

Appendix C

Draft Loon Management Plan and Associated Consultation with FWS and Maine DIFW

From: [Perry, John](#)
To: [Russell, Cate](#)
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Subject: RE: For 30-day Review: Ripogenus Project - Draft Loon Management Plan
Date: Wednesday, June 25, 2025 7:46:56 AM
Attachments: [image001.png](#)

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Hi Cate,

Thank you for sending this along for review. Overall, the proposed plan captures what MDIFW was looking for. One change we recommend is in the timing of the deployment of the rafts, which the plan states will be installed each year by approximately June 1st, conditions permitting. To be consistent with other projects with active loon management plans such as Aziscohos Lake (May 15 – August 5), Flagstaff Lake (May 15 - August 31), Moosehead Lake (May 1 to August 31), and Vanceboro (May 1 to August 31), the installation date should be changed to “by approximately May 15th, conditions permitting” to be sure the rafts are out when loons are first ready to initiate nesting. The only ice-out date we could find for Chesuncook was from 2018 and it was May 7th, so loons are arriving then or earlier.

Finally, we recommend that MDIFW be contacted prior to reconnaissance surveys as staff would like to attend, pending availability.

Thanks again,

John

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From: Russell, Cate <cate.russell@hdrinc.com>

Sent: Friday, June 6, 2025 10:47 AM

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Cc: Scarzello, Michael <Michael.Scarzello@brookfieldrenewable.com>;

kevin.bernier@brookfieldrenewable.com; Gibson, Jim <jim.gibson@hdrinc.com>

Subject: For 30-day Review: Ripogenus Project - Draft Loon Management Plan

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Dear Patrick and John,

Great Lakes Hydro America, LLC (GLHA) is the licensee of the Ripogenus Hydroelectric Project (FERC No. 2572) (Project), which is currently undergoing FERC relicensing. On September 30, 2024, GLHA filed the Final License Application with FERC for the Project, in which GLHA proposed to implement an updated Common Loon Management Plan at the Ripogenus Project.

On behalf of GLHA, attached for your 30-day review and comment is the Draft Common Loon Management Plan for the Ripogenus Project. This Plan is based on the existing Loon Management Plan that has been implemented at the Ripogenus Project under the existing FERC License as well as Common Loon Management Plans for other hydroelectric projects in Maine.

GLHA respectfully requests that you provide any comments (or statement of no comments) on the attached plan within 30 days from receipt of this email (by Mon, July 7, 2025). Additionally, please let us know if you would like to schedule a conference call to discuss any questions or concerns you may have with this information.

On behalf of GLHA, thank you for your continued involvement with the relicensing of the Ripogenus Project.

Cate Russell

Associate Vice President, Regulatory and Environmental Section Manager

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**RIPOGENUS HYDROELECTRIC PROJECT
(FERC NO. 2572)**

DRAFT COMMON LOON MANAGEMENT PLAN

**GREAT LAKES HYDRO AMERICA, LLC
Millinocket, Maine**

July 2025

RIPOGENUS HYDROELECTRIC PROJECT (FERC NO. 2572)

DRAFT COMMON LOON MANAGEMENT PLAN

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DRAFT Common Loon Management Plan

1.0 Introduction

Great Lakes Hydro America, LLC (“GLHA” or “Licensee”) is the Licensee of the Ripogenus Hydroelectric Project (Federal Energy Regulatory Commission (“FERC” or “Commission”) No. 2572) (“Ripogenus Project” or “Project”) located on the West Branch of the Penobscot River (West Branch) in Penobscot and Piscataquis counties, Maine. The Project currently operates under a license issued by FERC on October 22, 1996, which expires on September 30, 2026. GLHA is in the process of pursuing a new license from FERC for the continued operation of the Project.

The Ripogenus Project operates as a store-and-release development with an annual seasonal drawdown that allows for management of water levels and flows downstream of the Project. During a normal water year, the impoundment typically refills by early May; however, this can vary based on the timing of ice-out and the spring freshet. Subsequently, the impoundment is gradually drawn down through the summer months to provide required flows downstream.

