pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0276014**
Facility Type	**Pesticides**	APS ID	**944794**
Permit Type	**Individual**	Authorization ID	**1410350**

NPDES PERMIT FACT SHEET PESTICIDES

Applicant and Facility Information

Applicant Name	**Lake Naomi Club**	Facility Name	**Lake Naomi**
Applicant Address	Rte 423, PO Box T	Facility Address	Rte 423, PO Box T
	Pocono Pines, PA 18350		Pocono Pines, PA 18350
Applicant Contact	John Lamberton	Facility Contact	John Lamberton
Applicant Phone	(570) 646-9191	Facility Phone	(570) 646-9191
Client ID	33102	Site ID	450103
SIC Code	7999,9999	Municipality	Tobyhanna Township
SIC Description	Public Admin. – Non-classifiable Establishment, Services - Amusement and Recreation, NEC	County	Monroe
Date Application Received	August 31, 2022	WQM Required	Yes
Date Application Accepted	August 31, 2022	EPA Waived	No
Purpose of Application	Renewal of NPDES permit.		

Internal Review and Recommendations

The applicant is requesting renewal of an NPDES individual permit for a discharge from the application of pesticides to control weeds and algae in Lake Naomi. The lake is located on Upper Tunkhannock Creek, which is a High Quality-Cold Water and Migratory Fish (HQ-CWF, MF) receiving water in State Water Plan Basin 2-A (Upper Leigh River). Per the Department's current existing use list, the receiving stream does not have an existing use classification that is more protective than the designated use.

A Pesticides Discharge Management Plan (PDMP) was not submitted with the application since the permittee is not considered a large entity as per DEP guidance. WQM Permit application **4517801** for joint PA DEP and PA Fish and Boat Commission authorization was received by the Department on August 29, 2022.

The application proposed to use the following pesticide and application rate for these target species:

Pesticide	Manufacturer & EPA Reg. No.	Planned Max Dose	No. Treatments per year	Target Pests
Clipper	Valent 59639-161	1.1 lb/acre-ft	3	Cabomba caroliniana Utricularia vulgaris Myriophyllum spicatum
Sonar One	SePro 67690-45	13.5 lb/acre	1 full or 2-3 split	Cabomba caroliniana
Tribune	Syngenta 100-1390	2 gal/acre	3	Myriophyllum species Utricularia vulgaris

Approve	Deny	Signatures	Date
X		*Brian Burden* Brian Burden, E.I.T. / Project Manager	December 31, 2022
X		Amy M. Bellanca (signed) Amy M. Bellanca, P.E. / Environmental Engineer Manager	1-4-23

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Captain	SePro 67690-9	1.5 gal/acre-ft	3	filamentous algae
Aquaneat	Nufarm 228-365	7.5 pt/acre	2	Juncus sp.

Pesticide changes since previous permit: Aquaneat replaced Rodeo and Clipper replaced Schooner. The same doses and target pests are proposed.

PNDI-731382 review receipt was included with the application. The Pennsylvania Game Commission indicated the project is not expected to impact mammals or birds in a letter dated July 21, 2021. PA DCNR requested a botanical survey of Branching Bur-reed (*Sparganium androcladum)* and Yellow Cowlily (*Nuphar microphylla)* in a letter dated April 29, 2021. The results of the survey shall be provided to DEP before final permit issuance.

The public drinking water intake GIS map provided by NERO's Safe Drinking Water program as well as DEP's internal eMapPA both show the nearest public water supply intake location to be a Hazleton City Authority intake on the Lehigh River approximately 35 miles downstream of Lake Naomi.

Part C.VI (Authorized Pesticides and Application Rates) is carried over from the previously issued permit. There are no open WPC NPDES violations for the client that would warrant withholding issuance of the final permit. There are currently 4 open Safe Drinking Water and 4 open Storage Tanks violations for the client.

