The Connecticut Agricultural Experiment Station

123 Huntington Street

New Haven, CT 06511

Bashan Lake

East Haddam, CT

Invasive Aquatic Plant Management
Water Chemistry

2025

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Office of Aquatic Invasive Species

Department of
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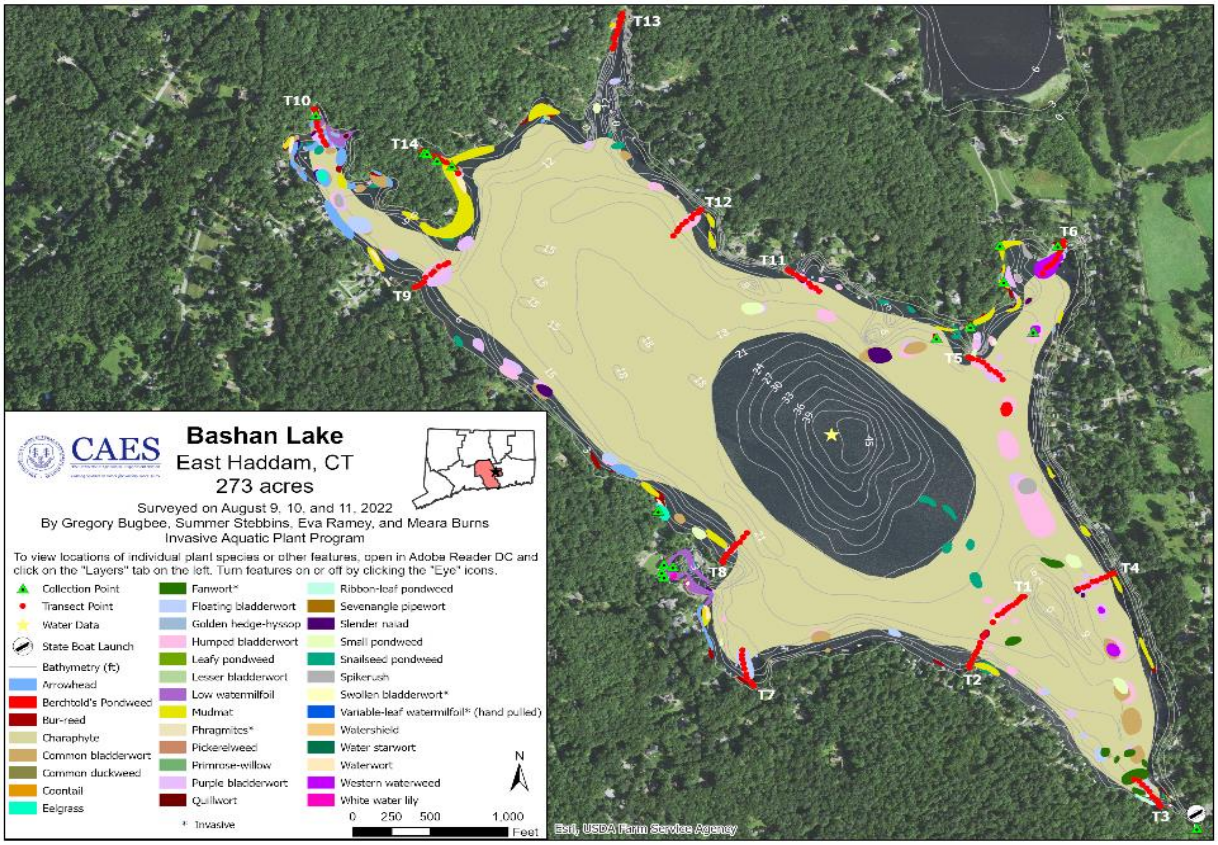

Figure 1. Aquatic vegetation survey map of Bashan Lake by CAES OAIS in 2022.

Introduction:

Bashan Lake is a 273-acre waterbody located in East Haddam, Connecticut. It provides a diverse aquatic ecosystem (Figure 1) and is one of Connecticut's highest quality public lakes. The lake is moderately developed with residential homes and docks along the shoreline. Bashan Lake's watershed encompasses 1,209 acres and is mainly forest (Figure 2). The lake is widely used for recreational boating, fishing, and swimming. It has a public boat launch at the eastern end. All beaches are private and maintained by several lake associations. Previous work on Bashan Lake dates to the 1940s when the State Board of Fisheries and Game (1942) described it as having "extensive submerged weed beds due to exceptional transparency". Another publication by the State Board of Fisheries and Game (1959) mentions

"very clear water and transparency that exceeds 15 feet" and "scarce submerged and emergent vegetation" (see full narrative in appendix). It also describes the lake bottom consisting "of sand, gravel, coarse rubble, and boulders". Work by CAES in 1980 ranked Bashan Lake as having the highest water quality, including water clarity and low nutrient levels, of all the 70 Connecticut lakes surveyed. Aquatic vegetation was described as moderately dense in a few areas with shallow coves containing native plants such as Robbins' pondweed and bladderwort. No invasive species were mentioned (Frink & Norvell, 1984).

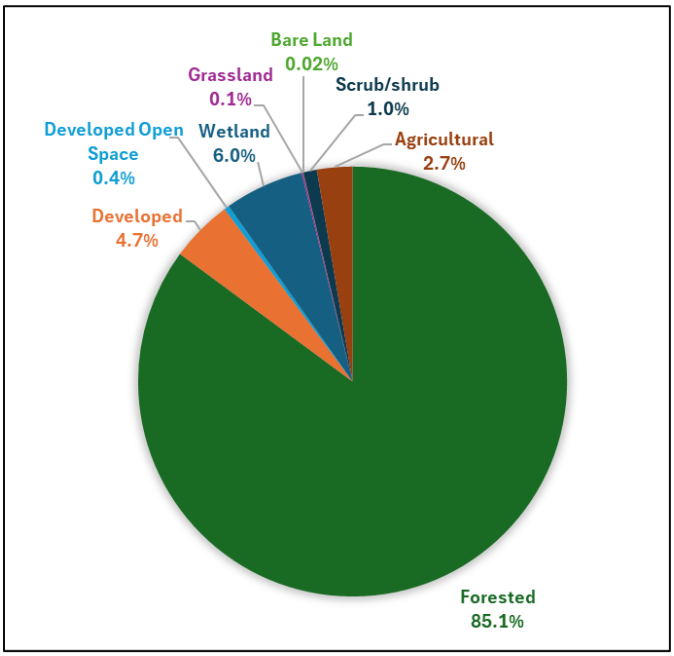

Figure 2. Bashan Lake's watershed land use.

The presence of invasive species is related to water chemistry, public boat launches, random events, and climate change (June-Wells et al., 2013; Rahel & Olden, 2008). The Connecticut Agricultural Experiment Station Office of Aquatic Invasive Species (CAES OAIS) has performed aquatic vegetation surveys, invasive plant management research, and water analysis in Bashan Lake for over 25 years. In the latest full survey conducted in 2022, 30 native and 4 invasive aquatic plant species were documented (Figure 1). The state listed species Vasey's pondweed (*Potamogeton vaseyi)* was found in 2020 in a cove in Bashan's Lake's northwest section but not since. Protection of these plants requires an additional CT DEEP approval when managing invasive species. CAES OAIS research on invasive plant management in Bashan Lake has focused on control of variable-leaf watermilfoil (*Myriophyllum heterophyllum*) and fanwort (*Cabomba caroliniana*) with herbi-

cides. From 1999 to 2017, treatments of variable-leaf watermilfoil with the herbicide 2,4-D were performed with good success but a decline in efficacy over time was observed. Herbicide resistance was surmised, and tests with a new product called ProcellaCOR were performed in 2019 and 2021, which virtually eliminated variable-leaf watermilfoil. However, fanwort, which is not controlled with ProcellaCOR, began to proliferate. Fanwort frequently occurred in the cove outside the state boat launch, in small patches outside Brooks Cove, along the west side of Sunset Acres, and in Laurel Cove. In 2023, the efficacy of a September application of the herbicide Flumioxazin was tested on fanwort outside the state boat launch. Results proved impressive with no fanwort detected in the area in 2024. Lake water has been analyzed to track possible changes that could affect aquatic vegetation and harmful algal blooms.

Since 2004, CAES OAIS has surveyed aquatic vegetation and analyzed water chemistry in over 400 Connecticut lakes, ponds, and rivers. Of these waterbodies, 56% contain invasive (non-native) plant species that can cause rapid deterioration of aquatic ecosystems and recreational value. CAES OAIS uploads all survey information into an online database where stakeholders can view vegetation maps, transect data, herbarium mounts, temperature and dissolved oxygen profiles, and water chemistry (portal.ct.gov/caes-oais). This information allows lake managers, citizens, government officials, and scientists to view past conditions, compare them with the present, and make informed management decisions.

Objectives:

- Obtain CT DEEP permits and treat variable-leaf watermilfoil with ProcellaCOR
- Perform pre- and post-treatment invasive aquatic vegetation surveys
- Monitor pioneer Northern hydrilla infestation and hand remove with SCUBA
- Analyze water chemistry monthly from the lake center and three inlet streams
- Compare with previous water tests and document nutrient inputs
- Provide a report for the Bashan Lake Association

Materials and Methods:

Aquatic Plant Surveys and Mapping:

A pretreatment invasive aquatic plant survey was performed on June 30, and a post-treatment survey was done on September 20, 2025. The survey utilized methods established by CAES OAIS and were consistent with previous techniques. Surveys were conducted from an 18-foot motorized boat traveling over areas that supported aquatic plants. Plant species were viewed with an underwater high-definition camera (Linovision 4K POE) linked to an onboard computer (Dell Latitude 14 Rugged 5414). The system was linked to a Trimble® R1 GNSS global positioning system (GPS) with sub-meter accuracy linked to TerraSync® (Trimble, Westminster, CO) software to project and store locations. The Lowrance® HDS 5 sonar system as well as ground truthing, with occasional grapple tosses, were also used to identify vegetated areas in deep water. We post-processed the GPS data in Pathfinder® 5.85 (Trimble Navigation Limited, Sunnyvale, CA) and then imported it into ArcGIS® Pro 3.6.0 (ESRI Inc., Redlands, CA). Data were then overlaid onto recent high-resolution (1m or better) aerial imagery for the continental United States made available by the USDA Farm Services Agency.

Invasive Aquatic Vegetation Management:

Pretreatment surveys for variable-leaf watermilfoil, fanwort, and Northern hydrilla (*Hydrilla verticillata* subsp. *lithuanica*) were performed in both 2024 and 2025. Surveys concentrated on areas with a history of invasive aquatic plant presence including Smith Cove, the boat launch cove, Brookes Cove, and the cove leading to the dam (Figure 4). Preparations were made to treat variable-leaf watermilfoil with ProcellaCOR by procuring CT DEEP permits from the Natural Diversity Database, Pesticides, and Land Management Acquisition Units prior to treatment (see appendix). On June 7, 2025, the approved 12 gallons of ProcellaCOR were applied via subsurface injection along paths shown in Figure 3. Although no variable-leaf watermilfoil was found

in Sunset Acres Cove, the area was treated since it had a history of infestation. Northern hydrilla was removed via hand pulling with SCUBA in the cove leading to the dam in August and outside the Boat Launch Cove in September.

Water Analysis:

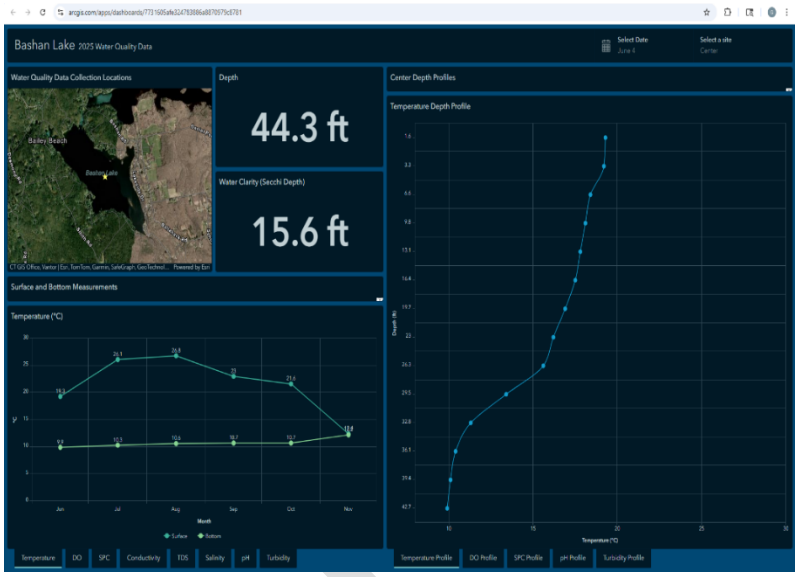

Figure 3. CAES OAIS dashboard setup where 2025 Bashan Lake data can be viewed online.

Water was analyzed from the same point in the "center", the deepest part of the lake, as in past years. Water temperature, dissolved oxygen, specific conductivity, and pH were measured 1.5 feet beneath the surface and at 3-foot intervals using a YSI ProDSS® multiparameter digital meter. Water clarity was measured by lowering a six-inch diameter black and white Secchi disk into the water and determining to what depth it could be viewed. Water samples were obtained from 1.5 feet beneath the surface and 1.5 feet above the bottom and analyzed for alkalinity and total phosphorus in the laboratory. In addition, samples from small inlet streams at the State Boat launch, Sunset Acres, and Laurel Cove were obtained to determine nutrient inputs (Figure 4). We determined the flow rate in cubic feet per second (cfs) from the inlet streams by measuring the volume of water collected over a known time period. Water samples were stored at 38˚F, acidified with concentrated H_2SO_4, and frozen until testing. We determined alkalinity by titration with H_2SO_4 to an end point of pH 4.5 and total phosphorus using the ascorbic acid method preceded by digestion with potassium persulfate (APHA 1995). Total phosphorus was quantified using a Milton Roy Spectronic 20D® spectrometer with a light path of 2 cm and a wavelength of 880 nm.