Due to its susceptibility to water level fluctuations during the nesting season, the Common Loon (*Gavia immer*) is a species that can benefit from careful management at impoundments affected by water level fluctuations. In general, the thresholds for avoiding impacts to nesting Common Loons are either less than 0.5-foot increase in water surface elevation or less than a 1-foot decrease in elevation over a 28-day period during the peak loon nesting period (May 15 through July 31).

Because the Ripogenus impoundment water surface elevations may vary in excess of the thresholds noted above, GLHA has prepared this Common Loon Management Plan in support of successful loon nesting at the Ripogenus Project.

2.0 Background

2.1 Common Loon Artificial Nesting Structure Plan under 1996 License

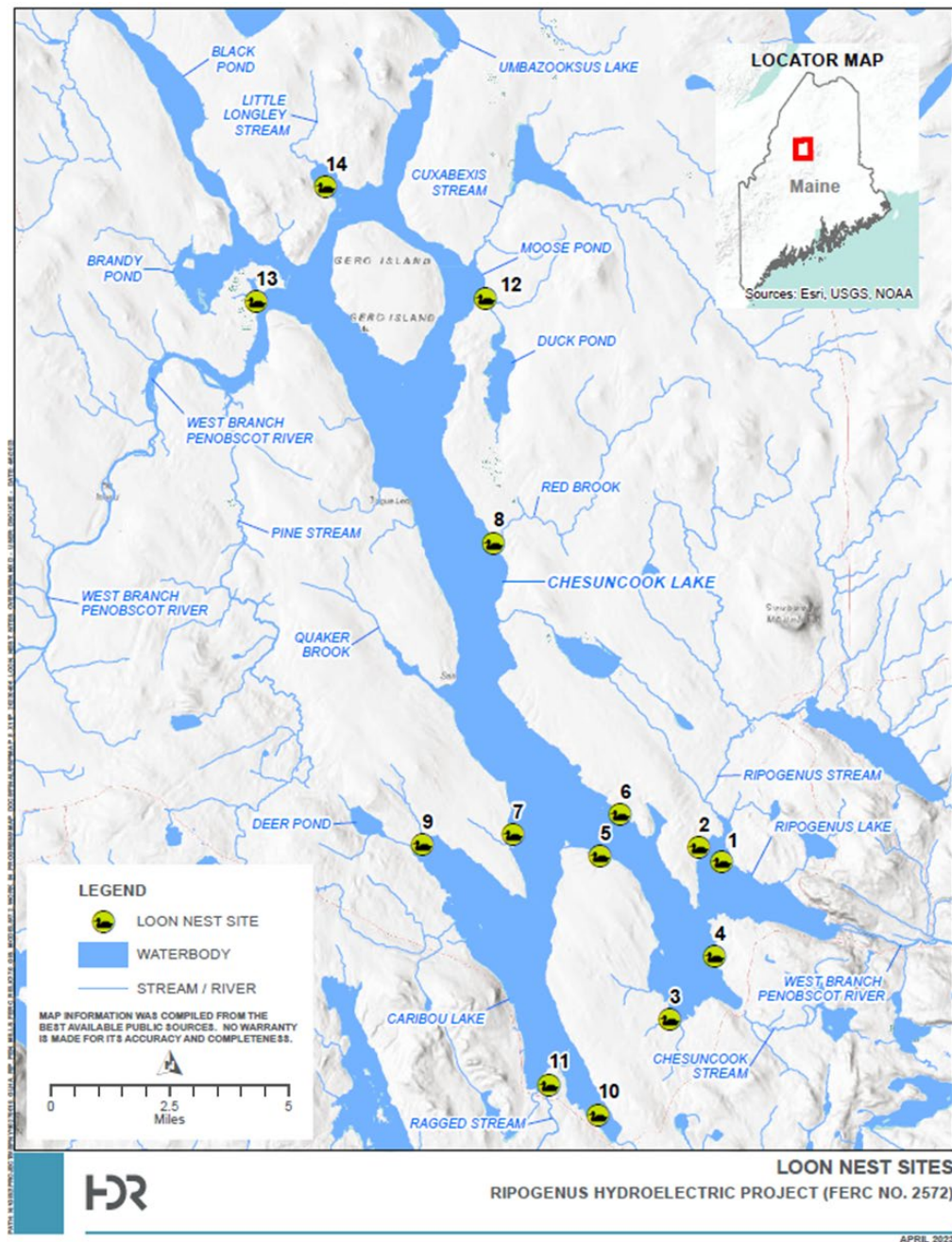
Pursuant to Article 409 of the existing Ripogenus Project license (issued on October 22, 1996), the Licensee developed (in consultation with the U.S. Fish and Wildlife Service [USFWS], Maine Department of Environmental Protection [MDEP], and Maine Department of Inland Fisheries and Wildlife [MDIFW]) a *Plan for the Design and Implementation of Artificial Nesting Structures for*

