (past or future for pre-operational applications) | The Newfound Project was originally constructed in 1927 by Public Service of New Hampshire (PSNH). In 1948, the Harris Brothers purchased the Newfound Project and used it for furniture storage for their growing furniture supply business. Circa 1981, The Newfound Hydroelectric Company purchased the Project, constructed the diversion weir, penstocks, powerhouse and was issued a FERC license. |
| | Total installed capacity (MW)<br>**For recertifications: Indicate if installed capacity has changed since last certification** | 1.5 MW<br><br>No change |
| | Average annual generation (MWh) and period of record used<br>**For recertifications: Indicate if average annual generation has changed since last certification** | 5125 MWh<br><br>Data from 2015 to 2020<br><br>Changed since last certification, last reported annual generation was 6,115 MWh. |
| | Mode of operation (run-of-river, peaking, pulsing, seasonal storage, diversion, etc.)<br>**For recertifications: Indicate if mode of operation has changed since last certification** | Run-of-river<br><br>No change |
| | Number, type, and size of turbine/generators, including maximum and minimum hydraulic capacity and maximum and minimum output of each turbine and generator unit | Two Francis turbines<br>Max rating 750 kw each<br>Maximum and minimum hydraulic capacity of 118 cfs and 40 cfs respectively, each.<br><br>No change |

| *Item* | *Information Requested* | *Response (include references to further details)* |
|---|---|---|
| | Trashrack clear spacing (inches) for each trashrack | Upstream Intake Rack is 3″ clear opening.<br><br>Downstream Intake Rack is ¾″ clear opening. |
| | Approach water velocity (ft/s) at each intake if known | 1.3 ft/s |
| | Dates and types of major equipment upgrades<br>**For recertifications: Indicate only those since last certification** | No major equipment upgrades associated with Project Operations.<br><br>New culverts were place in on December 19, 2018 |
| | Dates, purpose, and type of any recent operational changes<br>**For recertifications: Indicate only those since last certification** | No new operational changes |
| | Plans, authorization, and regulatory activities for any facility upgrades or license or exemption amendments | There are currently no plans for facility upgrades. |
| ***Dam or Diversion*** | Date of original dam or diversion construction and description and dates of subsequent dam or diversion structure modifications | The Newfound Project was originally constructed in 1927 by Public Service of New Hampshire (PSNH). In 1948 the Harris Brothers purchased the Newfound Project and used it for furniture storage for their growing furniture supply business. Circa 1981, The Newfound Hydroelectric Company purchased the Project, constructed the diversion weir, penstocks, powerhouse and was issued a FERC license. |
| | Dam or diversion structure length, height including separately the height of any flashboards, inflatable dams, etc. and describe seasonal operation of flashboards and the like | The dam, surmounted by 1′ high wooden flashboards, totals 10′ in height. No seasonal flashboard operation. |

| *Item* | *Information Requested* | *Response (include references to further details)* |
|---|---|---|
| | Spillway maximum hydraulic capacity | Spillway elevation, including top of flashboards is 441' MSL.<br>The hydraulic capacity of the spillway is approximately 3,500 cfs. |
| | Length and type of each penstock and water conveyance structure between the impoundment and powerhouse | The Project has two 6-ft diameter concrete to steel penstocks, approximately 420-ft long leading from the reservoir to the powerhouse. |
| | Designated facility purposes (e.g., power, navigation, flood control, water supply, etc.) | Power |
| ***Conduit Facilities Only*** | Date of conduit construction and primary purpose of conduit | There have been no major generation-related infrastructure improvements since the Project's last LIHI certification or completion of construction under the issuance of the FERC license. |
| | Source water | Newfound River |
| | Receiving water and location of discharge | Newfound River, Project tailrace |
| ***Impoundment and Watershed*** | Authorized maximum and minimum impoundment water surface elevations<br>**For recertifications: Indicate if these values have changed since last certification** | Not applicable, operates as a run-of-river project<br>No change since last LIHI |
| | Normal operating elevations and normal fluctuation range<br>**For recertifications: Indicate if these values have changed since last certification** | Not applicable, operates as a run-of-river project<br>No change since last LIHI |

| *Item* | *Information Requested* | *Response (include references to further details)* |
|---|---|---|
| | Gross storage volume and surface area at full pool<br><br>**For recertifications: Indicate if these values have changed since last certification** | Gross volume at full pool is 0.69 acre-feet.<br><br>Surface area at full pool is 0.23 acres.<br><br>Under normal conditions, the pond elevation extends to the upstream end of the dam/diversion weir, measured off Google Earth to be about 172' from the intake, with an associated approximated surface area of 0.13 acre-feet. |
| | Usable storage volume and surface area<br><br>**For recertifications: Indicate if these values have changed since last certification** | Gross volume at full pool is 0.69 acre-feet.<br><br>Surface area at full pool is 0.23 acres.<br><br>Operates as run-of-river<br><br>No change since last LIHI |
| | Describe requirements related to impoundment inflow and outflow, elevation restrictions (e.g., fluctuation limits, seasonality) up/down ramping and refill rate restrictions. | N/A<br><br>Operates as run-of-river |
| | Upstream dams by name, ownership and river mile. If FERC licensed or exempt, please provide FERC Project number of these dams. Indicate which upstream dams have downstream fish passage. | The Newfound Lake Dam, owned by the New Hampshire Department of Environmental Services, is located approximately 2.3 miles upstream of KTZ Hydro's Newfound Project Dam.<br><br>The Newfound Lake Dam is not regulated by FERC and therefore does not have a FERC project number. |

| Item | Information Requested | Response (include references to further details) |
|---|---|---|
| | Downstream dams by name, ownership, river mile and FERC number if FERC licensed or exempt. Indicate which downstream dams have upstream fish passage | There are no dams located downstream of the Newfound Project on the Newfound River.<br><br>The Franklin Falls Flood Control Dam, owned and operated by the USACE, is located approximately 11 river miles downstream from the Newfound Project on the Pemigewasset River. |
| | Operating agreements with upstream or downstream facilities that affect water availability and facility operation | The NHDES controls releases from their Newfound Lake Dam affecting the operation of KTZ Hydro's Newfound Project. The NHDES coordinates outflow from Newfound Lake Dam with KTZ Hydro Operations. The NHDES releases a minimum flow of 40 cfs from the Newfound Lake Dam. |
| | Area of land (acres) and area of water (acres) inside FERC project boundary or under facility control. Indicate locations and acres of flowage rights versus fee-owned property. | Approximately 3.4 acres, with a 0.23-acre reservoir. |
| ***Hydrologic Setting*** | Average annual flow at the dam, and period of record used | 151 cfs from Jan 2012 to Jan 2021<br><br>Data acquired from: http://www4.des.state.nh.us/Rti_home/station_information_display.asp?WID=pemibaker&ID=NFLNH&NAME=Newfound+Lake&FULLPOND=Full+Lake+=+6+ft.+Local+=+587.88+ft.+above+sea+level |

<table>
<tr><th>Item</th><th>Information Requested</th><th>Response<br>(include references to further details)</th></tr>
<tr><td></td><td>Average monthly flows and period of record used</td><td>Average monthly river flow in cfs from Jan 2012 to Jan 2021<br><br><table><tr><th>Month</th><th>cfs</th></tr><tr><td>Jan</td><td>186</td></tr><tr><td>Feb</td><td>130</td></tr><tr><td>Mar</td><td>161</td></tr><tr><td>Apr</td><td>366</td></tr><tr><td>May</td><td>189</td></tr><tr><td>Jun</td><td>125</td></tr><tr><td>Jul</td><td>77</td></tr><tr><td>Aug</td><td>48</td></tr><tr><td>Sep</td><td>54</td></tr><tr><td>Oct</td><td>106</td></tr><tr><td>Nov</td><td>149</td></tr><tr><td>Dec</td><td>217</td></tr></table><br>Data acquired from: http://www4.des.state.nh.us/Rti_home/station_information_display.asp?WID=pemibaker&ID=NFLNH&NAME=Newfound+Lake&FULLPOND=Full+Lake+=+6+ft.+Local+=+587.88+ft.+above+sea+level</td></tr>
<tr><td></td><td>Location and name of closest stream gaging stations above and below the facility</td><td>The Newfound Lake Gauging Station is located at the NHDES Newfound Lake Dam approximately 2.3 miles upstream of KTZ Hydro's Newfound Project. Information for the gauging station may be accessed via phone (603-744-9202) or via the DES website: http://www4.des.state.nh.us/Rti_home/station_information_display.asp?WID=pemibaker&ID=NFLNH&NAME=Newfound+Lake&FULLPOND=Full+Lake+=+6+ft.+Local+=+587.88+ft.+above+sea+level<br><br>There are no relevant gauging stations downstream.</td></tr>
</table>

| *Item* | *Information Requested* | *Response (include references to further details)* |
|---|---|---|
| | Watershed area at the dam (in square miles). Identify if this value is prorated from gage locations and provide the basis for proration calculation. | 98.6 sq mi |
| | Other facility specific hydrologic information | N/A |
| ***Designated Zones of Effect*** | Number of zones of effect | There are two Zones of Effect for the Newfound Project:<br><br>Zone 1 is the bypass reach of the river extending from the dam downstream to the Pemigewasset River, about .16 miles (870 ft).<br><br>Zone 2 is the reach from the tailrace to the confluence of the Pemigewasset River, about .03 miles (175 ft). |
| | Type of waterbody (river, impoundment, bypassed reach, etc.) | Zone 1 – bypass reach<br>Zone 2 – tailrace |
| | Upstream and downstream locations by river miles | Zone 1 extends from the Newfound Project Dam approximately 0.16 miles downstream to the confluence of the Pemigewasset River.<br><br>Zone 2 extends from the Project tailrace at the Powerhouse discharge approximately 0.03 miles to the confluence with the Pemigewasset River. |
| | Delimiting structures or features | Zone 1 – Newfound Dam<br>Zone 2 – Newfound Powerhouse |

| *Item* | *Information Requested* | *Response (include references to further details)* |
|---|---|---|
| ***Pre-Operational Facilities Only*** | | |
| ***Expected operational date*** | Date generation is expected to begin | N/A |
| ***Dam, diversion structure or conduit modification*** | Description of modifications made to a pre-existing conduit, dam or diversion structure needed to accommodate facility generation. This includes installation of flashboards or raising the flashboard height.<br>Date the modification is expected to be completed | N/A |
| ***Change in water flow regime*** | Description of any change in impoundment levels, water flows or operations required for new generation | N/A |

# 4.0 CONTACT INFORMATION

## 4.1 Applicant-Related Contacts

| **Facility Owner:** | |
|---|---|
| Name and Title | KTZ Hydro, LLC |
| Company | KTZ Hydro, LLC |
| Phone | (804) 739-0654 |
| Email Address | jody.smet@eaglecreekre.com |
| Mailing Address | 24 Mill Street, Tilton, NH 03276 |

| **Facility Operator (if different from Owner):** | |
|---|---|
| Name and Title | Corey Colby, Regional Manager |
| Company | Eagle Creek Renewable Energy |
| Phone | (603) 286-8471 |
| Email Address | Corey.Colby@eaglecreekre.com |
| Mailing Address | 24 Mill Street, Tilton, NH 03276 |

| **Compliance Contact (responsible for LIHI Program requirements):** | |
|---|---|
| Name and Title | Matthew J. Nini, Licensing and Compliance Manager |
| Company | Eagle Creek Renewable Energy |
| Phone | (973) 998-8171 |
| Email Address | Matthew.Nini@eaglecreekre.com |
| Mailing Address | 65 Madison Avenue, Suite 500, Morristown, NJ 07960 |

| **Party responsible for accounts payable:** | |
|---|---|
| Name and Title | Lea Steltenpohl, Accounts Payable |
| Company | KTZ Hydro, LLC |
| Phone | (920) 293-4628 x312 |
| Email Address | Lea.Steltenpohl@eaglecreekre.com |
| Mailing Address | 24 Mill Street, Tilton, NH 03276 |

## 4.2 Current and Relevant State, Federal, and Tribal Resource Agency Contacts with Knowledge of the Facility (copy and repeat the following table as needed)

| ***Agency Contact*** | | ***Area of Responsibility*** |
|---|---|---|
| Agency Name | United States Fish and Wildlife Service | _X_ Flows<br>___ Water Quality<br>_X_ Fish/Wildlife<br>___ Watershed<br>___ T&E Species<br>___ Cultural/Historic<br>___ Recreation |
| Name and Title | John Warner, Assistant Supervisor<br>Migratory Fish/Hydropower | |
| Phone | (603) 223-2541, Ext. 6420 | |
| Email address | john_warner@fws.gov | |
| Mailing Address | New England Field Office<br>U.S. Fish and Wildlife Service<br>70 Commercial Street, Suite 300<br>Concord, NH 0330-5087 | |

| ***Agency Contact*** | | ***Area of Responsibility*** |
|---|---|---|
| Agency Name | New Hampshire Fish and Game Department | _X_ Flows<br>___ Water Quality<br>_X_ Fish/Wildlife<br>___ Watershed<br>___ T&E Species<br>___ Cultural/Historic<br>___ Recreation |
| Name and Title | John Magee, Fish Habitat Biologist | |
| Phone | (603) 271-2744 | |
| Email address | john.a.magee@wildlife.nh.gov | |
| Mailing Address | 11 Hazen Drive<br>Concord, NH 03301 | |

| ***Agency Contact*** | | ***Area of Responsibility*** |
|---|---|---|
| Agency Name | New Hampshire Fish and Game Department | _X_ Flows<br>___ Water Quality<br>_X_ Fish/Wildlife<br>___ Watershed<br>___ T&E Species<br>___ Cultural/Historic<br>___ Recreation |
| Name and Title | Carol Henderson, Environmental Review Coordinator | |
| Phone | (603) 271-2744 | |
| Email address | Carol.Henderson@wildlife.nh.gov | |
| Mailing Address | New England Field Office<br>U.S. Fish and Wildlife Service<br>70 Commercial Street, Suite 300<br>Concord, NH 0330-5087 | |

| ***Agency Contact*** | | ***Area of Responsibility*** |
|---|---|---|
| Agency Name | New Hampshire Division of Historical Resources | ___ Flows<br>___ Water Quality<br>___ Fish/Wildlife<br>___ Watershed<br>___ T&E Species<br>_**X**_ Cultural/Historic<br>___ Recreation |
| Name and Title | Elizabeth Muzzey, Director/State Historic Preservation Officer | |
| Phone | (603) 271-3483 | |
| Email address | | |
| Mailing Address | 19 Pillsbury Street<br>Concord, NH 03301 | |

| ***Agency Contact*** | | ***Area of Responsibility*** |
|---|---|---|
| Agency Name | New Hampshire Natural Heritage Bureau | ___ Flows<br>___ Water Quality<br>___ Fish/Wildlife<br>___ Watershed<br>_**X**_ T&E Species<br>___ Cultural/Historic<br>___ Recreation |
| Name and Title | Amy Lamb, Environmental Information Specialist | |
| Phone | (603) 271-2215 | |
| Email address | Amy.Lamb@dred.nh.gov | |
| Mailing Address | Division of Forest & Lands<br>Natural Heritage Bureau<br>Department of Resources and Economic Development<br>172 Pembroke Road<br>Concord, NH 03301 | |

| ***Agency Contact*** | | ***Area of Responsibility*** |
|---|---|---|
| Agency Name | NH DES Watershed Management Bureau | ___ Flows<br>_**X**_ Water Quality<br>___ Fish/Wildlife<br>___ Watershed<br>___ T&E Species<br>___ Cultural/Historic<br>___ Recreation |
| Name and Title | Ted Walsh, Surface Water Monitoring Coordinator | |
| Phone | 603-271-2083 | |
| Email address | ted.walsh@des.nh.gov | |
| Mailing Address | 29 Hazen Drive<br>Concord, NH 03301 | |

# APPENDIX A

# WATER QUALITY CONSULTATION

The State of New Hampshire

# Department of Environmental Services

**Robert R. Scott, Commissioner**

January 2, 2018

Susan Giansante
Eagle Creek Renewable Energy
65 Madison Avenue #500
Morristown, New Jersey 07960

RE: Water Quality Monitoring Recommendations for Low Impact Hydropower Institute Recertification of the Newfound Hydroelectric Project (FERC Project No. 3107), Newfound River

Dear Sue:

The New Hampshire Department of Environmental Services (NHDES) understands that Eagle Creek Renewable Energy on behalf of KTZ Hydro, LLC has applied for Low Impact Hydropower Recertification from the Low Impact Hydropower Institute (LIHI) for the Newfound Hydroelectric Project (FERC No. 3107), on the Newfound River in Bristol, NH. We further understand that in August of 2017 LIHI granted recertification to the Newfound Hydroelectric Project subject to specific provisions. One of these provisions stated that

> *"The Owner shall complete a water quality sampling study during summer 2018 under a study plan approved in advance by the New Hampshire Department of Environmental Services (NHDES). The study plan shall be filed with NHDES no later than December 31, 2017. A copy of the final study plan shall be filed with LIHI within 30 days of NHDES approval. The data and study report shall be filed with NHDES and LIHI by December 31, 2018. If the Newfound Project is determined to be causing, or contributing to, substandard water quality, a remediation proposal, including an implementation schedule, shall be developed in consultation with NHDES and filed with LIHI by April 1, 2019. Otherwise, the Owner shall file review comments and/or recommendations from NHDES by the same date."*

Table 1 provides the current assessment status of the parameters of concern included in the monitoring plan outlined in a later section of this letter. The information provided in Table 1 is derived from NHDES's draft 2016 305(b)/303(d) report and most of the data was collected during the 2011 LIHI certification process.

**Table 1. Assessment Status for Water Quality Monitoring Parameters at Newfound Hydroelectric Project**

| Assessment Unit/Station ID | Location | Parameter | Designated Use | Current Assessment |
|---|---|---|---|---|
| NHIMP700010603-04<br>00K-NFD | Newfound Hydroelectric Dam Impoundment<br>N. Main Street/Route 3A Bridge | Dissolved Oxygen (mg/L) | Aquatic Life | Fully Supporting |
| | | Dissolved Oxygen (% Saturation) | Aquatic Life | Fully Supporting |
| | | Chlorophyll-a | Primary Contact Recreation | Fully Supporting |
| | | | Aquatic Life | Indeterminate [A] |
| | | Total Phosphorus | Aquatic Life | Indeterminate [A] |
| | | Water Temperature | Aquatic Life | No numeric criteria [C] |
| NHRIV700010603-12<br>00F-NFD | Downstream of Newfound Hydroelectric Dam<br>Bypass Reach<br>~500 feet downstream of dam | Dissolved Oxygen (mg/L) | Aquatic Life | Fully Supporting |
| | | Dissolved Oxygen (% Saturation) | Aquatic Life | Fully Supporting |
| | | Chlorophyll-a | Primary Contact Recreation | Fully Supporting |
| | | Total Phosphorus | Aquatic Life | No numeric criteria [B] |
| | | Water Temperature | Aquatic Life | No numeric criteria [C] |

[A] NHDES does have numeric water quality criteria for the aquatic life designated use for total phosphorus and chlorophyll-a in lakes/ponds and impoundments with characteristics similar to lakes/ponds but it can only be applied to waterbodies where the tropic class is known. For waterbodies where the trophic class is known the median total phosphorus and chlorophyll-a value is used to make the criteria comparison. The aquatic life designated use nutrient and chlorophyll-a criteria are depicted below with the median values for each parameter for the data collected at station 00K-NFD in assessment unit NHIMP700010603-04 during the summer of 2011.

| | TP (ug/L) | Chl-a (ug/L) |
|---|---|---|
| **2011 Median 00K-NFD** | **4** | **1.2** |
| Oligotrophic | < 8 | < 3.3 |
| Mesotrophic | ≤ 12 | ≤ 5 |
| Eutrophic | ≤ 28 | ≤ 11 |

[B] NHDES does not have numeric water quality criteria for nutrients in rivers or streams. The narrative criteria states that "Class B waters shall contain no phosphorus or nitrogen in such concentrations that would impair any existing or designated uses, unless naturally occurring."

[C] Although there is currently no numerical water quality criteria for water temperature, NHDES is in the process of collecting biological and water temperature data that will contribute to the development of a procedure for assessing rivers and stream based on water temperature and its corresponding impact to the biological integrity of the waterbody.

In order for NHDES to determine if the Newfound Hydroelectric Project is currently causing or contributing to water quality standard violations, new monitoring data and facility information is needed. The maximum age of river data NHDES can use to determine if the river is meeting surface water quality standards is five years. This aligns with LIHI's requirement that certifications be renewed every five years.

Environmental data and project information is needed to address the following water quality concerns that are typically associated with hydropower projects:

1. Impact on ambient water quality criteria;
2. Impact of pond fluctuations on aquatic habitat;
3. Maintenance of adequate minimum flows to protect downstream aquatic life; and
4. Adequate upstream and downstream fish passage.

Specifics are provided below:

1. Water Quality

Water quality parameters most susceptible to impact from hydroelectric projects typically include dissolved oxygen, water temperature, chlorophyll-a and total phosphorus. Samples are typically collected upstream and downstream of the dam and if applicable in the bypass reach. Based on our current understanding of the project, the following is recommended.

Table 2 provides the water quality sampling locations used during the original 2011 LIHI certification. NHDES recommends that the same sampling locations be used for recertification sampling. Recommended parameters and frequency of monitoring are provided in Table 3 below.

**Table 2. Recommended Sampling Locations for Water Quality Monitoring at the Newfound Hydroelectric Dam**

| Assessment Unit | Location | NHDES Station ID | Size/Acreage |
|---|---|---|---|
| NHIMP700010603-04 | Newfound Hydroelectric Dam Impoundment<br>N. Main Street/Route 3A Bridge | 00K-NFD | 0.23 acres |
| NHRIV700010603-12 | Downstream of Newfound Hydroelectric Dam<br>Bypass Reach<br>~500 feet downstream of dam | 00F-NFD | 0.21 miles |

**Table 3. Recommended Water Quality Monitoring for LIHI Recertification - Newfound Hydroelectric Dam**

| Site ID | Location | Purpose | Parameters | Frequency |
|---|---|---|---|---|
| 00K-NFD | N. Main Street/Route 3A Bridge | Determine water quality impacts of river being impounded by the Newfound Hydroelectric Dam | Continuous Dissolved Oxygen (mg/L and % Saturation) and Continuous Water Temperature (collected with dataloggers) | At least 10 days of data collected at 15 minute increments during a period of low inflow (≤3 x 7Q10) and when the discharge in the bypass reach is at or near 12.7 cfs and water temperature is over 23 degrees C. Datalogger should be deployed at 25% depth. |
| | | | Instantaneous Dissolved Oxygen (mg/L and % Saturation) and Water Temperature | 2 vertical profiles collected on 2 days when continuous dataloggers are deployed. Profiles should be at 1 foot increments from surface to bottom |
| | | | Total Phosphorus and Chlorophyll-a | 10 samples - once a week for 10 weeks (from July through September) |
| 00F-NFD | Downstream of Newfound Hydroelectric Dam<br><br>Bypass Reach<br><br>~500 feet downstream of dam | Determine water quality conditions in the bypass reach downstream of the Newfound Hydroelectric Dam | Continuous Dissolved Oxygen (mg/L and % Saturation) and Continuous Water Temperature (collected with dataloggers) | At least 10 days of data collected at 15 minute increments during period of low flow (≤3 x 7Q10) when the discharge in the bypass reach is at or near 12.7 cfs and water temperature is over 23 degrees C. Datalogger should be deployed at 25% depth. |
| | | | Total Phosphorus and Chlorophyll-a | 10 samples - once a week for 10 weeks (from July through September) |

Prior to sampling, a sampling plan should be submitted to NHDES for approval which includes sampling locations, parameters to be sampled, sample timing and frequency, sampling and laboratory analysis protocols and quality control provisions. NHDES can provide examples of sampling plans upon request.

With regards to quality assurance/quality control, the following should be included in the plan:

- During one sampling event a replicate sample should be collected for each parameter for laboratory analysis.
- Multiparameter dataloggers and handheld meters should be calibrated for dissolved oxygen before each sampling event on-site according to the manufacturer's instructions.
- Field sampling quality control should consist of 1) replicate analysis, 2) maintenance records, 3) field calibration and record of calibration, and 4) record of equipment used.
- Instrument and equipment maintenance should include: 1) checking field test kits to be sure all reagents are not contaminated and are not beyond expiration dates, 2) replacing reagents in accordance with manufacturer's recommendations, 3) calibrating equipment before each sampling event, and 4) recording of maintenance and calibration activities.
- Chain of custody forms and information regarding laboratory standard methods should be submitted to NHDES with the data.