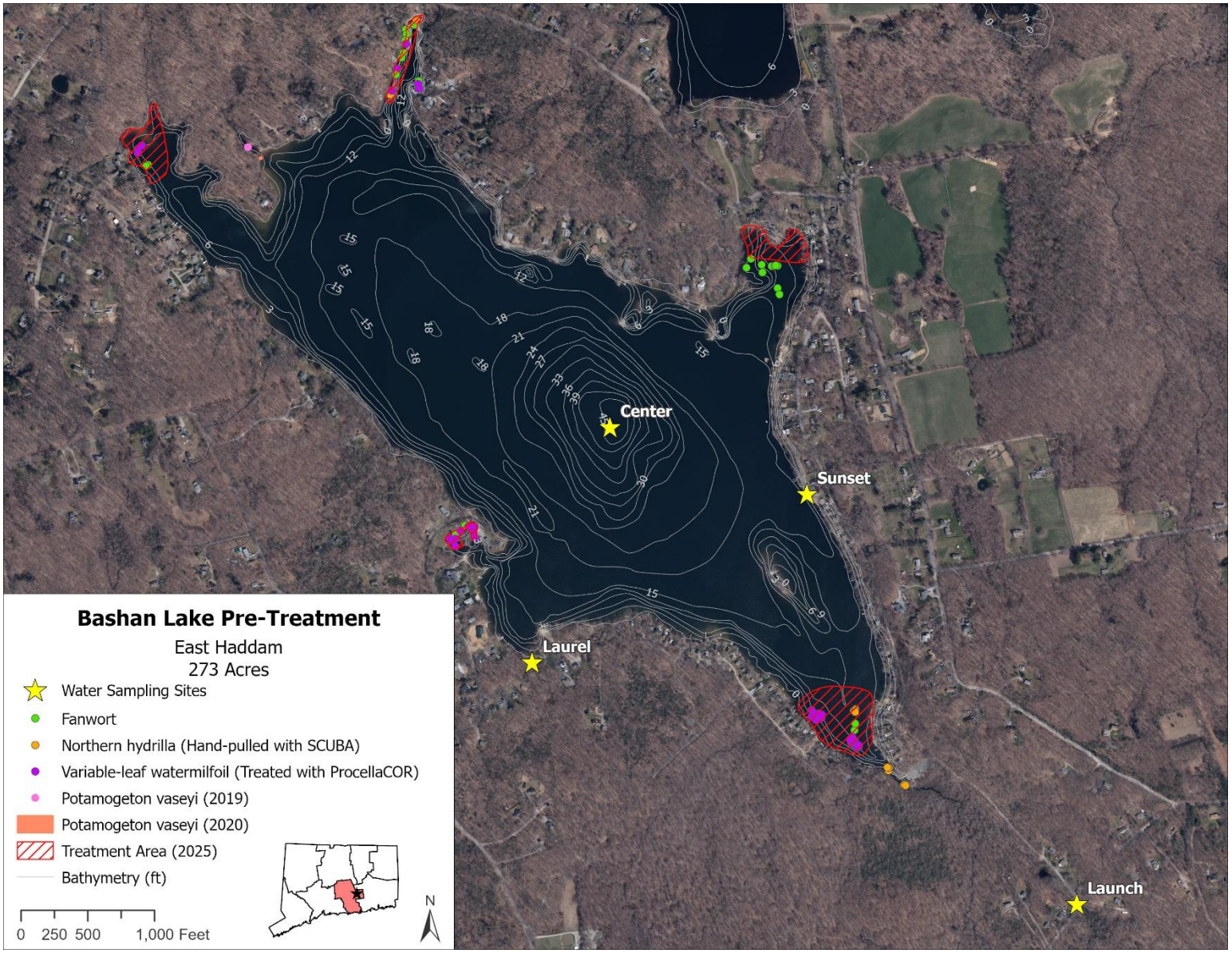

Figure 4. 2025 Bashan Lake pretreatment aquatic plant survey, treatment area and water sampling sites.

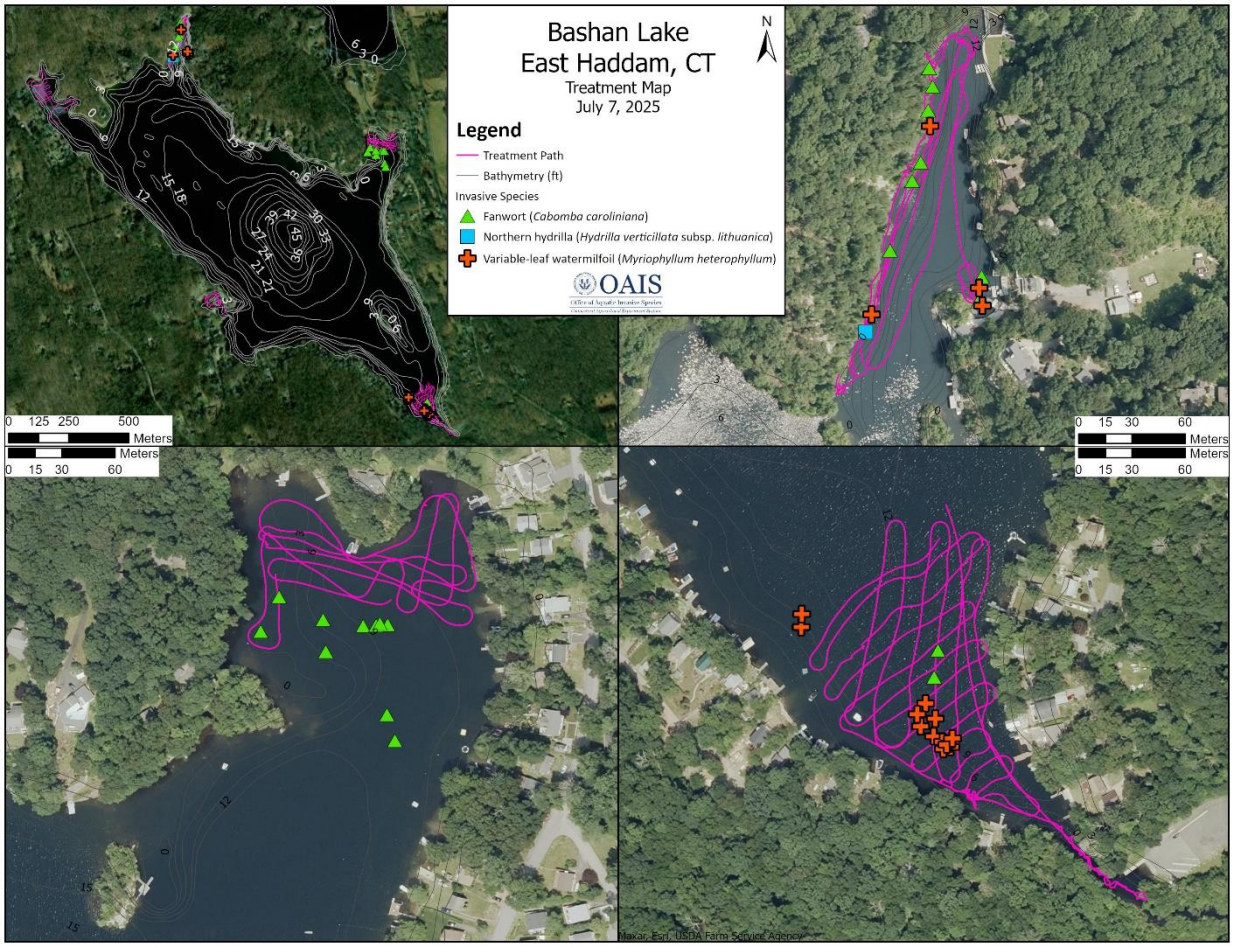

Figure 5. 2025 boat paths where ProcellaCOR was administered via subsurface injection.

All CAES OAIS information regarding Bashan Lake, including plant surveys, water tests, and reports, can be viewed at the Bashan Lake website (https://portal.ct.gov/caes/oais/b/bashan-lake/bashan-lake). In 2025, an ArcGIS Dashboard (https://www.arcgis.com/apps/dashboards/7731605afe324783886a8870979c8781) was added where water data could be viewed throughout the season (Figure 3).

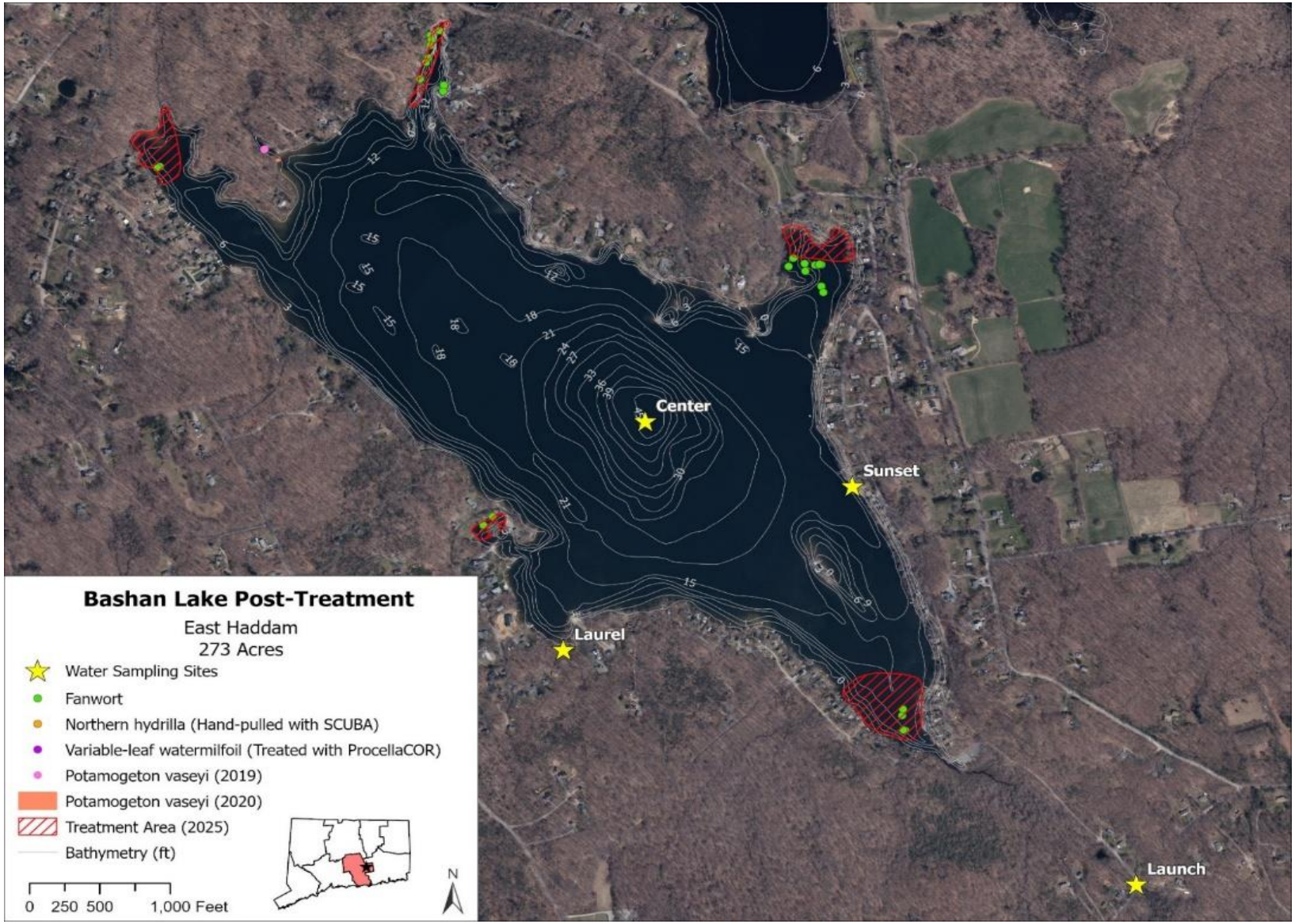

Figure 6. 2025 Bashan Lake post-treatment aquatic plant survey, treatment area, and water sampling sites.

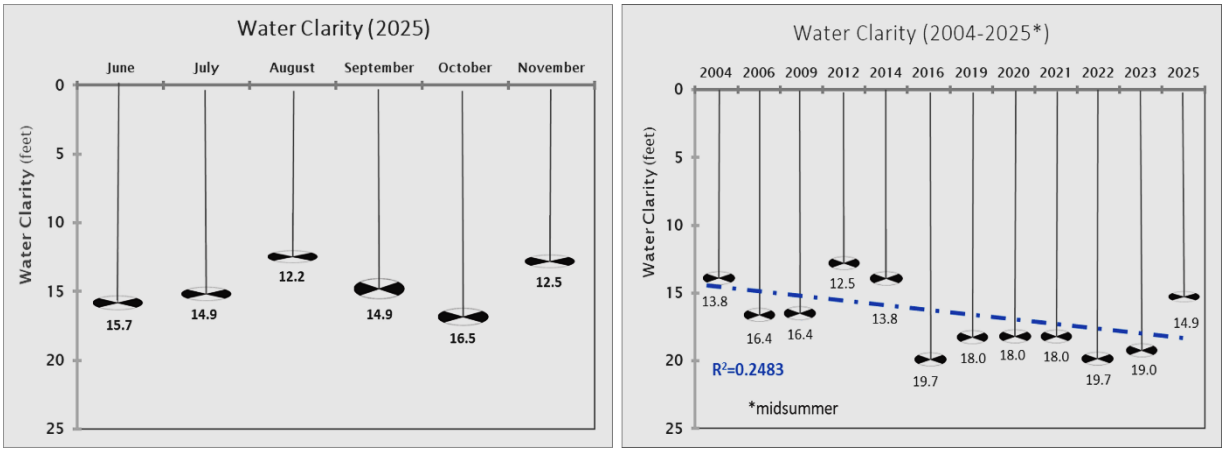

Figure 7. Monthly water clarity measurements in Bashan Lake in 2025 and midsummer yearly measurements between 2004 and 2025.

Results and Discussion:

Aquatic Plant Surveys and Management Outcomes:

Our 2025 pretreatment aquatic vegetation survey found sparse variable-leaf watermilfoil in the Boat Launch Cove, Brookes Cove, and the Cove leading to the dam (Figure 4). Behind the Smith Cove island, variable-leaf watermilfoil occurred in greater abundance. Variable-leaf watermilfoil did not occur in Sunset Acre Cove. Sparse fanwort occurred in all previously mentioned Coves. Northern hydrilla was found on the west side of the cove leading to the dam and outside the Boat Launch Cove. Throughout the lake, invasive swollen bladderwort (*Utricularia inflat*a) was common. Swollen bladderwort generally does not need management but should be monitored. Vasey's pondweed was not found in the cove where it was last observed in 2020.

The June 7th ProcellaCOR treatment (Figure 5) resulted in the apparent elimination of all variable-leaf watermilfoil as none was observed during our September survey (Figure 6). Past experience with ProcellaCOR in Bashan Lake suggests no further treatment will be needed for five or more years. All observed Northern hydrilla was hand pulled with SCUBA with care taken to pull as much of the root

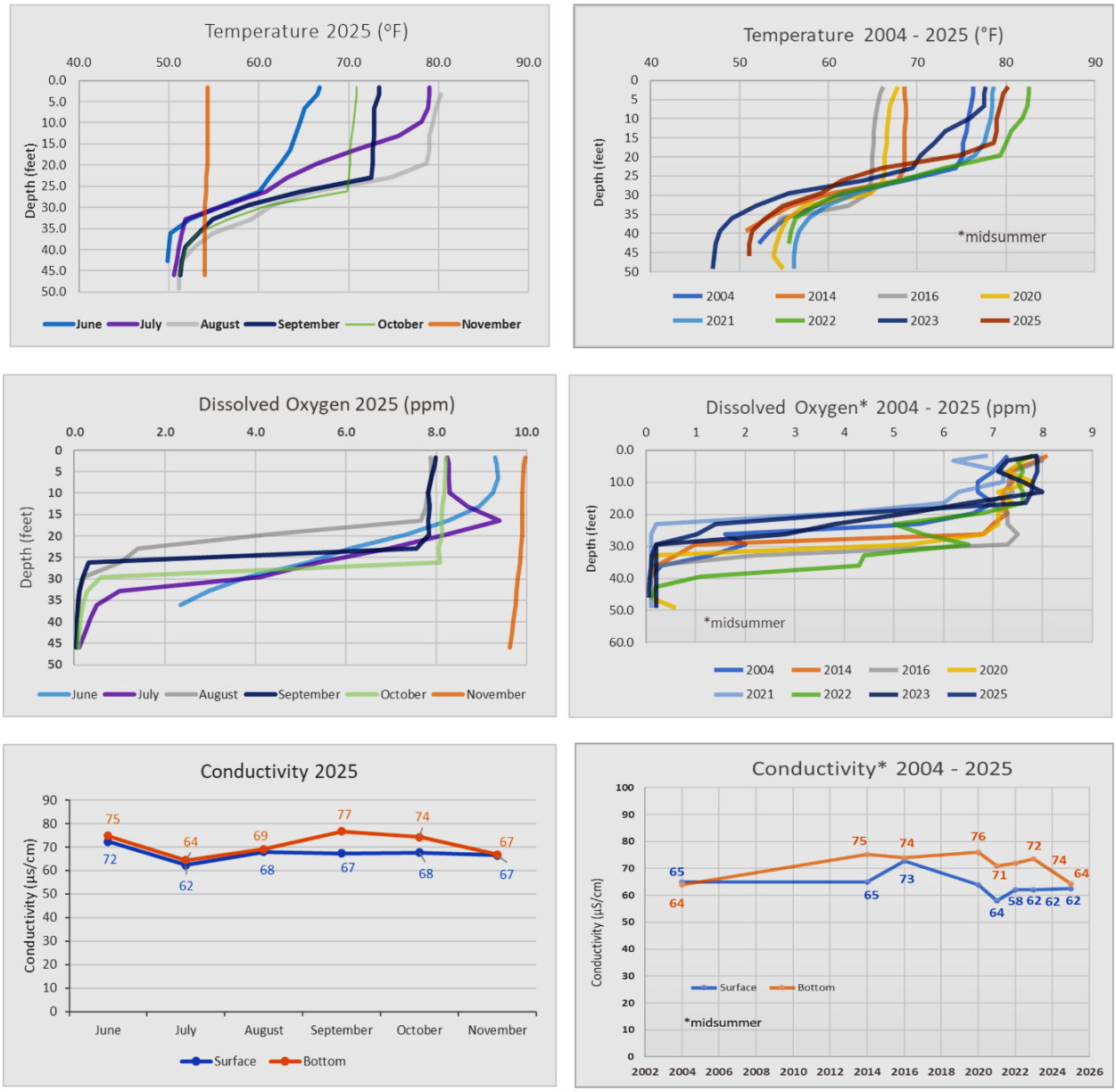

Figure 8. Water analysis for temperature, dissolved oxygen, and conductivity in Bashan Lake, 2025 monthly (left) and 2004 - 2025 yearly (right).

system as possible. Control into next year by a single hand pulling per season, however, is not supported by past experience and alternative management practices such as more frequent hand pulling, herbicides, and/or benthic blankets may be needed. Because fanwort remains in the Coves (Figure 6), a September 2026 treatment with flumioxazin is suggested, as was very effective in 2022.

