EXECUTIVE SUMMARY

Non-native and invasive Eurasian watermilfoil has infested Lake Iroquois for at least 30 years. An integrated milfoil management program was eventually initiated. For many years, non-chemical control efforts have been performed, to try and keep Eurasian watermilfoil below nuisance densities. Survey efforts performed in September 2019 identified at least 40 acres that support milfoil in sufficient densities that are too great for management via non-chemical control efforts and warrant herbicide treatment in order to maintain control of EWM growth within Lake Iroquois. Additional details on existing efforts and the proposed project are outlined in the following pages.

PURPOSE

This document outlines a 5-Year Long-Term Management Plan targeting control of Eurasian watermilfoil (*Myriophyllum spicatum*) through continuance of the integrated, non-chemical approaches below. This Plan additionally outlines area-selective (40% or less of littoral zone) application of the aquatic herbicide ProcellaCOR EC. It is sought and anticipated for a five-year permit to be issued, understanding that annual approval for any treatment under that permit is required during any calendar year in which treatment is desired.

LIA proposes to continue the following Integrated Pest Management (IPM) approaches:

1) SCUBA Diver hand-pulling
2) (DASH) Diver Assisted Suction Harvesting
3) Snorkel hand-pulling (volunteer)
4) Selective installation of Benthic Barrier Matting
5) Greeter Program at the boat launch for increased Aquatic Nuisance Species awareness and watercraft inspections
6) Availability of Wash Station for hot wash treatment of watercraft entering and leaving the Lake
7) Vermont Invasive Patroller (VIP) surveys
8) Lay Monitoring for Lake water quality monitoring
9) Continuation of Lake tributary water quality monitoring (Contingent on LaRosa Partnership Program (LPP) funding levels and final approval)
10) Pursuit of grants that address problem areas contributing increased nutrient loads to the Lake
11) Continued pursuit of stream remediation projects that reduce sediment discharge into the lake
12) Collaboration with the Lake Iroquois Recreation District (LIRD) and the surrounding towns to reduce road runoff, and to mitigate erosion and sediment runoff at the beach and from LIRD property.
13) Sponsorship of outreach programs such as Septic Socials, the Lake Wise program, and continued education on shoreline protection and restoration
14) Education – outreach with member communications & volunteer training

INTRODUCTION

Lake Iroquois, known formerly as Hinesburg Pond and hereafter referred to as 'the Lake', is a 229-acre eutrophic kettle pond bordered by the towns of Hinesburg, Williston, and Richmond. The town of St. George also lies within the Lake's watershed. The Lake is situated in a valley bracketed by Dow Hill to the southeast and Mount Prichard on the west. The Lake lies about 15 miles from Vermont's principal urban area of Burlington and is the largest body of water in the LaPlatte River watershed, which drains to the greater Lake Champlain watershed.

The Lake was formed following the receding of the last ice coverage in Vermont about 15,000 years ago. Over the years, the Lake has naturally become more eutrophic, and has been the site of significant human development and use in the last 150 years. A dam constructed on the Lake's outlet in the mid-1800s led the spring-fed body of water to rise above the existing banks and was used to control the water supply to mills downstream in Hinesburg. These mills are no longer operational. Around the 1960s, the dam was intentionally cemented into its top position, retaining the pond at an artificially high level throughout the year. The outflow of the Lake is over the dam in the south end and forms Patrick Brook. It is interesting to note that historic U.S. Geological Survey and Town maps dating back to the 1800s show the stream formerly labeled as Pond Brook all the way to its confluence with the LaPlatte River. This outlet stream first flows into Sunset Lake (formerly known as Lower Pond) and eventually through the Town of Hinesburg, prior to draining into the LaPlatte River on its way to Lake Champlain.

EXISITING CONDITIONS

Presence of the invasive aquatic plant Eurasian watermilfoil was first confirmed in the lake near the state fishing access in 1990 (LIA SOTL Report).