Common Loons, which was filed with FERC on October 22, 1997, and approved with modifications by FERC via order dated April 15, 1998. The plan, as modified by FERC, required the Licensee to conduct initial spring and summer loon surveys and file an associated report with FERC in 1998 with comments from the USFWS, MDEP, and MDIFW. In 1998, a spring survey was conducted to evaluate the existing loon nesting territories and suitable habitat locations on the Ripogenus impoundment. A summer survey was also conducted to monitor loon territories for the presence of surviving chick(s) and select site placements for artificial nesting platforms (rafts). Since loons are territorial, generally staying confined to their section of larger waterbodies during the breeding season, it was important to determine if successful natural nesting sites already occurred to inform placement of the platforms. The observed loons had partitioned the lake such that they appeared to be in nine separate territories generally consisting of Umbazooksus Stream, Brandy Pond, the West Branch inlet, Moose Pond, Chesuncook Lake (near Red Brook, Quaker Brook, and south of Quaker Brook), Caribou Lake, and Ripogenus Lake.

Based on the results of the 1998 study, the Licensee has since annually deployed nesting platforms throughout the Ripogenus impoundment. The Licensee also monitored the use of nesting platforms annually and at varying visitation frequencies, starting in 1999, and filed biennial reports, which were titled “*Surveys of Common Loon Habitat and Nesting Sites Report*,” with the resource agencies and FERC over a 10-year period. The results of nesting platform monitoring from 2000 through 2010 indicated that a total of 17 chicks were observed, of which 10 were from natural loon nests and 7 were from artificial loon nests. The 10 years of monitoring indicated that there were numerous factors that contributed to failed nesting/chick success, including fluctuations in impoundment elevation (both increases or decreases in water levels), predation of eggs or chicks, and abandonment of nests for unknown reasons.

Based on consultation with the resource agencies and approval by FERC in an order dated February 9, 2011, monitoring of the nesting platforms was discontinued after 2010, but the Licensee continued annual deployment of nesting platforms at the Ripogenus impoundment. The approximate locations of the 14 nest platforms deployed on the impoundment in 2022 are shown on Figure 1.

Figure 1
Approximate Locations of Artificial Loon Nest Platforms Deployed on the Ripogenus Impoundment in 2022



