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NH Department of
Environmental Services
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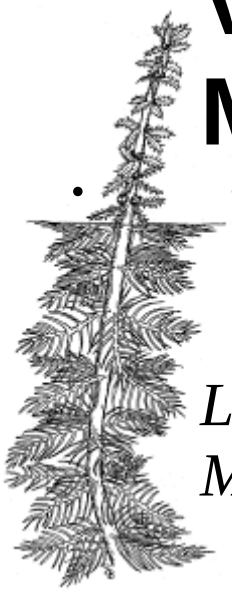
Long-Term Variable Milfoil Management Plan



Lake Winnipesaukee
Moultonborough, New Hampshire

Contents

Purpose

The purposes of this exotic aquatic plant management and control plan are:

1. To identify and describe the historic and current exotic aquatic infestation(s) in the waterbody;
2. To identify short-term and long-term exotic aquatic plant control goals;
3. To minimize any adverse effects of exotic aquatic plant management strategies;
4. To recommend exotic plant control actions that meet the goals outlined in this plan; and
5. To recommend monitoring strategies to determine the success of the control practices over time in meeting the goals.

This plan also summarizes the current physical, biological, ecological, and chemical components of the subject waterbody as they may relate to both the exotic plant infestation and recommended control actions, and the potential social, recreational and ecological impacts of the exotic plant infestation.

The intent of this plan is to establish an adaptive management strategy for the long-term control of the target species (in this case variable milfoil) in the subject waterbody, using an integrated plant management approach.

Appendix A and Appendix B detail the general best management practices and strategies available for waterbodies with exotic species, and provide more information on each of the activities that are recommended within this plan.

Invasive Aquatic Plant Overview

Exotic aquatic plants pose a threat to the ecological, aesthetic, recreational, and economic values of lakes and ponds (Luken & Thieret, 1997, Halstead, 2000), primarily by forming dense growths or monocultures in critical areas of waterbodies that are most used for aquatic habitat. These dense growths and near monotypic stands of invasive aquatic plants can result in reduced overall species diversity in both plant and animal species, and can alter water chemistry and aquatic habitat structure that is native to the system.

Since January 1, 1998, the sale, distribution, importation, propagation, transportation, and introduction of key exotic aquatic plants have been prohibited (RSA 487:16-a) in New Hampshire. This law was designed as a tool for lake managers to help prevent the spread of nuisance aquatic plants.

New Hampshire lists 27 exotic aquatic plant species as prohibited in the state (per Env-Wq 1303.02) due to their documented and potential threat to surface waters of the state.

According to the federal Section 305(b) and 303(d) Consolidated Assessment and Listing Methodology (CALM), "exotic macrophytes are non-native, fast growing aquatic plants, which can quickly dominate and choke out native aquatic plant growth in the surface water. Such infestations are in violation of New Hampshire regulation Env-Wq 1703.19, which states that surface waters shall support and maintain a balanced, integrated and adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of similar natural habitats of a region" (DES, 2006). In fact, waterbodies that contain exotic aquatic plant infestations do not attain water quality standards and are listed as impaired.

Variable Milfoil in the Moultonborough Area of Lake Winnipesaukee

Variable milfoil (*Myriophyllum heterophyllum*) became established in Lake Winnipesaukee in 1965 in Moultonborough Bay, and the milfoil in this area is the longest standing infestation in New Hampshire. The plants throughout this area of the lake are mature and well-established, are known to form monocultures in many areas, and are generally widespread in others. In addition to well-established stands and mature root crowns, variable milfoil has flowered for a number of years in some areas of the lake, yielding a substantial seed stock in the lake substrate that could germinate and perpetuate growth for many years to come.

Figure 1 illustrates the extent of the variable milfoil infestation in Moultonborough over time since routine monitoring began (roughly 2010).

The following table provides a summary of each area indicated in Figure 1, where variable milfoil has been historically found (areas without variable milfoil growth have been excluded from this table).