The receiving water is classified as a high-quality cold water / migratory fishes (HQ-CWF, MF) receiving stream and the required antidegradation modules were submitted with the application for each pesticide. The narrative discusses non-discharge alternatives that were considered but were determined to be infeasible/ineffective. The applicant proposes use of appropriate pesticides for the purpose, with minimum effects to non-targeted species, and application at the lowest effective dose. These factors will minimize short-term impacts on water quality. EPA has previously evaluated the registered pesticides in accordance with FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) for usage as aquatic pesticides, taking into account human health and ecological risk assessment, and determined that usage following the most recent pesticide labels were protective. Therefore, the requirements of §93.4a and §93.4c (b)(1)(i) are satisfied. Antidegradation module narrative summaries are included below for each proposed pesticide:

Aquaneat:

Lake Naomi is a 238-acre lake at the center of a residential and vacation community. Most of the forested shoreline contains low density housing. It is heavily used for recreational activities (fishing, boating, and swimming). Rushes (Juncus sp.) is a native desirable plant that makes excellent habitat. On Lake Naomi it is found in heavy densities along the northern shoreline extending 10-20 feet from shore. Growing around docks and in front of homes, it impedes recreational use of the lake by obstructing access to open water. Maintaining boat lanes or 10 x 20 ft open channels in the rushes will allow residents to launch their boats to use the rest of the lake without boating through habitat. It will also reduce the safety hazard to swimmers who may become entangled in plant growth. In other areas not used for open water access, rushes will be encouraged to grow. Sporadic stands of Phragmites can be found growing along the northern shoreline extending 5-10 ft out into the water. Currently Phragmites are not being treated but control may be desired in the future to reduce spread.

If a no-action approach to aquatic plant management would be conducted, the plant community would continue to extend further into the open water increasing in density. Recreational use for the affected shoreline homeowners would be restricted further.

Due to the existing plant populations, and external sources of introduction, preventative measures are not feasible for the target plants. Education regarding boat cleaning has been conducted, and signs are posted at boat launches.

Mechanical harvesting has been conducted, and is still a viable, and occasionally still implemented management alternative. Due to the shallow growth habitat of rushes and Phragmites, mechanical harvesting is not an option. Physical control through hand cutting will be discussed in conjunction with herbicide treatment. Lake wide aeration has not been investigated but will always remain a management alternative for potential implementation.

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The Club has been encouraged to educate the residents on Best Management Practices suitable to the watershed for the protection of the water body. The community posts signs regarding cleaning of boats and boat trailers to prevent hitch hiker plant introduction and transport. SOLitude Lake Management has performed three separate plant projects to introduce various native submersed, floating, and emergent aquatic plants.

Lake Naomi is not a good candidate for biological control as there is no known biological control for rush management and no reliable biological control for Phragmites.

Glyphosate (Aquaneat) has been chosen to treat rushes and Phragmites because it can be precisely applied as a foliar application to the target plants/area resulting in little to no affect to non-target areas. A dose rate of 7.5 pt/acre was chosen because it is considered a minimally effective dose rate and an approved label rate. There are no water use restrictions on swimming or fishing following treatment with Aquaneat, however, it should not be applied within 1/2 mile of potable water intakes. If it is, the intakes should be turned off for 48 hours after treatment. The only water uses on Lake Naomi are recreational, swimming, fishing and boating. Any use not related to recreation is prohibited by Lake Naomi Club. Glyphosate reduces quickly through dispersion in water, binding on sediments and microbial decomposition. A targeted foliar application should result in little overspray into open water.

Captain:

Filamentous algae can interfere with recreational uses when allowed to form mats.

If a no action approach to aquatic plant management would be conducted, the plant community would develop nearly lake-wide due to the elaborate littoral zone of the lake. Recreational activity may not be possible. The plant growth would have significant negative impacts on the fishery and water quality from excessive plant densities.

Due to the existing plant populations, and external sources of introduction, preventative measures are not feasible for the Ðarget plants. Education regarding boat cleaning has been conducted, and signs are posted at boat launches.

Mechanical harvesting has been conducted, and is still a viable, and occasionally still implemented management alternative. Filamentous algae generally grow in areas and at depths that are not practical for mechanical control. Lake wide aeration has not been investigated but will always remain a management alternative for potential implementation.

The Club has been encouraged to educate the residents on Best Management Practices suitable to the watershed for the protection of the water body. The community posts signs regarding cleaning of boats and boat trailers to prevent hitch hiker plant introduction and transport. SOLitude Lake Management has performed three separate plant projects to introduce various native submersed, floating, and emergent aquatic plants.

Lake Naomi is not a good candidate for biological control as there is no known biological control for target plant growth.