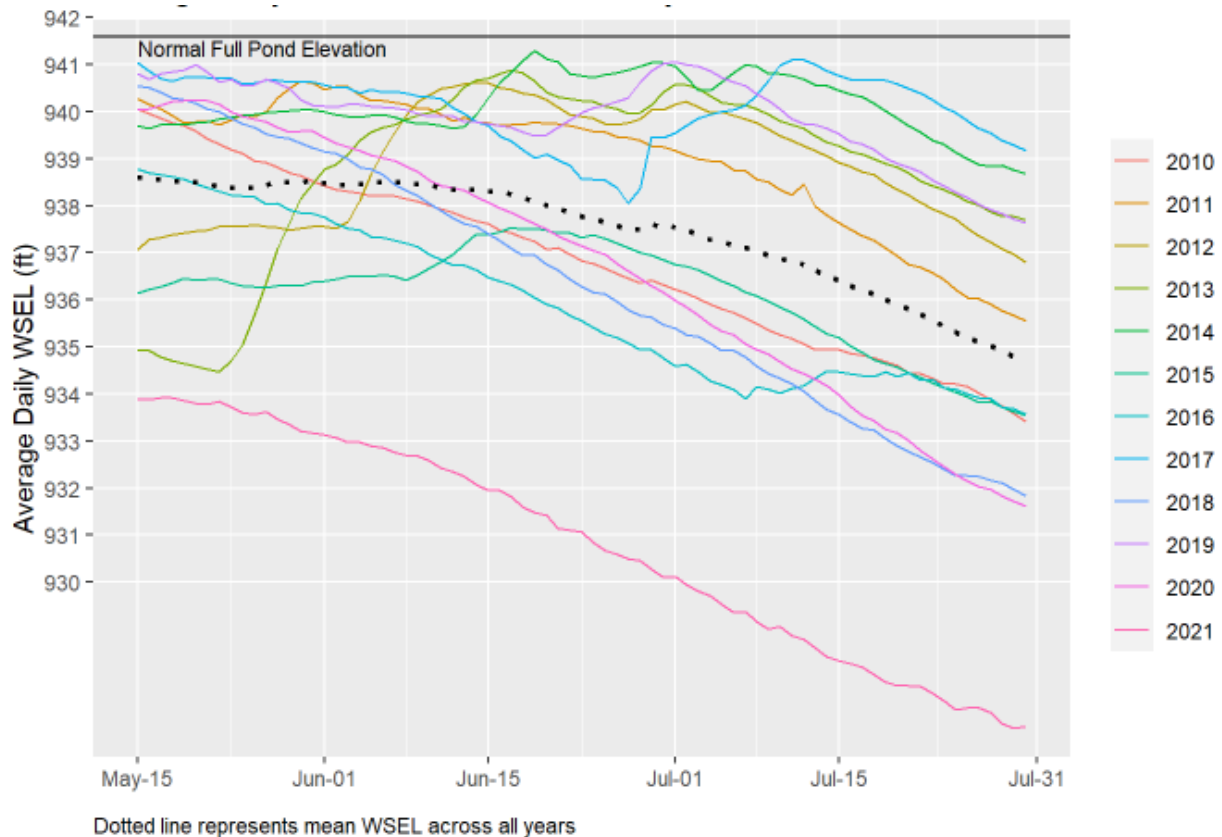
2.2 Historical Ripogenus Impoundment Elevations

The Ripogenus Project operates as a store-and-release development with an annual seasonal drawdown that allows for management of downstream water levels and flows. The normal full pond elevation of the Ripogenus impoundment is 941.59 feet with a target seasonal drawdown in

late winter/early spring of not more than 28 feet (elevation 913.6 feet). During a normal water year, the impoundment typically refills to near the full pond elevation by early May; however, the seasonal timing may vary based on the timing of ice-out and the spring freshet. Subsequently, the impoundment is gradually drawn down through the summer months to provide required flows downstream.