Area	Location/Area Description	Year	Description of Growth	Variable Milfoil Percent Cover
B1, C1	Moultonborough Bay from Greens Basin through Deepwood Ledges/Hemlock Point near Marker Buoy 72	2010	Densest most widespread growth in Moultonborough.	>90% in most areas of growth
		2011	Densest and most widespread growth still, reduced by about	75% after 2010 control activities
		2012	Still most prevalent growth areas in Moultonborough, but coverage reduced	60% cover
		2013	Milfoil densities reduced, with most growth along northern shoreline areas of coves	50%

Area	Location/Area Description	Year	Description of Growth	Variable Milfoil Percent Cover
		2014	Milfoil is reduced throughout this area compared to prior years. Trouble spots do persist though, but in lower density than in past years.	40%
		2015	Milfoil is reduced throughout this area compared to prior years. Trouble spots do persist though, but in lower density than in past years.	30%
		2016	Continued reductions in milfoil were observed in 2016, as compared to prior years. Greens Basin much improved, though spots near Evergreen Island, Lees Mills and Balmoral still have some areas of persistent growth.	25%
		2017	Reduced density growth this year in most areas, with growth as scattered single stems or small patches.	<15%
		2018	Patchy growth and scattered single stems or small clusters of stems	<15%
		2019	Patchy growth and scattered single stems or small clusters of stems	<15%
D1, D2	Moultonborough Bay from Hemlock Point to Garnet Point	2010	Variable milfoil more prevalent around Hemlock Point area through Hemlock and Ambrose Coves, less dense moving east along north and south shoreline areas. Langdon Cove had patchy milfoil in shallow wetland on southwestern end.	60%
		2011	Milfoil still present in same areas but much reduced, no longer present near Clark's Landing	40%
		2012	Milfoil continues to be reduced, with larger gaps of milfoil free areas between patches of growth	30%
		2013	Scattered patchy growth, mostly in coves, continued reductions in densities in 2013	25%
		2014	Milfoil much reduced in this zone, and now it is present as scattered stems and small patches.	<15%

Area	Location/Area Description	Year	Description of Growth	Variable Milfoil Percent Cover
		2015	Milfoil much reduced in this zone, and now it is present as scattered stems and small patches.	<5%
		2016	Milfoil sparse in these areas this year.	<5%
		2017	Minimal growth this year, scattered stems or sparse patches.	<5%
		2018	Sparse growth, only small patches, or clusters of stems	<1%
		2019	Sparse growth, only small patches, or clusters of stems	<1%
E2, E3	Eastern side of Moultonborough area of Winnipesaukee Black Point around to Long Island	2010	Limited milfoil growth, mostly in cove behind (to west) of Nine Acre Island	<25%
		2011	Milfoil growth removed by diving.	0%
		2012	114 plants harvested from the cove behind (west of) Nine Acre Island.	<5%
		2013	None observed	0%
		2014	Milfoil further reduced in this zone, and now it is present as scattered stems.	<5%
		2015	No milfoil observed this year	0%
		2016	No milfoil observed in these areas this year.	0%
		2017	No growth observed in surveys this year by DES.	0%
		2018	No growth observed in surveys this year by DES.	0%
		2019	No growth observed in surveys this year by DES.	0%
D4	Long Island Harilla Landing Area	2010	The only area of milfoil growth is in Harilla Landing on the east side of Long Island	75%
		2011	Herbicide treatment reduced growth to small patchy areas, visited by divers	<20% post treatment, rebounding to 40% late season
		2012	Some regrowth around docks and launch	40% early season, reduced to <10% post treatment
		2013	Scattered patchy stems in marina	<10%
		2014	Scattered stems and patches in	<10%

Area	Location/Area Description	Year	Description of Growth	Variable Milfoil Percent Cover
			Harilla Landing marina	
		2015	Scattered stems present in Harilla Landing	<5%
		2016	Scattered stems of variable milfoil growth in Harilla Landing in 2016, low density.	<5%
		2017	Scattered stems in Harilla landing	<5%
		2018	Single stems and low density.	<1%
		2019	Single stems and low density in Harilla Landing.	<1%
A2	Blackey Cove	2010	Small dense patch along north western shoreline of cove and in northern shallow wetland cove where stream enters balance of cove milfoil free	15%
		2011	Reduced by herbicide treatment and diving, few stems remain in shallow wetland at north end	<5%
		2012	Some regrowth in north end wetland and along western shore. 18,672 plants harvested from the area, both in shallow and in deeper water.	10%
		2013	Scattered single stems observed	<5%
		2014	None observed	0%
		2015	None observed	0%
		2016	No milfoil observed in Blackey Cove in 2016	0%
		2017	No growth observed.	0%
		2018	A couple of stems scattered deep in cove	<1%
		2019	None found	0%
B2	Salmon Meadow, Ash Cove, Black Cat Island, Senter Cove	2010	Dense growth throughout most areas of Salmon Meadow and Ash Cove, patchy in Black Cat, scattered in Senter Cove	Salmon/Ash-75% Black Cat-25% Senter-<10
		2011	Variable milfoil reduced in most areas through control activities	Salmon/Ash-30% Black Cat- 5% Senter-<5
		2012	Black Cat and Senter Cove milfoil densities further reduced by divers/benthic barrier. Black Cat 6,534 plants removed, along with benthic barrier. Local divers monitoring. Senter Cove 730 plants removed. Cove behind	Salmon/Ash-60% Black Cat-<5% Senter- 0%