The sampling plan should specify that the continuous water quality data (i.e., dissolved oxygen and water temperature) will be collected under near critical low flow and relatively high water temperature conditions. The 7Q10 low flow is typically considered the critical low flow. However, because the 7Q10 flow occurs relatively

infrequently (i.e., on average once every 10 years ), NHDES typically recommends that sampling occur during slightly more frequent flows (i.e., at or below 3 x 7Q10). This provides an idea of near critical conditions and has a better chance of occurring in any given year. The United States Geologic Services (USGS) maintains a stream gage (USGS 01078000) in Bristol, NH on the Smith River which can be used to estimate when inflow at the dam is at or below 3 x 7Q10. Based on the area transposition method, when flow at the USGS Smith River gage in Bristol (01078000) is at or below 3 x 7Q10 (17.6 cfs), flow is likely at or below approximately 3 x 7Q10 at the dam (20.2 cfs). Inflow at the dam should be verified with flow calculations using weir (or other) hydraulic formulas. With regards to the bypass reach, dissolved oxygen and temperature measurements should be taken during the same time that impoundment measurements are made, but when flow in the bypass reach is at or near the 12.7 cfs minimum required low flow per the 2011 LIHI certification. Documentation should be provided to NHDES to clarify how discharge levels in the bypass reach will be maintained and determined. During the sampling period the Newfound Hydroelectric Dam should be operating under normal operating procedures.

All water quality and water quantity data should be submitted to NHDES electronically and in a form that can be automatically uploaded into the NHDES Environmental Monitoring Database (EMD). Information on uploading data to the EMD can be found at http://des.nh.gov/organization/divisions/water/wmb/emd/index.htm or by contacting Melanie Cofrin at (603) 271-1152 or Melanie.Cofrin@des.nh.gov.

2. Pond Fluctuation

Pond fluctuations due to operation of hydroelectric projects can negatively impact aquatic habitat and aquatic life. To determine the impact of pond fluctuations on aquatic life, the following information was required to be submitted to NHDES during the 2011 certification process

a. A description and schematic of the project including the dam height, length, control structures and elevations, crest elevation, flashboard elevations, and impoundment depth, elevation, area and volume at full pool, normal and maximum drawdown elevations;
b. Timing, frequency, duration and magnitude of drawdowns
c. Historical water level fluctuations over the past 5 years
d. Map of fringing wetlands preferably delineated from high-resolution aerial photography
e. An estimate of the average and maximum percent of the littoral zone (preferably based on accurate bathymetry) that is dewatered as well as average and maximum duration of dewatering for each quarter of the calendar year

NHDES requests a statement from the applicant which identifies any changes to the information provided during the 2011 certification process for the items listed above. This includes, but is not be limited to, updated information for the period 2011 to 2017 for items b., c., and e.

3. Minimum Flows

During the 2011 certification NHDES was provided with information regarding minimum flows and pond fluctuations at the Newfound Hydroelectric Project. It was confirmed that the facility is operated as a fully automated run of river project and that the project does not draw down the impoundment for purposes of power generation. Any fluctuations in the water level at the project are due to naturally occurring fluctuations in the Newfound River, associated with varying levels of precipitation and discharge from Newfound Lake. Prior to 2011 minimum flows in the bypass reach were maintained as required by the project's 1981 FERC license. The 1981 licensee required that the Newfound Hydroelectric Project maintain a continuous minimum flow of 5 cfs in the bypass reach. The 5 cfs value for minimum flow in the bypass reach is the equivalent of the 7Q10 value for this section of the Newfound River.

In October of 2011, the USFWS and NHFG conducted a site evaluation to determine the impact of the 5 cfs bypass flows on aquatic life. As a result of the site evaluation, both USFWS and NHFG recommended that the minimum flow in the bypass reach be increased to 12.7 cfs. As per the 2011 LIHI certification requirements the Newfound Hydroelectric Project committed to implementing these minimum flow requirements by the summer of 2012. The

LIHI certification also stated that once the new minimum flow requirements were implemented the USFWS and NHFG would review the new bypass flows. USFWS and NHFG reserved the right to request further adjustments to the minimum bypass flow requirements and require the installation of a staff gage in the lower bypass to allow for verification of compliance.

NHDES requests a statement from Eagle Creek Renewable Energy that the above 12.7 cfs minimum flow requirement has been maintained since the summer 2012 and documentation that outlines how the discharge levels in the bypass reach are measured for determining compliance. NHDES also requests that Eagle Creek Renewable Energy provide a statement from the USFWS and NHFG that the current 12.7 cfs bypass reach minimum flow requirements are adequate for the protection of aquatic life.

4. Fish Passage

In 2011 NHDES was provided with documentation from the USFWS and NHFG that there were no plans for restoration activities for anadromous fish in the Newfound River but there may be a need for passage measures for catadromous American Eel at a future date. Both agencies concurred that the existing dam and operation appear to be passable by American Eel and that the proposed minimum bypass flows of 12.7 cfs will be appropriately protective of American Eel at this time. During the 2011 certification process NHDES received confirmation from the project owner that they commit to implementing fish passage measures when prescribed by USFWS and/or NHFG and agree to undertake such consultations, design development, and construction in a timely manner after notification of such necessity.

To address fish passage concerns, NHDES requests that Eagle Creek Renewable Energy provide notification from the NHFG and the USFWS stating that they are satisfied with upstream and downstream fish passage provisions associated with the subject project and that the terms of LIHI certification are being met.

Copies of correspondence with NHFG and USFWS should be provided to NHDES. Contact information is provided below.

Carol Henderson
NH Fish and Game Department
11 Hazen Drive, Concord, NH 03301
603-271-3511
carol.henderson@wildlife.nh.gov

John P. Warner, Energy/Hydropower Coordinator
New England Field Office, U.S. Fish and Wildlife Service
70 Commercial Street, Suite 300
Concord, NH 03301
(603) 223-2541 - ext.15
John_Warner@fws.gov

Once all of the data has been submitted, NHDES will make a determination regarding compliance of the project with NH water quality standards.

Should you have any questions regarding these recommendations or wish to arrange a meeting, please contact me at (603) 271-2083 (ted.walsh@des.nh.gov).

Sincerely,

Ted Walsh, Surface Water Monitoring Coordinator
NHDES Watershed Management Bureau

Cc: Shannon Ames, LIHI
Maryalice Fisher, LIHI
Carol Henderson, NHFG
John Magee, NHFG
John Warner, USFWS

**Attachment 3 – Newfound Sampling & Analysis Plan – Summary of Plan for Sampling / Monitoring**



| Location | Site ID | Parameter Collected | Data Collection |
|---|---|---|---|
| **Impoundment** | **00K-NFD** | | |
| | | • **Continuous Dissolved Oxygen (DO) (mg/L and % saturation)**<br>• **Continuous Water Temperature (°F or °C)** | **Method**<br>• Datalogger, deployed at 25% depth set at the bottom of the epilimnion, if stratified, or at 25% depth, if not stratified<br>**Trigger**<br>• USGS gage 01078000, on the Smith River in Bristol, NH is at or below 3x7Q10 flow of 17.6 cfs, AND<br>• Discharge in the bypass reach is at or near 12.7 cfs, AND<br>• Water temperature is over 23°C (73.4°F)<br>**Duration**<br>• At least 10 consecutive days of data collected in 15-minute increments |
| | | • **Instantaneous Dissolved Oxygen (DO) (mg/L and % saturation)**<br>• **Water Temperature (°F or °C)** | **Method**<br>• Handheld device<br>**Trigger**<br>• Collect during datalogger deployment<br>**Duration**<br>• 2-days, collect vertical profile in 1' increments from surface to bottom |
| | | • **Total Phosphorus (250 mL sample bottle) do not overtop sample bottle when collecting sample**<br>• **Chlorophyll-a (1 L brown sample bottle)** | **Method**<br>• Grab sample using NHDES sampling bottles:<br>Use a bucket to collect water. Prior to collecting water, swish bucket 3 times, collect water in bucket, pour collected water into sample bottles, label bottle, keep on ice to transport to NHDES office, drop off at NHDES the same day that water is collected. On label use NHDES site ID, location of sample, date & time sample collected, initials of person collecting sample, and account number. Call or email Andrea at NHDES the day before or the morning of the sample collection to notify her when the sample will be dropped off – **cell 603-419-0321 or email <Hansen, Andrea> Andrea.Hansen@des.nh.gov. Tentatively plan for Wednesday mornings to collect samples and drop at NHDES in Concord, 29 Hazen Drive.**<br>**Trigger**<br>• July 15 to September 15<br>**Duration**<br>• Collect samples once per week for 10 weeks, i.e. 10 samples for each parameter, plus one replicate sample for each parameter on one of the days. Label replicate sample as replicate. (22 total samples) |

| Location | Site ID | Parameter Collected | Data Collection |
|---|---|---|---|
| **Bypass Reach** | **00F-NFD** | | |
| | | • **Continuous Dissolved Oxygen (DO) (mg/L and % saturation)**<br>**Continuous Water Temperature (°F or °C)** | **Method**<br>• Datalogger, set a few inches off the bottom<br>**Trigger**<br>• USGS gage 01078000, on the Smith River in Bristol, NH is at or below 3x7Q10 flow of 17.6 cfs, AND<br>• Discharge in the bypass reach is at or near 12.7 cfs, AND<br>• Water temperature is over 23°C (73.4°F)<br>**Duration**<br>• At least 10 consecutive days of data collected in 15-minute increments |
| | | • **Total Phosphorus (250 mL sample bottle) do not overtop sample bottle when collecting sample**<br>• **Chlorophyll-a (1 L brown sample bottle)** | **Method**<br>• Grab sample using NHDES sampling bottles:<br>Use a bucket to collect water. Prior to collecting water, swish bucket 3 times, collect water in bucket, pour collected water into sample bottles, label bottle, keep on ice to transport to NHDES office, drop off at NHDES the same day that water is collected. On label use NHDES site ID, location of sample, date & time sample collected, initials of person collecting sample, and account number. Call or email Andrea at NHDES the day before or the morning of the sample collection to notify her when the sample will be dropped off – **cell 603-419-0321 or email <Hansen, Andrea> Andrea.Hansen@des.nh.gov. Tentatively plan for Wednesday mornings to collect samples and drop at NHDES in Concord, 29 Hazen Drive.**<br>**Trigger**<br>• July 15 to September 15<br>**Duration**<br>• Collect samples once per week for 10 weeks, i.e. 10 samples for each parameter, plus one replicate sample for each parameter on one of the days. Label replicate sample as replicate. (22 total samples) |

December 17, 2018

Mr. Ted Walsh
New Hampshire Department of Environmental Services
29 Hazen Drive
Concord, NH

RE: Water Quality Monitoring Recommendations for Low Impact Hydropower Institute Recertification of the Newfound Hydroelectric Project (FERC Project No. 3107), Newfound River

Dear Ted:

As noted in your January 2, 2018 letter (letter), Eagle Creek Renewable Energy (Eagle Creek), on behalf of KTZ Hydro, LLC, applied for and received recertification from the Low Impact Hydropower Institute (LIHI) for the Newfound Hydroelectric Project (Newfound), LIHI Certificate #82, for the term May 13, 2016 to May 13, 2021. The final November 2017 recertification decision included four site specific conditions related to water quality, minimum flow, run of river operation and fish passage. In response to your letter, Eagle Creek provides the following with respect to the same considerations.

**Water Quality**

During the summer of 2018, Eagle Creek completed water quality monitoring at Newfound in accordance with the requirements outlined in your letter.

A Sampling Plan was developed based on these requirements and was provided to you for review. The Sampling Plan was discussed during your June site visit with Eagle Creek Operations personnel. The Sampling Plan was revised based on these site discussions. Monitoring and sampling were conducted from July to September 2018 in accordance with these discussions and the revised plan. The results of the monitoring were submitted to you via email on November 29th, with a copy forwarded to LIHI.

Pending review that the submitted data and sampling analysis reports satisfactorily meet NHDES water quality standards, the first of the four LIHI recertification conditions (italics noted below) will be complete.

> ***Condition 1:*** *The Owner shall complete a water quality sampling study during summer 2018 under a study plan approved in advance by the New Hampshire Department of Environmental Services (NHDES). The study plan shall be filed with NHDES no later than December 31, 2017. A copy of the final study plan shall be filed with LIHI within 30 days of NHDES approval. The data and study report shall be filed with NHDES and LIHI by December 31, 2018. If the Newfound Project is determined to be causing, or*

**Eagle Creek Renewable Energy**
**65 Madison Avenue, Suite 500 – Morristown, NJ 07960, USA**
**Tel: (973) 998-8400 – Fax: (973) 998-8401**
**www.eaglecreekre.com**

*contributing to, substandard water quality, a remediation proposal, including an implementation schedule, shall be developed in consultation with NHDES and filed with LIHI by April 1, 2019. Otherwise, the Owner shall file review comments and/or recommendations from NHDES by the same date.*

To address the supplementary information requested in the Water Quality section of your letter, during the site visit, Operations personnel described how run of river is maintained at the site and how discharge levels in the bypass reach are determined and maintained. The appended 2012 letter from KTZ Hydro submitted to LIHI during the initial LIHI certification for Newfound in 2011 (Attachment A) describes how the facility is operated to maintain run of river operations based on inflow and maintain bypass flow. Newfound continues to be operated as described in this letter.

During the sampling and monitoring period, Newfound operated under normal operating procedures.

**Run of River (Pond Fluctuations)**

As noted above, the 2012 KTZ Hydro correspondence outlines how run of river operations are maintained at the site. Newfound continues to operate as an automated run of river project and does not draw down the impoundment for the purpose of power generation. The impoundment, which is very small, typically fluctuates about ½" and is generally maintained within a ½" of the top of the flashboards. Fluctuations in the water level of the impoundment are due to weather conditions and discharge from the upstream Newfound Lake. If the impoundment falls below the normal low limit set-point, then then an alarm is sent to the operator who responds. The site is visited at least once a day and run of river observations are recorded in the station log book.

To date, there have been no substantive modifications to the site's civil works, including the dam/diversion weir, control structures and flashboards, since the initial LIHI certification in 2011 and the recertification in 2016.

A description of the Project is available from the 2016 recertification application on the LIHI website: https://lowimpacthydro.org/lihi-certificate-82-newfound-hydroelectric-project-new-hampshire-ferc-3107/.

Drawdowns of the impoundment are typically conducted on an annual basis, in late summer (July, August or September), for a duration of 2 to 3 days. The impoundment, or canal, are drawn down about 16' to allow maintenance and / or inspections to be completed under dewatered conditions. Attachment B provides a photo of the dewatered impoundment/canal. Drawdowns are accomplished by removing the stoplogs in the dam/diversion weir, opening the sluice gate near the intake and installing a board across the canal to divert inflow into the bypass.

The impoundment/canal is bordered by a concrete wall and development on river left (looking downstream) and by the dam/diversion weir and rocky shoreline on river right. With the small pond, minimal pond fluctuation and generally unvegetated shoreline, identification of fringing wetlands and estimates of impacts to dewatered portions of the littoral zone are not applicable to this site.

**Minimum Flows**

A minimum flow of 12.7 cfs has been released into the bypass reach via a slot in the flashboards at the dam since 2012. Flows in the bypass each continue to be maintained as described in the 2012 KTZ Hydro letter. During the daily site visit, Operations personnel visually confirm that minimum flow is released into the bypass and record observations in the station log book.

The flashboards are reliable and remain in place year-round. Operations personnel maintain a 24/7 presence at the station during certain times of the year, to manually prevent debris and ice from building up on the intake racks or blocking the slot in the flashboards that passes flow into the bypass reach.

During times when the flashboards are maintained or during impoundment drawdowns, bypass flow is released as described above by removing stop logs in the dam and diverting river flow through the two stop log bays. A gate near the intake is also opened to pass the remainder of river flows into the bypass reach.

Included in the recertification application for Newfound as Appendix A2, available via the LIHI website, link above, and included as Attachment C in this transmittal, is an email from John Warner, USFWS supporting the current bypass flow of 12.7 cfs.

Additionally, as documented in the LIHI reviewer's report, also available on the LIHI website, link above:

> *"Both the USFWS and NHDFG support continuation of the current minimum flow based on correspondence provided in the recertification application. I also spoke to John Warner, USFWS on August 6, 2017, and he restated his support for the current operation. The bypass habitat is not prime fish habitat due to its steepness and substrate type."*

**Fish Passage**

The habitat in the bypass reach at Newfound is steep and rocky and is not currently targeted for anadromous fish restoration.

As part of the LIHI recertification process, Eagle Creek reached out to NHFG and USFWS regarding fish passage. Both agencies supported LIHI recertification and requested provisions for eel passage in the future, if needed. Emails from both agencies are included as Attachments C and D, also available on the LIHI website as Appendix A2 and A4. Additionally, as noted above, the LIHI reviewer's report included comments from John Warner, USFWS, acknowledging that the bypass habitat is not prime fish habitat.

Based on the LIHI reviewer's recommendation with input from USFWS and NHFG, LIHI recertified Newfound with the following requirement:

> ***Condition 4:*** *If a fisheries agency requests or prescribes upstream or downstream fish passage at the Project during the term of the new LIHI certificate, the Owner shall notify*

*LIHI within 30 days of such action and the steps that the Owner is prepared to take to install appropriate passage at the Project dam. In the event that the Owner notifies LIHI that it does not intend to install appropriate passage, or that the Owner cannot reach an agreement with the resource agency, or agencies, as to the nature of this passage, LIHI reserves the right to withdraw its certification should LIHI determine that the Owner's position is inconsistent with the LIHI fish passage criteria at that time.*

To date there have been no requests or prescriptions by resource agencies for upstream or downstream fish passage.

Please contact me at 860-620-4527, if you need any further information. Eagle Creek appreciates your guidance in addressing the water quality component of the certification and is available should you wish to meet to further discuss any of these items.

Regards,

Susan Giansante

Susan Giansante
Project Manager
Eagle Creek Renewable Energy

Attachment A

**KTZ HYDRO LLC**
**42 Hurricane Road**
**Keene, NH 03431**
**(603) 352-3444**

April 26, 2012

Mr. Fred Ayer, Executive Director
Low Impact Hydropower Institute
34 Providence Street
Portland, ME 04103

Re: LIHI Certificate No. 0082; Newfound Hydroelectric LIHI Conditions

Dear Mr. Ayer:

This letter is to inform LIHI of our progress towards compliance with the conditions stated in LIHI's certificate no. 0082.

Condition number 1 requires KTZ Hydro LLC to develop a system for maintaining records sufficient to demonstrate compliance with the headpond elevation and flow management limitations of instantaneous run-of-river operation and maintenance of a minimum bypass flow as specified in Condition No. 2. We have completed the installation and automation of equipment necessary to comply with this condition. We have monitored the operation of the newly installed equipment along with operational changes we have implemented and now feel confident to report on our compliance with the aforementioned conditions. The following paragraphs describe the flow management plan for Newfound Hydroelectric:

The Newfound Hydroelectric Project is a run of river facility. Outflow from the project must equal inflow. This mode of operation is implemented by an Allen Bradley SLC 503 industrial computer which controls the wicket gates on both turbines and thereby matches the flow through the turbines to that of the inflow to the project impoundment (less bypass flows). The computer reads the headwater level in the impoundment via a 4-20ma analog pressure transducer and runs this data through a PID algorithm to update wicket gate positions every 120 seconds, and thereby match inflow and maintain headlevel to allow proper bypass flow over the project diversion.

The computer is able to hold headwater level within about half an inch after the system reaches equilibrium. If the headwater level drops below the normal set point, then an alarm will send text messages to both plant operators and all three owners alerting them of this event. The operators can reach the plant within 10-20 minutes to rectify the situation. Typically this would only happen following an equipment failure or abrupt step change in the inflow to the pond. In our experience, such step changes do not occur even when there is a step change at the Newfound Lake outlet due to the operations of the State of New Hampshire Water Resources

Board. The intervening reach of the Newfound River supplies enough of a buffer that our computer can keep up with the change.

The specified interim flow through the bypassed reach is 12.7 cfs. This is passed through a slot in the 12 inch flash boards to the right of the power plant trashracks. The slot is 64 inches wide and can be treated as a broad crested weir. We have allowed some leakage to remain through the upstream flashboards to wet the short reach which runs parallel to the dam.

Plant personnel visit the intake every day and sometimes multiple times per day. They have been instructed to monitor the headwater level and verify that the bypass flow is being discharged. Finally, they keep a plant log book in which they record any anomalies to normal pond level. Operators and owners receive normal status text messages at least twice each day. These texts contain the headwater level. In addition, operators have been instructed to let one of the owners know in the event there is a problem with either the automatic water level control system, or with obstructions in the bypass flow slot that cannot be cleared by the operators. This system has been running since November with no problems thus far.

Condition No. 2 instructs KTZ Hydro LLC to increase the flow in the bypassed reach of river to a provisional 12.7 cfs, which was done within 7 days of LIHI certification. KTZ Hydro LLC will also conduct appropriate analysis and finalize a minimum flow in consultation and upon agreement with the U.S. Fish and Wildlife Service and provide the results to LIHI by no later than October 1, 2012, including written concurrence from the U.S. Fish and Wildlife Service.

As instructed, this spring or summer, we will schedule a visit from personnel at U.S. Fish and Wildlife Service to validate the bypass flow. We will report back to LIHI following this visit.

If, upon your review of my letter, you should have any questions about this matter, please do not hesitate to contact me.

Sincerely yours,

Robert E. King
Manager

cc: Rolland Zeleny

Attachment B

Attachment C



**Susan Giansante**

| | |
|---|---|
| **From:** | Warner, John <john_warner@fws.gov> |
| **Sent:** | Wednesday, August 17, 2016 7:25 AM |
| **To:** | Susan Giansante |
| **Cc:** | john.a.magee@wildlife.nh.gov; Bob Gates; carol.henderson@wildlife.nh.gov |
| **Subject:** | Re: Newfound Project LIHI Recertification |

Susan - The Service concurs with LIHI Low IMpact Hydro Certification for teh Newfound Projec subject to the continued provision of 12.7 min bypass flow and provisions for providing eel passage in the future when needed -- JW

On Tue, Aug 16, 2016 at 9:35 PM, Susan Giansante <susan.giansante@eaglecreekre.com> wrote:

John Warner and John Magee-

Eagle Creek Renewable Energy (Eagle Creek), owns and operates the FERC licensed Newfound Hydroelectric Project (Newfound), FERC Project No. 3107, located on the Newfound River in the City of Bristol, County of Grafton, NH.

Under a previous owner, Newfound received a 5 year certificate from the Low Impact Hydropower Institute (LIHI) on May 13, 2011. By way of letter dated March 18, 2016, LIHI issued an extension of the certification term to Eagle Creek for Newfound to October 13, 2016 to enable applicants applying for certification time to absorb and understand the programmatic changes to the new LIHI handbook.

As a follow up to conversations with each of you, Eagle Creek is currently preparing its application for the recertification of Newfound. As with the previous certification, the applicant is required to address certain issues including ecological flows, upstream fish passage and downstream fish passage and seek comment from relevant agencies. Based on a conversation with Mike Sales from LIHI, and recent conversations with both of you, we request that the US Fish and Wildlife Service (Service) and New Hampshire Fish and Game Department (NHFGD) review the current practice for flows and fish passage and provide input that we will include in our LIHI recertification application.

Ecological Flow

As we discussed, included in the 2011 LIHI reviewer's report were e-mails from the Service and NHFGD supporting LIHI certification based on an agreed upon acceptable continuous minimum flow release in the bypass of 12.7 cfs. These e-mails are included for your reference, along with the reviewer's report. The flow

is currently released at the dam from a 12" notch in the flashboards with a length of 65". The 12.7 cfs minimum flow continues to be released in the bypass. Attached is a photo of the min flow release at the dam.

Upstream & Downstream Fish Passage

As we discussed, correspondence from the Service and NHFGD indicated that there were no plans for restoration activities for anadromous fish in the Newfound River. However, there may be a need for passage measures for catadromous American eel at a future date. In recent conversations with John Warner, it was confirmed, that as previously identified, it's premature to require either upstream or downstream passage measures at Newfound at this time, however, if improved upstream passage measures at downstream dams and/or better information on eel abundance in the Newfound River or Newfound Lake, eel passage may be warranted. Referenced correspondence from the Service and NHFGD is included for your reference.