Water Analysis:

Water clarity in Connecticut's lakes ranges from 1-33 feet with an average of 7 feet (CAES OAIS, 2025). Bashan Lake's clarity ranged from 12.2 to 16.5 feet in 2025 with the clearest water in October and the least clear water in August (Figure 7, left). From 2004 to 2025, midsummer water clarities ranged from 12.5 feet in 2012 to 19.7 feet in 2016 and 2022 (Figure 7, right). In 2025, Bashan Lake's midsummer water clarity was 14.9 feet which is in the middle range. In 1980 CAES recorded a clarity of 18 feet (Frink & Norvell, 1984). From 2004 – 2025, a slight trend to clearer water is possible as shown by the trend line in Figure 7 but the correlation is weak (R^2=0.25). Bashan Lake stratifies each summer with warmer, more oxygenated water from the surface to mid-depths from 0-30 feet (Figure 8, middle and top). Colder less oxygenated water occurs near the bottom from 30-50 feet. Conductivity is an indicator of dissolved ions that come from natural and man-made sources (mineral weathering, organic matter decomposition, fertilizers, septic systems, road salts, etc.). Connecticut waterbodies have conductivities ranging from 50 - 250 µS/cm with an average near 95 µS/cm (CAES OAIS, 2025). The conductivities of Bashan Lake's water have held within a narrow range of 62 -77 µs/cm with no discernable trend in 2025 or from 2004 – 2025 other than slightly higher levels in the bottom water (Figure 8, bottom).

Bashan Lake's surface pH in 2025 ranged from 6.4 in October to 6.5 in November while the bottom pH ranged from 5.8 in July to 6.6 in November (Figure 9, top left). Midsummer surface pH's from 2004 to 2025 ranged from 5.7 to 7.4 in 2020 while the bottom pH's ranged from 5.6 in 2004 to 6.5 in 2020 (Figure 9, top right). Higher surface pH's are common during sunny afternoons when more plants and algae are photosynthesizing, and winds are calm to reduce mixing. In 2025, Bashan Lake had surface alkalinities between 10 ppm ($CaCO_3$) in June to 21 ppm in August and bottom alkalinities between 7 ppm in June to 48 ppm in September (Figure 9, middle left). Midsummer surface alkalinities from 2004 to 2025 ranged from 3 ppm in 2022 to

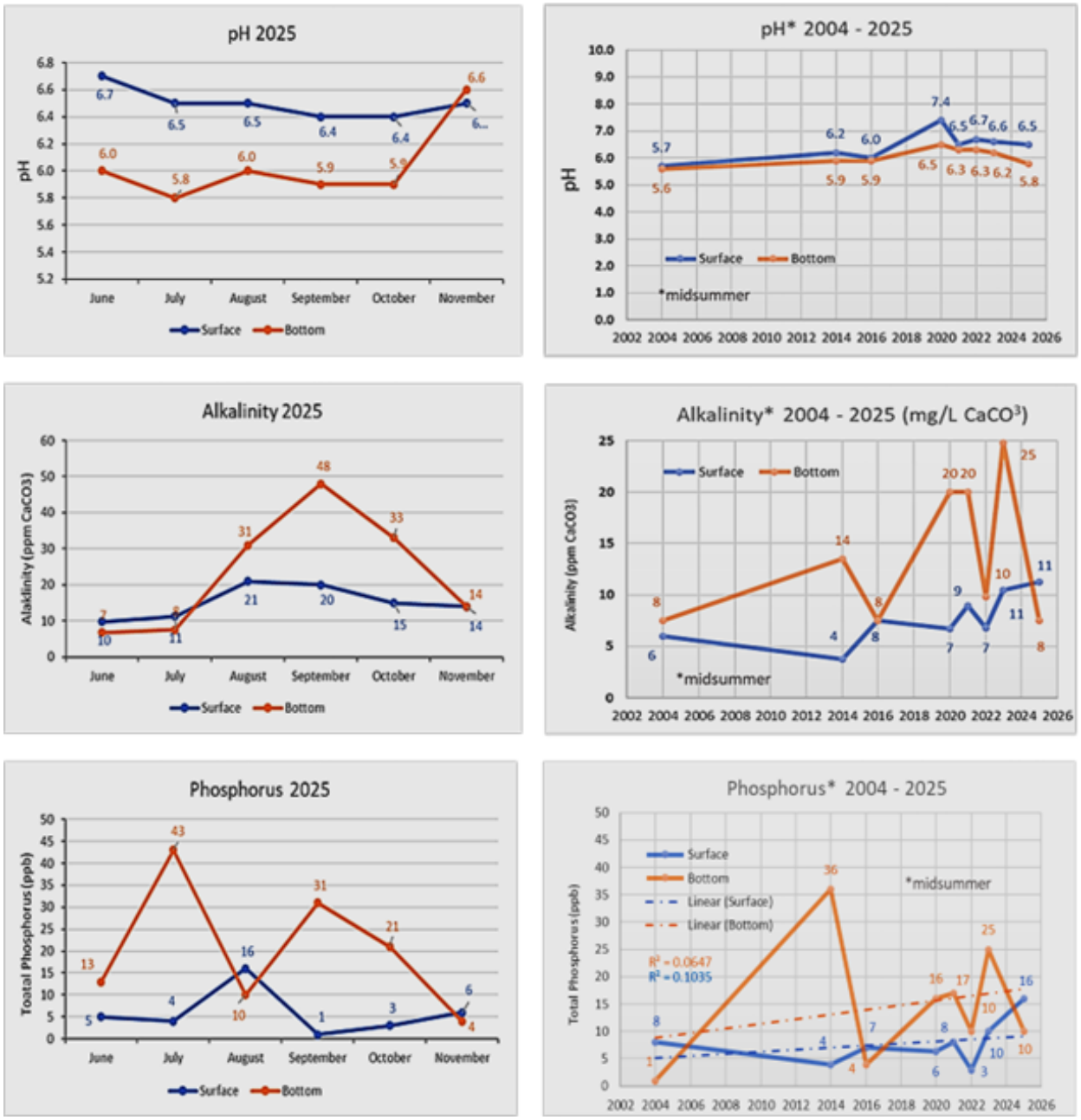

Figure 9. Water analysis for pH, alkalinity, and total phosphorus in Bashan Lake, 2025 monthly (left) and 2004 - 2025 yearly (right).

13 ppm in 2025 while bottom alkalinities ranged from 8 ppm in 2004, 2026, and 2025 to 25 ppm in 2023 (Figure 9, middle right). These measurements are relatively low for Connecticut lakes which range from near zero to greater than 170 ppm (CAES OAIS, 2025). Low alkalinity waterbodies are more prone to pH change due to outside

influences such as watershed activities and acid rain. Bashan Lake's conductivity may be showing a slight upward trend over the years.

A key parameter used to categorize a lake's trophic state is total phosphorus (P) in the water column. High levels of P can lead to nuisance or toxic algal blooms (Frink & Norvell, 1984; Wetzel, 2001). Rooted macrophytes are less dependent on P from the water column as they obtain much of their nutrients from the hydrosoil (Bristow & Whitcombe, 1971). Lakes with surface P levels from 0 - 10 ppb are considered nutrient-poor or oligotrophic. When P concentrations reach 15 - 25 ppb, lakes are classified as moderately fertile or mesotrophic and when P reaches 30 - 50 ppb they are considered fertile or eutrophic (Frink & Norvell, 1984). Lakes with P concentrations >50 ppb are categorized as extremely fertile or hypereutrophic. Bashan Lake's 2025 midsummer surface total P concentrations ranged from 1 ppb in September to 16 ppb in August (Figure 9, bottom left). In the remaining months, the surface P concentrations remained between the low levels of 3 - 6 ppb. Bottom water during summer stratification often accumulates P from the sediment. Bashan Lake's bottom water showed this tendency as total P ranged from 43 ppb in July to 4 ppb in November. In the remaining months, the bottom P ranged from 10 – 31 ppb. From 2004 to 2025, Bashan Lake's surface water had a total P range from 3-16 ppb while the bottom water ranged from 1–36 ppb with an average of 8 ppb and 15 ppb respectively. From 2004 – 2025, a slight increasing trend in P is shown via statistical regression (see trend lines in Figure 9) but the correlation is weak ($R^2 = 0.10$ surface water, 0.06 bottom water).

Nutrient inputs into Bashan Lake come from tributaries, surface runoff, groundwater, sediment release, and direct atmospheric deposition. Sediment release is reflected in our lake bottom water measurements. This report only documents nutrient input from three tributaries as the other sources are beyond the scope of this work. Bashan lake has a surface area of 273 acres and an approximate average depth 15.5 feet. This results in an approximate volume of 184 million cubic feet of water. Water

Table 1. Water sample locations of Bashan Lake's tributaries, flow rates, total phosphorus and nitrogen concentrations, and daily inputs.

Date	Location	Lat (Degrees)	Long (Degrees)	Flow (cfs)	Flow (cf/d)	P (ppb)	P (lbs/day)	N (ppb)	N (lbs/day)	pH	Alkalinity ppm	Conductivity (uS/cm)
6/4/2025	Launch inlet stream	41.4810	-72.3986	0.230	19872	14.0	0.02	TBD	TBD	5.7	3.8	50.8
6/4/2025	Laurel inlet stream	41.4860	-72.4133	1.000	86400	25.0	0.13	TBD	TBD	5.5	11.3	83.6
6/4/2025	Sunset stream pipe	41.4894	-72.4058	0.050	4320	20.0	0.01	TBD	TBD	6.8	2.3	99.5
7/1/2025	Launch inlet stream	41.4810	-72.3985	0.060	5184	29.0	0.01	TBD	TBD	5.9	16.5	45.2
7/1/2025	Sunset stream pipe	41.4894	-72.4058	<0.050	<4320	22.0	0.01	TBD	TBD	6.6	12.0	103.2
7/1/2025	Laurel inlet stream	41.4860	-72.4134	0.007	605	13.0	0.00	TBD	TBD	6.6	2.2	103.2
8/4/2025	Sunset stream pipe	41.4894	-72.4059	0.000	0	-		-	-	-	-	-
8/4/2025	Laurel inlet stream	41.4860	-72.4133	0.000	0	-		-	-	-	-	-
8/4/2025	Launch inlet stream	41.4810	-72.3986	0.000	0	-		-	-	-	-	-
9/2/2025	Launch inlet stream	41.4809	-72.3985	0.001	86	22.0	0.00	TBD	TBD	5.9	15.0	77.4
9/2/2025	Sunset stream pipe	41.4860	-72.4133	0.000	0	-		-	-	-	-	-
9/2/2025	Laurel inlet stream	41.4894	-72.4059	0.000	0	-		-	-	-	-	-
10/2/2025	Launch inlet stream	41.4810	-72.3985	0.000	0	-		-	-	-	-	-
10/2/2025	Laurel inlet stream	41.4860	-72.4133	0.000	0	-		-	-	-	-	-
10/2/2025	Sunset stream pipe	41.4894	-72.4058	0.000	0	-		-	-	-	-	-
11/3/2025	Launch inlet stream	41.4810	-72.3985	0.090	7776	13.0	0.01	TBD	TBD	5.3	5.3	61.9
11/3/2025	Laurel inlet stream	41.4860	-72.4134	0.008	691	4.0	0.00	TBD	TBD	5.7	6.8	89.1
11/3/2025	Sunset stream pipe	41.4894	-72.4059	<0.001	86	10.0	0.00	TBD	TBD	6.4	14.3	132.3

tests and flow documentation were greatly affected by the extremely dry summer. From August – October only the stream entering by the State boat launch flowed and this was a negligible 86 cubic feet per day (Table 1). Most stream inputs occurred in June and November. Because Bashan Lakes surface water (0-25 feet) had a very low P concentration of 5 ppb any stream concentration higher would cause a small net increase in the lake. Converting the 5 ppb P to total pounds of P in Bashan Lake's June surface water results in a total of 93 pounds. The total daily stream P input in June and November was 0.16 and 0.1 pounds respectively. This appears small but determining the net effects of the stream inputs is complex with parameters such as outflow rate, internal removal by sediment, plants and algae, and dilution by presumably nutrient poor groundwater playing roles. Quantifying these factors is beyond the scope of this study.

Conclusions:

The management of aquatic invasive plants by yearly surveillance, targeted herbicide applications, and hand pulling have resulted in Bashan Lake being relatively free of nuisance vegetation. Because aquatic plant management rarely completely removes unwanted vegetation, diligence will be necessary to prevent future infestations from degrading Bashan Lakes's ecological, recreational, and aesthetic value. Variable watermilfoil was successfully controlled by the 2025 ProcellaCOR treatment and will not likely need retreatment for five or more years. Fanwort remains in the coves and a September 2026 treatment with flumioxazin is suggested. Newly arrived northern hydrilla has been managed with diver hand pulling. The efficacy of the practice is questionable and needs surveillance.

Analysis of water chemistry over time found Bashan Lake to have excellent clarity, low alkalinity, and low total phosphorus. This classifies the lake as oligotrophic and among the highest quality waterbodies in Connecticut. Temperature and dissolved oxygen profiles show mid-summer delineation between warm well oxygenated surface water and poorly oxygenated bottom water at a depth of approximately 30 feet. Nutrient inputs (phosphorus) from tributaries in 2025 were small based on low concentrations and flow rates.

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Appendix

Narrative from State Board of Fisheries and Game Lake and Pond Survey Unit – 1959

Bashan Lake

Bashan Lake is located in Middlesex County in the township of East Haddam. It is natural in origin with the level raised by a 25-foot masonry and earthen dam. It is fed by small tributary streams, bottom springs and surface runoff. This impoundment has a surface area of 276.3 acres, a maximum depth of 48 feet and an average depth of 15.9 feet. The lake bottom is of sand, gravel, coarse rubble and boulders. Submerged and emergent vegetation is scarce in all parts of the lake. The water is very clear and transparency exceeds 15 feet. The lake is thermally stratified and the deep water is well supplied with dissolved oxygen. The upper warm-water layer extends beyond 30 feet. Cold water is confined to the depth between 35 feet and 48 feet and this constitutes a very small percentage of the total volume of the lake.