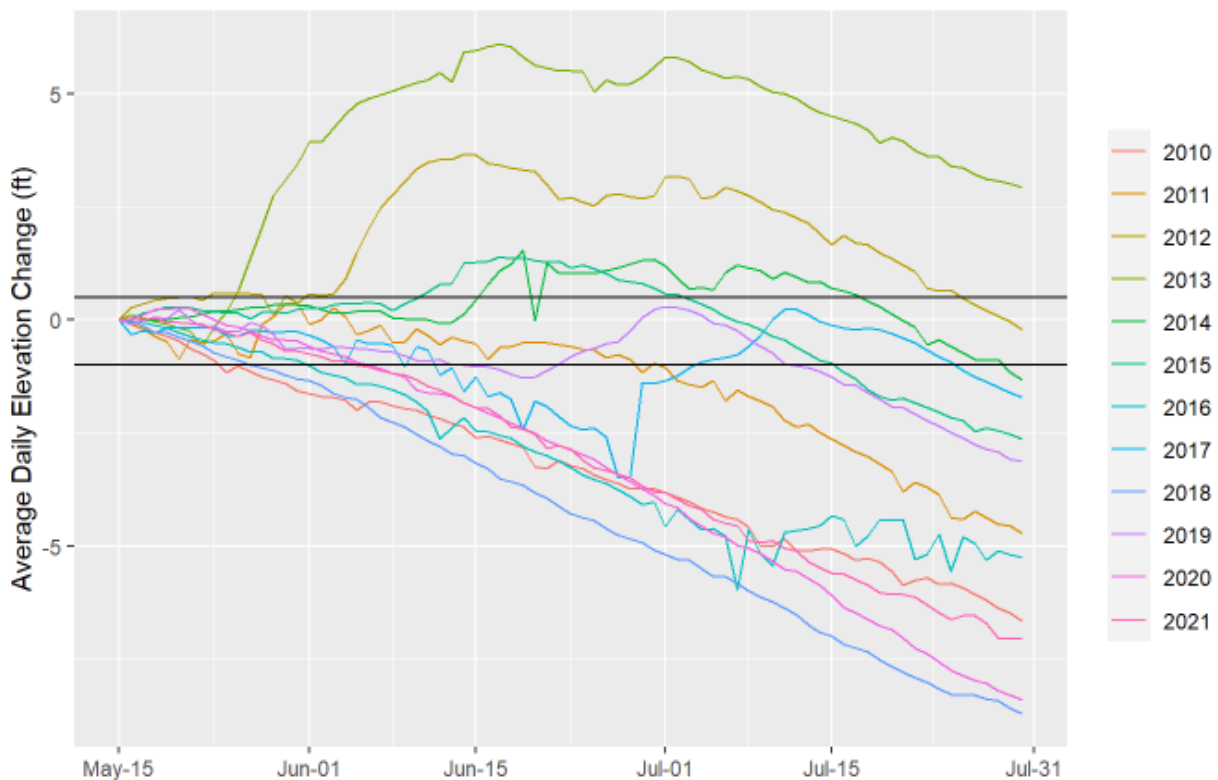
The average daily water surface elevations at the Ripogenus impoundment were analyzed during the loon nesting period (May 15-July 31) between 2010 and 2021 (Figure 2). In many years, the impoundment was refilled by early May, but then water levels gradually decreased throughout the nesting period. In 2012 and 2013, the impoundment refill occurred later in the season (mid-June). In 2015, 2016, and 2021, the impoundment did not fully refill in the spring, as these were dry water years.

Figure 2
Average Daily Water Surface Elevation by Year in the Ripogenus Impoundment During the Loon Nesting Period, 2010-2021



The average change in daily water surface elevation was also calculated during the loon nesting period for each year between 2010 and 2021 and was compared to the thresholds for avoiding impacts to nesting loons (i.e., less than 0.5-foot increase in water surface elevation or less than a 1-foot decrease in elevation over a 28-day period (Figure 3)). At the beginning of the nesting period, the average daily changes in water surface elevation were within the thresholds; however, the average change in daily water surface elevation was generally greater than the established thresholds throughout the remainder of the nesting period. Years when the water surface elevation increased significantly in late May or early June were a result of a late ice-out or spring freshet.

Figure 3
Average Change in Daily Water Surface Elevation by Year in the Ripogenus Impoundment During the Loon Nesting Period, 2010-2021



3.0 Goals and Objectives of the Plan

This Common Loon Management Plan (Plan) has been developed to mitigate the impacts of Project-related water level fluctuations on loon nesting success on the Ripogenus impoundment. The Plan is based on years of deployment of artificial nesting platforms on the Ripogenus impoundment, including the associated observations and consultation.

The goal of the Plan is to continue and boost the success of the artificial nesting platform deployment program to enhance nesting success of Common Loons on the Ripogenus impoundment.

The objectives of the Plan are to install and maintain artificial nesting platforms on the Ripogenus impoundment and to annually observe and record Common Loon breeding activity and reproductive parameters on the impoundment during the nesting season (late May through July).

4.0 Plan Implementation

4.1 Plan Area

This Plan will be implemented on the Ripogenus impoundment within the FERC Project boundary. The normal full pond elevation of the Ripogenus impoundment is 941.59 feet National Geodetic Vertical Datum of 1929 (NGVD29). The Ripogenus impoundment has six relatively distinct basins: Ripogenus Lake, Caribou Lake, Chesuncook Lake, Black Pond, Brandy Pond, and Moose Pond. The length of the impoundment is approximately 20.8 miles with a surface area of approximately 29,270 acres at elevation 941.59 feet.