Area	Location/Area Description	Year	Description of Growth	Variable Milfoil Percent Cover
			Hermit Island had 741 plants removed. Salmon/Ash milfoil increased rapidly despite regular dive activities.	
		2013	Small to medium sized scattered patchy growth in both coves early season, reduced by late season	Salmon/Ash- 60% early season, 1-% late season Black Cat- <5% early season, <1% late season Senter- 0% early/late season
		2014	Ash Cove had minimal growth in 2014. Salmon Meadow growth is still present, and as small patches or single stems. Senter Cove had a few plants scattered among the docks.	Ash Cove <10% Salmon Meadow 25% Senter Cove <5%
		2015	Minimal growth in Ash Cove. Salmon Meadow had reduced growth in the finger coves as compared to prior years, but main open basin did have slightly more growth this season. Senter Cove did not have more than a few scattered stems of milfoil.	Ash Cove <5% Salmon Meadow 15% Senter Cove <1%
		2016	Reduced growth overall in this area of the lake, though patchy milfoil is still present and management and monitoring are both still needed.	<10%
		2017	Scattered small patches/single stems. Overall lower density.	<10%
		2018	Low density growth overall, scattered stems and occasional small patches.	<5%
		2019	Low density patchy growth, some larger patches but lower density compared to past levels of growth.	<5%
All Others Not Listed	All other Lake Winnipesaukee areas within the Town of Moultonborough shown in Figure 1 but not included in descriptions above.	All	No growth. These areas are either exposed to winds (thus high water movement in form of waves) or substrates are not conducive to milfoil growth	0%

Area	Location/Area Description	Year	Description of Growth	Variable Milfoil Percent Cover
			(bedrock, cobble, sandy with shallow depth to refusal)	

Throughout this portion of Lake Winnipesaukee there are many public access sites, marinas, a number of private residences, and swim beaches. Residents, business owners and lake users have expressed concerns about milfoil and have illustrated a coordinated effort at reducing overall milfoil density and distribution.

Milfoil Management Goals and Objectives

The aquatic plant management plan for the portion of Lake Winnipesaukee that falls within Moultonborough outlines actions to reduce growths (both density and distribution) of variable milfoil (*Myriophyllum heterophyllum*) while maintaining native plant communities whenever variable milfoil control actions are being implemented. Because of the expansive size of the overall variable milfoil infestation within Lake Winnipesaukee, DES and local partners recognize that eradication of variable milfoil in the lake system as a whole is unlikely, both due to the degree of fragmentation of the plants and subsequent spread, but also due to the overall cost of attempting a lake-wide eradication project on this lake.

The project will take place over many years, and focused efforts will be phased over time and will incorporate integrated plant management activities, as well as prevention, early detection, and containment elements, and routine monitoring to measure progress and direct control efforts.

Many towns around Lake Winnipesaukee are becoming more active in holistic lake and watershed management, as well as milfoil reduction activities, including the Town of Moultonborough. This specific plan will focus on the goal of reducing the overall milfoil density and distribution in areas of Lake Winnipesaukee that fall within the town boundaries of Moultonborough.

It should be clearly understood that milfoil control efforts in Lake Winnipesaukee will need to be well-coordinate (both in town and with other towns), long-term, multi-faceted, and done using integrated plant management techniques that also include a substantial monitoring and reporting effort by Weed Watchers and Lake Hosts.

Plans for the Moultonborough portion of the lake include performing spring survey work (May/early June) to plan for spring and early summer activities based on current data, and performing a July/August survey to plan for any follow-up activities that may be needed. Maps will be made available to interested parties as soon as they are developed.

Figure 2 (a series of maps) show historic and proposed control activities for this area of Lake Winnipesaukee.