Public access to Bashan Lake is confined to one small boat livery at the northern end of the lake. The lake is owned by the Moodus Water Company and water is drawn from this impoundment to maintain the water level in Moodus Reservoir. As a result of this water use, Bashan Lake is subject to a moderate fluctuation of the water level.

The lake has been stocked with land-locked salmon, rainbow trout, smallmouth bass, largemouth bass, yellow perch, chain pickerel, bullheads, calico bass, sunfish and golden shiners.

Largemouth bass are common in abundance and exhibit average growth. Smallmouth bass and yellow perch are scarce and grow at rates equal to the state averages for these species. Chain pickerel are present, but scarce. The growth rate for pickerel is average. Bluegill sunfish and common sunfish are common in abundance. Golden shiners and bullheads are scarce.

This lake should be managed for largemouth bass, chain pickerel and yellow perch. Most species are not abundant, but fish growth in all cases is at least equal to the state averages. No special regulations are needed at this time.

It is desirable to reduce the numbers of common sunfish and bluegill sunfish. Cottage owners can aid in reducing the sunfish population by raking over the nests of these fish or by dropping sodium hydroxide pellets in the sunfish nests.

Invasive Plant Descriptions

Cabomba caroliniana

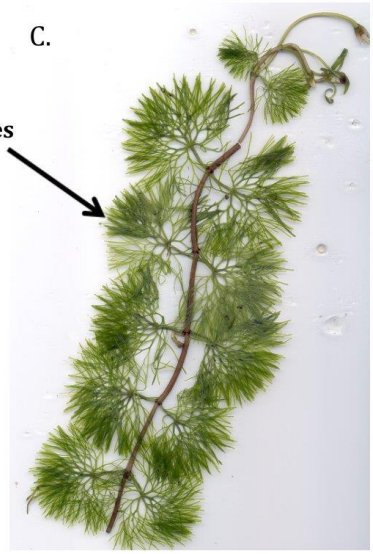
Common names:
Fanwort
Carolina fanwort

Origin:
Southeast United States
South America

Key features:
Plants are submersed
Stems: Can be 6 feet (2 m) long
Leaves: Dissected, opposite leaves 0.8-2 inches (2-5 cm) are fan-like and made up of forked leaflets attached to the stem by a petiole. Floating leaves 0.2-0.8 inches (6-20 mm) wide are oblong and produced on flower shoots
Flowers: Small, solitary flowers are usually white to pinkish
Fruits/Seeds: Flask shaped
Reproduction: Seed and fragmentation

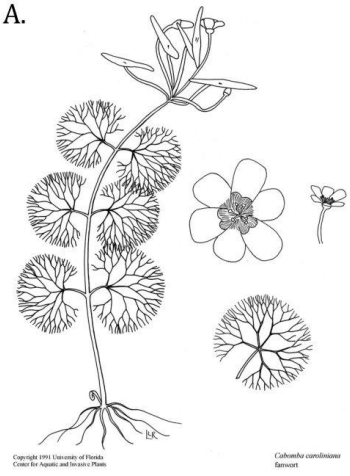
Easily confused species:
Watermilfoils: *Myriophyllum* spp.
White water crowfoot: *Ranunculus longirostris*
Water marigold: *Megalodonta beckii*

C.



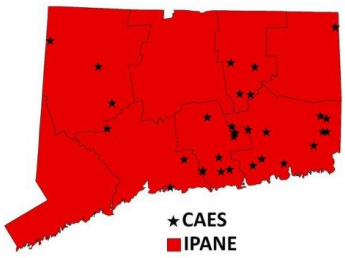
Opposite Leaves

A.

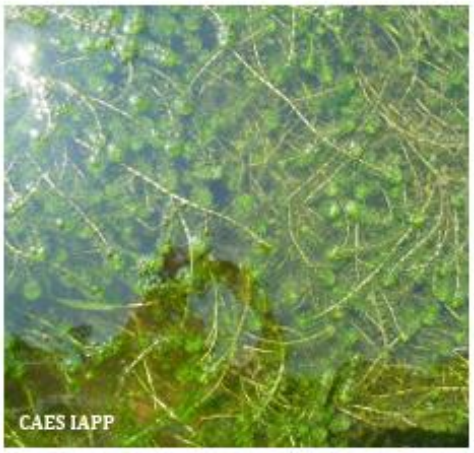


B.

A. Copyright 1991 Univ. of Florida, Center for Aquatic and Invasive Plants
B. Copyright 2002 Univ. of Florida, Photo by A. Murray
C. Photo by A. Smagula



Hydrilla verticillata



Common name:
Hydrilla

Origin:
Asia

Key features:
Plants are submersed

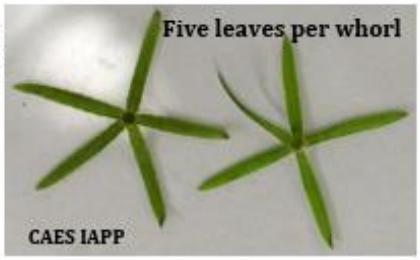
Stems: Slender, branched and up to 25 feet (7.5 m) long

Leaves: Whorled leaves approx. 0.7 inches (1.5 cm) long, whorls often have 5 leaves (range 4-8); leaf margins are visibly toothed

Flowers: Female flowers have three translucent petals that have reddish streaks; male flowers have three petals and can be white to red in color

Fruits/Seeds: Small tubers (key feature) can be found in the sediment, turions form along the stem

Reproduction: Fragmentation, turions, tubers and seeds



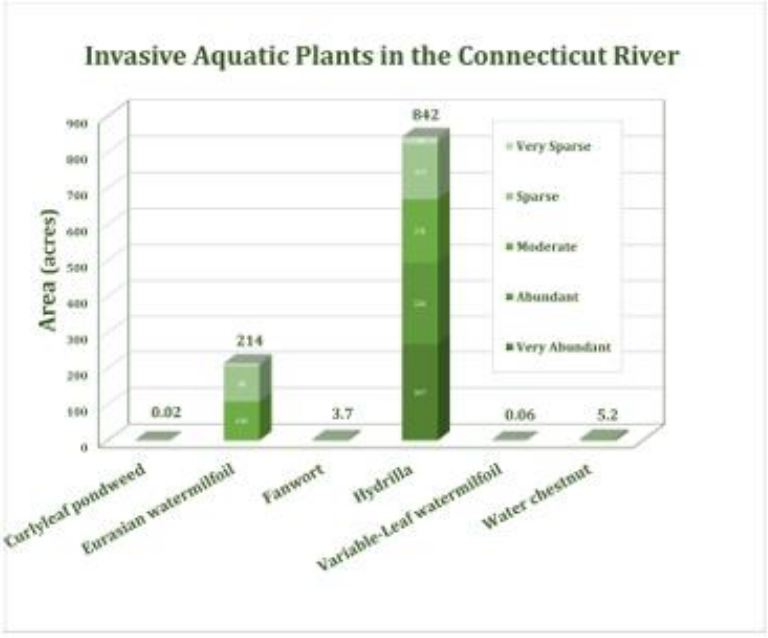
Easily confused species:
Waterweeds (Native): *Elodea nuttallii* and *Elodea canadensis*
Brazilian waterweed: *Egeria densa*

Connecticut's Invasive Aquatic Plant, Clam, and Mussel Identification Guide - Page 13

Hydrilla in the Connecticut River

The Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP) discovered a new strain of hydrilla the Connecticut River in 2016. Hydrilla is among the most troublesome invasive aquatic plants in Florida and other southern states. It crowds out native vegetation, harms fisheries, sickens wildfowl, impedes recreation, and reduces property values. CAES IAPP surveys from 2019 - 2022 found 842 acres of hydrilla from Agawam, MA to a mile or so of Long Island Sound. Large dense patches were common in most coves, tributaries, and shallows along the river's mainstem. In some areas, hydrilla spread out over the surface making navigation nearly impossible. Finding such dense stands of hydrilla in a northern state is alarming. CAES IAPP has found small hydrilla populations in several CT lakes, but these do not compare to the extensive areas in the Connecticut River. The Connecticut River hydrilla is far more robust than seen elsewhere in the State. This could be a result of river flow, nutrients, or genetics. The Connecticut River hydrilla is a distinct strain from that found anywhere else. Native eel grass beds are extensive throughout the river and create critical habitat for juvenile fish and other aquatic organisms. Hydrilla is encroaching on the eel grass beds with uncertain consequences.

Drone image of dense hydrilla in the Mattabesset River in Middletown, CT in 2020. CAES IAPP



The Connecticut River hydrilla is genetically distinct from hydrilla elsewhere. Unlike other hydrilla strains it has yet to be observed sprouting from potato-like tubers. Turions, fragments, and possible perennial root systems appear to be its mode of reproduction. This may offer an advantage since tubers can remain in the sediment for years and evade control.

There is great concern that the Connecticut River hydrilla could spread to other bodies of water by boats, canoes, kayaks, and other equipment that can transport fragments of the weed to new locations. Education efforts are underway to assure those using the Connecticut River are aware of the problem and take appropriate "Clean, Drain, and Dry" precautions. In addition, the United States Army Corps of Engineers has recently received funding to conduct hydrilla management demonstration projects with assistance from CAES IAPP and other stakeholders. The hope is a more comprehensive plan for addressing the Connecticut River hydrilla problem.

To Learn More

- Explore a map of the Connecticut River Basin. https://caes.maps.arcgis.com/apps/webappviewer/index.html?id=007f6ee203b74bcbb1d6e68a953d8baf
- Watch a video describing the hydrilla invasion on the Connecticut River. https://vimeo.com/505384824
- Read the Connecticut Agricultural Experiment Station's report on hydrilla and other aquatic plants on the Connecticut River. https://portal.ct.gov/-/media/CAES/DOCUMENTS/Publications/Bulletins/B1084.pdf
- Visit the Connecticut River Conservancy to find out more about hydrilla and the steps each of us can take to help slow its spread. https://www.ctriver.org/get-involved/stopping-an-invasive-species-water-chestnut-2/hyrilla-in-the-ct-river-watershed/

Myriophyllum heterophyllum

Common names:
Variable-leaf watermilfoil
Variable watermilfoil
Two-leaf watermilfoil

Origin:
Southern United States

Key features:
Plants are submersed

Stems: Dark brown stems extend to the water's surface and spread to form large mats

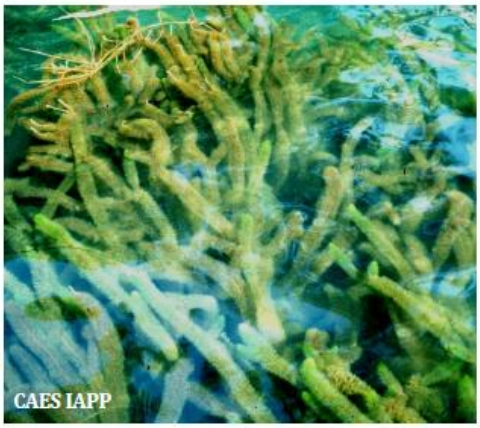
Leaves: Triangular with ≤ 11 pairs of leaflets. Leaves are dissected and whorled (4-6 leaves/whorl) resulting in a feathery appearance with leaf whorls < 1 inch apart giving it a ropy appearance

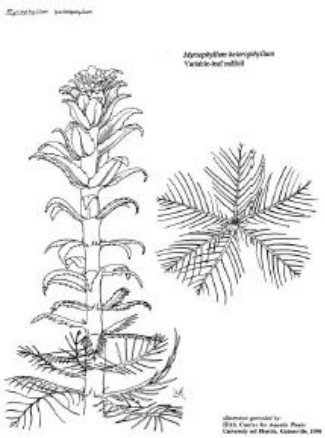
Flowers: Inflorescence spike 2-14 inches (5-35 cm) long extend beyond the water's surface with flowers in whorls of four with reddish petals

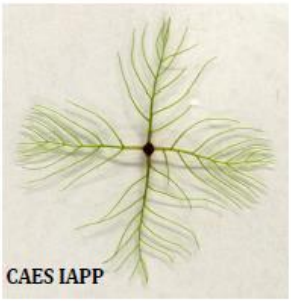
Fruits/Seeds: Fruits are almost round, with a rough surface

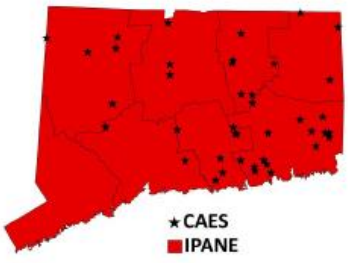
Reproduction: Fragmentation and seeds

Easily confused species:
Eurasian watermilfoil: *Myriophyllum spicatum*
Low watermilfoil: *Myriophyllum humile*









Connecticut's Invasive Aquatic Plant, Clam, and Mussel Identification Guide - Page 21

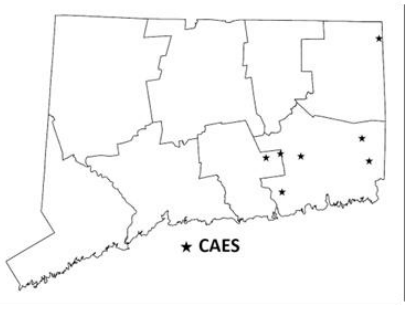
Utricularia inflata

Common names:
Swollen bladderwort

Origin:
Southern and Eastern North America

Key features:
Plants floating in water, sometimes appearing anchored
Stems: Stem is submersed, slender and elongated
Leaves: Submersed leaves (<18 cm) are alternate, bushy, repeatedly forked with bladders along the sides. Uppermost leaves are whorled and inflated, floating on the water's surface (3-8 cm).
Flowers: Flowers located at the center of inflated leaves and have five bright yellow petals
Fruits/Seeds: Fruit is dry and splits open when dry (3-6 mm)
Reproduction: Fragmentation and Tubers

Easily confused species:
Common bladderwort: *Utricularia macrorhiza*
Floating bladderwort: *Utricularia radiata*



CT DEEP NDDB Filing

CT DEEP Pesticides Filing

Approvals

Connecticut Department of
Energy & Environmental Protection
Bureau of Materials Management & Compliance Assurance
Engineering & Enforcement Division

Permit Application for the Use of Pesticides in State Waters

Please complete this form in accordance with section 22a-66z CGS and the instructions (DEEP-PEST-INST-200) in order to ensure the proper handling of your application. Print or type unless otherwise noted. You must submit the initial fee along with this form.

CPPU USE ONLY

App #:_____

Doc #:_____

Check #:_____

_____

Program: Aquatic Pesticides

Part I: Application Type and Description

This application is to request (check one):

☒ *One year* permit ☐ *Two year* permit ☐ *Three year* permit

Note: Multi-year permits will be issued at the Department of Energy and Environmental Protection's (DEEP) discretion.

☒ Check here if DEEP has previously issued an Aquatic Pesticide Permit for this site.

Permit Number for most recent permit: **AQUA-2023-322**

☐ Check here if the information contained in this application is identical to the last application and the chemicals, quantities and number of treatments requested are identical to the chemicals, quantities and number of treatments permitted by the most recent permit issued.

Town where site is located: **East Haddam**

Brief Description of Project: **Invasive Plant Control in Bashan Lake**

Part II: Fee Information

An application fee of $200.00 [#1009] is to be submitted with *each* permit that you are applying for. Each site requires a separate permit. The application will not be processed without payment of the fee. If you are applying for a multi-year permit, see Part II of the instructions for information on fee payment. There is no discount for municipalities. The fee shall be non-refundable and shall be paid by check or money order to the Department of Energy and Environmental Protection.