EWM is widely distributed in Lake Iroquois, primarily in dense, continuous beds with plants growing to the surface. Comprehensive plant surveys were done in 2014, 2017 and 2019. The 2014 plant survey conducted by Northeast Aquatic (NEAR) found EWM to be covering approximately 71 acres of Lake Iroquois. DFWI identified 5 meters (~16 feet) as the maximum depth of colonization of EWM in Lake Iroquois. Based on available bathymetry data, approximately 41% of Lake Iroquois, or 100 acres of the lake's 244-acre total surface area, are capable of supporting EWM growth. The lake has a reported average depth of 19 feet and a maximum depth of 37 feet. The lake's watershed is estimated to be 2,618 acres, resulting in a drainage basin to lake basin ratio (DB:LB) of 11:1.

The 2017 plant survey, carried out by Darrin Fresh Water Institute, showed a slight decrease in the amount of EWM detected and no decrease in incidence of native aquatic species from 2014. Incidentally, it also showed some occurrence of curlyleaf pondweed, another aquatic invasive. The 2019 survey, also performed by Darrin Fresh Water Institute, showed a doubling in the frequency of occurrence of EWM – found at 42.6% of the 115 survey points; however, declines in the frequency of occurrence for the majority of native species were observed between 2017 and 2019. In all three of these surveys, EWM was shown to be the most common species present in Lake Iroquois.

Lake Iroquois supports a broad population of native aquatic plants. In 2014, NEAR documented 23 aquatic plant species; 19 were documented in 2017 by DFWI; and 25 in 2019, also by DFWI. Overall, this reflects a decrease in aquatic species present when compared to the 34 aquatic species present in the 2012 Lake Iroquois Association (LIA) species roster. As noted above, the subsequent plant surveys also indicate that EWM is the most commonly occurring aquatic plant

species in the lake. If the recent plant composition trends continue, it is possible that EWM will increasingly displace more of the native plant population as it expands further throughout the littoral zone. Curbing EWM's practically unhindered expansion and maintaining dense native plant growth in Lake Iroquois will be paramount to achieving long-term EWM control. The relatively high number of native species for a waterbody of Lake Iroquois' size illustrates the resilience of the system to resume growing in areas where EWM had previously been present.

HISTORY OF AQUATIC NUISANCE SPECIES CONTROL EFFORTS

To date, efforts to control the EWM infestation have included: hand-pulling, installation of benthic barrier mats, diver assisted suction harvesting (DASH), Vermont Invasive Patroller (VIP) volunteers, buoy installation to improve boating channels, Greeter Program that increases Aquatic Nuisance Species (ANS) awareness, and a Boat Wash station. Biological controls in the form of Milfoil weevils (*Euhrychiopsis lecontei*) were also used with limited effectiveness; however, it is noteworthy that it is difficult to source weevils in sufficient quantities.

Since 2009, the Lake Iroquois Association (LIA) has participated in the Vermont Boat Access Greeter Program by maintaining trained greeting staff at the state fishing access to inspect incoming and outgoing boats and trailers, educate boaters on invasive species, and record boater data. In 2016, LIA added a hot water wash station to enable greeters to clean boats as they enter or leave the lake.

Eurasian watermilfoil control efforts at Lake Iroquois expanded as EWM distribution and density increased over the years. Observation of accelerated EWM growth and expansion in recent years prompted LIA to evaluate alternate management strategies. Based on the positive experiences of other Vermont lakes in recent years, LIA began to consider the use of aquatic herbicides as part of an integrated pest management effort.

The Lake Iroquois Association has also undertaken numerous projects to reduce the nutrients and sediments flowing into the lake. These include several grant-funded projects to mitigate runoff from the streams on the west shore of the lake. More recently, the LIA collaborated with the Pine Shore Road Association and the town of Hinesburg to complete an ERP funded project. This project effectively restored the flood plain of the stream running parallel to Pine Shore Drive and mitigated sediment flowing from this Lake tributary. Lake Iroquois Association tributary monitoring program data showed this was one of the worst streams for phosphorous transport into the lake.