Please let me know if you need any further information.

Thanks-

Sue

SUSAN GIANSANTE

EAGLE CREEK RENEWABLE ENERGY, LLC

MOBILE: 860-620-4527

E-MAIL: SUSAN.GIANSANTE@EAGLECREEKRE.COM

Attachment D

Appendix A4

**From:** Henderson, Carol <Carol.Henderson@wildlife.nh.gov>
**Sent:** Friday, April 28, 2017 2:23 PM
**To:** Susan Giansante
**Subject:** RE: Newfound Project LIHI Recertification

Hi Susan:

I apologize for not returning a response on official Department letterhead paper but I did not have your address and I suspected that you wanted the response as soon as possible. If you would prefer a response on Department letterhead, please let me know and I will be able to produce quickly.

The NH Fish and Game Department (NHFGD) agrees with the recommendations outlined by the US Fish and Wildlife Service (USFWS) noted in John Warners' email dated August 17, 2016 (copied to the Department), relative that "the Low Impact Hydro Certification for the Newfound River project should be contingent upon an agreement by the licensee to continue to provide 12.7 minimum bypass flow and agree to provide both upstream and downstream American eel passage in a timely manner if passage is found to be necessary by the USFWS and NHFGD. I hope this information has been helpful. If you need any additional information, please do not hesitate to contact me at 603-271-3511 or via email. Thank you, Carol Henderson, NH Fish and Game Department, Environmental Review Coordinator

The State of New Hampshire
**Department of Environmental Services**

**Robert R. Scott, Commissioner**

April 7, 2020

Shannon Ames, Executive Director
Low Impact Hydropower Institute
329 Massachusetts Ave, Suite 2
Lexington, MA 02420

RE: Water Quality Status of the Newfound River for Low Impact Hydropower Institute Recertification of the Newfound Hydroelectric Project (FERC License No. 3107) Winnipesaukee River – Bristol, NH

Dear Ms. Ames:

The New Hampshire Department of Environmental Services (NHDES) understands that Eagle Creek Renewable Energy (ECRE) on behalf of KTZ Hydro, LLC has applied for Low Impact Hydropower Recertification from the Low Impact Hydropower Institute (LIHI) for the Newfound Hydroelectric Project (Federal Energy Regulatory Commission (FERC) Exemption No. 3107), on the Newfound River in Bristol, NH. We further understand that in September of 2017 LIHI granted recertification to the Newfound Hydroelectric Project subject to specific provisions. One of these provisions stated that:

> *"The Owner shall complete a water quality sampling study during summer 2018 under a study plan approved in advance by the New Hampshire Department of Environmental Services (NHDES). The study plan shall be filed with NHDES no later than December 31, 2017. A copy of the final study plan shall be filed with LIHI within 30 days of NHDES approval. The data and study report shall be filed with NHDES and LIHI by December 31, 2018. If the Newfound Project is determined to be causing, or contributing to, substandard water quality, a remediation proposal, including an implementation schedule, shall be developed in consultation with NHDES and filed with LIHI by April 1, 2019. Otherwise, the Owner shall file review comments and/or recommendations from NHDES by the same date."*

On January 2, 2018, NHDES issued a letter outlining what would be needed to determine if the Newfound River in the vicinity of the Newfound Hydroelectric Project was or was not attaining water quality standards. In order for NHDES to determine if the subject hydroelectric project is causing or contributing to water quality standard violations, additional monitoring and information is needed. In general, data / information is needed to address the following water quality concerns that are typically associated with hydropower projects:

1. Impact on ambient water quality criteria and thresholds;
2. Impact of pond fluctuations on aquatic habitat;
3. Maintenance of adequate minimum flows to protect downstream aquatic life; and
4. Adequate upstream and downstream fish passage.

The purpose of this letter is to provide you with our assessment of the data and information received from ECRE in response to our letter of January 2, 2018 and our conclusions as to whether or not the Newfound Hydroelectric Project is complying with New Hampshire surface water quality standards in the Newfound River. Please note that water quality studies requested by NHDES for hydropower projects applying for relicensing from the Federal Energy Regulatory Commission (FERC) are more rigorous than the water quality study conducted for this LIHI recertification.

Water quality data was collected for dissolved oxygen, water temperature, total phosphorus, and chlorophyll-a. Monitoring locations in the upstream impoundment (00K-NFD) and in the bypass reach (00F-NFD) were monitored continuously for water temperature and dissolved oxygen using multi-parameter dataloggers in 2018. NHDES specified

that the multi-parameter continuous water quality data should be collected under critical low flow (< 3 x 7Q10) and higher water temperature conditions (>23° C). There is a USGS stream gage (USGS 01078000) on the Smith River in Bristol, NH which can be used to estimate when inflow at the Newfound Hydroelectric Dam is at or below 3 x 7Q10. The USGS gage is located approximately 1.8 miles southwest of the Project Dam. The 7Q10 at the USGS gage is approximately 5.8 cfs. When flow at the gage is less than 3 x 7Q10, it is assumed that flow at the Project is also less than 3 x 7Q0. From. July 17 – July 27, 2018 a datalogger was deployed in the upstream impoundment (00K-NFD) and in the bypass reach (00F-NFD). Flow at the USGS gage was just above or below the target conditions of 3 x 7Q10 (17.6 cfs) from the start of the deployment on July 17th until early on July 23rd. From July 23rd through the end of the deployment on July 27th the flows at the Project were estimated to be significantly above 3 X 7Q10 conditions based on flow at the USGS gage. Water temperatures ranged from 20° C to 26° C. The minimum water quality standard of 5 mg/L for dissolved oxygen was met on all days at both stations. There was no change in dissolved oxygen concentration between the period of the deployment under lower flow conditions and after the increase in flow on July 23rd.

Between July and September 2018, ten weekly samples of total phosphorus and chlorophyll-a were collected at stations located in the Newfound Hydroelectric dam impoundment (00K-NFD) and in the bypass reach (00F-NFD).

NHDES has assessed the water quality data collected in 2018 and based on this assessment concludes that the water quality in the impoundment and in the bypass reach under the project operating conditions and flow conditions during which the data was collected, is meeting existing water quality criteria or thresholds for dissolved oxygen, total phosphorus and chlorophyll-a. At the time of the deployment and retrieval of the dataloggers in 2018 a vertical profile of dissolved oxygen and water temperature was measured in the upstream impoundment (00K-NFD) to determine if thermal stratification was present. The vertical profiles indicate that the river was not thermally stratified on the date the profiles were taken.

In the January 2, 2018 letter NHDES provided the assessment status for the parameters of concern for the reaches of the Newfound River upstream and downstream of the Newfound Hydroelectric Project. Table 1 provides an update to the current assessment status of the river reaches in question for the parameters collected in 2018. The assessments are based on the methodology described in the NHDES Consolidated Assessment and Listing Methodology (CALM)[1]. This information will be used in the next Section 305(b)/303(d) Water Quality Assessment report issued by NHDES. Please note that the assessment status listed in Table 1 could change if water quality criteria or thresholds change and/or if additional data indicate water quality violations. For example, data collected at lower flows and/or higher temperatures might result in a different assessment.

[1] NHDES. 2018. Section 305(b) and 303(d) Consolidated Assessment and Listing Methodology. NH Department of Environmental Services, Watershed Management Bureau, Concord, NH

**Table 1. Assessment Status for Water Quality Monitoring Parameters: Newfound Hydroelectric Project**

| Assessment Unit and Monitoring Station | Location | Parameter | Designated Use | Assessment Status based upon 2013 and 2016 sampling |
|---|---|---|---|---|
| NHIMP700010603-04<br>00K-NFD | Newfound Hydroelectric Dam Impoundment<br>N. Main Street/Route 3A Bridge | Dissolved Oxygen (mg/L) | Aquatic Life | Fully Supporting |
| | | Dissolved Oxygen (% Sat.) | Aquatic Life | Fully Supporting |
| | | Chlorophyll-a | Primary Contact Recreation | Fully Supporting |
| | | | Aquatic Life | Potentially Supporting [A] |
| | | Total Phosphorus | Aquatic Life | Indeterminate [A] |
| | | Water Temperature | Aquatic Life | No numeric criteria [C] |
| NHRIV700010603-12<br>00F-NFD | Downstream of Newfound Hydroelectric Dam<br>Bypass Reach<br>~500 feet downstream of dam | Dissolved Oxygen (mg/L) | Aquatic Life | Fully Supporting |
| | | Dissolved Oxygen (% Sat.) | Aquatic Life | Fully Supporting |
| | | Chlorophyll-a | Primary Contact Recreation | Fully Supporting |
| | | Dissolved Oxygen (% Sat.) | Aquatic Life | Potentially Supporting [A] |
| | | Total Phosphorus | Aquatic Life | Indeterminate [A] |

[A] NHDES does have numeric water quality thresholds for the aquatic life designated use for total phosphorus and chlorophyll-a in lakes/ponds and impoundments with characteristics similar to lakes/ponds but it can only be applied to waterbodies where the trophic class is known. For waterbodies where the trophic class is known the median total phosphorus and chlorophyll-a value is used to make the threshold comparison. The aquatic life designated use nutrient and chlorophyll-a thresholds are depicted below with the median values for each parameter for the data collected at station 00K-NFD in assessment unit NHIMP700010603-04 and station 00F-NFD in assessment unit NHRIV700010603-12 during the summer of 2018.

| | TP (µg/L) | Chl-a (µg/L) |
|---|---|---|
| **Median 00K-NFD (2018)** | **0.006** | **1.15** |
| **Median 00F-NFD (2018)** | **0.006** | **1.22** |
| Oligotrophic | < 8 | < 3.3 |
| Mesotrophic | ≤ 12 | ≤ 5 |
| Eutrophic | ≤ 28 | ≤ 11 |

[B] NHDES does not have numeric water quality criteria for nutrients in rivers or streams. The narrative criteria states that "Class B waters shall contain no phosphorus or nitrogen in such concentrations that would impair any existing or designated uses, unless naturally occurring".
[C] Although there are currently no numerical water quality criteria for water temperature, NHDES is in the process of collecting biological and water temperature data that will contribute to the development of a procedure for assessing rivers and stream based on water temperature and its corresponding impact to the biological integrity of the waterbody.

In December of 2018 ECRE provided NHDES with documentation of how run of river operations are maintained and verified at the Newfound Hydroelectric Project. The applicant verified that no substantive modifications to the site's infrastructure, including the dam, diversion weir, control structures or flashboards, have been made since the initial LIHI certification in 2011.

ECRE has stated that drawdown of the impoundment is typically conducted on an annual basis, in late summer for a duration of two to three days. The impoundment, or canal, are drawn down about 16 feet to allow maintenance and / or inspections to be completed under dewatered conditions. Drawdowns are accomplished by removing the stoplogs in the dam/diversion weir, opening the sluice gate near the intake and installing a board across the canal to divert inflow into the

bypass. The impoundment/canal is bordered by a concrete wall and development on river left (looking downstream) and by the dam/diversion weir and rocky shoreline on river right. With the small pond, minimal pond fluctuation and generally unvegetated shoreline, identification of fringing wetlands and estimates of impacts to dewatered portions of the littoral zone are not applicable to this site.

ECRE has confirmed that the bypass minimum flow has not changed since the original LIHI certification in 2011. As part of the 2011 LIHI certification the minimum flow in the bypass reach was increased from 5 cfs to 12.7 cfs at the request of both the U.S. Fish and Wildlife Service (USFWS) and New Hampshire Fish and Game (NHFG). In 2017 the USFWS and NHFG indicated that they support the continuation of the current minimum bypass flow of 12.7 cfs and that no additional actions are currently needed regarding fish passage.

In summary, based on the current operation of the facility, current water quality standards, water quality data collected in 2018 and information provided to NHDES by ECRE, the Newfound River immediately upstream and downstream of the Newfound Hydroelectric Project is meeting water quality standards or thresholds for dissolved oxygen, total phosphorus and chlorophyll-a under the conditions during which the data was collected. As previously noted, the above water quality assessment could change in the future should a change in water quality criteria or thresholds and/or new data indicate water quality violations or the potential for water quality violations.

Should you have any questions or require additional information please contact me at (603) 271-2083 or ted.walsh@des.nh.gov.

Sincerely,

Ted Walsh, Surface Water Monitoring Coordinator
NHDES Watershed Management Bureau

Cc (via email):
Sue Giansante, Eagle Creek Renewable Energy
Maryalice Fisher, Low Impact Hydropower Institute
Carol Henderson, NHFG
John Magee, NHFG
Julianne Rosset, USFWS

The State of New Hampshire
**DEPARTMENT OF ENVIRONMENTAL SERVICES**

**Thomas S. Burack, Commissioner**

November 14, 2011

Fred Ayer, Executive Director
Low Impact Hydropower Institute
34 Providence Street
Portland, Maine 04103

RE: Water Quality Status of Newfound River for Low Impact Hydropower Institute Certification of Newfound Hydroelectric Project (FERC Project No. 3107), Newfound River

Dear Fred:

Essex Hydro Associates (EHA) has applied on behalf of KTZ Hydro, LLC, for Low Impact Hydropower Certification from the Low Impact Hydropower Institute (LIHI) for the Newfound Hydroelectric Project (FERC Project No. 3107) on the Newfound River in Bristol, NH. We understand that to receive LIHI certification, you require a statement from the New Hampshire Department of Environmental Services (DES) stating that the project is not causing or contributing to violations of state water quality standards. On May 24, 2011, DES sent EHA a letter stating what would be needed for DES to determine if the Newfound River in the vicinity of the Newfound Hydroelectric Project was or was not attaining standards. Specifically, the following was stated: "In order for DES to determine if the subject hydroelectric project is causing or contributing to water quality standard violations, additional monitoring and information is needed. In general, data / information is needed to address the following water quality concerns that are typically associated with hydropower projects:

1. Impact on ambient water quality criteria;
2. Impact of pond fluctuations on aquatic habitat;
3. Maintenance of adequate minimum flows to protect downstream aquatic life; and
4. Adequate upstream and downstream fish passage.

The purpose of this letter is to provide you with an assessment of data and information received from EHA in response to our letter of May 24, 2011 and, DES's conclusions as to whether or not the Newfound Hydroelectric Project is causing or contributing to New Hampshire surface water quality standard violations.

With regards to water quality, EHA, with the assistance of DES collected water quality data for dissolved oxygen, water temperature, total phosphorus and chlorophyll-a. Monitoring locations in the impoundment (00K-NFD) and in the downstream section of the river (00F-NFD) were monitored continuously for a minimum 10 day period in July 2011 for water temperature and dissolved oxygen using multi-parameter dataloggers. In addition, between June and August 2011, ten samples from each station were collected and tested by the DES laboratory for total phosphorus and chlorophyll-a. The sampling timeframe included periods of higher temperatures and relatively low flows.

DES has assessed the water quality data collected in 2011, and based on this assessment concludes that the water quality in the impoundment and downstream section of the Newfound River, under the dam's current operating conditions, do not appear to be violating existing water quality criteria for dissolved oxygen, phosphorus and chlorophyll-a. In the May 24, 2011 letter DES provided the assessment status

DES Web site: www.des.nh.gov
P.O. Box 95, 29 Hazen Drive, Concord, New Hampshire 03302-0095
Telephone: (603) 271-2457 • Fax: (603) 271-7894 • TDD Access: Relay NH 1-800-735-2964

November 14, 2011
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for the parameters of concern for the reaches of the Newfound River upstream and downstream of the Newfound Hydroelectric Project. Table 1 provides an update to the current assessment status of the river reaches in question for the parameters collected this summer. Our assessments were based on the methodology described in the DES Consolidated Assessment and Listing Methodology (CALM)[1]. This information will be used in the next Section 305(b)/303(d) Water Quality Assessment report which is expected to be issued by DES in early 2012. Please note that the assessment status listed in Table 1 could change if water quality criteria change and/or if additional data collected between now and the 2012 report indicate water quality violations. For example, data collected at lower flows and/or higher temperatures might result in a different assessment.

**Table 1. Assessment Status for Water Quality Monitoring Parameters - Newfound Hydroelectric Project**

| Assessment Unit | Location | Parameter | Designated Use | Assessment Status based upon summer 2011 sampling |
|---|---|---|---|---|
| NHIMP700010603-04 | Newfound Hydroelectric Dam Impoundment<br><br>N. Main Street/Route 3A Bridge | Dissolved Oxygen (mg/L) | Aquatic Life | Fully Supporting |
| | | Dissolved Oxygen (% Saturation) | Aquatic Life | Fully Supporting |
| | | Chlorophyll-a | Primary Contact Recreation | Fully Supporting |
| | | | Aquatic Life | Indeterminate[A] |
| | | Total Phosphorus | Aquatic Life | Indeterminate[A] |
| | | Water Temperature | Aquatic Life | No numeric criteria[C] |
| NHRIV700010603-12 | Downstream of Newfound Hydroelectric Dam<br><br>~500 feet downstream of dam | Dissolved Oxygen (mg/L) | Aquatic Life | Fully Supporting |
| | | Dissolved Oxygen (% Saturation) | Aquatic Life | Fully Supporting |
| | | Chlorophyll-a | Primary Contact Recreation | Fully Supporting |
| | | Total Phosphorus | Aquatic Life | No numeric criteria[B] |
| | | Water Temperature | Aquatic Life | No numeric criteria[C] |

[A] DES does have numeric water quality criteria for the aquatic life designated use for total phosphorus and chlorophyll-a in lakes/ponds and impoundments with characteristics similar to lakes/ponds but it can only be applied to waterbodies where the tropic class is known. For waterbodies where the trophic class is known the median total phosphorus and chlorophyll-a value is used to make the criteria comparison. The aquatic life designated use nutrient and chlorophyll-a criteria are depicted below with the median values for each parameter for the data collected at station 00K-NFD in assessment unit NHIMP700010603-04 during the summer of 2011.

| | TP (ug/L) | Chl-a (ug/L) |
|---|---|---|
| **Median 00K-NFD (2011)** | **4** | **1.2** |
| Oligotrophic | < 8 | < 3.3 |
| Mesotrophic | ≤ 12 | ≤ 5 |
| Eutrophic | ≤ 28 | ≤ 11 |

[1] 2010 Section 305(b) and 303(d) Consolidated Assessment and Listing Methodology. New Hampshire Department of Environmental Services. NHDES-R-WD-10-3. February, 2010. Available at http://des.nh.gov/organization/divisions/water/wmb/swqa/documents/2010calm.pdf.

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[B] DES does not have numeric water quality criteria for nutrients in rivers or streams. The narrative criteria states that "Class B waters shall contain no phosphorus or nitrogen in such concentrations that would impair any existing or designated uses, unless naturally occurring."

[C] Although there is currently no numerical water quality criteria for water temperature, NHDES is in the process of collecting biological and water temperature data that will contribute to the development of a procedure for assessing rivers and stream based on water temperature and its corresponding impact to the biological integrity of the waterbody.

On October 4, 2011 EHA provided DES with information regarding minimum flows and pond fluctuations at the Newfound Hydroelectric Project. EHA confirmed that the facility is operated as a fully automated run of river project. The project does not draw down the impoundment for purposes of power generation. Any fluctuations in the water level at the project are due to naturally occurring fluctuations in the Newfound River associated with varying levels of precipitation and discharge from Newfound Lake. Per the project's 1981 FERC license, the licensee is required to maintain a continuous minimum flow of 5 cfs in the bypass reach. The 5 cfs value for minimum flow in the bypass reach is the equivalent of the 7Q10 value for this section of the Newfound River.

In October of 2011, John Warner of the U.S. Fish and Wildlife Service and John Magee of the New Hampshire Fish and Game Department conducted a site inspection at the Newfound Hydroelectric Project to determine the impact of the bypass flows on aquatic life. As a result of the site visit, both USFSW and NHFG recommend a minimum flow of 12.7 cfs in the bypass reach. USFWS and NHFG support the Newfound Hydroelectric Project's application for LIHI certification if the project owner's agree to implement the recommended minimum flow in the bypass reach. This bypass flow will be passed through a notch in the project's flashboards close to the project's trash racks. EHA on behalf of KTZ Hydro, LLC have committed to implementing the minimum flow requirements by summer of 2012. Representatives from USFWS and NHFG will review the bypass flows once the recommended changes are made to achieve the minimum 12.7 cfs flow in the bypass reach. USFWS and NHFG reserve the right to request further adjustments to the minimum bypass flow requirements and may require the installation of a staff gage in the lower bypass to allow for verification of compliance. EHA on behalf of KTZ Hydro, LLC agree to abide by whatever minimum flow requirements are required by USFWS and/or NHFG and to install a staff gage if requested to do so. NHDES will contact USFWS and NHFG next summer to determine if the minimum flow requirements and potential staff gage requirements are being met.

Regarding the issue of fish passage, DES was provided with documentation from John Warner of the U.S. Fish and Wildlife Service (USFWS) and Carol Henderson of New Hampshire Fish and Game (NHFG) that there are currently no plans for restoration activities for anadromous fish in the Newfound River but there may be a need for passage measures for catadromous American Eel at a future date. Both agencies have concurred that the existing dam and operation appear to be passable by American Eel and that the proposed minimum bypass flows of 12.7 cfs will be appropriately protective of American Eel at this time. Both USFWS and NHFG have a position that LIHI certification be contingent upon an agreement by the owner to implement both upstream and downstream fish passage measures for American Eel in a timely manner if additional passage measures are found to be necessary by either agency. NHDES has received confirmation from EHA on behalf of the project owner that they commit to implementing fish passage measures when prescribed by USFWS and/or NHFG and agree to undertake such consultations, design development, and construction in a timely manner after notification of such necessity.

In summary, based on the current operation of the dam, current water quality standards, the water quality data collected in 2011 and information provided to DES by EHA, it appears the Newfound River immediately upstream and downstream of the Newfound Hydroelectric Project is attaining water quality standards at this time. As previously noted, however, please note that this assessment could change in the future should a change in water quality criteria and/or new data indicate water quality violations. It could also change if the NHFG and/or USFWS conclude in the future that the project is not in compliance with upstream or downstream fish passage requirements or if minimum bypass flow requirements change.

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Should you have any questions or require additional information please contact me at (603)271-2083 (ted.walsh@des.nh.gov).

Sincerely,

Ted Walsh, Surface Water Monitoring Coordinator
NH DES Watershed Management Bureau

Cc (via email): Steve Hickey, Essex Hydro Associates, LLC
Carol Henderson, New Hampshire Fish and Game
John Magee, New Hampshire Fish and Game
John Warner, USFWS

# APPENDIX B

# DRAFT NHDES 2020 WATER QUALITY REPORT

## Welcome to New Hampshire's Watershed Report Cards built from the DRAFT 2020, 305(b)/303(d)

***Each Watershed Report Card covers a single 12-digit Hydrologic Unit Code (HUC12), on average a 34 square mile area. Each Watershed Report Card has three components;***

1. REPORT CARD - A one page card that summarizes the overall use support for Aquatic Life Integrity, Primary Contact (i.e. Swimming), and Secondary Contact (i.e. Boating) Designated Uses on every Assessment Unit ID (AUID) within the HUC12.
2. HUC 12 MAP - A map of the watershed with abbreviated labels for each AUID within the HUC12.
3. ASSESSMENT DETAILS - Anywhere from one to forty pages with the detailed assessment information for each and every AUID in the Report Card and Map.

***How are the Surface Water Quality Assessment determinations made?***

All readily available data with reliable Quality Assurance/Quality Control is used in the biennial surface water quality assessments. For a full understanding of how the Surface Water Quality Standards (Env-Wq 1700) are translated into surface water quality assessments we urge the reader to review the 2020 Consolidated Assessment and Listing Methodology (CALM).

***Where can I find more advanced mapping resources?***

GIS files are available by assessment cycle at the NHDES FTP site.

***I'd like to see the more raw water quality data?***

The web mapping tool allows you to download the data used in the assessment of the primary contact and aquatic life designated uses by clicking on the "Data Access Waterbody Data (Aquatic Life and Swimming Uses)" link for any assessment unit.