4.2 Reconnaissance Survey/Year 1 Implementation

To obtain contemporary data regarding the number and location of nesting loons at the Ripogenus impoundment, a reconnaissance survey of the impoundment will be performed in late May/early June within 18 months following license issuance. GLHA will notify MDIFW of the planned dates of the reconnaissance survey to determine if MDIFW staff have interest and/or availability to participate in the survey. The reconnaissance survey will assess the existing number and location of artificial nesting platforms that have been deployed on Ripogenus impoundment per the 1996 license (Figure 1) and determine if modifications to the number or locations of the platforms are warranted per this Plan. The reconnaissance survey will consider platform locations in relation to anticipated water depths during the peak loon nesting period (May 15 through July 31) to ensure that platforms remain floating during this period. Nesting platform deployment will begin during or immediately after the initial survey, as qualified biologists determine territorial pairs and territories acceptable to the placement of artificial nesting platforms. Subsequent to the initial reconnaissance survey and deployment of the nesting platforms, monitoring of the platforms will

be conducted on an approximate weekly basis (dependent on safe field conditions) during the 3-month nesting season (May, June, and July). Loon monitoring and nesting site checks will be made by biologists with expertise in loon biology and management to determine nesting chronology, nesting attempts, clutch sizes, hatchling success, nest failures and their causes, and changes in territories. A summary report of the reconnaissance survey results and associated recommendations for the number and locations of the artificial nesting platforms will be provided to the USFWS and MDIFW for 30-day review prior to filing with FERC.

4.3 Artificial Nesting Platforms (Rafts)

4.3.1 Location and Number

Loon nesting platforms (rafts) have proven to be an effective management and enhancement tool for Common Loons nesting on large lakes and reservoirs (DeSorbo et al. 2007). Rafts are most successful in situations where loons have previously established territories and nested. Pairs that exhibit repeated nest failures due to water level fluctuations are prime candidates for this type of management measure. Proper placement and maintenance of the rafts is crucial for successful raft usage by nesting pairs. Rafts should be placed in an area that is sheltered from the wind and turbulent waters, and away from human disturbance (DeSorbo et al. 2008). If a territory does not contain a suitable area to place a raft, one should not be installed in that territory.

The number of rafts to be deployed annually on the Ripogenus impoundment is anticipated to be up to 14 rafts, but the locations and number actually deployed will be determined annually based on survey data and field observations by loon biologists. The addition, removal, or relocation of existing rafts will be made, as necessary, depending on considerations such as whether loon-nesting success is threatened by water level fluctuations, human disturbance, predation, etc.

4.3.2 Design

Each raft will be floated near shore and near its intended site. Natural vegetation, sedges, rush, moss, etc. found locally at the nest location will be placed on the platform (Photograph 1). Indigenous vegetation procured onshore will be planted on the corners of the platform/raft to provide stability and cover. Lastly, indigenous vegetation will be piled on the raft leaving sufficient material available for a potential nesting loon to access and utilize in its nest dish development.

Avian guards are effective in lessening platform visibility, nest exposure to aerial predators, and human disturbance, and they decrease flushing events and overall disturbance to nesting loons (Fair 1992). Avian guards may therefore increase incubation time by the adults and the hatching success of platform-nesting loons. Avian guards will be employed on the nesting platforms/rafts as appropriate and will be covered with camouflage mesh material (or equivalent), which may be removed at the end of the season to avoid degradation over the winter. An example of the type of nesting platform/rafts to be used during implementation of this Plan is shown in the photographs below.

Examples of Artificial Nest Platforms/Rafts



4.3.3 Deployment/Retrieval

Loon nesting rafts will be deployed in the spring of each year by approximately May 15, conditions permitting. Rafts will be located in areas of sufficient water depth and protection from wind and wave action. Additional rafts may be added or existing rafts relocated at any time during the nesting season. At the end of each nesting season, all rafts will be removed from the water and placed on the shoreline above the full pond waterline to dry. Annual removal of the rafts may also occur once biologists have determined that the area's territorial pair have completed or given up on nesting for the season. This will allow for raft removal prior to water levels decreasing to a point where the rafts are inaccessible for removal.