The chelated copper algaecide (Captain) is the choice for control of filamentous algae mats. Chelated algaecides have a longer contact time and are less toxic to non-target organisms than other forms of copper algaecides such as copper sulfate. Captain will be applied at a rate of 1.5 gal/acre-foot as per label instructions for filamentous algae control in softer water bodies. There are not water use restrictions following treatment with the product. Captain precipitates out of the water over a few days and settles into sediments.

Clipper:

The target submersed invasive plant, fanwort (Cabomba caroliniana), if left unmanaged can crowd out native submersed vegetation altering habitats. As it reproduces by fragmentation, can more easily infest new areas of the lake and potentially water bodies downstream. Herbicide treatments since 2018 have resulted in an overall reduction in density but this plant still forms large patches (3-5 acres in size and some as large as 10 acres) in the open water. These patches reach the water surface creating a safety hazard to swimmers and paddle boarders. Common bladderwort (Utricularia vulgaris) and low water milfoil (Myriophyllum humile) are considered desirable for habitat and water quality improvement. These species only become target plants when recreational use is impeded.

If a no action approach to aquatic plant management would be conducted, the plant community mostly consisting of fanwort would develop nearly lake-wide due to the elaborate littoral zone of the lake. Recreational activity would not be possible.

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Fanwort would displace all other submersed aquatic plant growth. The plant growth would have significant negative impacts on the fishery, and water quality from excessive plant densities.

Due to the existing plant populations and external sources of introduction, preventative measures are not feasible for the target plants. Education regarding boat cleaning has been conducted, and signs are posted at boat launches.

Mechanical harvesting has been conducted, and is still a viable, and occasionally still implemented management alternative. Mechanical harvesting can be effective for bladderwort. Low water milfoil generally grows in areas and at depths that are not practical for mechanical control. Mechanical control of fanwort, while immediately effective, increases overall plant abundance due to fragmentation. Lake Naomi Club was also using Scuba Diver hand pulling of fanwort, but plant infestation has increased to an abundance that does not make hand pulling successful. Lake wide aeration has not been investigated but will always remain a management alternative for potential implementation.

The Club has been encouraged to educate the residents on Best Management Practices suitable to the watershed for the protection of the water body. The community posts signs regarding cleaning of boats and boat trailers to prevent hitch hiker plant introduction and transport. SOLitude Lake Management has performed three separate plant projects to introduce various native submersed, floating, and emergent aquatic plants.

Lake Naomi is not a good candidate for biological control as there is no known biological control for fanwort management.

Flumioxazin (Clipper) was selected for target area treatment in up to 178 acres of the lake. Flumioxazin would be applied as an alternative to a lake wide treatment with fluridone (Sonar One) or follow-up treatments to regrowth of fanwort in subsequent years following a fluridone treatment. It was chosen because it is effective for low dose spot treatment only impacting plant growth within or immediately adjacent to the area of application. The product also rapidly degrades at pH consistent at Lake Naomi.

Flumioxazin would be applied at a rate of 1.1 lbs/acre-foot (200 ppb) and was chosen because it is the lowest labeled dose rate and is effective at this dose rate. There are no water use restrictions on swimming, fishing, livestock watering or potable water use following treatment with Clipper. Irrigation with lake water is restricted to 2- 5 days depending on crop and application rate, however, Lake Naomi is used only for recreational purposes. Any uses not related to recreation are prohibited by Lake Naomi Club. Flumioxazin is broken down rapidly water and microbial degradation and its half-life ranges from 5 to 1 day or less depending on the pH of the water. Flumioxazin is not expected to persist in the environment.

Sonar One:

The target submersed invasive plant, fanwort (Cabomba caroliniana), if left unmanaged can crowd out native submersed vegetation altering habitat. As it reproduces by fragmentation, it can more easily infest new areas of the lake and potentially water bodies downstream. Herbicide treatments since 2018 have resulted in an overall reduction in density but this plant still forms large patches (3-5 acres and some as large as 10 acres in size) in the open water. These patches reach the water surface creating a safety hazard to swimmers and paddle boarders.

If a no action approach to aquatic plant management would be conducted, the plant community, mostly consisting of fanwort, would develop nearly lake-wide due to the elaborate littoral zone of the lake. Recreational activity would not be possible. Fanwort would displace all other submersed aquatic plant growth. The plant growth would have significant negative impacts on the fishery, and water quality from excessive plant densities.

Due to the existing plant populations, and external sources of introduction, preventative measures are not feasible for the target plants. Education regarding boat cleaning has been conducted, and signs are posted at boat launches.