The LIA has continued to collaborate with the Lake Iroquois Recreation District on various projects to reduce sediment and nutrients in the lake and to control EWM around the LIRD beach area. These efforts include collaboration with LIRD on redesigning the drainage at the beach and creating a rain garden to reduce beach erosion. Beach erosion had long been a problem causing much of the beach sand to wash into the lake and required LIRD to replenish sand from elsewhere. Since completion of that project in 2015, minimal erosion has occurred at the beach during spring thaw and heavy rainfall events.

The LIA is currently collaborating with the LIRD to design and implement a plan to remediate LIRD's portion of Beebe Lane. This stream shows the highest average phosphorous levels of any feeding the lake based on LIA tributary monitoring program data and experiences considerable

sediment transport into the lake. As of 2019, the engineering design is complete and LIRD and LIA are seeking funding for the implementation phase of the project.

The LIA has worked with the LIRD in recent years to provide DASH around the beach area and to help place benthic mats there to maintain a clearer swimming area.

Based on the non-chemical control management efforts undertaken in 2019, coupled with the survey results from DFWI's fall 2019 survey efforts, there are EWM areas within Lake Iroquois that are beyond control with non-chemical means alone. However, the LIA acknowledges that EWM in Lake Iroquois cannot be controlled by ProcellaCOR alone and intends to continue their intensive integrated management program efforts as well.

OBJECTIVES/GOALS

Principal objectives of the five-year integrated management plan being proposed for Lake Iroquois are:

1. Effectively control invasive Eurasian watermilfoil growth to promote a diverse native plant community, to improve fish and wildlife habitat, and to support recreational use of the lake.

2. Achieve multiple-year Eurasian watermilfoil control in treatment areas in order to reduce the scope, frequency and cost of follow-up treatments in subsequent years in order to utilize other control efforts in the IPM.

3. Continue to use a combination of EWM control techniques as outlined in the aforementioned IPM in addition to treatment with systemic-acting ProcellaCOR EC herbicide, to achieve the desired level of EWM control in the most cost-effective fashion, while minimizing non-target impacts.

4. Prevent the introduction and establishment of any other aquatic nuisance species in Lake Iroquois as outlined in the 'Purpose' section above.

The overall goal is not to treat Lake Iroquois on an annual basis, but rather to manage the EWM infestation via the available control methods and their appropriate integration.

PROCELLACOR™ EC HERBICIDE TREATMENT PLAN

After receiving its full aquatic registration from the EPA in February 2018, ProcellaCOR was used in numerous locations throughout the country for control of milfoil and other susceptible invasive aquatic plants. In 2018 in New England, SŌLitude applied ProcellaCOR at approximately a dozen locations in New Hampshire and Connecticut for the control of variable milfoil and Eurasian watermilfoil. In 2019 in Vermont, SŌLitude applied ProcellaCOR at four waterbodies; while many waterbodies in New York, New Hampshire, Massachusetts, Maine, and Connecticut were also treated with ProcellaCOR. Results of all treatments performed to date have been extremely positive, achieving nearly complete control of targeted milfoil growth with little or no impact to non-target native plants. Documentation from use in 2019 on the selectivity of ProcellaCOR at Vermont projects has been provided to VT DEC, and it has proven to be even

more selective for EWM control in Vermont lakes than has been achieved using Sonar (fluridone) or Renovate (triclopyr) herbicide in recent years.

Previously issued ProcellaCOR EC herbicide permits issued by Vermont DEC for other waterbodies have been conditioned such that only a maximum of 40% of the littoral zone (or area where light penetrates enough to support plant growth) can be managed in any one calendar year. This management includes the use of DASH, bottom barriers and/or herbicide, but excludes hand-pulling as that can be done at any time without a permit. The littoral zone of Lake Iroquois is 100 acres, which means only 40 acres can be managed with any method or combination of methods in a given year. For 2020, the LIA is proposing to treat approximately 40 acres with ProcellaCOR EC herbicide.