Appendix A details the strategies available for waterbodies with exotic species, and provides more information on each of the activities that are recommended within this plan.

Local Support

Town or Municipality Support

The Town of Moultonborough is very supportive of the milfoil control effort in infested waterbodies that lie within town boundaries, including portions of Lake Winnipesaukee. The town has formed a special Milfoil Committee that works under the Conservation Commission, and the group meets regularly to discuss and strategize for milfoil control activities, as well as for prevention and early detection activities. The town has been successful for the past several years in passing warrant articles to allocate funds for milfoil control efforts in waterbodies infested within Moultonborough town boundaries.

Lake Association Support

There is no formal singular lake association for Moultonborough Bay. As mentioned above, the Town of Moultonborough has developed a Milfoil Committee to coordinate activities relative to variable milfoil control within waterbodies in the town. The Milfoil Committee initiated and coordinates prevention (Lake Host) and early detection/continued monitoring (Weed Watcher) activities on a regular basis during the growing season, and also provides oversight for the diver/DASH work. Members of the Milfoil Committee have also been keeping track of GIS data relative to milfoil infestations over time, and work actively to keep lines of communication open between DES, contractors, and town residents.

Waterbody Characteristics

The following table summarizes basic physical and biological characteristics of Moultonborough Bay area of Lake Winnipesaukee, including the milfoil infestation. Note that an updated review of the Natural Heritage Bureau (NHB) database was requested and the results from that search included in the table below, as well as in other relevant sections of this plan. Note that species listed in historical NHB reviews are still included here, though they may not appear in the most recent NHB review referenced for this plan.

General Lake Information	
Shoreline Uses (residential, forested, agriculture)	Commercial, residential, forested
Area of Lake Winnipesaukee in Moultonborough (acres)	~7,060
Max Depth (ft)	~81
Mean Depth (ft)	~35
Trophic Status	Oligotrophic

Color (CPU) in Epilimnion	10
Clarity (ft)	23
Natural waterbody/Raised by Damming/Other	Natural
Plant Community Information Relative to Management	
Invasive Plants (Latin name)	*Myriophyllum heterophyllum*
Infested Area (acres)	Originally 400+ acres but that coverage has been reduced each year with control actions. The maps included in this plan will show regular survey data that track the infestation.
Distribution (ringing lake, patchy growth, etc)	Figure 1 illustrates a general locations where variable milfoil has been a problem in this portion of the lake.
Sediment type in infested area (sand/silt/organic/rock)	Sandy/rocky/mucky (varies by area)
Rare, Threatened, or Endangered Species in Waterbody (according to NH Natural Heritage Inventory)	<u>2020 Review Results</u> Bald eagle (*Haliaeetus leucocephalus*) Bridled shiner (*Notropis bifrenatus*) Common loon (*Gavia immer*) <u>Species From Historic Reviews</u> New England bluet (*Enallagma laterale*) Bald eagle (*Haliaeetus leucocephalus*) Bridled shiner (*Notropis bifrenatus*) Purple martin (*Progne subis*) Common loon (*Gavia immer*) Wood turtle (*Glyptemys insculpta*)

An aquatic vegetation map (showing native vegetation) and key for Moultonborough Bay is shown in Figure 3 (data from summer/fall 2010, verified annually). A bathymetric map is shown in Figure 4.

Beneficial (Designated) Uses of Waterbody

In New Hampshire, beneficial (designated) uses of our waterbodies are categorized into five general categories: Aquatic Life, Fish Consumption, Recreation, Drinking Water Supply, and Wildlife (CALM).
Of these, Aquatic Life, Wildlife and Recreation are the ones most often affected by the presence of invasive plants, though drinking water supplies can also be affected as well in a number of ways.

Following is a general discussion of the most potentially impacted designated uses, including water supplies and near shore wells, as they relate to this system and the actions proposed in this long-term plan.

The goal for aquatic life support is to provide suitable chemical and physical conditions for supporting a balanced, integrated and adaptive community of aquatic organisms having a species composition, diversity, and functional organization comparable to that of similar natural habitats of the region.

Fishery

The principal fisheries of Lake Winnipesaukee include both warm and coldwater species. Coldwater species of primary interest are; landlocked Atlantic salmon, lake trout, and rainbow trout; coldwater species of less interest are lake whitefish, round whitefish (species of concern in Wildlife Action Plan), burbot, brook trout, and rainbow smelt.