Part III: Site Location

Name of Waterbody: Bashan Lake

Street address and/or description of location: **Route 82**

City/Town: **East Hadam** State: **CT** Zip Code: **06423**

Part IV: Applicant Information

- *If an applicant is a corporation, limited liability company, limited partnership, limited liability partnership, or a statutory trust, it must be registered with the Secretary of State. If applicable, the applicant's name shall be stated **exactly** as it is registered with the Secretary of State.* This information can be accessed at CONCORD. (www.concord-sots.ct.gov/CONCORD/index.jsp)
- *If an applicant is an individual, provide the legal name (include suffix) in the following format: First Name; Middle Initial; Last Name; Suffix (Jr, Sr., II, III, etc.).*
- *If there are any changes or corrections to your company/facility or individual mailing or billing address or contact information, please complete and submit the Request to Change Company/Individual Information to the address indicated on the form. If there is a change in name of the entity holding a DEEP license or a change in ownership, contact the Office of Planning and Program Development (OPPD) at 860-424-3003. For any other changes you must contact the specific program from which you hold a current DEEP license.*

1. Applicant Name: The Connecticut Agricultural Experiment Station

Mailing Address: 123 Huntington Street

City/Town: New Haven State: CT Zip Code: 06511

Business Phone: 203 974-8512 ext.

Contact Person: Greg Bugbee Phone: 203 804-1069 ext.

*E-mail: gregory.bugbee@ct.gov

*By providing this e-mail address you are agreeing to receive official correspondence from DEEP, at this electronic address, concerning the subject application. Please remember to check your security settings to be sure you can receive e-mails from "ct.gov" addresses. Also, please notify DEEP if your e-mail address changes.

a) Applicant Type (check one): ☐ individual ☐ *business entity ☐ federal agency
☒ state agency ☐ municipality ☐ tribal

*If a business entity:

i) check type: ☐ corporation ☐ limited liability company ☐ limited partnership
☐ limited liability partnership ☐ statutory trust ☐ Other: _____

ii) provide Pesticide Application Business Registration Number and Registration expiration date:

_____

iii) provide Secretary of the State business ID #: _____This information can be accessed at CONCORD

iv) ☐ Check here if your business is **NOT** registered with the Secretary of State's office.

b) Applicant's relationship to the property at which the proposed activity is to be located:

☐ site owner ☐ option holder ☐ lessee
☐ easement holder ☐ operator ☒ pesticide applicator
☒ other (specify): Office of Aquatic Invasive Species

☐ Check if any co-applicants. If so, attach additional sheet(s) with the required information as requested above.

2. Billing contact, if different than the applicant.

Name:

Mailing Address:

City/Town: State: Zip Code:

Business Phone: ext.:

Contact Person: Phone: ext.

*E-mail:

Part IV: Applicant Information (continued)

3. Primary contact for departmental correspondence and inquiries, if different than the applicant.

Name:

Mailing Address:

City/Town: State: Zip Code:

Business Phone: ext.:

Contact Person: Phone: ext.

*E-mail:

4. Owner Information

a. If known, list the name and address of all owners of the area(s) to be treated. If unsure, go to item #4b.

You can add rows to this table by using "tab" in the last row, in the last column.

Name of Owner	Address
State of Connecticut	**CT DEEP Elm Street, Hartford CT**

*If an area(s) to be treated is owned or controlled by the state of Connecticut, see instructions for submitting an application to the DEEP Land Acquisition and Management Unit (LAM) for review and approval of the proposed treatment on state property. A LAM Authorization letter must be submitted as Attachment G for any application involving treatment of a waterbody that is owned or controlled by the state of Connecticut.

Part IV: Applicant Information (continued)

4b. If the applicant is unsure of who owns an area(s) to be treated, provide the name and address for all shoreline property owners located 200 feet or less from such area.

You can add rows to this table by using "tab" in the last row, in the last column.

Name of Shoreline Property Owner	Address

5. List the person or company applying the pesticides.

Name: **The Connecticut Agricultural Experiment Station**

Mailing Address: 123 Huington Street

City/Town: New Haven State: CT Zip Code: 06511

Business Phone: 203 974-8512 ext.:

Contact Person: Greg Bugbee Phone: 203 804-1069 ext.

E-mail: gregory.bugbee@ct

Certification Number: S-1299 Certification Expiration Date: 01/31/2026

Part V: Additional Information

If the applicant is submitting this application on behalf of someone else, identify the person(s) or organization(s) seeking to have pesticides applied to the treatment area(s) and provide the following information. If more than one person or organization is being represented, attach additional sheets providing the information requested below.

Name:

Mailing Address:

City/Town: State: Zip Code:

Business Phone: ext.:

Contact Person: Phone: ext.

*E-mail:

Part VI: Site Information

1. **COASTAL AREA:** Is the pesticide application located in a municipality within the coastal area?

   ☐ Yes ☒ No *(check town list in the instructions)*

   If yes, is the water being treated subject to the ebb and flow of the tides, or inundated by saline or brackish water at least once a month? ☐ Yes ☐ No

   If the water being treated is subject to the ebb and flow of the tides, or is inundated by saline or brackish water at least once a month, you must submit a *Coastal Consistency Review Form* (DEEP-APP-004) with your application as Attachment C.

   For assistance in determining if the water being treated is affected by tidal water as described above or in completing the Coastal Consistency Review form, contact the Office of Long Island Sound Programs (OLISP) at 860-424-3034.

2. **NATURAL DIVERSITY DATA BASE (NDDB) - ENDANGERED OR THREATENED SPECIES:** According to the most current "Natural Diversity Data Base Areas Maps", will the activity which is the subject of this application, including all impacted areas, be located within an area identified as, or otherwise known to be, a habitat for state listed endangered, threatened or special concern species?

   ☒ Yes ☐ No Date of Map. **11/2024**

   If yes, complete and submit a *Request for NDDB State Listed Species Review Form* (DEEP-APP-007) to the address specified on the form, **prior** to submitting this application. Please note NDDB review generally takes 4 to 6 weeks and may require the applicant to produce additional documentation,-such as ecological surveys, which must be completed prior to submitting this permit application. A copy of the NDDB Determination response letter that has not expired ***must*** be submitted with this completed application as Attachment D. Include a copy of any mitigation measures developed for this activity and approved by NDDB. Be aware that you must renew your NDDB Determination if it expires before project work commences. If the required NDDB documents are not submitted as Attachment D, your application will be deemed incomplete and may be subject to denial.

   For more information visit the DEEP website at www.ct.gov/deep/nddbrequest or call the NDDB at 860-424-3011.

3. **AQUIFER PROTECTION AREAS:** Is the site located within a town required to establish Aquifer Protection Areas, as defined in section 22a-354a through 354bb of the General Statutes (CGS)?

   ☐ Yes ☒ No To view the applicable list of towns and maps visit the DEEP website at www.ct.gov/deep/aquiferprotection

   If yes, is the site within an area identified on a Level A or Level B map? ☐ Yes ☐ No

   If your site is on a Level A or Level B map, you are not required to register under the Aquifer Protection Program, ***however*** you must follow proper spill control measures to prevent potential contamination of drinking water. If you should have a spill, please call the emergency hotline ***immediately*** at 860-424-3338.

4. **CONSERVATION OR PRESERVATION RESTRICTION:** Is the property subject to a conservation or preservation restriction? ☐ Yes ☒ No

   If Yes, proof of written notice of this application to the holder of such restriction or a letter from the holder of such restriction verifying that this application is in compliance with the terms of the restriction must be submitted as Attachment F.

5. Type of area to be treated: ☐ Tidal Waters ☒ Pond or Lake ☐ Stream

6. Is the waterbody located in a public water supply watershed? (See instructions) ☐ Yes ☒ No
   If Yes, DPH comments **may** be required as Attachment I to this application.

7. Is the waterbody potentially located 200 ft. or less from a public water supply well? ☐ Yes ☒ No
   (See instructions) If Yes, DPH comments **must** be submitted as Attachment I to this application.

8. Where does the waterbody flow to (Name of receiving stream or waterbody)? **Moodus Reservoir**

Is the outflow usually flowing? ☒ Yes ☐ No Can outflow be stopped? ☐ Yes ☒ No

DEEP-PEST-APP-200 Page 6 of 10 Rev. 11/2018

Part VI: Site Information (continued)

You can add rows to the tables below, by using "tab" in the last row, in the last column.

9. Identify the size of the waterbody(ies) and the portion of the waterbody(ies) to be treated. Refer to the instructions.

Name of Waterbody	Total Acres	Average Depth ft.	Total Volume Acre ft.	Total Treated Portion[2]	
				Acres	Volume Acre-ft
Bashan Lake	273	15	4140	12	120

10. Identify each proposed product to be used, the amount per treatment, the number of treatments and the surface area (acres) or volume (acre feet) of water to be treated with that product. If more than one waterbody will be treated, provide this information for each waterbody.

Name of Waterbody	Full Product Name	Amount per Treatment[1]	Number of Treatments	Treated Portion[2]	
				Acres	Volume Acre-ft
Bashan Lake	ProcellaCOR EC	12 gallons	1	12	120
Bashan Lake	Flumioxazin (Propellor)	5 pounds	1	1	4

[1]Provide quantities using only the units specified in the instructions.

[2]If treating more than 80 acres of a single waterbody or 20 linear miles of shoreline in a calendar year, registration for approval under the General Permit for Point Source Discharges to Waters of the State from the Application of Pesticides is required. (See instructions). Such approval must be submitted as Attachment H to this application if required.

Part VI: Site Information (continued)

11. Does the waterbody have public access? ☒ Yes ☐ No

12. Is there a state-owned boat launch? ☒ Yes ☐ No

If yes, will the boat launch be used to access the waterbody? ☒ Yes ☐ No

If yes, will the boat launch be used for any purpose other than launching a boat? ☐ Yes ☒ No

If yes, see instructions for submitting an application to the DEEP Land Acquisition and Management Unit for review and approval of state property.

13. Is the waterbody stocked with fish by the state? ☒ Yes ☐ No

14. Identify use(s) of waterbody:

☐ domestic water supply ☒ irrigation ☐ watering livestock ☒ swimming ☒ fishing ☐ None

15. Are there any downstream users of the water who may be affected by treatment? ☐ Yes ☒ No
If yes, please explain:

16. Within 200 ft., inclusive, of the treatment area, are there any **private** drinking water wells 50 ft. or less from the shoreline? ☐ Yes ☒ No

17. Identify all plants or animals to be controlled: **variable watermilfoil (11 Acres), Fanwort (1 acre)**

18a. Identify all types of fish present: **Bass, pickerel, crappie, eels, bluegills, sunfish, trout, shiners**

18b. If a copper-based product will be used and there are fish species sensitive to copper, what is the alkalinity of the water to be treated? **NA**

19. Projected date(s) of pesticide use: **June 10-30, 2025**

20. List prior years in which chemicals were applied to this waterbody:

2000-2024

Part VII: Supporting Documents

Be sure to read the instructions (DEEP-PEST-INST-200) to determine whether the attachments listed are applicable to your specific activity. Check the applicable box below for each attachment being submitted with this application form. When submitting any supporting documents, please label the documents as indicated in this part (e.g., Attachment A, etc.) and be sure to include the applicant's name as indicated on this application form.

☒ Attachment A:	An 8-1/2" x 11" legible copy or original of a USGS Topographic Quadrangle Map (scale 1:24,000) indicating the exact location of the area to be treated.
☒ Attachment B:	*Applicant Compliance Information Form* (DEEP-APP-002), if applicable.
☐ Attachment C:	*Coastal Consistency Review Form* (DEEP-APP-004), if applicable.
☒ Attachment D:	A copy of the NDDB Determination response letter that has not expired, if applicable. Include a copy of any mitigation measures developed for this activity and approved by NDDB. Do *not* submit any NDDB Preliminary Site Assessments with your application. Be aware that you must renew your NDDB Determination if it expires before project work commences.
☒ Attachment E:	Verification of Notification to Local Inland Wetland Agency: 1) copy of a certified mail receipt, or 2) a copy of the application stamped and dated as received by the local inland wetlands agency, or 3) an e-mail from the local inland wetlands agency verifying that this completed application has been sent to such agency. • For multiple applications submitted to the local inland wetlands agency under one certified mail receipt, please attach a copy of the certified mail receipt to each application. • For multiple applications submitted to the local inland wetlands agency under one email, the e-mail from the agency clearly confirming receipt of each application. **Refer to the instructions.**
☐ Attachment F:	Conservation or Preservation Restriction Information, if applicable.
☒ Attachment G:	DEEP Land Management Unit's Authorization letter for treatment of a state-owned or controlled waterbody and/or use of a state-owned boat launch, if applicable.
☐ Attachment H:	Approval under the General Permit for Point Source Discharges to Waters of the State from the Application of Pesticides, if applicable.
☐ Attachment I:	Department of Public Health comments if the proposed treatment area(s) is located 200 ft. or less from a public water supply well or if the waterbody is located within a public water supply watershed and the application proposes the use of flumioxazin or triclopyr, if applicable.

Please note that local inland wetlands agencies may have additional requirements pertaining to the application of aquatic pesticides to waterbodies located under their jurisdiction.

Part VIII: Application Certification

The applicant *and* the individual(s) responsible for actually preparing the application must sign this part. An application will be considered insufficient unless *all* required signatures are provided. Please also check the box and provide the date for which you sent one copy of this completed application to the appropriate local inland wetland agency.

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that based on reasonable investigation, including my inquiry of the individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief.

I understand that a false statement in the submitted information may be punishable as a criminal offense, in accordance with section 22a-6 of the General Statutes, pursuant to section 53a-157b of the General Statutes, and in accordance with any other applicable statute.

I certify that this application is on complete and accurate forms as prescribed by the commissioner without alteration of the text.