4.3.4 Maintenance/Replacement

During deployment of the nesting platforms in the spring, GLHA will perform as-needed maintenance and repairs or full replacement of a platform if it has deteriorated beyond repair. As described above, the vegetation on each platform will be refurbished and new nesting material will be added when necessary. Nesting platform replacement design will be similar to existing GLHA nesting platforms currently in use and will consider designs successfully deployed in northern New England and elsewhere. Given that the platforms are constructed of natural materials, upon replacement of a platform, non-natural materials will be removed allowing for natural decomposition of the retired raft.

4.4 Nesting Platform/Raft Management/Monitoring

Subsequent to annual deployment of the rafts, loon productivity at the Ripogenus impoundment will be monitored annually by boat and in some areas on foot. Surveys will be completed on an approximately weekly basis (pending safe field conditions) during the nesting season (May, June and July). Loon monitoring and nesting site checks will be made by biologists with expertise in loon biology and management to determine nesting chronology, nesting attempts, nest locations, clutch sizes, hatchling success, nest failures and their causes, and changes in territories.

Each year, the number and location of breeding loon territories will be determined and documented, including any newly established and/or abandoned territories as they occur. If territories are abandoned, biologists will make an assessment, if possible, of the cause(s) of territory abandonment. Loon nesting attempts on both rafts and natural sites will be documented.

Clutch sizes, hatchling success, and overall chick survival during the monitoring period will be documented. Failed nests will also be documented, and an effort will be made to determine a probable cause(s) for nest failure (e.g., predation, water levels, human disturbance, unknown, etc.). Such determinations will include the evaluation of impoundment water levels during the nesting season and consideration of fluctuating water levels as a potential cause for nest failure.

5.0 Reporting

5.1 Year 1 Reconnaissance Survey/Monitoring Report

A summary report of the reconnaissance survey, Year 1 monitoring results and associated recommendations for the number and locations of the loon-nesting rafts will be provided to the USFWS and MDIFW by October 30th for 30-day review and then subsequently filed with FERC by the following January 31st.

5.2 5-Year Monitoring Reports

Beginning five years after submitting the Year 1 Reconnaissance Survey/Monitoring Report, the Licensee will provide loon nesting monitoring results in a summary report. The report will include all loon monitoring data compiled over the previous five years at the Ripogenus impoundment. The report will be prepared by the Licensee and will be submitted to USFWS and MDIFW by October 30th following the fifth year of monitoring for their 30-day review and comment. The final report and agency comments will be filed with FERC by January 31st of the year following the conclusion of the five-year monitoring period.

If the results of the five-year monitoring period indicate that the introduction and management of loon-nesting rafts has successfully enhanced loon productivity, the Licensee will continue the annual loon-nesting raft program with continued reporting on a five-year basis. If at the conclusion of any five-year monitoring period the resulting report indicates that the deployment of nesting rafts is not required for loon productivity at the Ripogenus impoundment, the Licensee may, after consultation with USFWS and MDIFW and approval by FERC, discontinue this management plan.

6.0 Modifications to the Plan

Proposed modifications to this Plan will be submitted to USFWS and MDIFW for 30-day review and comment prior to submittal to FERC for approval.

7.0 Literature Cited

- DeSorbo, CR, D. K. Taylor, D. Kramar, J. Fair, J. Cooley, D.C. Evers, W. Hanson, H. Vogel and J.L. Atwood. 2007. Reproductive advantages for Common Loons using rafts. *Journal of Wildlife Management*, 71:1206– 1213.
- DeSorbo, C.R., J. Fair, K. Taylor, W. Hanson, D.C. Evers, H.S. Vogel, and J.H. Cooley, Jr. 2008. Guidelines for Constructing and Deploying Common Loon Nesting Rafts. *Northeastern Naturalist* 15(1):75–86.
- Fair, Jeff. 1992. A Cover for Loon Rafts to Obstruct Avian Depredation. In: L. Morse, S. Stockwell, and M. Pokras (editors) 1992 N. Amer. Loon Fund Conf. Proceed. USFWS. Concord, New Hampshire. Pp. 235-236.