Warmwater species of primary interest are; largemouth bass, smallmouth bass, white perch, yellow perch, chain pickerel, black crappie, brown bullhead, and bluegill. The bass fishery is extremely popular with anglers as numerous fishing tournaments are held on the lake each year.
Numerous warmwater species are present in littoral areas of the lake and constitute the prey fish sought by larger gamefish (warmwater). These species include; banded killifish, common shiner, common white sucker, creek chubsucker, bridle shiner (species of concern in Wildlife Action Plan), fallfish, golden shiner, pumpkinseed, redbreast sunfish, rock bass, slimy sculpin, and yellow bullhead.

The American eel, a catadromous species, resides up to 4-9 years in our inland lakes, such as Lake Winnipesaukee, where they reach sexual maturity and migrate down the rivers and outlets of our large lakes to the Atlantic Ocean.

Listed Aquatic Species

Current and historic Natural Heritage Inventory review yielded several species of concern in Lake Winnipesaukee in this area, including New England bluet (*Enallagma laterale*), Bridled shiner (*Notropis bifrenatus*), common loon (*Gavia immer*), and purple martin (*Progne subis*). Figure 5 shows a map of species distribution, as provided by the NHB. Not all species appear in recent reviews, but all species listed in past reviews are included below, for record.

New England bluet: This species was documented in the Lees Mills area of Lake Winnipesaukee. The record was from 2002. General comments about the bluet indicate that the population appears to be widespread in the vicinity, and secure. Lees Mills has done numerous historical herbicide treatments, apparently with no detriment to this damselfly population. By the time of the treatment, the bluets are already airborne, and out of the water. Egg laying is likely in July, and by that point the herbicide concentration will likely be below detection limits, particularly in this flow-through area. Other non-chemical approaches will not impact or target this species.

Bald eagle: There are several locations of bald eagle sightings and an active next in Moultonborough. The Fish and Game Department has requested that contractors avoid using loud boats or equipment (particularly airboats) within 100m of any occupied eagle next.

Bridled shiner: The bridled shiner was observed in several locations in cove/wetland areas on the periphery of Moultonborough Bay and Greens Basin areas (see Figure 5). Bridle shiners tend to inhabit areas of dense plant growth in the shallows of lakes and ponds. Native aquatic vegetation is not a target of the control actions recommended here, and many of the native submersed plant species will be present through and following treatment even within the treatment areas (water naiad, water marigold, various pondweeds, bladderwort, tape-grass, waterweed, grassy spike rush and macroalgae such as Chara and Nitella). In 2010 through 2012, Fish and Game biologists recommend against treating key habitat areas in June when the fish are spawning, and have been specifically requesting a condition that no control actions (chemical or non-chemical) take place until after July 15th , as that would allow for any fish eggs attached to plants to hatch and young of the year bridled shiners to find cover. DES biologists and contractors feel that in some cases spring treatment will help to maximize control of the variable milfoil, and because certain herbicides can be target specific with variable milfoil, much native vegetation will remain in these areas. If feasible, June treatment is preferred, but if it is deemed too much of a risk to the fish species then a treatment after July 15th is better than no control at all.

Common loon: Loons are found in many areas of Lake Winnipesaukee. DES has encouraged the town to make contact with the Loon Preservation Society, so that they can be notified of the proposed control activities. In the past, a Loon Preservation Society representative has been on site to observe herbicide treatments in loon habitat on other waterbodies. These representatives carry handheld radio to communicate with the applicator during the treatment of the subject areas. The loon staff member monitors the behavior of the loons (if they are in the area), and directs the actions of the applicator so as to minimize any stress on the loons. The herbicides that are used are not toxic to the loons at the dose used to control milfoil, so toxicity effects are not an issue. The Fish and Game Department does request that herbicide treatments not be permitted within 100 meters of any nests. Their cited concern is that the method of application, by motorboat and/or airboat, may result in nest abandonment and loss of eggs and/or loon chicks, as well as herbicide damage to the floating aquatic plants. They further request that non-chemical means of control, such as hand pulling, be set back 100 meters from any known or suspected loon nests during the period of May 15 and July 15th, to avoid "take" under RSA 212-Aof the Endangered Species Conservation Act.

Purple martin: The record for the state threatened purple martin was from within the Lees Mills area. We do not anticipate the herbicide treatment or non-chemical controls of variable milfoil will affect this avian species.