☒ I also certify that I have sent one copy of this completed application to the appropriate local inland wetland agency on **3/5/25** "

Date

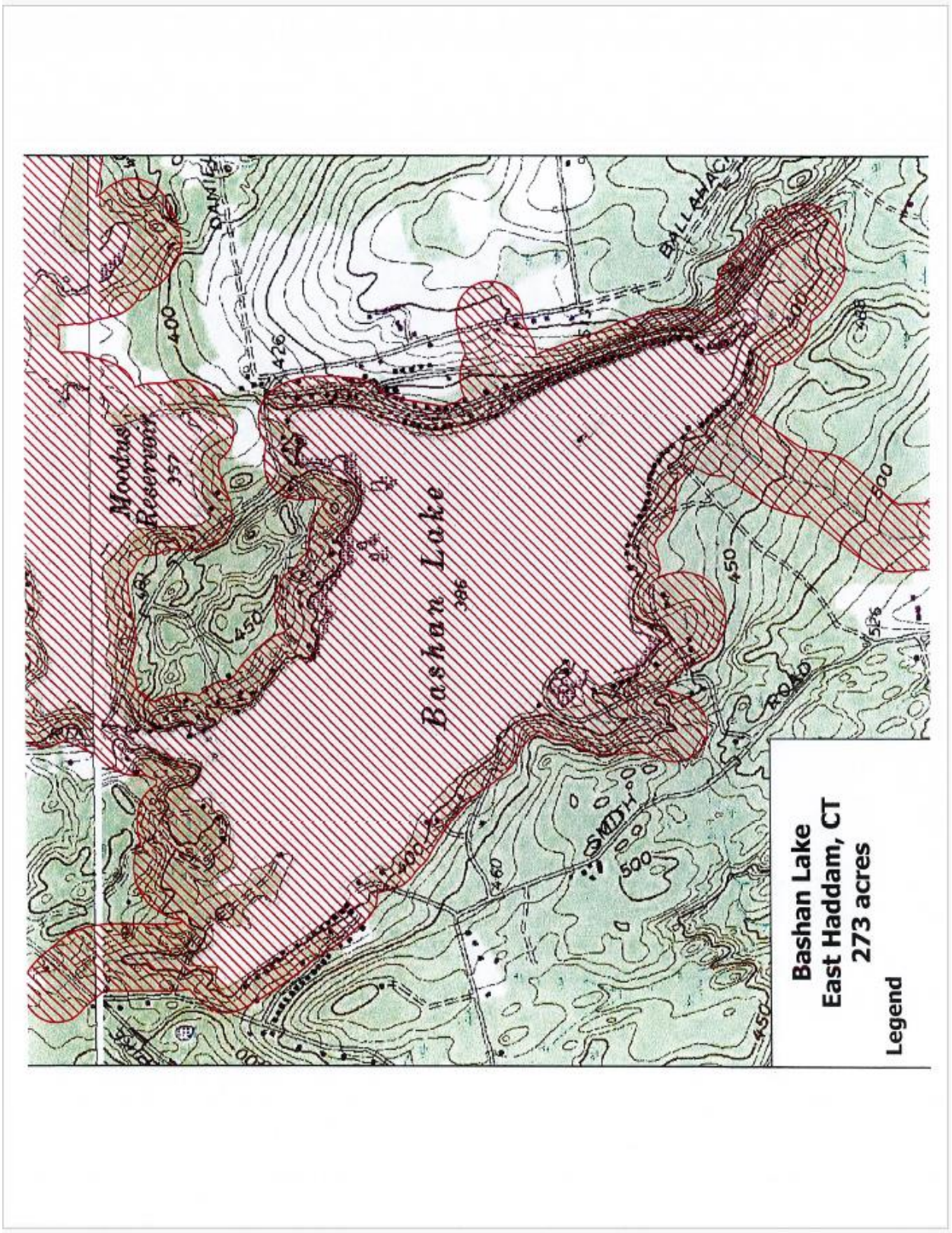
Signature of Applicant	**3/5/25** Date
Gregory Bugbee Name of Applicant (print or type)	Associate Scientist Title (if applicable)
Signature of Preparer (if different than above)	Date
Name of Preparer (print or type)	Title (if applicable)

☐ Check here if additional signatures are required. If so, please reproduce this sheet and attach signed copies to this sheet.

Note: Please submit this completed Application Form, Fee, and all Supporting Documents to:

CENTRAL PERMIT PROCESSING UNIT
DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION
79 ELM STREET
HARTFORD, CT 06106-5127

Please also submit a copy of this completed application to the local inland wetlands agency.


Bashan Lake
East Haddam, CT
273 acres
Legend
Bashan Lake
Moodus Reservoir
DAM
BALLAHAC
SMITH

ATTACHMENT A

Connecticut Department of Energy & Environmental Protection

Applicant Compliance Information

DEEP ONLY
App. No. _____
Co./Ind. No. _____

Applicant Name: The Connecticut Agricultural Experiment Station

Mailing Address: 123 Huntington Street

City/Town: New Haven State: CT Zip Code: 06511

Business Phone: 203 974-8512 ext.:

Contact Person: Greg Bugbee Phone: 203 804-1069 ext.

*E-mail:

If you answer *yes* to any of the questions below, you must complete the Table of Enforcement Actions on the reverse side of this sheet as directed in the instructions for your permit application.

A. During the five years immediately preceding submission of this application, has the applicant been convicted in any jurisdiction of a criminal violation of any environmental law?

☐ Yes ☑ No

B. During the five years immediately preceding submission of this application, has a civil penalty been imposed upon the applicant in any state, including Connecticut, or federal judicial proceeding for any violation of an environmental law?

☐ Yes ☑ No

C. During the five years immediately preceding submission of this application, has a civil penalty exceeding five thousand dollars been imposed on the applicant in any state, including Connecticut, or federal administrative proceeding for any violation of an environmental law?

☐ Yes ☑ No

D. During the five years immediately preceding submission of this application, has any state, including Connecticut, or federal court issued any order or entered any judgement to the applicant concerning a violation of any environmental law?

☐ Yes ☑ No

E. During the five years immediately preceding submission of this application, has any state, including Connecticut, or federal administrative agency issued any order to the applicant concerning a violation of any environmental law?

☐ Yes ☑ No

Connecticut
Department of Energy &
Environmental Protection

portal.ct.gov/DEEP

5/14/2025

Gregory Bugbee
Bugbee
123 Huntington St
New Haven, CT 06511
gregory.bugbee@ct.gov

Subject: Bashan Lake
Filing #: 124685
NDDB - New Determination Number: 202501760

Expiration Date: 5/14/2027

Location Description: Bashan Lake, Route 82 in East Haddam, Connecticut.

Project: Aquatic Plant Control of Fanwort (*Cabomba caroliniana*) and Viable milfoil (*Myriophyllum heterophyllum*) using (the below-listed herbicide are the only products approved by this NDDB determination):

1. **ProcellaCOR (Florpyauxifen-benzl)** to spot-treat Viable milfoil;

2. **Flumioxazin** to spot-treat Fanwort.

Dear Greg Bugbee,

I have reviewed Natural Diversity Data Base (NDDB) maps and files regarding above listed aquatic plant control project. According to our records, multiple State-listed species have been documented in the lake. I do not anticipate negative impacts to state listed species resulting from this project if the protection measures set forth below are implemented.

State-Listed Plants

According to our records, the State Threatened Capillary pondweed (*Potamogeton gemmiparus*) and Vasey's pondweed (*Potamogeton vaseyi*) has been documented at Bashan Lake. These two plants were observed in a sheltered cove in the northern section of this lake. We are in receipt of the earlier project narrative entitled "The efficacy of hand pulling, fluridone spot treatments, and late season flumioxazin on fanwort in Bashan Lake with emphasis on protection of state listed pondweed and the native plant community", file dated 5/4/2023, and the current project narrative entitled "Treatment of variable watermilfoil with ProcellaCOR", by Greg Bugbee, file dated 1/24/2025.

Protection Measures for State Listed Plants

1. Spot treatments with the herbicides shall not occur within 1000 feet of the known *Potamogeton gemmiparus* and *Potamogeton vaseyi* areas (See attached map).

2. Variable milfoil patches nearest the recently observed areas of *Potamogeton gemmiparus* and *Potamogeton vaseyi* will be hand harvested, thus offering maximum protection. If Fanwort appears in the vicinity of those areas during this project, they will be hand-harvested.
3. Each year of this project, surveys for *Potamogeton gemmiparus* and *Potamogeton vaseyi* shall be conducted by a qualified biologists when these plants are most detectable and identifiable (in early summer). A report summarizing the results of such surveys should include report elements a. though j., listed below. The site surveys reports and management plans to protect these species should be sent to our CT DEEP-NDDB Program (nddbrequest@ct.gov) by December 31 of each calendar of the project.

    1. Survey date(s) and duration
    2. Site descriptions and photographs of state listed plants encountered during the surveys.

NDDB /

3. Descriptions of the identifying characters that distinguish the target listed plants from non-state-listed similar species. If it is available, include results of molecular genetic testing.
4. List of component species within the survey area (including scientific binomials)
5. Data regarding population numbers and/or area occupied by State-listed species
6. Detailed maps of the area surveyed including the survey route and locations of State-listed species.
7. Rare Plant forms found at the NDDB Program webpage. These forms should include maps and photographs of the plants.
8. Any proposed modifications to existing conservation strategies or protection plans that indicate how impacts may be avoided for all state-listed species present.
9. Results of the lake water testing for fluridone concentrations (see item 3 below).
10. An assessment of the any apparent or evident impacts of Fanwort treatments on *Potamogeton gemmiparus* and *Potamogeton vaseyi*
11. Statement/résumé indicating the biologist's qualifications. Please be sure that the qualified biologist has the proper experience with target taxon.

STATE-LISTED FISH

According to our information, **Bridle shiner (*Notropis bifrenatus*)**, a fish species of State Special Concern (RCSA Sec. 26-306), has been documented at Bashan Lake in East Haddam. Please be advised that a DEEP Fisheries Biologist will review the permit applications you may submit to DEEP regulatory programs to determine if your project could adversely impact slimy sculpin. DEEP Fisheries Biologists are routinely involved in pre-application consultations with regulatory staff and applicants in order to identify potential fisheries issues and work with applicants to mitigate negative effects, including to endangered species. If you have not already talked with a Fisheries Biologist about your project, you may contact the Permit Analyst assigned to process your application for further information, including the contact information for the Fisheries Biologist assigned to review your application. The Fisheries Consultation form can be downloaded from here: google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwjqt_ucj_2LAxVRlokEHU8QBK0QFnoECBQQAQ&url=https%3A%2F%2Fportal.ct.gov%2F-%2Fmedia%2Fdeep%2Fpermits_and_licenses%2Fland_use_permits%2Finland_water_permits%2Ffisheriesdamconsultationappdoc.doc&usg=AOvVaw3jvW-uH38UfO-kcTbUfn8c&opi=89978449

Instructions for submitting your survey information or other additional reporting requirements can be found at the end of this letter.

Your submission information indicates that your project requires a state permit, license, registration, or authorization, or utilizes state funding or involves state agency action. This NDDB - New determination may be utilized to fulfill the Endangered and Threatened Species requirements for state-issued permit applications, licenses, registration submissions, and authorizations.

Please be aware of the following limitations and conditions:

Natural Diversity Database information includes all information regarding listed species available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey and cooperating units of DEEP, land owners, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as enhance existing data. Such new information is incorporated into the Database and accessed through the ezFile portal as it becomes available. New information may result in additional review, and new or modified restrictions or conditions may be necessary to remain in compliance with certain state permits.

- During your work listed species may be encountered on site. A report must be submitted by the observer to the Natural Diversity Database promptly and additional review and restrictions or conditions may be necessary to remain in compliance with certain state permits. Please fill out the appropriate survey form and follow the instructions for submittal.
- Your project involves the state permit application process or other state involvement, including state funding or state agency actions; please note that consultations with your permit analyst or the agency may result in additional requirements. In this situation, additional evaluation of the proposal by the DEEP Wildlife Division may be necessary and additional information, including but not limited to species-specific site surveys, may be required. Any additional review may result in specific restrictions or conditions relating to listed species that may be found at or in the vicinity of the site.
- If your project involves preparing an Environmental Impact Assessment, this NDDB consultation and determination should not be substituted for biological field surveys assessing on-site habitat and species presence.
- The NDDB - New determination for the Bashan Lake as described in the submitted information and summarized at the end of this document is valid until 5/14/2027. This determination applies only to the project as described in the submission and summarized at the end of this letter. Please re-submit an updated Request for Review if the project's scope of work and/or timeframe changes, including if work has not begun by 5/14/2027.

Additional reporting requirements indicated above have been requested. Include the Project Name Bashan Lake, Filing # 124685, and Determination Number 202501760 on all correspondence. Please note that, as stated above, survey data indicating the presence of listed species not described in this letter may necessitate additional review and restrictions or conditions. Forward additional reporting requirements to each of the following two addresses:

1. William.Moorhead@ct.gov
2. deep.nddbrequest@ct.gov

If you have further questions, please contact me at the following:

William Moorhead
CT DEEP Bureau of Natural Resources
Wildlife Division
Natural Diversity Database
79 Elm Street
Hartford, CT 06106-5127

William.Moorhead@ct.gov

NDDB 2

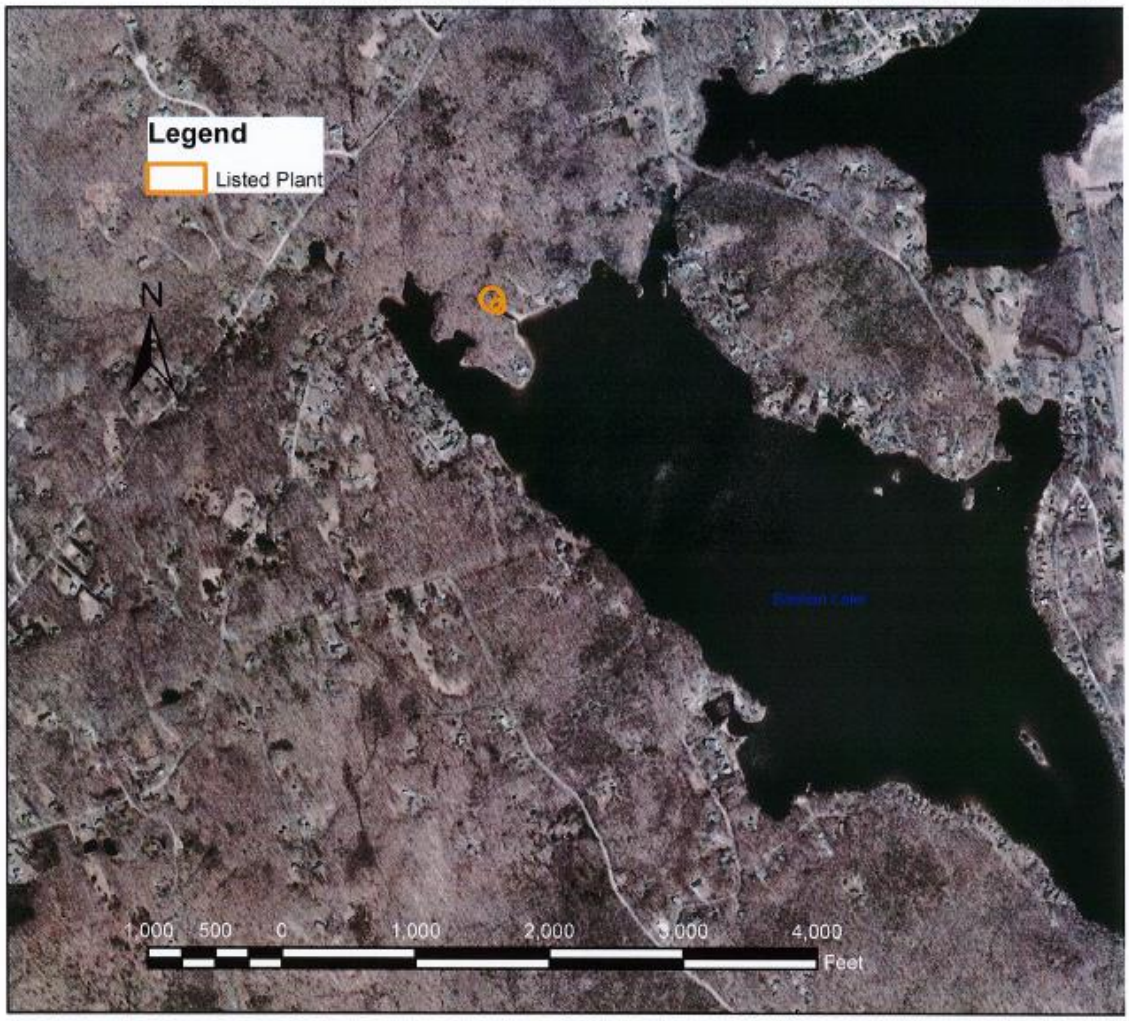
Please reference Filing # 124685 and Determination Number 202501760 when you e-mail or write. Thank you for consulting the Natural Diversity Data Base.