***How are assessments coded in the report card?***

Assessment outcomes are displayed on a color scale as well as an alpha numeric scale that provides additional distinctions for the designated use and parameter level assessments as outlined in the table below.

| | | **Severe**<br>Not Supporting, Severe | **Poor**<br>Not Supporting, Marginal | **Likely Bad**<br>Insufficient Information – Potentially Not Supporting | **No Data**<br>No Data | **Likely Good**<br>Insufficient Information – Potentially Full Supporting | **Marginal**<br>Full Support, Marginal | **Good**<br>Full Support, Good |
|---|---|---|---|---|---|---|---|---|
| **CATEGORY** | **Description** | | | | | | | |
| Category 2 | Meets standards | | | | | | 2-M or 2-OBS | 2-G |
| Category 3 | Insufficient Information | | | 3-PNS | 3-ND | 3-PAS | | |
| Category 4 | Does not Meet Standards; | | | | | | | |
| 4A | TMDL* Completed | 4A-P | 4A-M or 4A-T | | | | | |
| 4B | Other enforceable measure will correct the issue. | 4B-P | 4B-M or 4B-T | | | | | |
| 4C | Non-pollutant (i.e. exotic weeds) | 4C-P | 4C-M | | | | | |
| Category 5 | TMDL* Needed | 5-P | 5-M or 5-T | | | | | |

* TMDL stands for Total Maximum Daily Load studies

# Watershed 305(b) Assessment Summary Report:

## Assessment Cycle: Draft 2020

HUC 12: 010700010603

HUC 12 Name: Sanborn Bay To Newfound R.

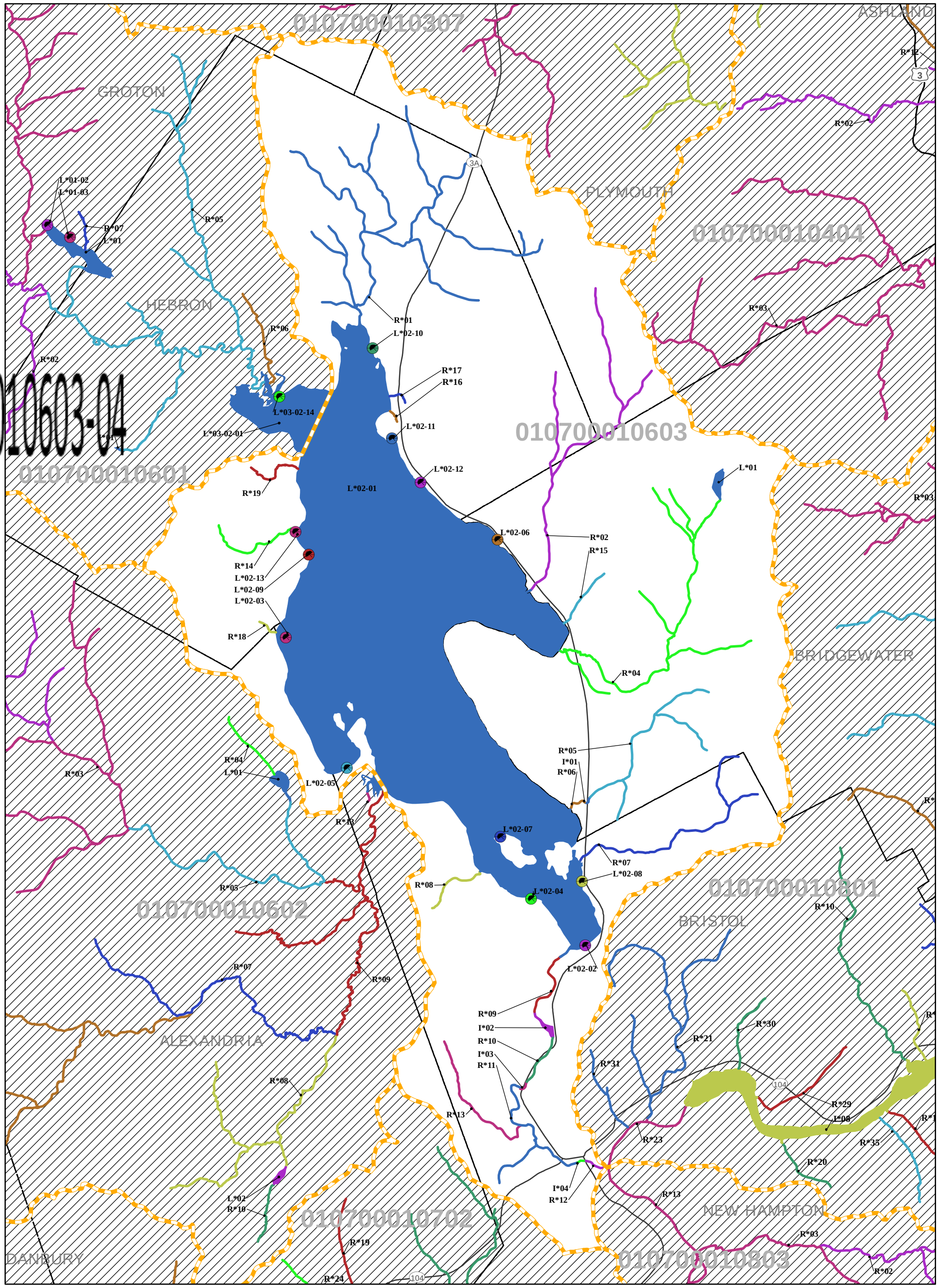
(Locator map on next page only applies to this HUC12)

| | |
|---|---|
| Good | Meets water quality standards/thresholds by a relatively large margin. |
| Marginal | Meets water quality standards/thresholds but only marginally. |
| Likely Good | Limited data available, however, the data that is available suggests that the parameter is Potentially Attaining Standards (PAS). |
| No Current Data | Insufficient information to make an assessment decision. |
| Likely Bad | Limited data available, however, the data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. |
| Poor | Not meeting water quality standards/thresholds. The impairment is marginal. |
| Severe | Not meeting water quality standards/thresholds. The impairment is more severe and causes poor water quality. |

| Assessment Unit ID | Map Label | Assessment Unit Name | Aquatic Life | Fish Consump. | Swimming | Boating |
|---|---|---|---|---|---|---|
| NHIMP700010603-01 | I*01 | Tilton Brook | | 4A-M | 3-ND | 3-ND |
| NHIMP700010603-02 | I*02 | Newfound River - Ipc Upper Dam Pond | 3-ND | 4A-M | 3-ND | 3-ND |
| NHIMP700010603-03 | I*03 | Newfound River | 3-ND | 4A-M | 3-ND | 3-ND |
| NHIMP700010603-04 | I*04 | Newfound River | 3-ND | 4A-M | 3-PAS | 3-ND |
| NHLAK700010603-01 | L*01 | Dick Brown Pond | 3-ND | 4A-M | 3-ND | 3-ND |
| NHLAK700010603-02-01 | L*03-02-01 | Newfound Lake | 5-P | 4A-M | 3-PAS | 3-ND |
| NHLAK700010603-02-02 | L*02-02 | Newfound Lake - Town Beach | 3-ND | 4A-M | 2-M | 2-G |
| NHLAK700010603-02-03 | L*02-03 | Newfound Lake - Nutting's Beach | 3-ND | 4A-M | 3-ND | 3-ND |
| NHLAK700010603-02-04 | L*02-04 | Newfound Lake - Cummings Beach | 3-ND | 4A-M | 2-M | 2-G |
| NHLAK700010603-02-05 | L*02-05 | Newfound Lake - Wellington State Park Beach | 3-ND | 4A-M | 2-M | 2-G |
| NHLAK700010603-02-06 | L*02-06 | Newfound Lake - Camp Masquebec Hill Beach | 3-ND | 4A-M | 2-G | 2-G |

| | | | | | | |
|---|---|---|---|---|---|---|
| NHLAK700010603-02-07 | L*02-07 | Newfound Lake - Camp Mayhew Beach | 3-ND | 4A-M | 3-PAS | 2-G |
| NHLAK700010603-02-08 | L*02-08 | Newfound Lake - Red Fox Village Beach | 3-ND | 4A-M | 3-ND | 3-ND |
| NHLAK700010603-02-09 | L*03-02-09 | Newfound Lake - Camp Berea Beach | 3-ND | 4A-M | 2-G | 2-G |
| NHLAK700010603-02-10 | L*03-02-10 | Newfound Lake - Camp Mowglis Beach | 3-ND | 4A-M | 3-PNS | 2-G |
| NHLAK700010603-02-11 | L*03-02-11 | Newfound Lake - Camp Onaway Beach | 3-ND | 4A-M | 2-G | 2-G |
| NHLAK700010603-02-12 | L*03-02-12 | Newfound Lake - Camp Pasquaney Beach | 3-ND | 4A-M | 2-G | 2-G |
| NHLAK700010603-02-13 | L*03-02-13 | Newfound Lake - Camp Wi-Co-Su-Ta Beach | 3-ND | 4A-M | 4A-M | 2-G |
| NHRIV700010603-01 | R*01 | Cilley Brook - Fretts Brook | 5-P | 4A-M | 3-ND | 3-ND |
| NHRIV700010603-02 | R*02 | Whittemore Brook | 5-M | 4A-M | 3-ND | 3-ND |
| NHRIV700010603-04 | R*04 | Dick Brown Brook - Unnamed Brook | 5-M | 4A-M | 3-ND | 3-ND |
| NHRIV700010603-05 | R*05 | Tilton Brook | 3-ND | 4A-M | 3-ND | 3-ND |
| NHRIV700010603-06 | R*06 | Tilton Brook | 3-ND | 4A-M | 3-ND | 3-ND |
| NHRIV700010603-07 | R*07 | Hemlock Brook - To Newfound Lake | 3-ND | 4A-M | 3-ND | 3-ND |
| NHRIV700010603-08 | R*08 | Black Brook | 5-M | 4A-M | 3-ND | 3-ND |
| NHRIV700010603-09 | R*09 | Newfound River | 3-ND | 4A-M | 3-ND | 3-ND |
| NHRIV700010603-10 | R*10 | Newfound River | 3-ND | 4A-M | 3-ND | 3-ND |
| NHRIV700010603-11 | R*11 | Newfound River | 5-M | 4A-M | 3-ND | 3-ND |
| NHRIV700010603-12 | R*12 | Newfound River | 3-PAS | 4A-M | 3-PAS | 3-ND |
| NHRIV700010603-13 | R*13 | Unnamed Brook - To Newfound River | 3-ND | 4A-M | 3-ND | 3-ND |
| NHRIV700010603-14 | R*14 | Unnamed Brook | 3-ND | 4A-M | 3-ND | 3-ND |
| NHRIV700010603-15 | R*15 | Unnamed Brook | 3-ND | 4A-M | 3-ND | 3-ND |
| NHRIV700010603-16 | R*16 | Camp Onaway Brook | 5-P | 4A-M | 3-ND | 3-ND |
| NHRIV700010603-17 | R*17 | Post Office Brook | 5-M | 4A-M | 3-ND | 3-ND |
| NHRIV700010603-18 | R*18 | Nuttings Beach Brook | 5-M | 4A-M | 3-ND | 3-ND |
| NHRIV700010603-19 | R*19 | Kendall Brook | 5-P | 4A-M | 3-ND | 3-ND |

# AUIDs For HUC12: 010700010603 - Sanborn Bay to Newfound R.




HUC12 Boundaries
Town Boundaries
**Major Roads**
Interstate Highway
US Highway
State Highway

**Assessment Unit Coloring AUs Ending with:**

0 =
1 =
2 =
3 =
4 =
5 =
6 =
7 =
8 =
9 =

N
W E
S

| Abbrv. Label | HUC 12 |
|---|---|
| L*03 | 010700060201 |

AUID = NHLAK700060201-03

Assessment Unit IDs are derived from the HUC12 they reside within. The labels have been shortened on this map for presentation purposes.
Example: the Label "L*03" in HUC12 = 010700060201 represents AUID = "NHLAK700060201-03"
In rare cases where an AUID extends beyond the boundary of a single HUC12, additional portions of the end of the HUC 12 number have also been replaced.

0 0.5 1 1.5 2 Miles

Scale:1:53,460

S:\WD-Watershed\WQ_Planning\305b_303d\2020\Report_Cards\HUC12_maps

**Assessment Unit ID:** NHIMP700010603-01
**Assessment Unit Name:** Tilton Brook
**Town(s) Primary Town is Listed First:**
Bridgewater

**Size:** 0.25 ACRES
Assessment Unit Category: 3-ND
**Beach:** N

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 3-ND | Chlorophyll-A | N | 0 | NLV | 3-ND | |
| | | Dissolved Oxygen Saturation | N | 2014 | N/A | 3-ND | |
| | | Oxygen, Dissolved | N | 2014 | N/A | 3-ND | |
| | | Ph | N | 2011 | 2006 | 3-ND | |
| | | Turbidity | N | 2014 | N/A | 3-ND | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | Sulfates | N | 2008 | N/A | 3-ND | |
| Primary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Secondary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHIMP700010603-02
**Assessment Unit Name:** Newfound River - Ipc Upper Dam Pond
**Town(s) Primary Town is Listed First:** Bristol

**Size:** 6.5260 ACRES
Assessment Unit Category: 3-ND
**Beach:** N

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 3-ND | Chlorophyll-A | N | N/A | NLV | 3-ND | |
| | | Dissolved Oxygen Saturation | N | | | 3-ND | |
| | | Oxygen, Dissolved | N | | | 3-ND | |
| | | Ph | N | | | 3-ND | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | | | | | | |
| Primary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Secondary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHIMP700010603-03
**Assessment Unit Name:** Newfound River
**Town(s) Primary Town is Listed First:** Bristol

**Size:** 1.1330 ACRES
**Assessment Unit Category: 3-ND**
**Beach:** N

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 3-ND | Chlorophyll-A | N | N/A | NLV | 3-ND | |
| | | Dissolved Oxygen Saturation | N | | | 3-ND | |
| | | Oxygen, Dissolved | N | | | 3-ND | |
| | | Ph | N | | | 3-ND | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | | | | | | |
| Primary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Secondary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHIMP700010603-04
**Assessment Unit Name:** Newfound River
**Town(s) Primary Town is Listed First:** Bristol

**Size:** 0.23 ACRES
Assessment Unit Category: 3-PAS
**Beach:** N

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 3-ND | Chloride | N | 2011 | N/A | 3-ND | |
| | | Chlorophyll-A | N | 2018 | NLV | No Stnd | |
| | | Dissolved Oxygen Saturation | | 2011 | N/A | 3-ND | |
| | | Oxygen, Dissolved | | 2011 | N/A | 3-ND | |
| | | Ph | | 2011 | N/A | 3-ND | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | | | | | | |
| Primary Contact Recreation | 3-PAS | Chlorophyll-A | N | 2018 | N/A | 3-PAS | |
| | | Escherichia Coli | N | | | 3-ND | |
| Secondary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHLAK700010603-01 **Size:** 12.16 ACRES **Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

**Assessment Unit Name:** Dick Brown Pond Assessment Unit Category: 3-ND

**Town(s) Primary Town is Listed First:** **Beach:** N

Bridgewater

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 3-ND | Alkalinity, Carbonate As Caco3 | N | 1993 | 1993 | 3-ND | |
| | | Chloride | N | 1993 | N/A | 3-ND | |
| | | Chlorophyll-A | N | 1992 | NLV | 3-ND | |
| | | Dissolved Oxygen Saturation | N | 1992 | N/A | 3-ND | |
| | | Oxygen, Dissolved | N | 1992 | N/A | 3-ND | |
| | | Ph | N | 1993 | 1993 | 3-ND | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | Sulfates | N | 1993 | N/A | 3-ND | |
| Primary Contact Recreation | 3-ND | Chlorophyll-A | N | 1992 | N/A | 3-ND | |
| | | Escherichia Coli | N | | | 3-ND | |
| Secondary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHLAK700010603-02-01 **Size:** 4439.6950 ACRES **Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

**Assessment Unit Name:** Newfound Lake **Assessment Unit Category: 5-P**

**Town(s) Primary Town is Listed First:** Alexandria, Bridgewater, Bristol, Hebron **Beach:** N

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 5-P | Alkalinity, Carbonate As Caco3 | N | 1993 | 1993 | 3-ND | |
| | | Chloride | N | 2017 | N/A | 3-PAS | |
| | | Chlorophyll-A | N | 2015 | NLV | 2-G | |
| | | Dissolved Oxygen Saturation | N | 2017 | 2017 | 3-PNS | |
| | | Oxygen, Dissolved | N | 2017 | 2016 | 5-P | LOW |
| | | Ph | N | 2017 | 2017 | 5-M | LOW |
| | | Phosphorus (Total) | N | 2015 | NLV | 2-M | |
| | | Turbidity | N | 2017 | 2009 | 3-PAS | |
| Fish Consumption | 4A-M | Manganese | N | 2016 | N/A | 3-PAS | |
| | | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | Escherichia Coli | N | 2008 | 2008 | 3-ND | |
| | | Manganese | N | 2016 | N/A | 3-PAS | |
| | | Sulfates | N | 2016 | N/A | 3-PAS | |
| Primary Contact Recreation | 3-PAS | Chlorophyll-A | N | 2015 | N/A | 2-G | |
| | | Cyanobacteria Hepatotoxic Microcystins | | 2019 | N/A | 3-PAS | |
| | | Escherichia Coli | N | 2008 | N/A | 3-ND | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Secondary Contact Recreation | 3-ND | Escherichia Coli | N | 2008 | N/A | 3-ND | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHLAK700010603-02-02
**Assessment Unit Name:** Newfound Lake - Town Beach
**Town(s) Primary Town is Listed First:** Bristol

**Size:** 4.97 ACRES
**Assessment Unit Category: 2-M**
**Beach:** Y

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 3-ND | Chlorophyll-A | N | N/A | NLV | 3-ND | |
| | | Dissolved Oxygen Saturation | N | | | 3-ND | |
| | | Oxygen, Dissolved | N | | | 3-ND | |
| | | Ph | N | | | 3-ND | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | Escherichia Coli | N | 2019 | 2019 | 3-PNS | |
| | | Fecal Coliform | N | 1991 | 1991 | 3-ND | |
| Primary Contact Recreation | 2-M | Escherichia Coli | N | 2019 | 2016 | 2-M | |
| Secondary Contact Recreation | 2-G | Escherichia Coli | N | 2019 | N/A | 2-G | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHLAK700010603-02-03
**Assessment Unit Name:** Newfound Lake - Nutting's Beach
**Town(s) Primary Town is Listed First:** Bristol

**Size:** 1.28 ACRES
Assessment Unit Category: 3-ND
**Beach:** Y

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 3-ND | Chlorophyll-A | N | N/A | NLV | 3-ND | |
| | | Dissolved Oxygen Saturation | N | | | 3-ND | |
| | | Oxygen, Dissolved | N | | | 3-ND | |
| | | Ph | N | | | 3-ND | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | | | | | | |
| Primary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Secondary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHLAK700010603-02-04
**Assessment Unit Name:** Newfound Lake - Cummings Beach
**Town(s) Primary Town is Listed First:** Bristol

**Size:** 4.97 ACRES
**Assessment Unit Category: 2-M**
**Beach:** Y

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 3-ND | Chloride | N | 2008 | N/A | 3-ND | |
| | | Chlorophyll-A | N | 0 | NLV | 3-ND | |
| | | Dissolved Oxygen Saturation | N | | | 3-ND | |
| | | Oxygen, Dissolved | N | | | 3-ND | |
| | | Ph | N | | | 3-ND | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | Escherichia Coli | N | 2019 | 2019 | 3-PNS | |
| | | Fecal Coliform | N | 1991 | 1991 | 3-ND | |
| Primary Contact Recreation | 2-M | Escherichia Coli | N | 2019 | 2017 | 2-M | |
| Secondary Contact Recreation | 2-G | Escherichia Coli | N | 2019 | N/A | 2-G | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHLAK700010603-02-05
**Assessment Unit Name:** Newfound Lake - Wellington State Park Beach
**Town(s) Primary Town is Listed First:** Bristol

**Size:** 6.0610 ACRES
**Assessment Unit Category: 2-M**
**Beach:** Y

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 3-ND | Chlorophyll-A | N | N/A | NLV | 3-ND | |
| | | Dissolved Oxygen Saturation | N | | | 3-ND | |
| | | Oxygen, Dissolved | N | | | 3-ND | |
| | | Ph | N | | | 3-ND | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | Escherichia Coli | N | 2019 | 2019 | 3-PNS | |
| | | Fecal Coliform | N | 1991 | 1991 | 3-ND | |
| Primary Contact Recreation | 2-M | Escherichia Coli | N | 2019 | 2019 | 2-M | |
| Secondary Contact Recreation | 2-G | Escherichia Coli | N | 2019 | N/A | 2-G | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHLAK700010603-02-06
**Assessment Unit Name:** Newfound Lake - Camp Masquebec Hill Beach
**Town(s) Primary Town is Listed First:**
Bridgewater

**Size:** 1.38 ACRES
**Assessment Unit Category: 2-G**
**Beach:** Y

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 3-ND | Chlorophyll-A | N | N/A | NLV | 3-ND | |
| | | Dissolved Oxygen Saturation | N | | | 3-ND | |
| | | Oxygen, Dissolved | N | | | 3-ND | |
| | | Ph | N | | | 3-ND | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | Escherichia Coli | N | 2013 | 2013 | 3-PNS | |
| | | Fecal Coliform | N | 1991 | N/A | 3-ND | |
| Primary Contact Recreation | 2-G | Escherichia Coli | | 2013 | N/A | 2-G | |
| Secondary Contact Recreation | 2-G | Escherichia Coli | | 2013 | N/A | 2-G | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHLAK700010603-02-07
**Assessment Unit Name:** Newfound Lake - Camp Mayhew Beach
**Town(s) Primary Town is Listed First:** Bristol

**Size:** 1.38 ACRES
**Assessment Unit Category: 2-G**
**Beach:** Y

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 3-ND | Chlorophyll-A | N | N/A | NLV | 3-ND | |
| | | Dissolved Oxygen Saturation | N | | | 3-ND | |
| | | Oxygen, Dissolved | N | | | 3-ND | |
| | | Ph | N | | | 3-ND | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | Escherichia Coli | N | 2012 | 2012 | 3-PNS | |
| | | Fecal Coliform | N | 1990 | N/A | 3-ND | |
| Primary Contact Recreation | 3-PAS | Escherichia Coli | | 2012 | N/A | 3-PAS | |
| Secondary Contact Recreation | 2-G | Escherichia Coli | | 2012 | N/A | 2-G | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHLAK700010603-02-08
**Assessment Unit Name:** Newfound Lake - Red Fox Village Beach
**Town(s) Primary Town is Listed First:** Bristol

**Size:** 1.38 ACRES
Assessment Unit Category: 3-ND
**Beach:** Y

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 3-ND | Chlorophyll-A | N | N/A | NLV | 3-ND | |
| | | Dissolved Oxygen Saturation | N | | | 3-ND | |
| | | Oxygen, Dissolved | N | | | 3-ND | |
| | | Ph | N | | | 3-ND | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | | | | | | |
| Primary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Secondary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHLAK700010603-02-09
**Assessment Unit Name:** Newfound Lake - Camp Berea Beach
**Town(s) Primary Town is Listed First:** Hebron

**Size:** 1.38 ACRES
**Assessment Unit Category: 2-G**
**Beach:** Y

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 3-ND | Chlorophyll-A | N | N/A | NLV | 3-ND | |
| | | Dissolved Oxygen Saturation | N | | | 3-ND | |
| | | Oxygen, Dissolved | N | | | 3-ND | |
| | | Ph | N | | | 3-ND | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | Escherichia Coli | N | 2013 | 2013 | 3-PNS | |
| | | Fecal Coliform | N | 1990 | 1990 | 3-ND | |
| Primary Contact Recreation | 2-G | Escherichia Coli | | 2013 | N/A | 2-G | |
| Secondary Contact Recreation | 2-G | Escherichia Coli | | 2013 | N/A | 2-G | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHLAK700010603-02-10
**Assessment Unit Name:** Newfound Lake - Camp Mowglis Beach
**Town(s) Primary Town is Listed First:** Hebron

**Size:** 1.38 ACRES
**Assessment Unit Category: 2-G**
**Beach:** Y

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 3-ND | Chlorophyll-A | N | N/A | NLV | 3-ND | |
| | | Dissolved Oxygen Saturation | N | | | 3-ND | |
| | | Oxygen, Dissolved | N | | | 3-ND | |
| | | Ph | N | | | 3-ND | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | Escherichia Coli | N | 2015 | 2015 | 3-PNS | |
| | | Fecal Coliform | N | 1991 | N/A | 3-ND | |
| Primary Contact Recreation | 3-PNS | Escherichia Coli | | 2015 | 2012 | 3-PNS | |
| Secondary Contact Recreation | 2-G | Escherichia Coli | | 2015 | N/A | 2-G | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHLAK700010603-02-11
**Assessment Unit Name:** Newfound Lake - Camp Onaway Beach
**Town(s) Primary Town is Listed First:** Hebron