Wood turtle: The wood turtle observation dates from 2011 when one turtle was spotted near a stream at the Wildlife Sanctuary. Fish and Game requests that herbicide contractors avoid direct herbicide application in scrub shrub dominated wetland coves, in order to minimize any potential impacts to this species.

DES and the contractors are glad to work with the Fish and Game Department to identify strategies (timing, setback, etc) that are appropriate to protect the integrity of each of these species of concern while milfoil mitigation activities are conducted.

Recreational Uses and Access Points

Moultonborough Bay is used for numerous recreational activities, including boating, fishing, swimming, and water skiing by both lake residents and transient boaters. Additionally, there are places of business, including marinas and other shops.

There are various public ("designated") swim areas within Moultonborough, including town and association beaches. A designated beach is described in the CALM as an area on a waterbody that is operated for bathing, swimming, or other primary water contact by any municipality, governmental subdivision, public or private corporation, partnership, association, or educational institution, open to the public, members, guests, or students whether on a fee or free basis. Env-Wq 1102.14 further defines a designated beach as *"a public bathing place that comprises an area on a water body and associated buildings and equipment, intended or used for bathing, swimming, or other primary water contact purposes. The term includes, but is not limited to, beaches or other swimming areas at hotels, motels, health facilities, water parks, condominium complexes, apartment complexes, youth recreation camps, public parks, and recreational campgrounds or camping parks as defined in RSA 216-I:1, VII. The term does not include any area on a water body which serves 3 or fewer living units and which is used only by the residents of the living units and their guests.*

Figure 6 shows the location of public access sites and swim beaches of particular interest/concern with regards to the milfoil infestation and control actions.

Macrophyte Community Evaluation

The littoral zone is defined as the nearshore areas of a waterbody where sunlight penetrates to the bottom sediments. The littoral zone is typically the zone of rooted macrophyte growth in a waterbody.

The littoral zone of the bay is characterized by a mix of native and non-native (variable milfoil) plant growth (Figure 3 over multiple maps). Native species include a mix of floating plants (yellow and white water-lilies, floating leaved pondweeds, and watershield, floating heart), emergent plants (water lobelia, pipewort, bur-reed, pickerelweed, cattails, rush, arrowhead), and submergent plants (water naiad, pondweeds, tapegrass, waterweed, water marigold, bladderwort). Native plant communities are mixed around segments of the bay, and are characterized as 'sparse' for the bay.

There is a small amount of purple loosestrife (non-native) scattered around shoreline edges and in some marginal wetland areas around the lake as well.

No plant species of concern were identified as part of the NHB review.

Wells and Water Supplies

Figure 7 shows the location of wells, water supplies, well-head protection areas, and drinking water protection areas around the Moultonborough Bay Area, Lake Winnipesaukee, based on information in the DES geographic information system records. Note that it is likely that Figure 7 does not show the location of all private wells.

Note that the map in Figure 7 cannot be provided on a finer scale than 1:48,000. Due to public water system security concerns, a large-scale map may be made available upon agreement with DES's data security policy. Visit DES's OneStop Web GIS, http://www2.des.state.nh.us/gis/onestop/ and register to Access Public Water Supply Data Layers. Registration includes agreement with general security provisions associated with public water supply data. Paper maps that include public water supply data may be provided at a larger-scale by DES's Exotic Species Program after completing the registration process.

In the event that an herbicide treatment is needed for this waterbody, the applicator/contractor will provide more detailed information on the wells and water supplies within proximity to the treatment areas as required in the permit application process with the Division of Pesticide Control at the Department of Agriculture. It is beyond the scope of this plan to maintain updated well and water supply information other than that provided in Figure 7.

Aquatic Invasive Plant Management Options

The control practices used should be as specific to the target species as feasible. No control of native aquatic plants is intended.

Exotic aquatic plant management relies on a combination of proven methods that control exotic plant infestations, including physical control, chemical control, biological controls (where they exist), and habitat manipulation.

Integrated Pest Management Strategies (IPM) are typically implemented using Best Management Practices (BMPs) based on site-specific conditions so as to maximize the long-term effectiveness of control strategies. Descriptions for the control activities are closely modeled after those prescribed by the Aquatic Ecosystem Restoration Foundation (AERF) (2004). This publication can be found online at http://www.aquatics.org/bmp.html.