The 40% management limitation to the littoral zone of a given waterbody is the protective measure that DEC has provided in order to minimize any significant impacts to the waterbody as a resource to all of its users. Additionally, the 40% threshold allows for wildlife habitat to remain protected. For example: EWM is not ideal fish habitat, but if few native aquatic plant species are present within the respective waterbody, then EWM is likely acting as some fish habitat. As such, the intention is not to impact the entire habitat in order to maintain an appropriate balance within the system; a compromise. Based on ProcellaCOR's reduced risk profile issued by the US EPA and it's overall brief presence within the water (24-48 hours maximum; reported photolytic half-life is 0.07 days or 1.68 hours), there are no cumulative adverse impacts anticipated to affect the lake as a resource for its users.

Excellent selectivity and minimal impact to non-target species has been demonstrated with ProcellaCOR treatments that have been performed in Vermont and the Northeast to date. Of the other species reported in Lake Iroquois by DFWI in 2019, the only plants that may show some impact following treatment are Coontail *Ceratophyllum demersum*), and white waterlilies (*Nymphaea odorata*). Coontail is typically not impacted by ProcellaCOR treatments except when using rates of 4+ PDUs/ac-ft; while the white waterlilies may show some discoloration and twisting, depending on their proximity to the treatment area(s), before outgrowing the symptoms.

Use of this herbicide is intended to supplement LIA's current integrated, long range pest management program outlined in the Purpose section. Herbicide treatment will be used to target areas of the most abundant EWM growth, while the non-chemical techniques will be utilized on smaller and more widely scattered patches in subsequent years. The program objective will be to initially reduce the distribution and density of EWM and subsequently minimize herbicide use. Undoubtedly, others areas of Lake Iroquois would be significantly more infested with EWM growth if it were not for LIA's diligent and intensive non-chemical management programs. LIA also remains committed to initiating and supporting responsible and practical watershed management protection measures.

The treatment program being proposed at Lake Iroquois involves the treatment of approximately 40 acres of EWM growth that was documented during the survey in September 2019 by DFWI as shown in the attached map(s). EWM growth in these areas is now too abundant to be cost-effectively managed using suction harvesting, bottom barriers or hand-pulling, as was attempted during the summer of 2019 and prior summers.

ProcellaCOR herbicide is used as a one-time application during each year when it is to be used; however, which control method (DASH, bottom barriers, ProcellaCOR, etc.) is the most appropriate for use will be determined annually based on EWM densities and distributions. . It is anticipated that treatment areas would experience multiple years of control following one treatment effort. However, it is understood that any fragments entering the treated area(s) from unmanaged areas elsewhere in the lake may allow for the population to be reestablished within that area. Thus, diligent control and spread prevention measures, as LIA has already undertaken and will continue, must be taken by all lake users in order to mitigate future spread potential at Lake Iroquois as well as other waterbodies nearby.

The treatment program is expected to follow the below timeline and protocol:

Date	Task
September	Late season survey to document EWM infestation
January	Project review and meeting with DEC, if necessary
February	Submission of permit application for 2020 treatment
May	Early season survey to develop final treatment map. Submission of map and specific treatment plants to DEC for review and approval. Perform required pre-treatment notifications.
June	Schedule and conduct ProcellaCOR herbicide treatment
July – September	Surveys / inspections and sampling
November	Submission of annual report identifying preliminary plans for upcoming year
December / January	Project review and meeting with DEC, as necessary

Based on the recent treatment experiences with ProcellaCOR herbicide at other New England lakes, and input from SePRO Corporation, the following protocols are recommended for the proposed ProcellaCOR treatment at Lake Iroquois in 2020 and future years, if needed:

1. Formulation – Utilize ProcellaCOR™ EC herbicide. This is a liquid formulation.

2. Application – A solution of ProcellaCOR diluted with lake water would be prepared in a mixing tank onboard the treatment boat and the solution will be evenly injected throughout the designated treatment areas using trailing drop hoses and a calibrated pumping system.

3. Timing – Treatment would be scheduled for anytime between early June and early September (temperature dependent) period when there is sufficient EWM growth to maximize herbicide uptake.

4. Rate – The recommended application rate (dose) is based on the percentage of the waterbody being treated and the susceptibility of the target plant. EWM has proven to be especially susceptible to ProcellaCOR allowing for low application rates to be used.