**Size:** 1.38 ACRES
**Assessment Unit Category: 2-G**
**Beach:** Y

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 3-ND | Chlorophyll-A | N | N/A | NLV | 3-ND | |
| | | Dissolved Oxygen Saturation | N | | | 3-ND | |
| | | Oxygen, Dissolved | N | | | 3-ND | |
| | | Ph | N | | | 3-ND | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | Escherichia Coli | N | 2014 | 2014 | 3-PNS | |
| | | Fecal Coliform | N | 1991 | 1991 | 3-ND | |
| Primary Contact Recreation | 2-G | Escherichia Coli | | 2014 | N/A | 2-G | |
| Secondary Contact Recreation | 2-G | Escherichia Coli | | 2014 | N/A | 2-G | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHLAK700010603-02-12
**Assessment Unit Name:** Newfound Lake - Camp Pasquaney Beach
**Town(s) Primary Town is Listed First:** Hebron

**Size:** 1.38 ACRES
**Assessment Unit Category: 2-G**
**Beach:** Y

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 3-ND | Chlorophyll-A | N | N/A | NLV | 3-ND | |
| | | Dissolved Oxygen Saturation | N | | | 3-ND | |
| | | Oxygen, Dissolved | N | | | 3-ND | |
| | | Ph | N | | | 3-ND | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | Escherichia Coli | N | 2013 | 2013 | 3-PNS | |
| | | Fecal Coliform | N | 1990 | 1990 | 3-ND | |
| Primary Contact Recreation | 2-G | Escherichia Coli | N | 2013 | N/A | 2-G | |
| Secondary Contact Recreation | 2-G | Escherichia Coli | N | 2013 | N/A | 2-G | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHLAK700010603-02-13
**Assessment Unit Name:** Newfound Lake - Camp Wi-Co-Su-Ta Beach
**Town(s) Primary Town is Listed First:** Hebron

**Size:** 1.38 ACRES
**Assessment Unit Category: 4A-M**
**Beach:** Y

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 3-ND | Chlorophyll-A | N | N/A | NLV | 3-ND | |
| | | Dissolved Oxygen Saturation | N | | | 3-ND | |
| | | Oxygen, Dissolved | N | | | 3-ND | |
| | | Ph | N | | | 3-ND | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | Escherichia Coli | N | 2013 | 2013 | 3-PNS | |
| | | Fecal Coliform | N | 1990 | 1990 | 3-ND | |
| Primary Contact Recreation | 4A-M | Escherichia Coli | N | 2013 | 1997 | 4A-M | |
| Secondary Contact Recreation | 2-G | Escherichia Coli | | 2013 | 1997 | 2-G | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHRIV700010603-01
**Assessment Unit Name:** Cilley Brook - Fretts Brook
**Town(s) Primary Town is Listed First:** Hebron, Plymouth

**Size:** 10.3810 MILES
**Assessment Unit Category: 5-P**
**Beach:** N

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 5-P | Aluminum | N | 2006 | 2006 | 3-ND | |
| | | Benthic-Macroinvertebrate Bioassessments (Streams) | N | | | 3-ND | |
| | | Chloride | N | 2017 | N/A | 3-PAS | |
| | | Dissolved Oxygen Saturation | N | 2017 | 2011 | 5-P | LOW |
| | | Fishes Bioassessments (Streams) | N | | | 3-ND | |
| | | Oxygen, Dissolved | N | 2017 | 2007 | 5-P | LOW |
| | | Ph | N | 2017 | 2017 | 5-P | LOW |
| | | Phosphorus (Total) | N | 2015 | NLV | 3-PNS | |
| | | Turbidity | N | 2015 | 2014 | 3-PAS | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | Escherichia Coli | N | 2006 | 2006 | 3-ND | |
| | | Sulfates | N | 2008 | N/A | 3-ND | |
| Primary Contact Recreation | 3-ND | Chlorophyll-A | N | 2006 | N/A | 3-ND | |
| | | Escherichia Coli | N | 2006 | N/A | 3-ND | |
| Secondary Contact Recreation | 3-ND | Escherichia Coli | N | 2006 | N/A | 3-ND | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHRIV700010603-02
**Assessment Unit Name:** Whittemore Brook
**Town(s) Primary Town is Listed First:**
Bridgewater, Bristol, Hebron, Plymouth

**Size:** 4.7810 MILES
**Assessment Unit Category: 5-M**
**Beach:** N

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 5-M | Benthic-Macroinvertebrate Bioassessments (Streams) | N | | | 3-ND | |
| | | Chloride | N | 2017 | N/A | 3-PAS | |
| | | Dissolved Oxygen Saturation | N | 2017 | N/A | 3-PAS | |
| | | Fishes Bioassessments (Streams) | N | | | 3-ND | |
| | | Oxygen, Dissolved | N | 2017 | N/A | 3-PAS | |
| | | Ph | N | 2017 | 2017 | 5-M | LOW |
| | | Phosphorus (Total) | N | 2015 | NLV | 3-PAS | |
| | | Turbidity | N | 2015 | 2007 | 3-PAS | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | Sulfates | N | 2008 | N/A | 3-ND | |
| Primary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Secondary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHRIV700010603-04
**Assessment Unit Name:** Dick Brown Brook - Unnamed Brook
**Town(s) Primary Town is Listed First:**
Bridgewater, Bristol

**Size:** 6.1890 MILES
**Assessment Unit Category: 5-M**
**Beach:** N

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 5-M | Benthic-Macroinvertebrate Bioassessments (Streams) | N | | | 3-ND | |
| | | Chloride | N | 2017 | N/A | 3-PAS | |
| | | Dissolved Oxygen Saturation | N | 2017 | 2007 | 3-PAS | |
| | | Fishes Bioassessments (Streams) | N | | | 3-ND | |
| | | Oxygen, Dissolved | N | 2017 | N/A | 3-PAS | |
| | | Ph | N | 2017 | 2017 | 5-M | LOW |
| | | Phosphorus (Total) | N | 2015 | NLV | 3-PAS | |
| | | Turbidity | N | 2015 | 2014 | 3-PAS | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | Sulfates | N | 2008 | N/A | 3-ND | |
| Primary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Secondary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHRIV700010603-05
**Assessment Unit Name:** Tilton Brook
**Town(s) Primary Town is Listed First:**
Bridgewater

**Size:** 2.6640 MILES
**Assessment Unit Category: 3-ND**
**Beach:** N

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 3-ND | Benthic-Macroinvertebrate Bioassessments (Streams) | N | | | 3-ND | |
| | | Dissolved Oxygen Saturation | N | | | 3-ND | |
| | | Fishes Bioassessments (Streams) | N | | | 3-ND | |
| | | Oxygen, Dissolved | N | | | 3-ND | |
| | | Ph | N | | | 3-ND | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | | | | | | |
| Primary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Secondary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHRIV700010603-06
**Assessment Unit Name:** Tilton Brook
**Town(s) Primary Town is Listed First:**
Bridgewater, Bristol

**Size:** 0.1840 MILES
Assessment Unit Category: 3-ND
**Beach:** N

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 3-ND | Dissolved Oxygen Saturation | N | | | 3-ND | |
| | | Oxygen, Dissolved | N | | | 3-ND | |
| | | Ph | N | | | 3-ND | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | | | | | | |
| Primary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Secondary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHRIV700010603-07
**Assessment Unit Name:** Hemlock Brook - To Newfound Lake
**Town(s) Primary Town is Listed First:**
Bridgewater, Bristol

**Size:** 2.6130 MILES
Assessment Unit Category: 3-ND
**Beach:** N

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 3-ND | Benthic-Macroinvertebrate Bioassessments (Streams) | N | | | 3-ND | |
| | | Chloride | N | 2014 | N/A | 3-ND | |
| | | Dissolved Oxygen Saturation | N | 2014 | N/A | 3-ND | |
| | | Fishes Bioassessments (Streams) | N | | | 3-ND | |
| | | Oxygen, Dissolved | N | 2014 | N/A | 3-ND | |
| | | Ph | N | 2011 | 2007 | 3-ND | |
| | | Phosphorus (Total) | N | 2014 | NLV | 3-ND | |
| | | Turbidity | N | 2014 | N/A | 3-ND | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | Sulfates | N | 2008 | N/A | 3-ND | |
| Primary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Secondary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHRIV700010603-08
**Assessment Unit Name:** Black Brook
**Town(s) Primary Town is Listed First:** Bristol

**Size:** 0.6540 MILES
**Assessment Unit Category: 5-M**
**Beach:** N

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 5-M | Benthic-Macroinvertebrate Bioassessments (Streams) | N | | | 3-ND | |
| | | Chloride | N | 2017 | N/A | 3-PAS | |
| | | Dissolved Oxygen Saturation | N | 2017 | 2014 | 5-M | LOW |
| | | Fishes Bioassessments (Streams) | N | | | 3-ND | |
| | | Oxygen, Dissolved | N | 2017 | 2014 | 3-PAS | |
| | | Ph | N | 2017 | 2017 | 5-M | LOW |
| | | Phosphorus (Total) | N | 2015 | NLV | 3-PNS | |
| | | Turbidity | N | 2015 | 2014 | 3-PAS | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | Sulfates | N | 2008 | N/A | 3-ND | |
| Primary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Secondary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHRIV700010603-09
**Assessment Unit Name:** Newfound River
**Town(s) Primary Town is Listed First:** Bristol

**Size:** 0.6610 MILES
Assessment Unit Category: 3-ND
**Beach:** N

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 3-ND | Chloride | N | 1999 | N/A | 3-ND | |
| | | Dissolved Oxygen Saturation | N | | | 3-ND | |
| | | Oxygen, Dissolved | N | | | 3-ND | |
| | | Ph | N | | | 3-ND | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | | | | | | |
| Primary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Secondary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHRIV700010603-10
**Assessment Unit Name:** Newfound River
**Town(s) Primary Town is Listed First:** Bristol

**Size:** 0.4860 MILES
Assessment Unit Category: 3-ND
**Beach:** N

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 3-ND | Dissolved Oxygen Saturation | N | | | 3-ND | |
| | | Oxygen, Dissolved | N | | | 3-ND | |
| | | Ph | N | | | 3-ND | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | | | | | | |
| Primary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Secondary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHRIV700010603-11
**Assessment Unit Name:** Newfound River
**Town(s) Primary Town is Listed First:** Bristol

**Size:** 1.8590 MILES
**Assessment Unit Category: 5-M**
**Beach:** N

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 5-M | Ammonia (Total) | N | 2012 | N/A | 3-ND | |
| | | Chloride | N | 2019 | N/A | 3-PAS | |
| | | Dissolved Oxygen Saturation | N | 2019 | N/A | 2-G | |
| | | Oxygen, Dissolved | N | 2019 | N/A | 3-PAS | |
| | | Ph | N | 2019 | 2019 | 5-M | LOW |
| | | Phosphorus (Total) | | 2010 | NLV | 3-ND | |
| | | Turbidity | N | 2019 | N/A | 3-PAS | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | | | | | | |
| Primary Contact Recreation | 3-ND | Chlorophyll-A | N | 2010 | N/A | 3-ND | |
| | | Escherichia Coli | N | | | 3-ND | |
| Secondary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHRIV700010603-12
**Assessment Unit Name:** Newfound River
**Town(s) Primary Town is Listed First:** Bristol, New Hampton

**Size:** 0.2080 MILES
Assessment Unit Category: 3-PAS
**Beach:** N

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 3-PAS | Chloride | N | 2011 | N/A | 3-ND | |
| | | Dissolved Oxygen Saturation | | 2011 | N/A | 3-ND | |
| | | Oxygen, Dissolved | | 2011 | N/A | 3-ND | |
| | | Ph | | 2011 | N/A | 3-ND | |
| | | Phosphorus (Total) | N | 2018 | NLV | 3-PAS | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | | | | | | |
| Primary Contact Recreation | 3-PAS | Chlorophyll-A | N | 2018 | N/A | 3-PAS | |
| | | Escherichia Coli | N | | | 3-ND | |
| Secondary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHRIV700010603-13
**Assessment Unit Name:** Unnamed Brook - To Newfound River
**Town(s) Primary Town is Listed First:** Alexandria, Bristol

**Size:** 1.35 MILES
Assessment Unit Category: 3-ND
**Beach:** N

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 3-ND | Benthic-Macroinvertebrate Bioassessments (Streams) | N | | | 3-ND | |
| | | Dissolved Oxygen Saturation | N | | | 3-ND | |
| | | Fishes Bioassessments (Streams) | N | | | 3-ND | |
| | | Oxygen, Dissolved | N | | | 3-ND | |
| | | Ph | N | | | 3-ND | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | | | | | | |
| Primary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Secondary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHRIV700010603-14
**Assessment Unit Name:** Unnamed Brook
**Town(s) Primary Town is Listed First:** Hebron

**Size:** 0.9440 MILES
Assessment Unit Category: 3-ND
**Beach:** N

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 3-ND | Benthic-Macroinvertebrate Bioassessments (Streams) | N | | | 3-ND | |
| | | Dissolved Oxygen Saturation | N | | | 3-ND | |
| | | Fishes Bioassessments (Streams) | N | | | 3-ND | |
| | | Oxygen, Dissolved | N | | | 3-ND | |
| | | Ph | N | | | 3-ND | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | | | | | | |
| Primary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Secondary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHRIV700010603-15
**Assessment Unit Name:** Unnamed Brook
**Town(s) Primary Town is Listed First:**
Bridgewater, Bristol

**Size:** 0.5920 MILES
Assessment Unit Category: 3-ND
**Beach:** N

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 3-ND | Benthic-Macroinvertebrate Bioassessments (Streams) | N | | | 3-ND | |
| | | Dissolved Oxygen Saturation | N | | | 3-ND | |
| | | Fishes Bioassessments (Streams) | N | | | 3-ND | |
| | | Oxygen, Dissolved | N | | | 3-ND | |
| | | Phosphorus (Total) | | 2009 | NLV | 3-ND | |
| | | Turbidity | N | 2009 | 2009 | 3-ND | |
| | | Ph | N | | | 3-ND | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | | | | | | |
| Primary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Secondary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHRIV700010603-16
**Assessment Unit Name:** Camp Onaway Brook
**Town(s) Primary Town is Listed First:** Hebron

**Size:** 0.1230 MILES
**Assessment Unit Category: 5-P**
**Beach:** N

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 5-P | Chloride | N | 2007 | N/A | 3-ND | |
| | | Dissolved Oxygen Saturation | N | 2007 | 2007 | 5-M | LOW |
| | | Oxygen, Dissolved | N | 2007 | 2007 | 5-P | LOW |
| | | Ph | N | 2007 | 2007 | 5-M | LOW |
| | | Phosphorus (Total) | | 2008 | NLV | 3-ND | |
| | | Turbidity | N | 2007 | 2006 | 3-ND | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | | | | | | |
| Primary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Secondary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHRIV700010603-17
**Assessment Unit Name:** Post Office Brook
**Town(s) Primary Town is Listed First:** Hebron

**Size:** 0.1950 MILES
**Assessment Unit Category: 5-M**
**Beach:** N

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 5-M | Chloride | N | 2007 | N/A | 3-ND | |
| | | Dissolved Oxygen Saturation | N | 2007 | N/A | 3-ND | |
| | | Oxygen, Dissolved | N | 2007 | 2007 | 3-ND | |
| | | Ph | N | 2007 | 2007 | 5-M | LOW |
| | | Phosphorus (Total) | | 2008 | NLV | 3-ND | |
| | | Turbidity | N | 2007 | N/A | 3-ND | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | | | | | | |
| Primary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Secondary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHRIV700010603-18 **Size:** 0.1940 MILES **Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

**Assessment Unit Name:** Nuttings Beach Brook **Assessment Unit Category: 5-M**

**Town(s) Primary Town is Listed First:** Alexandria, Hebron **Beach:** N

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 5-M | Chloride | N | 2008 | N/A | 3-ND | |
| | | Dissolved Oxygen Saturation | N | 2007 | 2006 | 3-ND | |
| | | Oxygen, Dissolved | N | 2007 | 2007 | 5-M | LOW |
| | | Ph | N | 2008 | 2007 | 5-M | LOW |
| | | Phosphorus (Total) | | 2008 | NLV | 3-ND | |
| | | Turbidity | N | 2008 | N/A | 3-ND | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | Sulfates | N | 2008 | N/A | 3-ND | |
| Primary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Secondary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

**Assessment Unit ID:** NHRIV700010603-19
**Assessment Unit Name:** Kendall Brook
**Town(s) Primary Town is Listed First:** Hebron

**Size:** 0.5970 MILES
**Assessment Unit Category: 5-P**
**Beach:** N

**Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | Desig. Use Category | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category | TMDL Priority |
|---|---|---|---|---|---|---|---|
| Aquatic Life Integrity | 5-P | Chloride | N | 2007 | N/A | 3-ND | |
| | | Dissolved Oxygen Saturation | N | 2007 | 2007 | 5-M | LOW |
| | | Oxygen, Dissolved | N | 2007 | 2007 | 5-P | LOW |
| | | Ph | N | 2007 | 2007 | 5-M | LOW |
| | | Phosphorus (Total) | | 2008 | NLV | 3-ND | |
| | | Turbidity | N | 2007 | 2007 | 3-ND | |
| Fish Consumption | 4A-M | Mercury - Fish Consumption Advisory | N | | | 4A-M | |
| Potential Drinking Water Supply | 2-G | | | | | | |
| Primary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Secondary Contact Recreation | 3-ND | Escherichia Coli | N | | | 3-ND | |
| Wildlife | 3-ND | | | | | | |

| Good | Marginal | Likely Good | No Current Data | Likely Bad | Poor | Severe |
|---|---|---|---|---|---|---|
| Meets water quality standards/thresholds by a relatively large margin. | Meets water quality standards/thresholds but only marginally. | Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS) | Insufficient information to make an assessment decision. | Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards. | Not meeting water quality standards/thresholds. The impairment is marginal. | Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality. |

# APPENDIX C

# IPAC SPECIES LIST

# United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To: February 22, 2021
Consultation Code: 05E1NE00-2021-SLI-1470
Event Code: 05E1NE00-2021-E-04685
Project Name: Newfound LIHI

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

# Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**New England Ecological Services Field Office**
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

# Project Summary

Consultation Code: 05E1NE00-2021-SLI-1470
Event Code: 05E1NE00-2021-E-04685
Project Name: Newfound LIHI
Project Type: DAM
Project Description: impoundment, tailrace, downstream
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@43.59021975,-71.73830973955475,14z


Counties: Grafton County, New Hampshire

# Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

## Mammals

| NAME | STATUS |
|---|---|
| Northern Long-eared Bat *Myotis septentrionalis* | Threatened |

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9045

## Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

# APPENDIX D

# NEW HAMPSHIRE NATURAL HERITAGE BUREAU SPECIES DATA CHECK LETTER

# New Hampshire Natural Heritage Bureau
# NHB DataCheck Results Letter

**To:** Karen Bishop
45 Pratt Street
Essex, CT 06385

**From:** NH Natural Heritage Bureau

**Date:** 3/11/2021 (This letter is valid through 3/11/2022)

**Re:** Review by NH Natural Heritage Bureau of request dated 3/11/2021

**Permit Type:** LIHI Recertification

**NHB ID:** NHB21-0850

**Applicant:** Karen Bishop

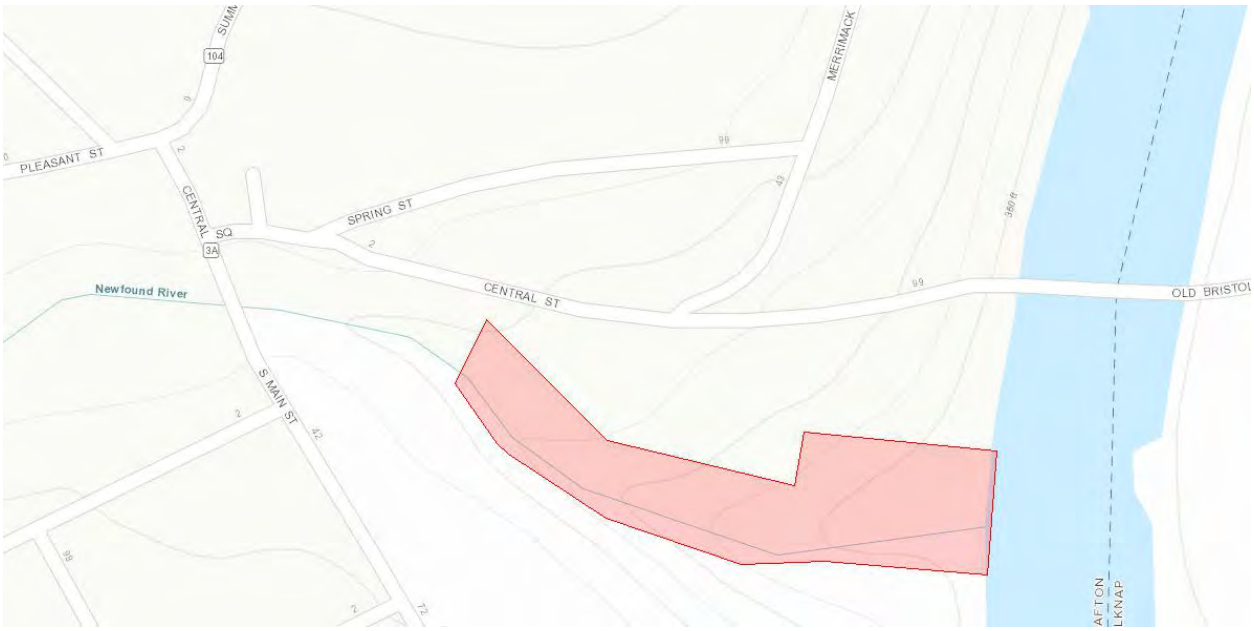
**Location:** Bristol
Tax Map: 000114, Tax Lot: 000119
Address: 114-119 Water Street

**Proj. Description:** This project is a operating Hydroelectric Dam regulated by the Federal Energy Regulatory Commission (FERC Project No. 3107). No changes are being made to Project lands, but the Project is applying for recertification from the Low Impact Hydropower Institute (LIHI). This application process requires a New Hampshire Native Heritage Bureau data check for native threatened and endangered species.

The NH Natural Heritage database has been checked for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government. We currently have no recorded occurrences for sensitive species near this project area.

A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

**MAP OF PROJECT BOUNDARIES FOR: NHB21-0850**




Department of Natural and Cultural Resources
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DNCR/NHB
172 Pembroke Rd.
Concord NH 03301

# APPENDIX E

# FERC 1981 LICENSE

APPENDX 1-1
FERC Order Issuing License (Minor) Issued November 6, 1981

OD-ORDER, 17 FERC ¶62,208, Newfound Hydroelectric Company, Project No. 3107-001, (Nov. 06, 1981)

**Newfound Hydroelectric Company, Project No. 3107-001**

[63,339]

[¶62,208]

**Newfound Hydroelectric Company, Project No. 3107-001**

**Order Issuing License (Minor)**

**(Issued November 6, 1981)**

**William W. Lindsay, Director, Office of Electric Power Regulation.**

The Newfound Hydroelectric Company has filed an application for a license under Part I of the Federal Power Act (Act) to construct, operate, and maintain the Newfound Hydroelectric Project, FERC No. 3107. [1] The project would be located on the Newfound River in Grafton County, New Hampshire.

Notice of the application has been published and comments have been received from interested Federal, State and local agencies. No protests or petitions to intervene have been received, and none of the agencies objected to issuance of the license.

*The Proposal:* The proposed project would consist of: (1) a diversion weir (presently breached) located adjacent to New Hampshire Route 3A in Bristol, New Hampshire; (2) a new 800-footlong water conveyance facility, leading to (3) a new powerhouse located approximately 800 feet downstream of the Water St. Bridge; and (4) appurtenant works. The installed capacity would be approximately 1,487 kW. Applicant estimates that the average annual generation would be 7,400 megawatt-hours.

*Safety and Adequacy:* The proposed diversion structure would utilize a concrete base surmounted by 5-foot high wooden flashboards supported by solid steel pins, spaced 3 feet from center to center. The flashboards would be designed to fail when overtopped by 1 foot of water. Under flood flows, failure of the flashboards will have essentially no effect on the streamflow regime of the river. The project structures would be low hazard. The spillway capacity is adequate. It is concluded that the project, under conditions of this license, will be safe and adequate.