Criteria for the selection of control techniques are presented in Appendix A. Appendix B includes a summary of the exotic aquatic plant control practices currently used by the State of New Hampshire.

Historical Control Activities

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
8/24/2013	Z-2 S-3 SSE Shore Near FL51	DASH	100	AB AQUATICS
6/16/2014	NW COVE WHALEBACK I.	ABA DASH	10	AB AQUATICS
6/16/2014	S SIDE WHALEBACK I.	ABA DASH	45	AB AQUATICS
6/16/2014	NE TO SE SIDE EVERGREEN ISLAND	ABA DASH	70	AB AQUATICS
6/17/2014	S SIDE WHALEBACK I.	ABA DASH	35	AB AQUATICS
6/17/2014	E SIDE WHALEBACK I.	ABA DASH	70	AB AQUATICS
6/17/2014	S SIDE WHALEBACK I. BY RED BOUY	ABA DASH	70	AB AQUATICS
6/17/2014	SUISSEVALE BEACH AND NW SHORE	ABA DASH	55	AB AQUATICS
6/17/2014	SUISSEVALE BEACH AND NW SHORE	HAND PULL	10	AB AQUATICS
6/18/2014	RICHARDSON SHORES NEAR WHALEBACK I	ABA DASH	160	AB AQUATICS
6/18/2014	AMBROSE COVE AND MARINA	ABA DASH	20	AB AQUATICS
6/18/2014	AMBROSE COVE AND MARINA	HAND PULL	5	AB AQUATICS
6/19/2014	VARIED, REFER TO MAPS	DIQUAT	32.4 ACRES	ACT
6/19/2014	RICHARDSON SHORES NEAR WHALEBACK I	ABA DASH	100	AB AQUATICS
6/19/2014	CHILDREN'S ISLAND AND SHOAL	ABA DASH/HAND PULL	75	AB AQUATICS
6/20/2014	GUAY ISLAND N SIDE	ABA DASH	30	AB AQUATICS
6/20/2014	CHILDREN'S ISLAND AND SHOAL	ABA DASH/HAND PULL	10	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
6/20/2014	OUTSIDE HEMLOCK HBR. SHORE TO NW	ABA DASH/HAND PULL	40	AB AQUATICS
6/30/2014	WENTWORTH SHORES 300 YDS SOUTH GUAY ISLAND	ABA DASH/HAND PULL	60	AB AQUATICS
7/1/2014	BALMORAL CANAL	HAND PULL	4	AB AQUATICS
7/1/2014	WENTWORTH SHORES 300 YDS SOUTH GUAY ISLAND	ABA DASH	20	AB AQUATICS
7/1/2014	WHALEBACK ISLAND FROM RED BOUY S ALONG E SIDE	ABA DASH/HAND PULL	40	AB AQUATICS
7/2/2014	WHALEBACK ISLAND E SHORE TO N SHORE	ABA DASH/HAND PULL	40	AB AQUATICS
7/2/2014	WENTWORTH SHORES 400 YDS S GUAY ISLAND	ABA DASH/HAND PULL	20	AB AQUATICS
7/3/2014	WENTWORTH SHORES 400 YDS S GUAY ISLAND	ABA DASH	20	AB AQUATICS
7/3/2014	NW COVE WHALEBACK POINT	ABA DASH	40	AB AQUATICS
7/7/2014	E AND SE SHORES OF BADGER ISLAND	ABA DASH	8	AB AQUATICS
7/7/2014	W SHORELINE OF BADGER ISLAND	ABA DASH	2	AB AQUATICS
7/8/2014	E COVE NORTH SHORELINE TO LILY PADS	ABA DASH	5	AB AQUATICS
7/8/2014	W SHORELINE OF BADGER ISLAND	ABA DASH/HAND PULL	60	AB AQUATICS
7/8/2014	E SHORELINE BIG GOODWIN	ABA DASH/HAND PULL	30	AB AQUATICS
7/9/2014	FL52 both sides of channel	ABA DASH	70	AB AQUATICS
7/9/2014	BETWEEN GOODWIN ISLAND AND GILMAN POINT	ABA DASH/HAND PULL	240	AB AQUATICS