The EPA label allows for application of 25 Prescription Dose Units (PDUs) per acre-foot of water being treated. Based on the high susceptibility of EWM, the recommended application rate for Lake Iroquois is up to 3 PDUs per acre-foot. The 3 PDU application rate is only 12% of the maximum allowable application rate listed on the product label.

This treatment strategy was employed at Lake Morey, Lake Hortonia, Lake Saint Catherine and Burr Pond in 2019. All of the aforementioned projects were conducted in the same way that Lake Iroquois' project is proposed under this application. All results from each of those treatments, as well as overall lack of non-target impacts, were incredibly successful.

Herbicide	**ProcellaCOR™ EC** Liquid formulation EPA Reg. No.: 67690-80 Active Ingredient: florpyrauxifen-benzyl 2.7% 1 PDU is equal to 3.2 fl. oz.
Application Rate	Up to 3 PDU per acre-foot
Treatment Area	Approximately 40 acres – see attached map ** Actual acreage is anticipated to be finalized in May 2020*
Total product to be Applied	960 PDUs (24 gals) maximum ** Assumes average depth of 8 feet per treatment area; Actual quantity to be applied may be reduced following pre-treatment inspection to finalize treatment areas in May 2020*
Target Concentration	1 PDU of ProcellaCOR EC (3.2 fl. oz) achieves 1.93 ppb/acre foot The proposed application rate of 3 PDU/ac-ft will result in concentrations of 5.79 ppb within the treated areas. Treating 40 acres at 3 PDU will yield a theoretical maximum lake-wide concentration of 0.47 ppb
Treatment Timing	Between early June and early September 2020 Delay treatment until there is sufficient active EWM growth to maximize herbicide uptake
Method of Application	The liquid formulation will be diluted with lake water and evenly applied throughout the designated treatment areas using a calibrated pumping system and trailing drop hoses. GPS systems with WAAS or differential accuracy will be used to provide real-time navigation and to ensure that the herbicide is evenly applied throughout the designated treatment areas.

IMPACTS TO NATIVE PLANT COMMUNITY AND WILDLIFE

Significant adverse impacts to the native plant community are not expected from the proposed ProcellaCOR herbicide treatment at Lake Iroquois. Data gathered by SePRO Corporation during

the product registration process and actual results documented during the 2018 and 2019 treatment seasons have shown that EWM is highly susceptible to low rates of ProcellaCOR. Few, if any, adverse impacts are expected on most non-target native plants at the rate anticipated for use at Lake Iroquois.

At treatments performed by SŌLitude in 2018 and 2019, the only temporary impacts seen were slight stem twisting and leaf curling on watershield (*Brasenia screberi*), white waterlily (*Nymphaea odorata*) and yellow waterlily (*Nuphar variegata*), but the plants grew out of the symptoms after a period of several weeks. Although coontail (*Ceratophyllum demersum*) is on the ProcellaCOR label as a potentially impacted species, it has been observed that only application rates about 4 PDUs/ac-ft have any observable impacts on coontail. Of the 2019 Vermont ProcellaCOR applications, the only impact observed was to the waterlily species at Burr Pond in Sudbury as the treatment area was directly adjacent to the shoreline patch. The waterlily pads turned slightly yellow and brown, had some lifting and twisting of the pads, but eventually grew out of the symptoms before the end of the season. These impacts were anticipated and not of concern.

The ProcellaCOR EC label identifies the species that are susceptible to the herbicide, which include the following species known to be within Lake Iroquois and downstream in Sunset Lake (Lower Pond): watershield (*Brasenia schreberi*), coontail (*Ceratophyllum demersum*), and Eurasian watermilfoil (*Myriophyllum spicatum*). There are additional species listed on the ProcellaCOR label which may be susceptible to treatment, however they are not known to be present within Lake Iroquois or Sunset Lake. Additionally, based on ProcellaCOR experience at other waterbodies in Vermont and the northeast, white waterlilies (*Nymphaea odorata*) can also be susceptible, but only show slight twisting and discoloration symptoms which are outgrown approximately 4-8 weeks following treatment. Further, all potentially susceptible species have susceptibilities dependent upon their proximity to the treatment areas and the dose being applied – i.e. if a patch of watershield is not located close to any treatment area, it would be anticipated that the watershield would be unimpacted.