*Economic Feasibility:* The project will be operated run-of-the-river and generate an estimated average of 7,400,000 kWh of energy annually at an estimated cost of 59.6 mills/kWh. Applicant proposes to sell all of the project power to the Public Service Company of New Hampshire. It is concluded that the project is economically feasible based on the current New Hampshire PURPA rate of 77 mills/kWh.

*Environmental Considerations:* No Federally-listed endangered or threatened plant or animal species have been identified within the project boundary.

The U.S. Fish and Wildlife Service has determined that the river does not provide suitable habitat for anadromous fish. [2]

The State Historic Preservation Officer (SHPO) has identified an inactive paper mill just outside of the project boundary as potentially eligible for inclusion on the National Register of Historic Places. The Applicant states that it will cooperate with SHPO to determine the precise nature of impacts on historic resources and appropriate mitigation measures. In the event that archeological resources are found during project construction, the Applicant would notify the SHPO, request his evaluation, and cooperate in mitigating any adverse impacts on those resources. In accordance with standard Commission practice, [3] Article 19 of this license requires cultural resources protection measures in the event of any future

construction or development at the project, other than the project development considered and authorized here.

Construction would cause engine exhaust emissions, increased noise, soil erosion, and stream sedimentation, but these effects would be minor and transitory. The 5-cfs minimum flow released continuously below the diversion weir would mitigate any adverse effects of project operation. On the basis of the record, including agency comments and our staff's independent analysis, it is found that issuance of a license for this project, would not constitute a major Federal action significantly affecting the quality of the human environment.

*Other Aspects of Comprehensive Development:* Based on our staff's analysis, it is concluded that the project will make good

[63,340]

use of the flow and fall of the Newfound River, is not in conflict with any planned or potential development, and will be best adapted to the comprehensive development of the Merrimack River Basin under present conditions upon compliance with the terms and conditions of the license.

*License Term:* The proposed construction of this project at the site of a breached weir is similar to relicensing an existing project at which a significant amount of new development is proposed. Therefore, consistent with the Commission's policy, a 50 year license term is reasonable in this instance. [4]

*Other Considerations:* Applicant requested that its initial license application be treated as an application for exemption. The Commission, in issuing Order No. 106, on November 7, 1980, specifically afforded a project owner only a limited time to request that a license application be treated as one for exemption. In this case, notice of the application had been given, the period for filing protests or petitions to intervene had expired, and the application for license had been substantially processed at the time the request was filed. To grant the requested waiver would be inconsistent with Order No. 106 and would have in effect required the processing of a second application. In the preamble of Order No. 106, the Commission stated that pending applications could not be so revised if notice of application for license had expired. For these reasons, the Applicant's request that its license application be treated as an exemption application is denied.

The project would be located in the floodplain of the Corps Franklin Falls Flood Control Dam. The Corps requested a special article be included as part of the license freeing the Corps of responsibility for any flood damages to the project facilities up to elevation 395 feet National Geodetic Vertical Datum. Special Article 23 addresses this concern.

*It is ordered that:* (A) This license is issued to the Newfound Hydroelectric Company (Licensee) of Bristol, New Hampshire, under part I of the Federal Power Act (Act), for a period of 50 years, effective the first day of the month in which this order is issued, for the reconstruction, operation, and maintenance of the Newfound Hydroelectric Project No. 3107, located in Grafton County, New Hampshire, on the Newfound River, and affecting the interests of interstate or foreign commerce. This license is subject to the terms and conditions of the Act, which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the Act.

(B) The Newfound Hydroelectric Project consists of:

(1) All lands, to the extent of the Licensee's interests in those lands, constituting the project area and enclosed by the project boundary. The project area and boundary are shown and described by certain exhibits that form part of the application for license and that are designated and described as:

| Exhibit | FERC No. 3107-- | Showing |
|---|---|---|
| K | 1 | Site Plan |
| K | 2 | General Location |

(2) Project works consisting of: (a) a diversion weir surmounted by wooden flashboards, totalling 10 feet in height; (b) a 0.23-acre reservoir with a storage capacity of 0.69 acre-feet; (c) a concrete intake channel; (d) a powerhouse containing two generating units (870 kW and 617 kW); a 6-foot diameter wooden penstock 420 feet long; (f) a 30-foot-wide tailrace extending 175 feet to the confluence of the Newfound and Pemigewasset Rivers; (g) a 160-foot-long underground cable from the powerhouse to an existing pole of the power purchaser, Public Service Company of New Hampshire; and (h) appurtenant works.

The location, nature and character of these project works are generally shown and described by the exhibits cited above and more specifically shown and described by certain other exhibits that also form a part of the application for license and that are designated and described as:

| Exhibit L | FERC No. 3107-- | Showing |
|---|---|---|
| 1 | 3 | Powerhouse Plan and Section |
| 2 | 4 | Profile and Detail (Diversion Weir, Penstock, Powerhouse) |
| 3 | 5 | Plan, Section and Elevation (Diversion Weir) |
| 4 | 6 | Electro--Mechanical Diagram |

(3) All of the structures, fixtures, equipment, or facilities used or useful in the operation or maintenance of the project and located within the project boundary, all portable property that may be employed in connection with the project, located within or outside the project boundary, as approved by the Commission, and all riparian or other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) Exhibits K and L, designated in ordering paragraph (B) above, are approved and made a part of the license.

[63,341]

(D) Pursuant to Section 10(i) of the Act, it is in the public interest to waive the following Sections of Part I of the Act, and they are excluded from the license:

Section 4(b), except the second sentence; 4(e), insofar as it relates to approval of plans by the Chief of Engineers and the Secretary of the Army; 6, insofar as it relates to public notice and to the acceptance and expression in the license of terms and conditions of the Act that are waived here; 10(c), insofar as it relates to depreciation reserves 10(d); 10(f); 14, except insofar as the power of condemnation is reserved; 15; 16; 19; 20; and 22.

(E) This license is also subject to Articles 1 through 18 set forth in Form L-15 (revised October, 1975), entitled "Terms and Conditions of License for Unconstructed Minor Project Affecting the Interests of Interstate or Foreign Commerce," attached to (See 54 FPC 1883) and made a part of this license. The license is also subject to the following additional articles:

*Article 19.* The Licensee shall, prior to the commencement of any construction at the project, cooperate with the New Hampshire State Historic Preservation Officer (SHPO) to assess the significance of the Newfound Hydroelectric Building and its associated structures, and to avoid or mitigate impacts to these

facilities. The Licensee shall make available funds in a reasonable amount for any such assessment or mitigation measures as required. If any previously unrecorded archeological or historical sites are discovered during the course of construction or development of any project works or other facilities at the project, construction activity in the vicinity shall be halted, a qualified archeologist shall be consulted to determine the significance of the sites, and the Licensee shall consult with the SHPO to develop a mitigation plan for the protection of significant archeological or historical resources. If the Licensee and the SHPO cannot agree on the amount of money to be expended on archeological or historical work related to the project, the Commission reserves the right to require the Licensee to conduct, at its own expense, any such work found necessary.

*Article 20.* The Licensee shall commence construction of the proposed project within one year of the date of issuance of the license and shall complete construction within two years from the start of construction.

*Article 21.* The Licensee shall file with the Commission's Regional Engineer and the Director, Office of Electric Power Regulation, one copy each of the final contract drawings and specifications for pertinent features of the project, such as water retention structures, powerhouse, and water conveyance structures, 60 days prior to start of construction. The Director, Office of Electric Power Regulation may require changes in the plans and specifications to assure a safe and adequate project.

*Article 22.* The Licensee shall within 90 days of completion of construction, file in accordance with the Commission's Rules and Regulations revised Exhibit L drawings showing the project as-built.

*Article 23.* The Licensee shall have no claim under this license against the United States arising (1) from the effect of any changes made in the pool levels of the Franklin Falls Flood Control Dam and (2) from any flood damages to the project facilities up to elevation 395 feet National Geodetic Vertical Datum.

*Article 24.* The Licensee shall pay the United States the following annual charges, effective the first day of the month in which this license is issued:

For the purpose of reimbursing the United States for the cost of the administration of Part I of the Act, a reasonable amount as determined in accordance with the provisions of the Commission's regulations in effect from time to time. The authorized installed capacity for that purpose is 1980 horsepower.

*Article 25.* (a) In accordance with the provisions of this article, the Licensee shall have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain other types of use and occupancy, without prior Commission approval. The Licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the Licensee shall also have continuing responsibility to supervise and control the uses and occupancies for which it grants permission, and to monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed, under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the Licensee for protection and enhancement of the project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of this article is violated, the Licensee shall take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, cancelling the permission to use and occupy the project lands



and waters and requiring the removal of any non-complying structures and facilities.

(b) The types of use and occupancy of project lands and waters for which the Licensee may grant permission without prior Commission approval are: (1) landscape plantings; (2) non-commercial piers, landings, boat docks, or similar structures and facilities; and (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline. To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the Licensee shall

require multiple use and occupancy of facilities for access to project lands or waters. The Licensee shall also ensure, to the satisfaction of the Commission's authorized representative, that the uses and occupancies for which it grants permission are maintained in good repair and comply with applicable State and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the Licensee shall: (1) inspect the site of the proposed construction, (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site, and (3) determine that the proposed construction is needed and would not change the basic contour of the reservoir shoreline. To implement this paragraph (b), the Licensee may, among other things, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which may be subject to the payment of a reasonable fee to cover the Licensee's costs of administering the permit program. The Commission reserves the right to require the Licensee to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modifications of those standards, guidelines, or procedures.

(c) The Licensee may convey easements or rights-of-way across, or leases of, project lands for: (1) replacement, expansion, realignment, or maintenance of bridges and roads for which all necessary State and Federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and (8) water intake or pumping facilities that do not extract more than one million gallons per day from a project reservoir. No later than January 31 of each year, the Licensee shall file three copies of a report briefly describing for each conveyance made under this paragraph (c) during the prior calendar year, the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed.

(d) The Licensee may convey fee title to, easements or rights-of-way across, or leases of project lands for: (1) construction of new bridges or roads for which all necessary State and Federal approvals have been obtained; (2) sewer or effluent lines that discharge into project waters, for which all necessary Federal and State water quality certificates or permits have been obtained; (3) other pipelines that cross project lands or waters but do not discharge into project waters; (4) non-project overhead electric transmission lines that require erection of support structures within the project boundary, for which all necessary Federal and State approvals have been obtained; (5) private or public marinas that can accommodate no more than 10 watercraft at a time and are located at least one-half mile from any other private or public marina; (6) recreational development consistent with an approved Exhibit R or approved report on recreational resources of an Exhibit E; and (7) other uses, if: (i) the amount of land conveyed for a particular use is five acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from the edge of the project reservoir at normal maximum surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d)(7) in any calendar year. At least 45 days before conveying any interest in project lands under this paragraph (d), the Licensee must file a letter to the Director, Office of Electric Power Regulation, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked Exhibit G or K map may be used), the nature of the proposed use, the identity of any Federal or State agency official consulted, and any Federal or State approvals required for the proposed use. Unless the Director, within 45 days from the filing date, requires the Licensee to file an application for prior approval, the Licensee may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under paragraphs (c) or (d) of this article:

(1) Before conveying the interest, the Licensee shall consult with Federal and State fish and wildlife or recreation agencies, as appropriate, and the State Historic Preservation Officer.

[63,343]

(2) Before conveying the interest, the Licensee shall determine that the proposed use of the lands to be conveyed is not inconsistent with any approved Exhibit R or approved report on recreational resources of an

Exhibit E; or, if the project does not have an approved Exhibit R or approved report on recreational resources, that the lands to be conveyed do not have recreational value.

(3) The instrument of conveyance must include covenants running with the land adequate to ensure that: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; and (ii) the grantee shall take all reasonable precautions to ensure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project.

(4) The Commission reserves the right to require the Licensee to take reasonable remedial action to correct any violation of the terms and conditions of this article, for the protection and enhancement of the project's scenic, recreational, and other environmental values.

(f) The conveyance of an interest in project lands under this article does not in itself change the project boundaries. The project boundaries may be changed to exclude land conveyed under this article only upon approval of revised Exhibit G or K drawings (project boundary maps) reflecting exclusion of that land. Lands conveyed under this article will be excluded from the project only upon a determination that the lands are not necessary for project purposes, such as operation and maintenance, flowage, recreation, public access, protection of environmental resources, and shoreline control, including shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this article from the project shall be consolidated for consideration when revised Exhibit G or K drawings would be filed for approval for other purposes.

(F) This order is final unless a petition appealing it to the Commission is filed within 30 days from the date of its issuance, as provided in Section 1.7(d) of the Commission's regulations, 18 C.F.R. 1.7 (d) (1979), *as amended,* 44 Fed. Reg. 46449 (1980). The filing of a petition appealing this order to the Commission or an application for rehearing as provided in Section 313(a) of the Act does not operate as a stay of the effective date of this license or of any other date specified in this order, except as specifically ordered by the Commission.

Failure of the Licensee to file a petition appealing this order to the Commission shall constitute acceptance of this license. In acknowledgment of acceptance of this license, the license shall be signed for the Licensee and returned to the Commission within 60 days from the date of issuance of this order.

**– Footnotes –**

[1] Authority to act on this matter is delegated to the Director, Office of Electric Power Regulation, under 18 C.F.R. §375.308 (1980), *as amended by* 46 Fed. Reg. 14119 (1981).

[2] The New Hampshire State Water Supply and Pollution Control Commission issued a water quality certificate for the project, in accordance with Section 401 of the Federal Water Pollution Control Act.

[3] See S.D. Warren, Project No. 2897, Order Denying Rehearing (issued Feb. 19, 1980).

[4] Montana Power Company, Order Issuing New License (Major), Project No. 2301 (issued October 5, 1976).

# APPENDIX F

# FACILITY PHOTOS 2021

**Photo 1 – Newfound Hydroelectric Dam Intake**

**Photo 2 – Newfound Hydroelectric Dam**

**Photo 3 – Newfound Hydroelectric Powerhouse**

**Photo 4 – Repaired Culvert**

# APPENDIX G

# 2016 NEWFOUND LIHI NO. 82 APPLICATION

EAGLE CREEK
RENEWABLE ENERGY
— EXCELLENCE IN HYDRO —

October 6, 2016

Ms Dana Hall, Deputy Director
Low Impact Hydropower Institute
239 Old Tappan Road
Old Tappan, New Jersey 07675

Subject: Recertification of Newfound Hydroelectric Project

Dear Ms Hall,

On behalf of KTZ Hydro, LLC, enclosed please find a check for $2000 for the review of the LIHI re-certification application for Newfound Hydroelectric Project, Certificate 82. In conjunction with the transmittal of the review fee, KTZ Hydro, LLC will forward the recertification application via e-mail to Dr. Michael Sale.

Please contact me if you need any further information.

Regards,

Robert A. Gates
Eagle Creek Renewable Energy
EVP Operations

**Eagle Creek Renewable Energy**
**65 Madison Avenue, Suite 500 – Morristown, NJ 07960, USA**
**Tel: (973) 998-8400 – Fax: (973) 998-8401**
**www.eaglecreekre.com**

**Table B-1. Facility Description Information for Newfound Hydroelectric Project (LIHI #82).**

| *Information Type* | *Variable Description* | *Response (and reference to further details)* |
|---|---|---|
| ***Name of the Facility*** | Facility name (use FERC project name if possible) | Newfound Hydroelectric Project |
| ***Location*** | River name (USGS proper name) | Newfound River |
| | River basin name | Merrimack River Basin |
| | Nearest town, county, and state | Bristol, Grafton County, New Hampshire |
| | River mile of dam above next major river | Newfound Dam is located approximately 0.16 miles upstream of the confluence of the Pemigewasset River |
| | Geographic latitude | Stateplane Coordinate NAD83 x-966,000<br>Or<br>71°44'05.50"W |
| | Geographic longitude | Stateplane Coordinate NAD83 y-397,495<br>Or<br>43°35'25.93"N |
| ***Facility Owner*** | Application contact names (IMPORTANT: you must also complete the Facilities Contact Form): | Robert A. Gates, KTZ Hydro, LLC, VP |
| | - Facility owner (individual and company names) | KTZ Hydro, LLC owns and operates the facility |
| | - Operating affiliate (if different from owner) | Same as above |
| | Representative in LIHI certification | Robert A. Gates, KTZ Hydro, VP |

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| ***Regulatory Status*** | FERC Project Number (e.g., P-xxxxx), issuance and expiration dates | FERC Project No. 3107<br><br>Issuance Date: November 6, 1981<br>Expiration Date: October 31, 2031 |
| | FERC license type or special classification (e.g., "qualified conduit") | FERC issued a 50-year license (Minor) for the Newfound Project |
| | Water Quality Certificate identifier and issuance date, plus source agency name | As noted in the November 10, 2011 LIHI Reviewer's Report, the Newfound Project was issued a Water Quality Certificate in 1981 by the NHDES; because the certification pre-dates 1987, it cannot be used for the purposes of LHI criteria compliance. The Newfound Hydroelectric Corporation (owner at the time of previous LIHI Certification) was unable to furnish a copy of the Water Quality Certificate. KTZ Hydro, also, does not have a copy of the Water Quality Certificate. |
| | Hyperlinks to key electronic records on FERC e-library website (e.g., most recent Commission Orders, WQC, ESA documents, etc.) | September 8, 2011 Order approving transfer of license P-3107 from Newfound Hydroelectric Company to KTZ Hydro, LLC https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=12759193<br><br>July 17, 2015 Notice by Eagle Creek Renewable Energy, LLC of acquisition of KTZ Hydro, LLC, P-3107 https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=13934823 |
| ***Power Plant Character-istics*** | Date of initial operation (past or future for operational applications) | The Newfound Project was originally constructed in 1927 by Public Service of New Hampshire (PSNH). In 1948 the Harris Brothers purchased the Newfound Project and used it for furniture storage for their growing furniture supply business. Circa 1981, The Newfound Hydroelectric Company purchased the Project, constructed the diversion weir, penstocks, powerhouse and was issued a FERC license. |
| | Total name-plate capacity (MW) | 1.5 MW |
| | Average annual generation (MWh) | 6115 MWh/year based on generation records from 1990 through 2014, with adjustments for outages in 2006 and 2014. |

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| | Number, type, and size of turbines, including maximum and minimum hydraulic capacity of each unit | Two Francis turbines<br>Max rating 750 kw each<br>Maximum and minimum hydraulic capacity of 118 cfs and 40 cfs respectively, each. |
| | Modes of operation (run-of-river, peaking, pulsing, seasonal storage, etc.) | Run of river |
| | Dates and types of major equipment upgrades | There have been no major equipment upgrades since the Project's last LIHI certification or completion of construction under the issuance of the FERC license. |
| | Dates, purpose, and type of any recent operational changes | There have been no recent operational changes. |
| | Plans, authorization, and regulatory activities for any facility upgrades | There are currently no plans for facility upgrades. |
| ***Character-istics of Dam, Diversion, or Conduit*** | Date of construction | The Newfound Project was originally constructed in 1927 by Public Service of New Hampshire (PSNH). In 1948 the Harris Brothers purchased the Newfound Project and used it for furniture storage for their growing furniture supply business. Circa 1981, The Newfound Hydroelectric Company purchased the Project, constructed the diversion weir, penstocks, powerhouse and was issued a FERC license. |
| | Dam height | The dam, surmounted by 1' high wooden flashboards, totals 10' in height. |
| | Spillway elevation and hydraulic capacity | Spillway elevation, including top of flashboards is 441' MSL.<br>The hydraulic capacity of the spillway is approximately 3500 cfs. |
| | Tailwater elevation | Normal tailwater elevation is 347' MSL |

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| | Length and type of all penstocks and water conveyance structures between reservoir and powerhouse | The Project has two 6-foot diameter concrete to steel penstocks, approximately 420’ long leading from the reservoir to the powerhouse. |
| | Dates and types of major, generation-related infrastructure improvements | There have been no major generation-related infrastructure improvements since the Project’s last LIHI certification or completion of construction under the issuance of the FERC license. |
| | Designated facility purposes (e.g., power, navigation, flood control, water supply, etc.) | Power |
| | Water source | Newfound River |
| | Water discharge location or facility | Newfound Project tailrace |
| ***Characte-ristics of Reservoir and Watershed*** | Gross volume and surface area at full pool | From the FERC license (Appendix C1):<br>Gross volume at full pool is 0.69 acre-feet.<br>Surface area at full pool is 0.23 acres.<br><br>Under normal conditions, the pond elevation extends to the upstream end of the dam/diversion weir, measured off Google Earth to be about 172’ from the intake, with an associated approximated surface area of 0.13 acre-feet. |
| | Maximum water surface elevation (ft. MSL) | 441’ MSL (top of flashboards)<br>Flashboards are maintained in place year round. |
| | Maximum and minimum volume and water surface elevations for | Not applicable, operated as run of river. |

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| | designated power pool, if available | | |
| | Upstream dam(s) by name, ownership, FERC number (if applicable), and river mile | The Newfound Lake Dam, owned by the New Hampshire Department of Environmental Services, is located approximately 2.3 miles upstream of KTZ Hydro's Newfound Project dam. The Newfound Lake Dam does not have a FERC number. | |
| | Downstream dam(s) by name, ownership, FERC number (if applicable), and river mile | There are no dams located downstream of the Newfound Project on the Newfound River.<br><br>The Franklin Falls Flood Control Dam, owned and operated by the USACOE, is located approximately 11 river miles downstream from the Newfound Project on the Pemigewasset River. | |
| | Operating agreements with upstream or downstream reservoirs that affect water availability, if any, and facility operation | The NHDES controls releases from their Newfound Lake Dam affecting the operation of KTZ Hydro's Newfound Project. The NHDES coordinates outflow from Newfound Lake Dam with KTZ Hydro Operations. The NHDES releases a minimum flow of 40 cfs from the Newfound Lake Dam. | |
| | Area inside FERC project boundary, where appropriate | Approximately 3.4 acres. | |
| ***Hydrologic Setting*** | Average annual flow at the dam | 211 cfs | |
| | Average monthly flows | January | 185 cfs |
| | | February | 163 cfs |
| | | March | 249 cfs |
| | | April | 511 cfs |
| | | May | 262 cfs |
| | | June | 183 cfs |
| | | July | 115 cfs |
| | | August | 104 cfs |
| | | September | 78 cfs |
| | | October | 194 cfs |
| | | November | 236 cfs |
| | | December | 258 cfs |

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| | Location and name of relevant stream gauging stations above and below the facility | The Newfound Lake Gauging Station is located at the NH DES Newfound Lake Dam approximately 2.3 miles upstream of KTZ Hydro's Newfound Project. Information for the gauging station may be accessed via phone (603-744-9202) or via the DES website:<br><br>http://www4.des.state.nh.us/Rti_home/station_information_display.asp?WID=pemibaker&ID=NFLNH&NAME=Newfound+Lake&FULLPOND=Full+Lake+=+6+ft.+Local+=+587.88+ft.+above+sea+level<br><br>There are no relevant gauging stations downstream. |
| | Watershed area at the dam | 98.6 sq mi |
| ***Designated Zones of Effect*** | Number of zones of effect | • There are two Zones of Effect for the Newfound Project:<br>Zone 1 is the bypass reach of the river extending from the dam downstream to the Pemigewasset River, about .16 miles (870 ft)<br>Zone 2 is the reach from the tailrace to the confluence of the Pemigewasset River, about .03 miles (175 ft). |
| | Upstream and downstream locations by river miles | Zone 1 extends from the Newfound Project Dam approximately .16 miles downstream to the confluence of the Pemigewasset River.<br><br>Zone 2 extends from the Project tailrace at the Powerhouse discharge approximately .03 miles to the confluence with the Pemigewasset River. |
| | Type of waterbody (river, impoundment, by-passed reach, etc.) | Zone 1 – bypass reach<br><br>Zone 2 – tailrace |
| | Delimiting structures | Zone 1 – Newfound Dam<br>Zone 2 – Newfound Powerhouse |
| | Designated uses by state water quality agency | The Newfound River, in both Zones 1 and 2, is designated as Class B water, considered acceptable for fishing, swimming and other recreational purposes, and, after adequate treatment, for use as water supplies. |
| ***Additional Contact Information*** | Names, addresses, phone numbers, and e-mail for local | Please see Contacts Form |