William Moorhead
Wildlife Division- Natural Diversity Data Base
79 Elm Street
Hartford, CT 06106-5127
William.Moorhead@ct.gov

attachment

NDDB 3

Previously documented locations of State-Threa
Potamogeton gemmiparus and Potamogeton vaseyi at I
East Hampton, based on NDDB data as of 2023-



NDDB 4

Application Details:

Project involves federal funds or federal permit:	No
Project involves state funds, state agency action, or relates to CEPA request:	Yes
Project requires state permit, license, registration, or authorization:	Yes
DEEP enforcement action related to project:	
Project Type:	Aquatic/Wetland Vegetation Control
Project Sub-type:	Aquatic/Wetland Vegetation Removal- Any Herbicide
Project Name:	Bashan Lake
Project Description:	Bashan Lake is one of Connecticut's highest quality State-owned waterbodies. The lake has a long history of problems with invasive variable watermilfoil (Myriop

NPDB 5

Bugbee, Gregory

From: James Ventres <james.ventres@easthaddam.org>
Sent: Thursday, March 6, 2025 12:09 PM
To: Bugbee, Gregory
Subject: RE: [External] Bashan Lake Treatment

EXTERNAL EMAIL: This email originated from outside of the organization. Do not click any links or open any attachments unless you trust the sender and know the content is safe.

Greg,

I have it! Question of the day. Has anyone ever done studies on the impact to invertebrates, especially crayfish? I have received complaints that the crayfish has disappeared from Bashan.

Jim

From: Bugbee, Gregory <Gregory.Bugbee@ct.gov>
Sent: Thursday, March 6, 2025 11:56 AM
To: James Ventres <james.ventres@easthaddam.org>
Subject: [External] Bashan Lake Treatment

CAUTION: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Jim:

Please fine our application to CT DEEP for an herbicide application to Bashan Lake this year. If you could let me know you received it that would be great.

Cheers!

Greg Bugbee

Associate Scientist
Office of Aquatic Invasive Species (OAIS) - Lead
Invasive Aquatic Plant Program (IAPP) – Principal Investigator
Soil Testing - Head

Office: 203 974-8512
Email: gregory.bugbee@ct.gov

OAIS
Office of Aquatic Invasive Species
Connecticut Agricultural Experiment Station

1

Connecticut
Department of Energy & Environmental Protection
79 Elm Street • Hartford, CT 06106-5127
portal.ct.gov/DEEP

THE CONNECTICUT AGRICULTURAL EXPERIMENT STATION
123 Huntington St
New Haven, CT 06511-2016

6/04/2025

1. **This permit is hereby issued pursuant to Section 22a-66z of the General Statutes, and regulations adopted thereunder.**

2. **This permit** AQUA-2025-210 **Is issued to:** THE CONNECTICUT AGRICULTURAL EXPERIMENT STATION
of: 123 Huntington St
New Haven, CT 06511-2016

3. **This permit authorizes the application of chemicals at property**

located at: ROUTE 82 EAST HADDAM

4. **This permit authorizes the application of chemicals by:** THE CONNECTICUT AGRICULTURAL EXPERIMENT STATION

5. **This permit is issued on** 6/04/2025 **and will expire on** 12/31/2025

6. **This permit is subject to the following conditions:**

a. **Permittee may apply the following chemicals to** BASHAN LAKE **Site ID:** 1503243

Chemical	Amount of chemical	Times applied
Florpyrauxifen-benzyl (liquid) 2.7%	12.00 Gallons	1
Flumioxazin (granular) 51.0%	5.00 Pounds	1

b. **Permittee may conduct the application described in paragraph 6a, no more than the number times specified above, in each calendar year of the effective term of this permit, and prior to 12/31/2025.**

c. **The permittee shall follow all restrictions and directions as instructed on the chemical label.**

d. **The permittee shall also adhere to the following specific conditions:**

1. The permittee shall comply with all conditions in the attached Natural Diversity Data Base (NDDB) determination #202501760.

2. The permittee shall comply with all conditions in the attached Land Acquisition and Management letter dated May 15, 2025.

3. If using a state-owned boat launch, the permittee shall:
a. prior to entering and upon leaving the water, decontaminate all vessels according to the attached recommended protocol;
b. only launch and retrieve vessels. No commercial activities shall be conducted;
c. ensure that access to the boat ramp is unhindered to the public at all times;
d. remove any and all posted signage upon project completion; and
e. at least two weeks prior to each treatment, contact DEEP's Boating Division (deep.boating@ct.gov) and Fisheries Division (deep.inland.fisheries@ct.gov) to ensure there will be no conflict with prior planned events and to notify licensed boaters and anglers of potential lake closures.

4. The permittee shall comply with all terms and conditions in the National Pollutant Discharge Elimination System (NPDES) General Permit for Point Source Discharges to Waters of the State from the Application of Pesticides, as applicable.

e. The permittee shall notify the DEEP State Parks and Public Outreach Division and the Water Planning and Management Division (email: deep.aquaticherbicides@ct.gov) at least 72 hours prior to each treatment.

f. For any permit to apply chemicals on a lake or pond with any public access owned by the state or a municipality: The permittee shall, prior to any chemical application authorized by this permit, publish notice of such application and post signs in accordance with Section 22a-66a(h) of the Connecticut General Statutes and regulations adopted thereunder.

g. Any pesticide application business prior to making a pesticide application on any private lake or pond with more than one owner of shoreline property shall provide notice of the date of the application to any owner or tenant of such shoreline property that abuts the lake or pond to be treated, in accordance with Section 22a-66a(h) of the Connecticut General Statutes and regulations adopted thereunder.

h. The permittee shall submit a yearend report using this form. The report shall be submitted to deep.pesticideprogram@ct.gov not later than December 31st of each year this permit is active. If no chemicals were applied in any given year during the active term of this permit, a yearend report must be submitted indicating that no chemicals were applied that year

i. In evaluating the application for this permit and any other document submitted pursuant to this permit DEEP relies on information and data provided by the applicant and on the applicant's representations. If such information proves to be false, deceptive, incomplete or inaccurate, this permit may be modified, suspended or revoked in accordance with Section 22a-3a-5(d) of the Regulations of Connecticut State Agencies.

j. Any document which is required to be submitted by the permittee to DEEP under this permit shall be signed by the permittee or applicator and by the individual or individuals responsible for actually preparing such document, each of whom shall certify in writing as follows:

> **"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate, and complete to the best of my knowledge and belief. I understand that any false statement made in the submitted information may be punishable as a criminal offense, in accordance with Section 22a-6 of the Connecticut General Statutes, and in accordance with any other applicable statute."**

k. This permit is not transferrable.

l. Issuance of this permit does not relieve the permittee of the obligation to obtain any other authorizations required by applicable federal, state and local law.

m. This permit is subject to and does not derogate any present or future rights or powers of the property owner and conveys no rights in real or personal property nor any exclusive privileges, and is subject to any and all public and private rights and to any federal, state or local laws pertinent to the property or activity affected by such permit.

n. For an applicator who is not a certified commercial applicator, this permit shall be signed below by the registered pesticide dealer at the time of chemical purchase. Once signed, this permit is invalid for further purchase of chemicals.

6/04/2025
Date of Permit Issuance

Gabrielle Frigon, Director
Waste Engineering & Enforcement Division

AQUA-2025-210
Permit Number

Date of Chemical Purchase

Signature of Registered Pesticide Dealer

CTDEEP Land Management Filing Approval

DEEP Land Acquisition & Management Use Only

A-File #: _____

Type: _____

Requestor: _____

Facility: _____

Date Issued: _____

Connecticut Department of
Energy & Environmental Protection
Office of the Commissioner
Office of Planning & Program Development
Land Acquisition & Management

Application for Review of Land Management Request on State-Owned Land or Water

Note: As of 5/2020, this application is not required when utilizing a state-owned boat launch to access a privately owned lake.

Please complete this form in accordance with the instructions to ensure the proper handling of your application. Print or type unless otherwise noted. DEEP encourages all applicants to submit their application electronically by email to DEEP.PropertyManagement@ct.gov.

Part I: Application Type

Check the appropriate box identifying the application type.

This application is for (check one):	Please identify any previous or existing authorization or A-File number made by DEEP below. Copies of any prior authorizations, such as letters of permission or other documentation, should be provided as Attachment F.
☒ A *new* application	Existing authorization #: **A-2023-082**
☐ A *renewal* of an existing authorization	Date Issued: **August 5, 2023**
☐ A *modification* of an existing authorization	Date Expired: **December 31, 2023**
☐ A *reconsideration* of a previously denied request	

Part II: Applicant Information

- **If an applicant is a corporation, limited liability company, limited partnership, limited liability partnership, or a statutory trust, it must be registered with the Secretary of State. If applicable, the applicant's name shall be stated **exactly** as it is registered with the Secretary of State. Please note, for those entities registered with the*

Secretary of State, the registered name will be the name used by DEEP. This information can be accessed at *the Secretary of State's database (CONCORD)*

- *If an applicant is an individual, provide the legal name (include suffix) in the following format: First Name; Middle Initial; Last Name; Suffix (Jr, Sr., II, III, etc.).*

1. Applicant Name: The Connecticut Agricultural Experiment Station
   Mailing Address: 123 Huntington Street
   City/Town: New Haven State: CT Zip Code: 06511
   Business Phone: 203 974-8512 ext.:
   Contact Person: Greg Bugbee Phone: 203 804-1069 ext.
   *E-mail: gregory.bugbee@ct.gov
   *By providing this e-mail address you are agreeing to receive official correspondence from DEEP, at this electronic address, concerning the subject application. Please remember to check your security settings to be sure you can receive e-mails from "ct.gov" addresses. Also, please notify DEEP if your e-mail address changes.

Part II: Applicant Information (continued)

a) Applicant Type (check one):
☐ individual ☐ federal agency ☒ state agency ☐ municipality ☐ tribal
☐ *business entity (*If a business entity complete i through iii):
i) check type: ☐ corporation ☐ limited liability company ☐ limited partnership
☐ limited liability partnership ☐ statutory trust ☐ Other: _____
ii) provide Secretary of the State business ID #:_____This information can be accessed at *the Secretary of State's database (CONCORD)*.
iii) ☐ Check here if your business is **NOT** registered with the Secretary of State's office.

☐ Check if any co-applicants. If so, attach additional sheet(s) with the required information as requested above.

2. **Primary contact for departmental correspondence and inquiries, if different than the applicant.**
   Name:
   Mailing Address:
   City/Town: State: Zip Code:
   Business Phone: ext.:
   Contact Person: Phone: ext.
   *E-mail:
   *By providing this e-mail address you are agreeing to receive official correspondence from DEEP, at this electronic address, concerning the subject application. Please remember to check your security settings to be sure you can receive e-mails from "ct.gov" addresses. Also, please notify DEEP if your e-mail address changes.

3. **Attorney or other representative, if applicable:**
   Firm Name:
   Mailing Address:
   City/Town: State: Zip Code:
   Business Phone: ext.:
   Attorney: Phone: ext.

E-mail:

4. Engineer(s), Land Surveyor, or other consultant(s) employed or retained to assist with this proposed project.

Name:

Mailing Address:

City/Town: State: Zip Code:

Business Phone: ext.:

Contact Person: Phone: ext.

E-mail:

Part III: Site Information

1. NAME AND LOCATION OF STATE PROPERTY SUBJECT TO REQUESTED ACTIVITY

a. Name of DEEP Property: **Bashan Lake**

Street Address or Location Description: **Adjacent to Moodus Reservoir**

City/Town: **East Haddam** State: **CT** Zip Code: **06511**

Tax Assessor's Reference: Map Block Lot

b. Latitude and longitude of the location of the proposed activity in *degrees*, *minutes*, and *seconds*, if known: Latitude: **41.4900** Longitude: **-72.4112**

Method of determination (check one):

☒ GPS ☐ USGS Map ☐ Other (please specify):

If a USGS Map was used, provide the quadrangle name:

2. COASTAL BOUNDARY: Will the activity which is the subject of this application be located within the coastal boundary as delineated on DEEP approved coastal boundary maps? ☐ Yes ☒ No

If yes, and this application is for a new authorization or a modification of an existing authorization where the physical footprint of the subject activity is modified, submit a *Coastal Consistency Review Form* (DEEP-APP-004) with this completed application as Attachment C.

Information on the coastal boundary is available at www.cteco.uconn.edu/map_catalog.asp (Select the town and then select coastal boundary. If the town is not within the coastal boundary you will not be able to select the coastal boundary map.), or the local town hall.

3. NATURAL DIVERSITY DATA BASE (NDDB) - ENDANGERED OR THREATENED SPECIES: According to the most current "Natural Diversity Data Base Areas Maps", will the activity which is the subject of this application, including all impacted areas, be located within an area identified as, or otherwise known to be, a habitat for state listed endangered, threatened or special concern species?

☒ Yes ☐ No Date of Map: **11/2024**

If YES, complete and submit a *Request for NDDB State Listed Species Review Form* (DEEP-APP-007) to the address specified on the form, **prior** to submitting this application. **Please note NDDB review generally takes 4 to 6 weeks and may require the applicant to produce additional documentation, such as ecological surveys, which must be completed prior to submitting this permit application.** A copy of the NDDB Determination response letter that has not expired ***must*** be submitted with this completed application as Attachment D. Include a copy of any mitigation measures developed for this activity and approved by NDDB. Be aware that you must renew your NDDB Determination if it expires before project work commences.

For more information visit the DEEP website at Endangered-Species-ReviewData-Requests or call the NDDB at 860-424-3011.

NOTE: **All requests are subject to review by DEEP's Property Management Review Committee**, which includes staff from the Wildlife Division, Fisheries Division, and other Departmental programs, whether or not a proposed activity is located within an area deemed by the NDDB evaluation process as being a habitat for endangered, threatened, or special concern species.

Part III: Site Information (continued)

4. **CONSERVATION EASEMENT OR RESTRICTION:** Will the activity which is the subject of this application be located within a conservation easement or conservation restriction area?

☐ Yes ☒ No

If Yes, a full copy of such deeds or documents and proof of written notice of this application to the holder of such easement or restriction, or a letter from the holder of such easement or restriction, verifying that this application is in compliance with the terms of the restriction, must be submitted as Attachment E.

5. **OTHER PERMITS OR APPROVALS**: List any previous state, federal, or local permits or approvals that have already been issued or are in the process of being obtained for the proposed activity:

Type or Nature of Permit	Permit/App. No.	Issuing Authority	Date Issued/Status	Expiration Date	Permittee/Applicant Name
LAM	A-2023-082	CTDEEP	8/5/23	12/31/23	CAES/Bugbee
NDDB	202300855	CTDEEP	7/4/23	12/31/20	CAES/Bugbee
NDDB	202001137	CTDEEP	5/12/20	12/31/20	CAES/Bugbee
LAM	A-16-32	CTDEEP	5/15/20	12/31/20	CAES/Bugbee
Pesticide	202001137	CTDEEP	6/4/2020	12/31/20	CAES/Bugbee
NDDB	20108812	CTDEEP	8/29/18	12/31/18	CAES/Bugbee
LAM	A-16-37-2018	CT DEEP	8/29/18	12/31/18	CAES/Bugbee

Part IV: Summary of Requested Project

1. **Type of State Property for Requested Activity** (check all that apply):

☒ **State-owned or controlled waterbody**

Name of Waterbody: **Bashan Lake**

☐ **State Park, Forest, Wildlife Management, or other Conservation Area**

Name of Park, Forest, WMA, or other:

☒ **State-owned or controlled Boat Launch**

Name of Boat Launch: **Bashan Lake**

NOTE: See Addendum A for a **list of waterbodies** which DEEP owns, owns a portion, or has an interest. If the applicant is proposing to use a State-owned or controlled boat launch, see https://portal.ct.gov/DEEP/Boating/Boat-Launches/Boat-Launches-in-Connecticut for a **list of State Boat Launches and information on use restrictions**.