Non-target impacts to Sunset Lake are also anticipated to be minimal, as treatment areas will be located in the northern end of Lake Iroquois. Based on the rapid absorption of ProcellaCOR into EWM plants, if any ProcellaCOR were to flow into Sunset Lake it would be even further diluted; if any impacts were to happen, it would be anticipated that EWM plants would be impacted and nothing else.

Based on the list of species documented in Lake Iroquois by DWFI in 2019, only white waterlilies and coontail may be impacted depending on their proximity to the treatment area(s). Based on the proposed treatment rate (3 PDUs/ac-ft), there are no impacts anticipated to any coontail plants. A complete list of plant species found in Lake Iroquois can be found in DFWI's 2019 survey report, which is included in this application.

No impact to State protected plant species is anticipated following treatment with ProcellaCOR herbicide. Of the State listed species previously observed in Lake Iroquois according to the VT DEC Lake Score Card, none are anticipated to be adversely impacted by a ProcellaCOR herbicide treatment.

It is understood that although wetlands are present within Lake Iroquois and Sunset Lake, the only anticipated impact would be that of reduction in EWM plants and all other non-target impacts to wetland areas would be negligible.

Following treatment efforts, the plants within the treatment areas would be anticipated to follow a similar decomposition timeline as follows: within a week of treatment – EWM plants are anticipated to be leaning over within the water column; within two weeks of treatment – EWM plants are anticipated to be leaning and more fallen over within the water column, beginning to brown and get discolored, and if touched, the plants would be anticipated to easily break apart, however fragments of these plants are no longer viable; within three weeks of treatment – EWM plants are anticipated to be completely fallen within the water column and be difficult to find even along the bottom sediment. As a result of the timeframe of decomposition, and minimal amount of area to be managed utilizing ProcellaCOR relative to the overall waterbody acreage, there is no additional concern for an algal bloom beyond what may be present in any one given year at a waterbody of Lake Iroquois' nature.

The permit application is anticipated to be conditioned to limit EWM management (all herbicide use, diver-assisted suction harvesting, and benthic barrier use) to 40% of the littoral zone.. The 40% threshold was established by DEC to maintain and protect existing fish and wildlife habitat, as a result, the habitat will not be changed significantly enough to be permanently changed. Overall, EWM is not beneficial habitat for fish.

Based on the ecotoxicological testing completed for ProcellaCOR, there was no toxicity observed for avian, fish, or other species exposed to the product during both short and long-term studies. It should be noted that these testing efforts included higher concentrations than even those available at the maximum label rate. Additional documentation from the State of Washington's review of ProcellaCOR is attached.

WATER USE RESTRICTIONS AND NOTIFICATIONS

Water Use Restrictions – The only water use restrictions listed on the current ProcellaCOR™ EC label are all centered around the use of ProcellaCOR treated water for irrigation purposes. There are no restrictions on using ProcellaCOR treated water for drinking water, swimming or fishing.

However, it is anticipated that Vermont DEC will condition the permit similarly to others issued for ProcellaCOR use in 2019; on the day of treatment, no use of the treated waterbody and associated outlet stream up to one mile downstream is recommended for any purpose, including swimming, boating, fishing, irrigation, and all domestic uses. Additional advisories and recommendations related to irrigation and the use of treated waters are to follow what is listed on the ProcellaCOR EC label.

Irrigation restrictions vary depending on what is being irrigated. Turf may be irrigated immediately after treatment without restriction. Irrigation of landscape vegetation and other non-agricultural plants can occur once ProcellaCOR concentrations are determined to be less than 2 ppb or by following a waiting period that is 7 days for the use rates being proposed.

Based on sample results of prior ProcellaCOR applications in Vermont, it is not anticipated that ProcellaCOR will travel downstream past Sunset Lake given the increased dilution at its headwaters, plus any absorption by EWM assuming it were to travel as far as Sunset Lake.