Mechanical harvesting has been conducted, and is still a viable, and occasionally still implemented management alternative. Mechanical control of fanwort, while immediately effective, increases overall plant abundance due to fragmentation. Lake Naomi Club was also using Scuba Diver hand pulling of fanwort, but plant infestation has increased to abundance that does not make hand pulling successful. Lake wide aeration has not been investigated but will always remain a management alternative for potential implementation.

The Club has been encouraged to educate the residents on Best Management Practices suitable to the watershed for the protection of the water body. The community posts signs regarding cleaning of boats and boat trailers to prevent hitch hiker

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plant introduction and transport. SOLitude Lake Management has performed three separate plant projects to introduce various native submersed, floating and emergent aquatic plants.

Lake Naomi is not a good candidate for biological control as there is no known biological control for fanwort management.

Should the fanwort become widespread and lake wide control is required, fluridone (Sonar One) was chosen because it is a slow acting, systemic herbicide that can selectively target vegetation with dose rate. Its slow mode of action helps to guard against drastic swings in water chemisty (e.g. dissolved oxygen) resulting from plant die off which can adversely affect fish and other aquatic organisms. The systemic control will ensure treated plants will not grow back within the treatment season.

The desired dose rate to control fanwort is 50 ppb which was determined by an established maximum seasonally required dose dependent on flow rate and extent of plant growth. As per the product label, there are no water use restrictions on swimming, fishing or livestock watering following treatment with Sonar One. This product cannot be applied within 1/4 mile of a functioning potable water intake of which there are none on Lake Naomi. Irrigation using treated water is restricted until fluridone concentrations are below 5-10 ppb depending on the crop however use of lake water for irrigation is prohibited by the Lake Naomi Club. The only uses of the lake are for recreation including swimming, fishing and boating. After treatment the fluridone concentration in the water is reduced through dilution, absorption to sediments, photodegradation and microbial degradation. Fluridone residue in sediments is expected to dissipate back into the water where it will be subject to further breakdown.

Tribune:

The target submersed plants; common bladderwort (Uticularia vulgaris) and low water milfoil (Myriophyllum humile) are desirable in areas of the lake where there is little recreational activity. However, in recreational areas of the lake, swimming beaches/lanes and boat docks/lanes and shallow shoreline areas these plants can and have become a hazard to swimmers.

If a no action approach to aquatic plant management would be conducted, the plant community would develop nearly lake-wide due to the elaborate littoral zone of the lake. Recreational activity may not be possible. The plant growth would have significant negative impacts on the fishery and water quality from excessive plant densities.

Due to the existing plant populations, and external sources of introduction, preventative measures are not feasible for the target plants. Education regarding boat cleaning has been conducted, and signs are posted at boat launches.

Mechanical harvesting has been conducted and is still a viable and occasionally still implemented management alternative. Mechanical can be effective for bladderwort. Low water milfoil grows in areas and at depths that are not practical for mechanical control. Mechanical control of fanwort, while immediately effective, increases overall plant abundance due to fragmentation. Lake-wide aeration has not been investigated but will always remain a management alternative for potential implementation.

The Club has been encouraged to educate the residents on Best Management Practices suitable to the watershed for the protection of the water body. The community posts signs regarding cleaning of boats and boat trailers to prevent hitch hiker plant introduction and transport. SOLitude Lake Management has performed three separate plant projects to introduce various native submersed, floating, and emergent aquatic plants.

Lake Naomi is not a good candidate for biological control as there is no known biological control for target plant growth.

It is anticipated that shoreline spot treatment with diquat dibromide (Tribune) would be conducted on an annual basis to maintain swim and boating areas. Diquat dibromide was selected as a fast-acting contact herbicide to target local stands of low water milfoil and bladderwort. Typical dose rate to achieve control of these species is 2 gal/acre or less according to product label. There are no water use restrictions on swimming or fishing. Potable water use is restricted following treatment with Tribune for 3 days, livestock watering for 1 day, and irrigation for 3-5 days. The lake is used only for recreation, including swimming, fishing, and boating. Uses not related to recreation are prohibited by Lake Naomi Club. Diquat dibromide rapidly dissipates in water due to its high-water solubility and highly absorptive characteristics. It is not expected to leach through the soil.

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Public Participation DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.