2. **Duration of Proposed Activity**

☒ Temporary / Short-term

☐ Permanent

3. **Anticipated Start Date of Proposed Activity**: **June 15, 2024**

4. **Anticipated Date of Completion**: **June 30,2024**

5. **Construction Methods & Materials (if applicable):**

Part IV: Summary of Requested Project (continued)

6. **Mutual Benefit(s) Provided by Request:**

   Research inovative techniques for spot treating invasive weed (variable watermilfoi, fanwort) in lake

7. **Project Narrative:** Describe the existing site conditions and present and intended use(s) of the property at which the requested activity will be conducted, the reason for conducting the proposed activity, and other information **as detailed in the instructions on completing this section.**

   Bashan Lake is one of Connecticut's highest quality State-owned waterbodies. The lake has a long history of problems with invasive variable watermilfoil (Myriophyllum heterophyllum). For over 20 years, CAES has provided guidance and experimented with control methods using aquatic herbicides. Results varied until 2020 when a new product called ProcellaCOR was tested and exceptional control was achieved. Yearly surveys found no regrowth until 2024 when several small patches of variable watermilfoil were detected. This request is to retreat up to 11 acres of Bashan Lake with ProCellaCOR to prevent further expansion of variable watermilfoild (See attchment B). The actuall treated acreage will be determined by a pretreatment survey. Invasive fanwort (Cabomba caroliniana) in the State boat launch Cove area was treated in the Fall of 2023 with excellent results. A small patch was detected in Smith Cove in 2024 and a treatment of 1 acre is proposed for 2025 (see attacment B). Post treatment surveys will be conducted to document herbicide effectiveness. All CT DEEP aquatic pesticide notification requirements will be performed.

   Note:Our NDDB review is in progress. We have been ask by the CT DEEP Pesticides Unit to submit this LM review along with the pesticide application before the NDDB review is complete to keep things moving.

Part V: Supporting Documents

Check the applicable box below for each attachment being submitted with this application form. When submitting any supporting documents, please label the documents as indicated in this part (e.g., Attachment A, etc.) and be sure to include the applicant's name as indicated on this application form.

☐	Attachment A:	Deeds and Town Assessor's Maps
☒	Attachment B:	Project Plan, Site Plan, or Engineering Drawings (if applicable).
☐	Attachment C:	*Coastal Consistency Review Form* (DEEP-APP-004), if applicable.
☐	Attachment D:	A copy of the NDDB Determination response letter that has not expired. Include a copy of any mitigation measures developed for this activity and approved by NDDB. Do *not* submit any NDDB Preliminary Site Assessments with your application. Be aware that you must renew your NDDB Determination if it expires before project work commences.
☐	Attachment E:	Conservation Easement or Restriction Information, if applicable.
☐	Attachment F:	Other Supporting Documents as detailed in the instructions.

Part VI: Application Certification

The applicant must sign this certification. An application will be considered incomplete unless the required signature is provided ***and is the proper signatory authority as specified under Part VI in the*** instructions.

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that based on reasonable investigation, including my inquiry of the individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief.

I certify that this application is on complete and accurate forms as prescribed by the commissioner without alteration of the text."

"By entering my name below, I agree that I am providing my legal signature, and am legally bound by the certifications above."

Signature of Applicant	**3/6/25** Date
Gregory J. Bugbee Name of Applicant (print or type)	**Associate Scientist** Title (if applicable)

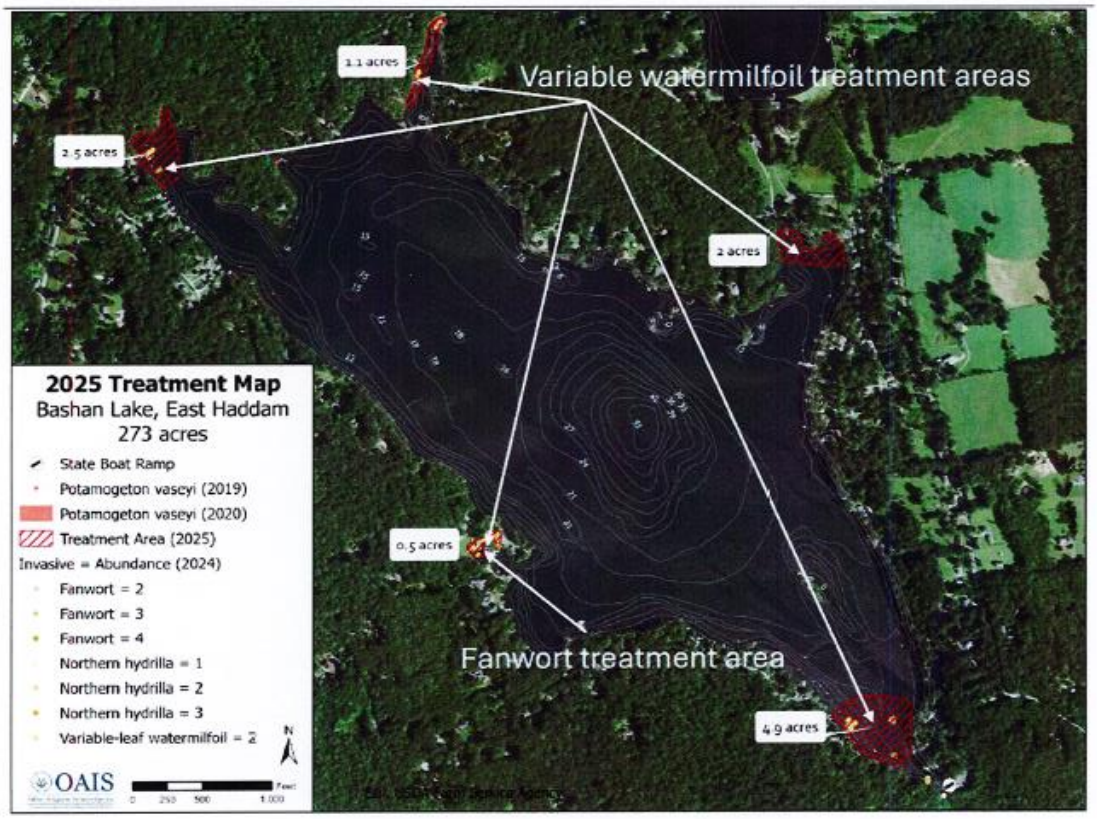
☐ Check here if additional signatures are required. If so, please reproduce this sheet and attach signed copies to this sheet.

Application Submission Information

Please submit an electronic copy of this completed Application Form and all Supporting Documents to:

DEEP.PropertyManagement@ct.gov

Attachment B



Connecticut
Department of Energy &
Environmental Protection

Office of the Commissioner
Land Acquisition and Management Unit

Date: May 15, 2025

To: Gregory J. Bugbee, Associate Scientist
Connecticut Agriculture Experiment Station
123 Huntington Street
New Haven, CT 06511

Re: **Permission to Treat Aquatic Plants**
State Waterbody: Bashan Lake
Town: East Haddam
DEEP File No.: A-2025-15

Dear Greg,

Thank you for submitting information to this office at the Department of Energy and Environmental Protection ("DEEP") requesting to survey and treat for nuisance or invasive aquatic plants at the subject DEEP-owned or partially controlled waterbody ("State Waterbody"). By way of this Letter, and subject to the following terms and conditions outlined below, you may access the State Waterbody and perform the requested aquatic plant activities.

1. **Term**. This letter and access permission shall expire upon the expiration of the active associated Aquatic Pesticides permit issued by DEEP's Pesticide Management Program, Engineering and Enforcement Division, Bureau of Materials Management and Compliance Assurance.

2. **Contractor Notification**. For the duration of permitted activities and whenever work is being performed, the certified applicator shall have onsite and make available for inspection a copy of this letter.

3. **No Waiver of Regulatory Requirements.** The certified applicator's exercise of access and treatment permissions set forth herein shall be subject to the certified applicator first obtaining all applicable regulatory permits and approvals required by law, including those the issuance of which are within the jurisdiction of the State. Nothing herein shall obligate DEEP to issue any such permit or approval. Nothing in this letter shall constitute or be interpreted as a regulatory permit or approval. Any activities conducted at the subject waterbody owned or controlled by DEEP shall comply with all applicable regulatory permit or approval requirements.

4. **Certificate of Insurance**.

   a. The certified applicator shall obtain at its own cost and for the duration of activities commercial general liability insurance in the amount of $1,000,000 combined single limit per occurrence for bodily injury, personal injury and property damage. Coverage shall include Premises and Operations, Independent Contractors, Products and Completed Operations, Contractual Liability and Broad Form Property Damage coverage. If a general aggregate is used, the general aggregate limit shall apply separately to the project or the general aggregate limit shall be twice the occurrence limit. The certified applicator shall provide the State with a Certificate of Insurance naming the 'State of Connecticut, DEEP' as an Additional Insured for the date(s) and location where activities occur. The coverage shall contain no

79 Elm Street, 6th Floor
Hartford, CT 06106-5127
portal.ct.gov/DEEP

special limitations on the scope of protection afforded to the State. The certified applicator shall assume any and all deductibles in the described insurance policies. The certified applicator's contractors' insurer shall have no right of recovery or subrogation against the State and the described insurance shall be the primary coverage. Any failure to comply with the claim reporting provisions of the policy shall not affect coverage provided to the State. The insurance policy shall not be suspended, voided, cancelled or reduced, except after 30 days prior written notice by certified mail has been given to the State.

b. The certificate can be emailed to DEEP.PropertyManagement@ct.gov. Please be sure to include the DEEP A File Number, the name of the State Waterbody, and location in the subject line of the email transmittal.

5. **Vessel Decontamination**. Prior to entering the water, and upon leaving the water, decontaminate all work vessels according to the protocol attached as **Exhibit A**.

6. **State Boating and Fisheries Divisions Coordination**. At least 5 business days in advance of parking at or using a State Boat Launch for the permissible activities, notify DEEP's Boating Division, at Yolanda.Cooley@ct.gov and Krista.Romero@ct.gov, and Fisheries Division, at Spencer.Mallette@ct.gov, for determination as to whether a State-authorized Marine Event or Fishing Tournament is scheduled on the same day(s) as proposed aquatic plant treatments or surveys.

7. **Client/Stakeholder Notification; Final Lake Vegetation Treatment Report**.

   a. The requestor and/or holder of this letter of permission shall furnish a complete copy of this letter to the client or primary stakeholder who is seeking the aquatic treatments, as notification that a pre- and post-vegetation survey of all areas treated or to be treated within the State Waterbody is required prior to the expiration of the associated DEEP-issued Aquatic Pesticides permit.

   b. Please be advised that future requests for treatment of the State Waterbody will not be evaluated by this office without the submittal of a Final Lake Treatment Vegetation Report.

   c. Prior to December 31 of the last year authorized under the active, not expired, associated DEEP-issued Aquatic Pesticides permit, submit a "Final Lake Vegetation Treatment Report" containing at minimum the following information:

      i. Dates all pre- and post-surveys and all treatments occurred.
      ii. Reference to DEEP Aquatic Pesticide permit number(s) and Natural Diversity Data Base program determination number(s).
      iii. Map of the waterbody showing the points or area locations where plant treatments were applied.
      iv. Identification of all aquatic plants and state-listed threatened, endangered, or special concern species, if any, observed at and within 50 feet of the treatment points or areas.
      v. If state-listed species were identified during pre- or post-treatment aquatic vegetation surveys, narrative describing how work activities were modified or performed to avoid adverse impacts to such species.

vi. Narrative describing how the treatment failed or succeeded in reducing or eliminating nuisance or invasive aquatic plants and whether future treatments are necessary. If future treatments are necessary, explain the need and justification for repeated or reintroduced aquatic applications.

d. Submit the Final Lake Treatment Vegetation Report via email to DEEP.Propertymanagement@ct.gov with carbon copy to DEEP.Inland.Fisheries@ct.gov and DEEP.Nddbrequest@ct.gov.

Thank you for your submission of request and supporting materials for DEEP review. If you have any questions regarding this Letter, please contact Steven Perry by email at Steven.Perry@ct.gov or at (860) 424-3603.

Sincerely,

Lindsay Suhr

Lindsay Suhr, Director
Land Acquisition & Management Unit

cc (via email): DEEP Pesticides Program
DEEP Fisheries Division
DEEP Boating Division
DEEP Wildlife Division, NDDB Program

Exhibit A: Vessel Decontamination Protocol for Preventing Spread of Aquatic Invasive Species

1. **Use of State-owned Boat Launches.**

   (a) State Boat Launches shall be used only to launch and retrieve work vessels and shall not be used for commercial activities.

   (b) At no time shall public access to a State boat launch ramp, docks, or ADA handicap access and trailer parking spaces be obstructed, restricted, or otherwise prevented.

2. **Vessel Decontamination Protocol**. Upon removing a work vessel from any waterbody, the following conditions shall be performed and adhered:

   (a) Carefully inspect the boat, trailer, and equipment for any possible contamination, including all interior and exterior boat surfaces, anchors, lines, downriggers, fishing gear, boots, clothing, buckets, tools, and other items exposed to water. During the inspection, remove all plant fragments, mud, and debris and dispose of such materials in an area that will not result in the introduction of any plant fragments, mud or debris into any watercourse or catch basin that discharges into a watercourse.

   (b) Inspect the boat hull for rough spots, these may be newly attached zebra mussels. All rough areas shall be thoroughly cleaned until smooth in accordance with Paragraph 2(d)(i) of this section.

   (c) Drain all water from the boat, bilge, engines, jet drives, live wells, and other equipment "high and dry" well away from open water, and remove all standing water that cannot be drained. Such water shall be released in an area that that will not result in the introduction of drained or otherwise removed water into any watercourse or catch basin that discharges into a watercourse.

   (d) Do not use a boat, trailer, or equipment until the boat, trailer, or equipment has been completely dry for at least five (5) days after use, **unless and until at least one of the procedures prescribed in each clauses (i) and (ii), below, are performed**:

      i. For a boat or trailer:

         (I) Wash the boat or trailer with hot water (over 104 degrees);
         (II) Steam clean the boat or trailer; or
         (III) If hot water or steam is not available, wash the boat or trailer with detergent and water under high pressure.

      ii. For equipment:

         (I) Dip the equipment into 100% vinegar for at least 20 minutes;
         (II) Soak the equipment in 1% salt (NaCl) solution for 24 hours;
         (III) Soak the equipment in 5% bleach solution for approximately one hour;
         (IV) Wash the equipment with hot water (over 104 degrees);
         (V) Steam clean the equipment; or
         (VI) If hot water or steam is not available, wash the equipment with detergent and water under high pressure.

Newspaper Notification

(Hartford Courant)

and

Pretreatment Signage

Notice of Pesticide Application in Bashan Lake

Bashan Lake, East Haddam, CT will be spot treated with ProcellaCOR EC to control invasive milfoil. Treatment will occur during the period between July 7-11, 2025, by the Connecticut Agricultural Experiment Station. There are no drinking, swimming, or fishing restrictions. Do not use water from Bashan Lake for drinking and cooking. Do not use water from Bashan Lake for irrigating plants for three days after treatment. Signs indicating the exact treatment date will be posted around the lake.

Further information may be obtained from:

Greg Bugbee
Office of Aquatic Invasive Species
The Connecticut Agricultural Experiment Station
123 Huntington Street
New Haven, CT 06504
(203) 974-8512

CAUTION

Lake Treated with Pesticide to Control Milfoil

PESTICIDE: ProcellaCOR EC **DATE APPLIED: 7/7/2025**

APPLICATOR: Connecticut Agricultural Experiment Station

COLLABORATOR: Greg Bugbee, Department of Environmental Sciences and Forestry, Connecticut Agricultural Experiment Station (203) 974-8512

Do Not Use Water for the Following Purpose Until the Date Noted Below:

Irrigation: *Do Not Use Until July 10, 2025*

THIS SIGN MUST REMAIN POSTED UNTIL THE LATEST DATE ABOVE