Based on prior ProcellaCOR application review in Vermont, the Vermont Department of Health had issued a favorable drinking water review for ProcellaCOR, which states application accordingly to the label would pose a negligible risk to public health. It is anticipated the agency's review for Lake Iroquois would be similar.

Written Notification – In accordance with the Vermont DEC permit conditions, all direct waterfront abutters of the treated waterbody and up to one mile downstream will be notified in writing by USPS mail. This will include notification of permit application submittal and prior to any herbicide treatment, which will occur two weeks in advance of the date of treatment.

As one mile downstream of Lake Iroquois' outlet is a distance beyond the outlet of Sunset Lake, the LIA has chosen to notify all direct waterfront abutters on Sunset Lake .

Posting – In accordance with VT DEC permit requirements, the adjacent shorelines and access points to the lake will be posted with signage warning of the pending herbicide application and water use recommendations to be imposed. The signs will include language specified by VT DEC for this purpose. The signage will be the source of information for the specific treatment areas and water use restrictions and will include the website(s) where additional treatment information can be accessed.

SURVEYS AND MONITORING

Consistent with other Five-Year Integrated Management Plans for Vermont waterbodies and existing efforts undertaken by the LIA, the organization proposes to continue the comprehensive late season aquatic plant survey as conditioned in the permit. By conducting annual survey efforts, changes in EWM and native aquatic plant species distributions and densities can be tracked effectively to align management efforts for the following season.

FIVE-YEAR EURASIAN WATERMILFOIL MANAGEMENT PROGRAM BUDGET ESTIMATES

Project cost estimates for the Five-Year Eurasian Watermilfoil Management Program being proposed at Lake Iroquois is provided in the following table. Please note that these are estimates subject to the availability of funds and any changes in costs.

The five-year management plan and associated project cost estimates are provided to illustrate the applicant's understanding and dedication to the long-term commitment of an integrated EWM management program. According to the DFWI repor of 2019, EWM was found in 86% of the littoral zone. These budget estimates assume herbicide treatment in Years 1 and 2 of most of the portion of the littoral zone where EWM is found in order to gain control of the infestation. Thus in Year 1, 40% (approximately 40 acres at the north end of the lake) of the littoral zone will be treated.. In Year 2, an additional 30% to 40% of the littoral zone – the exact amount depending on results of the plant survey after Year 1 treatement - will be treated with herbicide and some benthic mats will also be used. In Year 3, it is hoped that no herbicide will be necessary and that non-herbicide methods will suffice to control any remaining EWM. The decision on exact

methods to use will depend on the results of the plant survey after Year 2 treatment. Years 4 and 5 involve only use of non-herbicide barrier and mechanical methods.. This is an estimate only and actual costs will be dependent on needs shown by data collected each year and on availability of funds.

Estimated Program Costs – 2020 dollars	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Description	2020	2021	2022	2023	2024
Herbicide treatment	$ 52,000	$39,000 – 52,000-	$-		$ -
Suction harvesting	$ -	$	$ 15,000	$6,000	$6,000
Benthic Barriers		$500	$500	$500	$500
Monitoring/annual aquatic plant surveys	$ 5,000	$ 3,500	$ 3,750	$ 3,750	$ 3,750
Notification (mailings, signs, etc.)	$1,500	$1,500-	$ -		$ -
LIA Expenses (consultant for permit prep, meetings, miscellaneous)	$4,000				
Totals	$62,500	$44,500- $57,500$	$19,250	$10,250	$10,250

CONCLUSION

These efforts are undertaken to protect the lake ecosystem through reduction and control of invasive EWM.It is an ongoing collaboration between LIA and LIRD, the surrounding towns, lakefront property owners, lake users, and the state of Vermont. These mitigation efforts require an integrated management plan utilizing all available methods of control and stakeholder involvement. This plan strives to achieve this objective. The plan is fiscally sound and will effectively aid reduction and control of EWM meanwhile increasing potential for rebound of native aquatic species. This plan includes continued pursuit of our stream remediation and runoff mitigation projects to achieve nutrient reduction goals. These goals will additionally serve to discourage EWM growth and strive to achieve enhanced lake water quality and a healthy lake ecosystem.