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| | state and federal resource agencies | |
| | Names, addresses, phone numbers, and e-mail for local non-governmental stakeholders | KTZ Hydro is not aware of any local or non-governmental stakeholders. |
| ***Photographs and Maps*** | Photographs of key features of the facility and each of the designated zones of effect | Please see separate document entitled "Table B-1 Photos of Newfound Project". |
| | Maps, aerial photos, and/or plan view diagrams of facility area and river basin | Please see separate document entitled "Table B-1 Aerial Photo of Newfound Project Area and River Basin". |

Table B-1 Aerial Photo of Newfound Project Area and River Basin

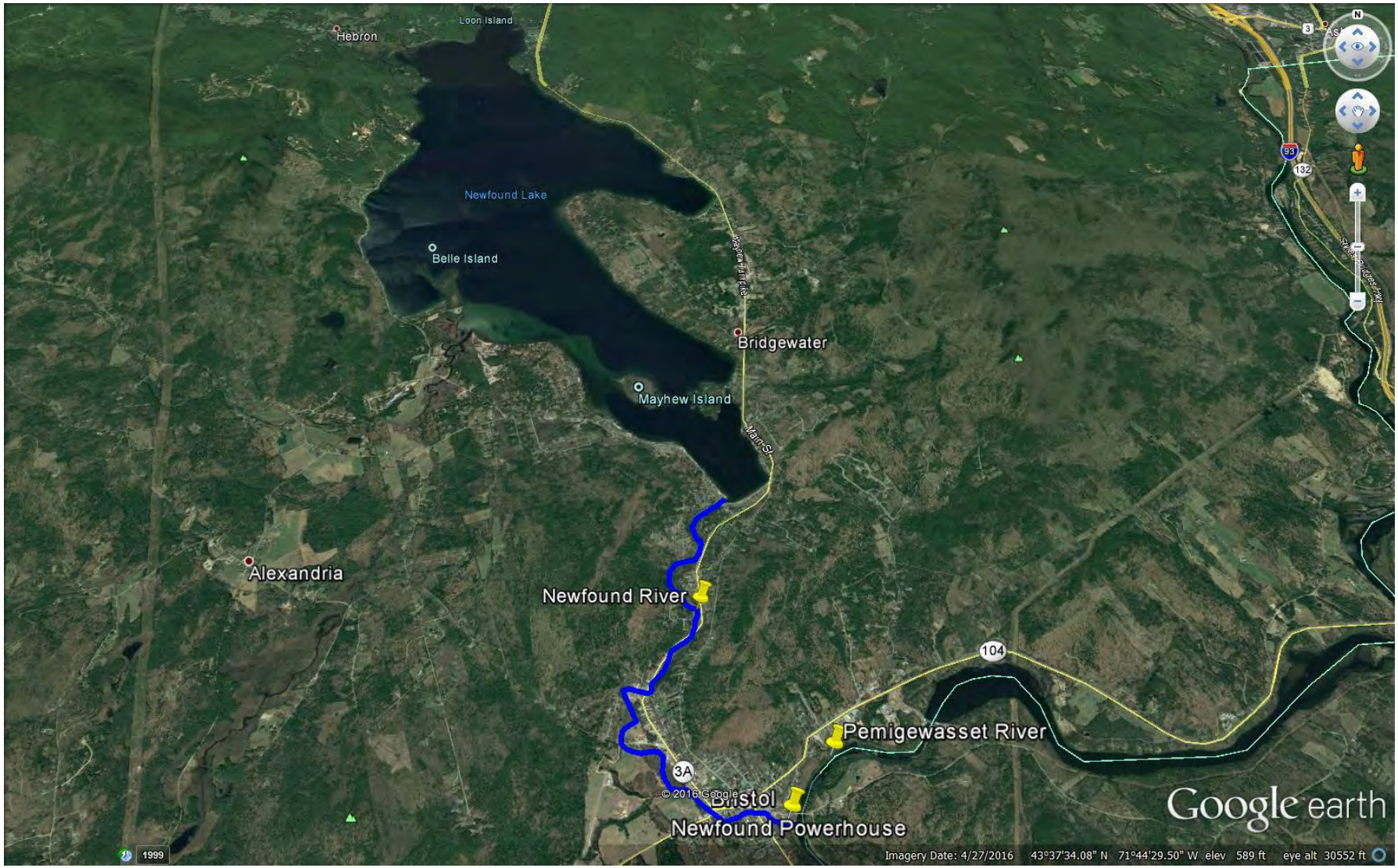


**Table B-1 Photos -** *Photographs of key features of the facility and each of the designated zones of effect*

Aerial Photo of Newfound Project identifying key features


Aerial Photograph of Newfound Project identifying Zones of Effect

View upstream from intake, towards forebay and spillway (left side of photo)

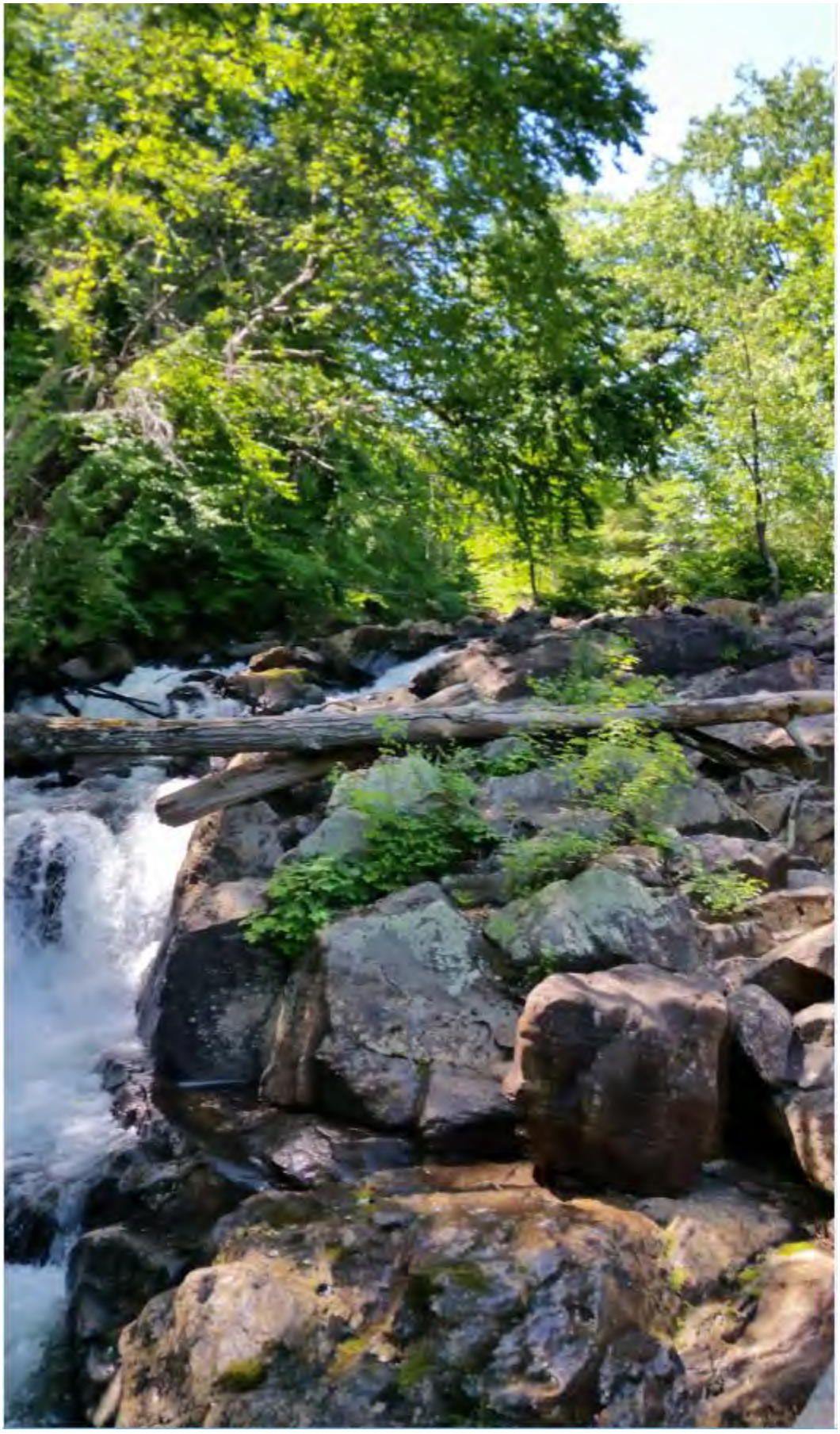
View downstream, towards intake

Spillway

Flashboards removed for min flow section of spillway

Bypass, view downstream from dam (Zone 1)

Bypass, view upstream towards dam (Zone 1)



View downstream towards powerhouse and Pemigewasset River

Station discharge to tailrace, backwater from the Pemigewasset River reaches station discharge (beginning of Zone 2)

Tailrace, view upstream (Zone 2)

View downstream of confluence of tailrace with the Pemigewasset River ( Zone 2)

View from bypass (Zone 1) towards tailrace (Zone 2) at confluence with Pemigewasset River

# Memorandum

**To:** Michael Sale, Senior Technical Advisor, LIHI

**From:** Jeffrey Cueto, P.E.

**Date:** August 19, 2017

**Re:** Newfound Hydroelectric Project – LIHI Certificate #82
Recertification Request

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This memorandum contains the results of my review of the recertification request for the Newfound Hydroelectric Project (Project), located in the village of Bristol, N.H. on the Newfound River, a tributary of the Pemigewasset River in the headwaters of the Merrimack River basin. The facility is owned by KTZ Hydro, LLC (Applicant), a subsidiary of Eagle Creek Renewable Energy, LLC.[1] FERC granted the Project a 50-year license as Project No. 3107 on November 6, 1981. There are no other operating hydroelectric facilities on the river; however, the State of New Hampshire owns and operates the dam at the outlet of Newfound Lake about three miles upstream. LIHI publicly noticed the application for recertification on December 8, 2016, with comments due by February 10, 2017. No comments were filed in response to this formal notice.

The Project was originally certified on November 17, 2011 for a five-year term beginning May 13, 2011.[2] Certification was subject to three special conditions related to flow monitoring and record keeping; an increase in the bypass conservation flow from 5 cfs as licensed to 12.7 cfs; and notification of LIHI should a resource agency request or prescribe fish passage at the dam. The certification term has been extended several times to accommodate the recertification application review; the present termination date is September 30, 2017.

## I. Recertification Review Standards.

In 2016, LIHI began reviewing new applications, both initial applications and recertification applications, under a revised set of criteria and an updated process, all outlined in the Low Impact Certification Program 2nd Edition Handbook (March 7, 2016). Section 6 of the Handbook addresses the recertification process, which is comprised of two stages. Under Stage I, LIHI can expeditiously recertify a project if it has a complete application and finds that there is neither a material change in the criteria or process or a material change in the facility that may affect conformance with the criteria. If a material change determination is made, then the application moves to Stage

[1] By letter dated July 17, 2015, Eagle Creek notified FERC of its acquisition of KTZ Hydro, LLC.

[2] The reviewer report from 2011 is available at http://lowimpacthydro.org/wp-content/uploads/2011/11/NewfoundCertificationFinalReport10Nov2011.pdf

II for a full review under the criteria. Since the Project has not previously been subject to review under the new Handbook criteria and because that fact alone constitutes a

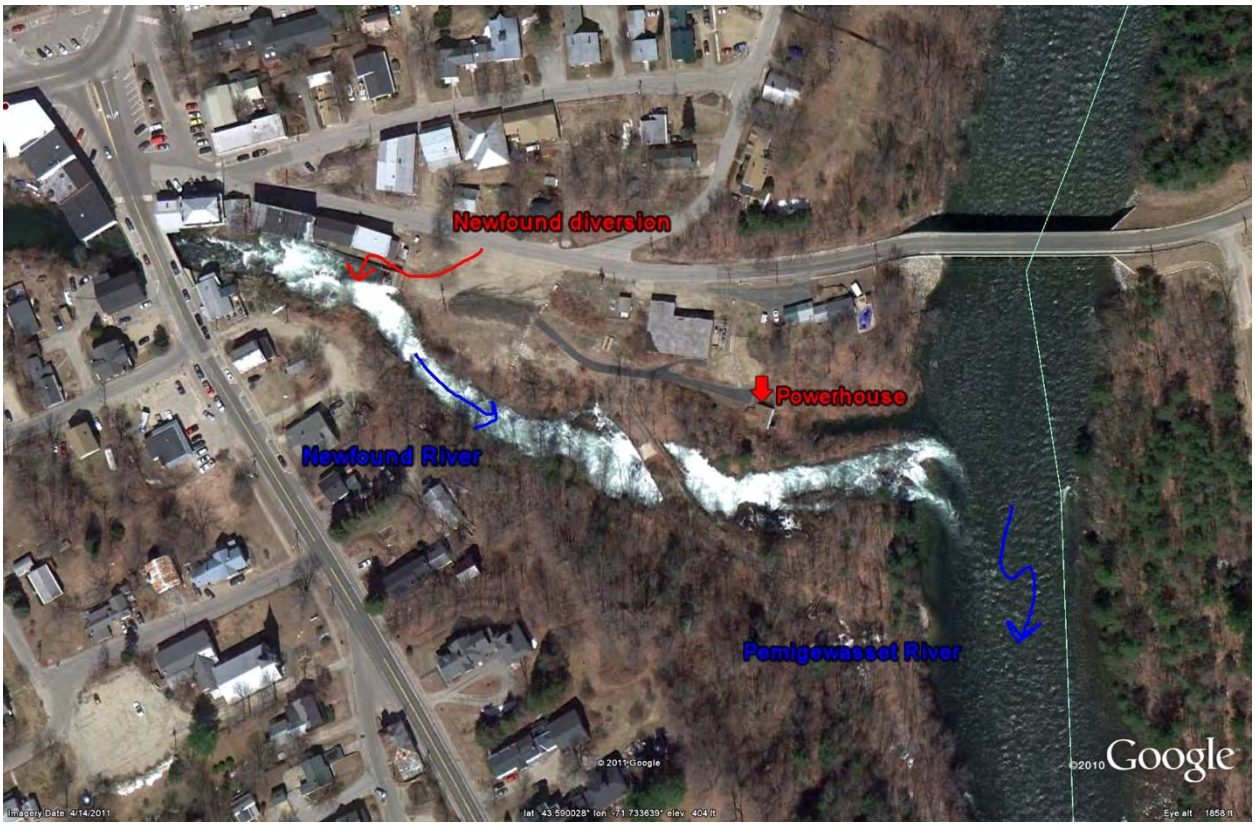


***Figure 1. Project layout.***

material change, the application is subject to a Stage II full review under the revised criteria. The scope of review as described in the Handbook is:

> The Stage II recertification review involves a complete review of the application package, a search of public records associated with the facility, and all other necessary inquiries (e.g., to resource agencies and local non-governmental organizations) to resolve factual disputes, evaluate the veracity of claims, or make other inquiries as needed. The application reviewer also reviews and summarizes all public comments received.
>
> …
>
> At the conclusion of the full, Stage II review, the application reviewer will produce a detailed reviewer's report similar to that issued for an initial certification and make a recommendation to the Executive Director as to whether LIHI's criteria are still met by the facility, in light of the material change and/or the change in LIHI's criteria or interpretation.

The application indicates that the physical plant and its operation have not materially changed since the facility was first certified in 2011.

## II. Summary Recommendation.

Based on my review of the record, including the original LIHI reviewer report from 2011 and the files contained in FERC eLibrary and entered subsequent to the last certification review, as well as consultation with resource agencies, I recommend that the Newfound Project be recertified for the standard period of five years, subject to four conditions to address water quality, environmental flows, compliance record keeping, and fish passage, the latter three being carried forward from the original certification:

| |
|---|
| *Issue 1:* The New Hampshire Department of Environmental Services recommends that the Owner complete a water quality sampling study in order to demonstrate continued compliance with state water quality standards. The available data is not considered sufficiently current to represent present water quality conditions.<br><br>*Condition:* The Owner shall complete a water quality sampling study during summer 2018 under a study plan approved in advance by the New Hampshire Department of Environmental Services (NHDES). The study plan shall be filed with NHDES no later than October 1, 2017. A copy of the final study plan shall be filed with LIHI within 30 days of NHDES approval. The data and study report shall be filed with NHDES and LIHI by December 31, 2018. If the Newfound Project is determined to be causing, or contributing to, substandard water quality, a remediation proposal, including an implementation schedule, shall be developed in consultation with NHDES and filed with LIHI by April 1, 2019. Otherwise, the Owner shall file review comments/recommendations from NHDES by the same date. LIHI may suspend certification or further condition the certification based on the study findings or recommendations of NHDES. |
| *Issue 2:* Pursuant to the original certification, the conservation flow in the penstock-bypassed reach was enhanced beyond the minimum set forth in the 1981 federal license. That flow should continue to be provided during the term of the LIHI certification.<br><br>*Condition:* The Owner shall continue to maintain a minimum flow of 12.7 cfs, or instantaneous inflow if less, through the penstock-bypassed reach of river. |
| *Issue 3:* Pursuant to the original certification, a flow management plan was developed for the Project. The Owner should continue to utilize the plan in order to assure compliance with run-of-river operation and bypass minimum flows and should continue to maintain compliance records.<br><br>*Condition:* The Owner shall continue maintain systems and protocols necessary to assure compliance with the headpond elevation and flow management limitations of instantaneous run-of-river operation and the release of a minimum bypass flow as specified in Condition No. 2 and to maintain records demonstrating compliance. |

| |
|---|
| Records shall be made available to state and federal resource agencies and to LIHI on request. |
| *Issue 4:* Pursuant to the original certification, given that no fish passage facilities are in place at the Project, LIHI is to be notified if there is a resource agency request or prescription for fish passage during the LIHI certification term.<br><br>*Condition:* In the event that, within the 5-year term of the certification, a fisheries agency requests or prescribes upstream or downstream fish passage at the Project, the Owner shall notify LIHI within 30 days of such action and the steps that the Owner is prepared to take to install appropriate passage at the Project dam. In the event that the Owner notifies LIHI that it does not intend to install appropriate passage, or that the Owner cannot reach an agreement with the resource agency, or agencies, as to the nature of this passage, LIHI reserves the right to withdraw its certification should LIHI determine that the Owner's position is inconsistent with the LIHI fish passage criteria at that time. |

No Plus Standards are met that would extend the term of the certification for more than five years.

For the last five years, FERC eLibrary contains no documents indicating any issues or license violations relevant to the LIHI standards.

## III. Standards Review

Criterion A - Ecological Flow Regimes

*Goal: The flow regimes in riverine reaches that are affected by the facility support habitat and other conditions suitable for healthy fish and wildlife resources.*

*Review:* The Newfound Project operates as a true run-of-river facility, maintaining a bypassed-reach conservation flow of 12.7 cfs through a notch in the 12-inch-high flashboards. The flashboards are maintained on the dam crest year around. The storage capacity of the impoundment is negligible; the headpond is about 300 feet long and 0.1 acre in surface area.

Condition 1 of the original certification required the development of a flow management plan for instantaneous run-of-river operation and maintenance of bypass flows. The plan was presented in a letter dated April 26, 2012 to LIHI. Technically, the plan was to have been approved by the U.S. Fish and Wildlife Service (USFWS) and NHDES before filing with LIHI; however, the LIHI records do not indicate that was done. Nevertheless, the plan, including automation of the station and notching of the flashboards, appears to be well designed and implemented. The letter states that the headpond level is maintained within a half an inch after the system reaches equilibrium and that the

operation can match inflow even with variations caused by the operation of the dam at Newfound Lake.

The penstock-bypassed reach is about 870 feet long and primarily cascade-type habitat. It ends at the Pemigewasset River as the Project discharges directly into the Pemigewasset via a 175-foot-long tailrace channel. The bypass minimum flow of 12.7 cfs was recommended by the USFWS and the New Hampshire Department of Fish and Game (NHDFG) based on a flow-observation study completed on October 6, 2011 for the purposes of the original certification application. The conclusions from the study are contained in an email dated October 25, 2011 from the USFWS (see Appendix). Both the USFWS and NHDFG support continuation of the current minimum flow based on correspondence provided in the recertification application. I also spoke to John Warner, USFWS on August 6, 2017, and he restated his support for the current operation. The bypass habitat is not prime fish habitat due to its steepness and substrate type.

*Figure 2. A section of the bypassed reach, looking downstream.*

The tailrace extends 175 feet from the powerhouse to the Pemigewasset River upstream of the Newfound River confluence. When the station is off line, only leakage flows pass through the tailrace; however, the tailrace is backwatered by the river, and the USFWS has no fisheries concerns according to a May 4, 2017 email from the Applicant, appended.

By letter dated March 18, 2016, FERC notified Eagle Creek that it was not required to file annual minimum flow compliance reports for the Project. Eagle Creek had filed a report for 2015 on March 4, 2016 stating that minimum flows had been maintained at

the Newfound Project as well as twelve other projects throughout the year. The report for 2015 is the only minimum flow compliance report contained in FERC eLibrary for the period following the original LIHI certification.

*Conclusion:* The Ecological Flow Regime Standard A-4 (*Site-Specific Studies*) is met in the bypassed-reach zone as the minimum flow was derived from on-site flow observations made by resource agency representatives. In the tailrace zone (Pemigewasset River), no study was necessary as the run-of-river flow management meets LIHI's definition and can be considered to have a de minimis effect (Standard A-1). This determination is contingent on the following conditions being incorporated in the recertification:

1. The Owner shall continue to maintain a minimum flow of 12.7 cfs, or instantaneous inflow if less, through the penstock-bypassed reach of river.

2. The Owner shall continue maintain systems and protocols necessary to assure compliance with the headpond elevation and flow management limitations of instantaneous run-of-river operation and the release of a minimum bypass flow as specified in Condition No. 2 [as numbered on Page 3 above] and to maintain records demonstrating compliance. Records shall be made available to state and federal resource agencies and to LIHI on request.

Criterion B - Water Quality

*Goal: Water Quality is protected in waterbodies directly affected by the facility, including downstream reaches, bypassed reaches, and impoundments above dams and diversions.*

*Review:* For the purposes of the original LIHI-certification process, water quality samples were collected in summer of 2011 as recommended by NHDES. Data included dissolved oxygen, water temperature, phosphorus, and chlorophyll-a. Based on the sampling results, NHDES concluded that the Project as it was being operated at that time was not violating the water quality criteria for dissolved oxygen, phosphorus, and chlorophyll-a. (Letter from NHDES to LIHI, November 14, 2011)

Based on the NHDES's 2014 water quality assessment, the Newfound River is not federal Clean Water Act Section 303(d) listed (impaired designated uses for which a Total Maximum Daily Load is required for attainment) either immediately upstream (Assessment Unit NHIMP700010603-04) or immediately downstream (Assessment Unit NHRIV700010603-12) of the Facility dam. The documentation from the water quality assessment is shown in the following table.

| Severe | Poor | Likely Bad | No Data | Likely Good | Marginal | Good |
|---|---|---|---|---|---|---|
| | Not Supporting, Marginal | Insufficient Information – Potentially Full Supporting | No Data | Insufficient Information – Potentially Full Supporting | Full Support, Marginal | Full Support, Good |

*DES Categories; 2-G = Supports Parameter well above criteria, 2-M = Supports Parameter marginally above criteria, 2-OBS = Exceeds WQ criteria but natural therefore not a WQ exceedence, 3-ND = Insufficient Information/No data, 3-PAS= Insufficient Information/Potentially Attaining Standard, 3-PNS= Insufficient Information/Potentially Not Attaining Standard, (4A=Impaired/TMDL Completed, 4B=Impaired/Other Measure will rectify Impairment, 4C=Impaired/Non-Pollutant, 5=Impaired/TMDL needed) M=Marginal Impairment, P=Severe Impairment, T=Threatened (http://des.nh.gov/organization/divisions/water/wmb/swqa/index.htm)

Assessment Unit ID NHIMP700010603-04 Size 0.2300 ACRES
Assessment Unit Name NEWFOUND RIVER Beach N
Primary Town BRISTOL Assessment Unit Category*~ 3-PAS

**2014, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | *Desig. Use Category | Desig. Use Threat | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category* | TMDL Priority | Source Name (Impairments only) |
|---|---|---|---|---|---|---|---|---|---|
| Aquatic Life | 3-PAS | | Chlorophyll-a | N | | | 3-ND | | |
| | | | DISSOLVED OXYGEN SATURATION | | 2011 | NA | 2-G | | |
| | | | OXYGEN, DISSOLVED | | 2011 | NA | 2-G | | |
| | | | PH | | 2011 | NA | 2-G | | |
| Drinking Water After Adequate Treatment | 2-G | | | | | | | | |
| Fish Consumption | 4A-M | | Mercury | N | | | 4A-M | | Atmospheric Deposition - Toxics |
| Primary Contact Recreation | 3-PAS | | CHLOROPHYLL-A | N | 2011 | NA | 2-G | | |
| | | | Escherichia coli | N | | | 3-ND | | |
| Secondary Contact Recreation | 3-ND | | Escherichia coli | N | | | 3-ND | | |
| Wildlife | 3-ND | | | | | | | | |

Assessment Unit ID NHRIV700010603-12 Size 0.2080 MILES
Assessment Unit Name NEWFOUND RIVER Beach N
Primary Town BRISTOL Assessment Unit Category*~ 3-PAS

**2014, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit**

| Designated Use Description | *Desig. Use Category | Desig. Use Threat | Parameter Name | Parameter Threatened (Y/N) | Last Sample | Last Exceed | Parameter Category* | TMDL Priority | Source Name (Impairments only) |
|---|---|---|---|---|---|---|---|---|---|
| Aquatic Life | 2-G | | DISSOLVED OXYGEN SATURATION | | 2011 | NA | 2-G | | |
| | | | OXYGEN, DISSOLVED | | 2011 | NA | 2-G | | |
| | | | PH | | 2011 | NA | 2-G | | |
| Drinking Water After Adequate Treatment | 2-G | | | | | | | | |
| Fish Consumption | 4A-M | | Mercury | N | | | 4A-M | | Atmospheric Deposition - Toxics |
| Primary Contact Recreation | 3-PAS | | CHLOROPHYLL-A | N | 2011 | NA | 2-G | | |
| | | | Escherichia coli | N | | | 3-ND | | |
| Secondary Contact Recreation | 3-ND | | Escherichia coli | N | | | 3-ND | | |
| Wildlife | 3-ND | | | | | | | | |

Table 1. NHDES 2014 Water Quality Assessment Information.

NHDES's 2016 draft water quality assessment shows essentially the same status, except total phosphorus is now listed as an aquatic-life parameter for the downstream assessment unit. The proposed parameter category for phosphorus is 3-PAS (insufficient information but potentially attaining standard).

According to NHDES, water quality data is not considered current after five years. The 2011 data is the most recent data for the reaches of interest. NHDES recommends collecting additional samples to enable it to reaffirm that the Project is compliant with water quality standards. NHDES supports certifying the Project conditional upon completion of a sampling study next summer. (see appended emails from NHDES)

With the current higher bypass-flow requirement, a larger volume of highly oxygenated water is discharged to the Pemigewasset River, which may be beneficial to that river's water quality.

*Conclusion:* The Water Quality Standard B-3 (Site-Specific Studies) is met in both zones based on the 2011 sampling study if subject to the following recommended condition to reaffirm compliance with water quality standards:

> The Owner shall complete a water quality sampling study during summer 2018 under a study plan approved in advance by the New Hampshire Department of Environmental Services (NHDES). The study plan shall be filed with NHDES no later than October 1, 2017. A copy of the final study plan shall be filed with LIHI within 30 days of NHDES approval. The data and study report shall be filed with NHDES and LIHI by December 31, 2018. If the Newfound Project is determined to be causing, or contributing to, substandard water quality, a remediation proposal, including an implementation schedule, shall be developed in consultation with NHDES and filed with LIHI by April 1, 2019. Otherwise, the Owner shall file review comments/recommendations from NHDES by the same date. LIHI may suspend certification or further condition the certification based on the study findings or recommendations of NHDES.

Criterion C - Upstream Fish Passage

*Goal: The facility allows for the safe, timely, and effective upstream passage of migratory fish. This criterion is intended to ensure that migratory species can successfully complete their life cycles and maintain healthy, sustainable fish and wildlife resources in areas affected by the facility.*

*Review:* Based on the earlier certification review, there is an absence of historical evidence of use by anadromous fish that are currently the subject of restoration efforts in the Merrimack River basin, and catadromous American eel have not been documented as present upstream of the Project dam. While the federal and state resource agencies have neither requested nor prescribed fish passage facilities at the Project, they continue to recommend that LIHI certify the Project contingent on such facilities being provided upon a resource agency request.[3] This is more likely to occur for American eel than for anadromous species, as there is no present intent to restore or introduce such species in the Newfound River basin.

*Conclusion:* I suggest that the Project be considered to meet, in both zones, the Upstream Fish Passage Standard C-1 (Not Applicable/De Minimis Effect) as there is neither a documented need for fish passage at this time nor a recommendation for such by interested resource agencies. However, circumstances could change during the term of the certification. Therefore, I recommend the certification be made conditional on the following:

> In the event that within the 5-year term of the certification, a fisheries agency requests or prescribes upstream or downstream fish passage at the Project, the Owner shall notify LIHI within 30 days of such action and the steps that the Owner is prepared to take to install appropriate passage at the Project dam. In the event that the Owner notifies LIHI that it does not intend to install appropriate passage, or that the Owner cannot reach an agreement with the resource agency, or agencies, as to the nature of this passage, LIHI

[3] The application includes emails from the USFWS (August 17, 2016) and NHDFG (April 28, 2017) supporting recertification conditional on installation of eel passage facilities should an agency request be made.

> reserves the right to withdraw its certification should LIHI determine that the Owner's position is inconsistent with the LIHI fish passage criteria at that time.

Criterion D - Downstream Fish Passage and Protection

*Goal: The facility allows for the safe, timely, and effective downstream passage of migratory fish. For riverine (resident) fish, the facility minimizes loss of fish from reservoirs and upstream river reaches affected by Facility operations. All migratory species are able to successfully complete their life cycles and to maintain healthy, sustainable fish and wildlife resources in the areas affected by the Facility.*

*Review:* See discussion above on upstream passage.

*Conclusion:* The Downstream Fish Passage Standard D-1 (Not Applicable/De Minimis Effect) is met in both zones based on the same reasoning applicable to upstream passage and subject to the same condition:

> In the event that within the 5-year term of the certification, a fisheries agency requests or prescribes upstream or downstream fish passage at the Project, the Owner shall notify LIHI within 30 days of such action and the steps that the Owner is prepared to take to install appropriate passage at the Project dam. In the event that the Owner notifies LIHI that it does not intend to install appropriate passage, or that the Owner cannot reach an agreement with the resource agency, or agencies, as to the nature of this passage, LIHI reserves the right to withdraw its certification should LIHI determine that the Owner's position is inconsistent with the LIHI fish passage criteria at that time.

Criterion E – Shoreline and Watershed Protection

*Goal: The Facility has demonstrated that sufficient action has been taken to protect, mitigate and enhance the condition of soils, vegetation and ecosystem functions on shoreline and watershed lands associated with the facility.*

*Review:* As noted in the original certification report, the shorelands associated with the impoundment are extremely limited due to the short extent of backwater, and it is in a highly developed urban area. The bypassed reach, although more buffered from development, has not been shown to have significant ecosystem functions. There are no shoreland management plans required under the license.

*Conclusion:* The Shoreline and Watershed Protection Standard E-1 (Not Applicable/De Minimis Effect) is met in both zones. There are no lands associated with the facility under the ownership and control of the Applicant that are subject to a shoreline management plan or similar protection, and the lands within the Project boundary are not known to have significant ecosystem functions or recreational use.

Criterion F - Threatened and Endangered Species Protection

*Goal: The Facility does not negatively impact listed species.*

*Review:* Based on a recent review of the New Hampshire Natural Heritage Bureau database (June 7, 2016, see Appendix F of the application), there are no threatened or endangered species located in the Newfound Project area. The same findings were made during the prior review in 2011.

*Conclusion:* The Threatened and Endangered Species Protection Standard F-1 (Not Applicable/De Minimis Effect) is met in both zones. There are no listed species present in the facility area or downstream reach, and there is no evidence that the facility was responsible for the extirpation of any listed species that may have been present historically.

Criterion G - Cultural and Historic Resource Protection

*Goal: The Facility does not inappropriately impact cultural or historic resources that are associated with the Facility's lands and waters, including resources important to local indigenous populations, such as Native Americans.*

*Review:* According to the original reviewer report, Article 19 of the license addresses general cultural resource protection, and the New Hampshire Division of Historic Resources had commented that the Project does not present a risk since no activities outside of normal operation are planned. Under Article 19, if, during the construction of project works or other facilities, unrecorded archeological or historical sites are discovered, a mitigation plan must be developed in consultation with the State Historic Preservation Office. The recertification application states: "There have been no changes to the operation of the Newfound Project nor have there been any construction projects that would involve cultural or historic resources since the previous LIHI certification of the Newfound Project. Additionally no such changes are proposed for the future." No historic buildings are associated with the Project.

*Conclusion:* The Cultural and Historic Resource Protection Standard G-1 (Not Applicable/De Minimis Effect) is met as no operational changes or construction are planned, and cultural resources are protected under Article 19 of the license.

Criterion H - Recreational Resources

*Goal: The facility accommodates recreation activities on lands and waters controlled by the facility and provides recreational access to its associated lands and waters without fee or charge.*

*Review:* While the Project is not subject to a recreation plan and does not provide recreational facilities on site, the Applicant does allow open access to the lands for public use (see appended email from the Applicant, August 15, 2017)

*Conclusion:* The Recreational Resources Standard H-3 (Assured Accessibility) is met as the Applicant allows free and open public access to the Project lands for recreational use.

# APPENDIX

**From:** Susan Giansante [mailto:susan.giansante@eaglecreekre.com]
**Sent:** Thursday, May 04, 2017 11:37 AM
**To:** Mike Sale <mjsale@lowimpacthydro.org>
**Cc:** Jeffrey Cueto <ompompanoo@aol.com>; Bob Gates <bob.gates@eaglecreekre.com>
**Subject:** RE: Newfound Project LIHI Recertification

Thanks Mike-

I did include Jeff on the original e-mail forwarding NHFG comments, but I will forward it to him separately as part of the final transmittal with the revised application addressing Jeff's comments.

Regarding the following:

- 12.7 cfs bypass flow. Looking back at the active LIHI conditions, as you mention, in particular Condition 2 (below), it appears that John was not responsive in the original application. As you note in your e-mail, I did have a conversation with John Warner regarding the current 12.7 cfs released in the bypass that was agreed to in the field during the original certification. John stated that he has no intention of revisiting the site as the current flow is acceptable.

  I did include an e-mail in the original recertification application, attached, which confirms USFWS support of LIHI certification with the continuation of 12.7 cfs in the bypass. Is this sufficient?

  > ***Condition 2.*** *KTZ Hydro LLC shall increase the bypass minimum flow to a provisional 12.7 cfs immediately and shall notify LIHI within 7 days of taking such action. KTZ Hydro LLC will also conduct appropriate analysis and finalize a minimum flow in consultation and upon agreement with the U.S. Fish and Wildlife Service and provide the results to LIHI by no later than October 1, 2012, including written concurrence from the U.S. Fish and Wildlife Service.* ***Status:*** *According to their 4/26/12 letter, KTZ Hydro increased the flow in the bypassed reach of river to a provisional 12.7 cfs within 7 days of LIHI certification. They also reached out to John Warner several times, asking him to visit the site and for his approval, they sent him pictures as well. According to Bob King's email of 1/21/14 John had told him on the*
  > 
  > *phone that he thought everyone agreed to 12.7 cfs, after which Bob told John that LIHI wants something more definitive. Bob asked LIHI in this 1/21/14 email if "LIHI could recognize USF&W's tacit approval as evidenced by their lack of response despite multiple calls and emails."* ***No further action required.***

- Ecological flow regime for the tailrace zone. To address Jeff's comments (below), I sent an e-mail to John requesting his input on Jeff's comments. In follow up to the e-mail, as part of the same phone call with John noted above, John indicated he has no concerns with current the ecological flow regime in the short stretch of the tailrace zone which backwaters from the Pemigewasset River.

  > *For the criterion of Ecological Flow Regime in the tailrace zone:*
  > *Since the only flow through this zone is turbine leakage when the station is off line, it would be helpful to have documentation from the USFWS or NHDFG that this is not a concern. This seems unlikely to be an issue as the tailrace is backwatered from the river and only 175 feet long, but there are no resource agency comments to support this.*

Based on my conversation with John Warner, I don't expect that we will get any further written responses from him. When I spoke with John, his recommendation was for me to send an e-mail to you confirming my discussions with him, and from his perspective, LIHI could call him to discuss or confirm his statements.

**From:** Mike Sale [mailto:mjsale@lowimpacthydro.org]
**Sent:** Wednesday, May 3, 2017 4:58 PM
**To:** Susan Giansante <susan.giansante@eaglecreekre.com>
**Cc:** Jeffrey Cueto <ompompanoo@aol.com>; 'Mike Sale' <mjsale@lowimpacthydro.org>
**Subject:** RE: Newfound Project LIHI Recertification

Hi, Sue. Back from the NHA week in Washington here. The message you received from Carol Henderson is acceptable for the purposes of getting comments from that state agency. You can use it as is and send it to Jeff separately, rather than revise your whole application. He will include it in his reviewer report. I have to note that Carol's comment is a bit circular, as it confirms John's position and the FWS position relies on recommendations from you, as well as FWS. Regardless, we will get that sorted out.

One other issue that we discussed when I talked with you and Bob Gates was the finalization of the minimum flow. My memory is that Bob related an interaction with John Warner where John said something like he had been out to the site to set that 12.7 cfs minimum flow once and he didn't intend to do that again. If I got that right, I thought Bob was going to try to find some documentation for that interaction. I ask because there was a condition on the previous LIHI certificate that required some kind of confirmation of the 12.7 cfs interim flow – this still needs to be resolved. Please let me and Jeff know what you intend to do on that.
~mjs

**From:** Susan Giansante [mailto:susan.giansante@eaglecreekre.com]
**Sent:** Monday, May 01, 2017 2:25 PM
**To:** Mike Sale <mjsale@lowimpacthydro.org>; Jeffrey Cueto <ompompanoo@aol.com>
**Cc:** Bob Gates <bob.gates@eaglecreekre.com>
**Subject:** FW: Newfound Project LIHI Recertification

Mike and Jeff-

Please confirm that the following e-mail from NH Fish and Game is acceptable for our recertification.

Upon your confirmation, we will include the attached in our revised application.

Thanks
Sue

SUSAN GIANSANTE
PROJECT MANAGER
EAGLE CREEK RENEWABLE ENERGY, LLC
Mobile: 860-620-4527
E-MAIL: SUSAN.GIANSANTE@EAGLECREEKRE.COM

**From:** Henderson, Carol [mailto:Carol.Henderson@wildlife.nh.gov]
**Sent:** Friday, April 28, 2017 2:23 PM
**To:** Susan Giansante <susan.giansante@eaglecreekre.com>
**Subject:** RE: Newfound Project LIHI Recertification

Hi Susan:

I apologize for not returning a response on official Department letterhead paper but I did not have your address and I suspected that you wanted the response as soon as possible. If you would prefer a response on Department letterhead, please let me know and I will be able to produce quickly.

The NH Fish and Game Department (NHFGD) agrees with the recommendations outlined by the US Fish and Wildlife Service (USFWS) noted in John Warners' email dated August 17, 2016 (copied to the Department), relative that "the Low Impact Hydro Certification for the Newfound River project should be contingent upon an agreement by the licensee to continue to provide 12.7 minimum bypass flow and agree to provide both upstream and downstream American eel passage in a timely manner if passage is found to be necessary by the USFWS and NHFGD. I hope this information has been helpful. If you need any additional information, please do not hesitate to contact me at 603-271-3511 or via email. Thank you, Carol Henderson, NH Fish and Game Department, Environmental Review Coordinator

From: John_Warner@fws.gov [mailto:John_Warner@fws.gov]
Sent: Tuesday, October 25, 2011 8:57 AM
To: Stephen Hickey
Cc: Bob King; John A Magee
Subject: Re: Newfound bypass flow follow up

Steve,

Based on our discussion yesterday and review of the information below, we have the following recommendations for LIHI Certification of Newfound Hydro.

We can support the Newfound Hydroelectric Project's application for certification by the Low Impact Hydropower Institute if the project owner agrees to the release of a minium flow of 12.7cfs into the bypass reach. While the exact flow we identified in the field on October 6, 2011 as being acceptable is uncertain, the best approximation of that flow is 12.7 cfs and that discharge should be the target minimum flow. This bypass flow would be passed through a notch in the project flashboards close to the project's trash racks. We will want to review the flow in the field (likely next summer) to verify that the calculated flow achieves the habitat conditions we observed in the field and found acceptable. Newfound Hydro would need to coordinate with me and NHFGD to schedule the observations when river flows are appropriate. Adjustment of flows for observations may be needed to verify that the 12.7 cfs flow is adequate or some other flow is needed. Once a final flow is verified, it may be appropriate to install a staff gage in the lower bypass to permit verification of compliance with the correct flow. We can discuss this further at the time of the flow demonstration but would like Newfound to commit to installing a gage if its determined to be needed.

I believe that John Magee at New Hampshire Fish and Game is in agreement with the above.

Thanks - JW

_____
John P. Warner
Assistant Supervisor, Conservation Planning Assistance and Endangered Species
New England Field Office, U.S. Fish and Wildlife Service

EAGLE CREEK
RENEWABLE ENERGY

Via Electronic Filing

March 4, 2016

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

**RE: Eagle Creek Renewable Energy (ECRE)**
**Minimum Flow Compliance - 2015**

| Project: | Licensee: |
|---|---|
| Beaver Falls Upper FERC No. P-2593-NY | Algonquin Power (Beaver Falls) |
| Beaver Falls Lower FERC No. P-2823-NY | Algonquin Power (Beaver Falls) |
| Phoenix FERC No. P-4113-NY | Oswego Hydro Partners |
| Newport FERC No. P-5196-NY | Newport Hydro Associates |
| Great Falls FERC No. P-2814-NJ | Great Falls Hydro |
| Clement FERC No. P-2966-NH | Clement Dam Hydroelectric |
| Gregg's Falls FERC No. P-3180-NH | Hydro Associates |
| Lakeport FERC No. P-6440-NH | Lakeport Hydro Corporation |
| Lochmere FERC No. P-3128-NH | HD1 Associates I Partnership |
| Mine Falls FERC No. P-3442-NH | Mine Falls Limited Partnership |
| Newfound FERC No. P-3107-NH | KTZ, Hydro |
| Stevens Mill FERC No. P-3760-NH | Franklin Power |
| Webster-Pembroke FERC No. P-3185-NH | Pembroke Hydro Associates |

Dear Secretary:

On behalf of the Licensee, Eagle Creek Renewable Energy is hereby submitting notice of minimum flow compliance for the projects listed above.

2015 Minimum Flow Verification – Operating personnel have reported and verified the minimum flow was maintained at all times from January 1, 2015 to December 31, 2015 for all projects listed above.

The Commission issued a letter to the previous license holder (Algonquin Power) dated April 9, 2013 acknowledging the receipt of the annual compliance report and determined that there is no license requirement for these annual statements to be filed with the Commission and the practice can be discontinued.

The licensee respectfully requests confirmation from the Commission that the annual compliance report is not a license requirement for the projects listed above. If the annual compliance report is indeed not an annual requirement, the licensee requests the annual verification to be discontinued.

Eagle Creek Renewable Energy
Midwest Operations
116 North State Street, PO Box 167
Neshkoro, WI 54960-0167 USA
www.eaglecreekre.com

In the event of a deviation from one or more of the license requirements, the licensee will file a report with the Commission within 30 days of when the deviation is reported.

Should you have any questions regarding this matter please do not hesitate to contact Ms. Melissa Rondou in the Eagle Creek Renewable Energy offices by telephone at (920)293-4628 – Ext. 347 or e-mail at melissa.rondou@eaglecreekre.com.

Sincerely,
Eagle Creek Renewable Energy
Agent for Licensee

Mr. Robert A. Gates
Executive Vice President of Operations

CC: Ken Kemp, CDSO
Mark Sherbino, OPS
16-03-04_ECRE_NNY-NH_Minimum Flow Verification

Eagle Creek Renewable Energy
Midwest Operations
116 North State Street, PO Box 167
Neshkoro, WI 54960-0167 USA
www.eaglecreekre.com

**Ted Walsh** August 10, 2017 at 8:35 AM

RE: Newfound Project - LIHI recertification

To: Jeffrey Cueto

Jeff,
Every other recertification NHDES has been asked to review has included the monitoring requirements. For our 305(b) water quality assessments data ages out after five years which matches up nicely with the LIHI certification cycle. We would be fine with recertifying them now and requiring the monitoring next year.

Ted

See More from Jeffrey Cueto

**Jeffrey Cueto** August 9, 2017 at 8:40 PM

Re: Newfound Project - LIHI recertification

To: Ted Walsh

Thanks for the quick response, Ted. I'm checking with LIHI to see what they'd like to do. Perhaps the project could be recertified with a condition to do sampling during the 2018 field season. Is there any new information for the Newfound River that raises concerns for you or is this just normal protocol?
Best,
Jeff

See More from Ted Walsh

**Ted Walsh** August 9, 2017 at 3:16 PM

RE: Newfound Project - LIHI recertification

To: Jeffrey Cueto

Jeff,
We have required other project to collect the same water quality for recertification as they did for certification. We would want to issue a letter to the owner of the facility outlining the monitoring requirements. Do you contact information I could use?

Ted

See More from Jeffrey Cueto

**Jeffrey Cueto** August 9, 2017 at 11:29 AM

Newfound Project - LIHI recertification

To: Ted Walsh

Hi, Ted. I had reviewed this project for LIHI certification back in 2011, and it is back now for recertification. In 2011, the owner had done some water quality sampling to aid you in determining that the facility was operating in compliance with NH water quality standards. Your review letter is attached. I just want to confirm whether there is any new data or any changes to the standards that would change your determination that the facility is in compliance. I understand that the fisheries agencies are still deferring fish passage. Further, the owner has developed a flow monitoring plan to assure true run-of-river operation and release of 12.7 cfs minimum flow into the bypassed reach.

Best regards,
Jeff Cueto

PDF

B Appendix to Newfo...lity.pdf

☆ **Susan Giansante**

August 15, 2017 at 9:07 AM

SG

RE: Newfound Project LIHI review

To: Jeffrey Cueto

Good morning Jeff-
Yes, there is open public access to the bypassed reach.
Sue

See More from Jeffrey Cueto

Found in Sent - AOL Mailbox

**Jeffrey Cueto**

9:40 AM

Re: Newfound Project LIHI review

To: Susan Giansante

Thanks, Sue. I'm hoping to wrap up my report this week.
Jeff

See More from Susan Giansante

Found in Sent - AOL Mailbox

☆ **Jeffrey Cueto**

August 9, 2017 at 10:44 AM

Newfound Project LIHI review

To: Susan Giansante

Hi, Susan. I'm working on the reviewer report and have a question for you. Please clarify whether there is open public access to the bypassed reach for uses such as angling. That was my understanding when I did the review in 2011. The new criteria for recreation refers to an access request from a public interest group, but I'd expect that the owner probably allows access without there having been an access request from a public interest group.
Thanks.
Jeff

# APPENDIX H

# SIGNED SWORN STATEMENT AND WAIVER FORM

## Sworn Statement and Waiver Form

All applications for LIHI Certification must include the following sworn statement before they can be reviewed by LIHI:

**SWORN STATEMENT**

*As an Authorized Representative of KTZ Hydro, LLC, the Undersigned attests that the material presented in the application is true and complete.*

*The Undersigned acknowledges that the primary goal of the Low Impact Hydropower Institute's certification program is public benefit, and that the LIHI Governing Board and its agents are not responsible for financial or other private consequences of its certification decisions.*

*The Undersigned further acknowledges that if LIHI Certification of the applying facility is granted, the LIHI Certification Mark License Agreement must be executed prior to marketing the electricity product as LIHI Certified®.*

*The Undersigned further agrees to hold the Low Impact Hydropower Institute, the Governing Board and its agents harmless for any decision rendered on this or other applications, from any consequences of disclosing or publishing any submitted certification application materials to the public, or on any other action pursuant to the Low Impact Hydropower Institute's certification program.*

**FOR PRE-OPERATIONAL CERTIFICATIONS:**

*The Undersigned acknowledges that LIHI may suspend or revoke the LIHI Certification should the impacts of the facility, once operational, fail to comply with the LIHI program requirements.*

Company Name: KTZ Hydro, LLC

Authorized Representative: Jody J. Smet

Name: Jody J. Smet

Title: Vice President, Regulatory Affairs

Authorized Signature: Jody J. Smet

Date: 4/28/2021