7/10/2014	WENTWORTH SHORE COVE AND POINT NEAR FL52	ABA DASH	60	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
7/10/2014	BRYANTS POINT COVE NEAR EVERGREEN ISLAND	ABA DASH	1	AB AQUATICS
7/10/2014	WHALEBACK PT SW TIP AROUND TO W SIDE	ABA DASH	5	AB AQUATICS
7/10/2014	WHALEBACK PT WNW COVE TO NW POINT	ABA DASH	70	AB AQUATICS
7/10/2014	BETWEEN LITTLE GOODWIN AND GILMAN PT	ABA DASH/HAND PULL	90	AB AQUATICS
7/10/2014	WNW SHORE GILMAN PT	ABA DASH/HAND PULL	10	AB AQUATICS
7/10/2014	GREENS BASIN ROCK	HAND PULL	40	AB AQUATICS
7/11/2014	WHALEBACK PT WNW COVE TO NW POINT	ABA DASH	60	AB AQUATICS
7/11/2014	PINEHURST ISLAND S E AND N SHORES	ABA DASH	60	AB AQUATICS
7/11/2014	BRYANTS PT ESE SHORE OUTSIDE LILY PADS	ABA DASH	20	AB AQUATICS
7/11/2014	GREENS BASIN ROCK	ABA DASH/HAND PULL	30	AB AQUATICS
7/11/2014	GREENS BASIN ROCK	ABA DASH/HAND PULL	2.2	AB AQUATICS
7/11/2014	TOLTEC PT ROCK	ABA DASH/HAND PULL	10	AB AQUATICS
7/11/2014	BETWEEN LITTLE GOODWIN AND GILMAN PT	ABA DASH/HAND PULL	30	AB AQUATICS
7/14/2014	BALMORAL SHORES SOUTH SIDE W OF BASIN	ABA DASH	80	AB AQUATICS
7/14/2014	BALMORAL BASIN TO S SHORE W OF BASIN	ABA DASH	70	AB AQUATICS
7/15/2014	LEES MILLS BAY SE NEAR FL51 E OF CHANNEL	ABA DASH	40	AB AQUATICS
7/15/2014	FL51 ISLAND ALL SIDES	ABA DASH	25	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
7/15/2014	LEES MILLS BAY SW SIDES	ABA DASH/HAND PULL	200	AB AQUATICS
7/16/2014	LEES MILLS BAY SW SIDES	ABA DASH/HAND PULL	60	AB AQUATICS
7/16/2014	BRYANTS PT S SIDE	ABA DASH/HAND PULL	80	AB AQUATICS
7/17/2014	VARIED	2,4-D BEE (G)	54.8 ACRES	ACT
7/17/2014	BRYANTS PT S SIDE	ABA DASH/HAND PULL	150	AB AQUATICS
7/17/2014	PINEHURST ISLAND S AND SW SIDES	ABA DASH	30	AB AQUATICS
7/18/2014	GILMAN PT E TO LITTLE GOODWIN ISLAND	ABA DASH/HAND PULL	160	AB AQUATICS
7/18/2014	BRYANTS PT SOUTH SIDE	ABA DASH/HAND PULL	70	AB AQUATICS
7/21/2014	Gilman pt and Big goodwin	ABA DASH	85	AB AQUATICS
7/21/2014	SALMON MEADOW COVE NORTH FINGER	CS DASH	180	AB AQUATICS
7/22/2014	S BRYANTS PT NE FL52	ABA DASH	30	AB AQUATICS
7/22/2014	WHALEBACK BAY NE COVE S SIDE	ABA DASH	160	AB AQUATICS
7/22/2014	SALMON MEADOW COVE SOUTH FINGER	CS DASH	170	AB AQUATICS
7/23/2014	WHALEBACK BAY NE COVE S SIDE	ABA DASH	115	AB AQUATICS
7/23/2014	SMC COVE BETWEEN TWO FINGER	CS DASH	280	AB AQUATICS
7/23/2014	SMC COVE ENE OF FINGERS	CS DASH	60	AB AQUATICS
7/24/2014	WINDWARD HARBOR MARINA	HAND PULL	10	AB AQUATICS
7/24/2014	N OF PINEHURST ISLAND	HAND PULL	5	AB AQUATICS
7/24/2014	E SHORE BRYANTS POINT	HAND PULL	5	AB AQUATICS
7/24/2014	BETWEEN FL51 AND PINEHURST ISLAND	HAND PULL	5	AB AQUATICS
7/24/2014	N OF LITTLE PINE ISLAND (ESE OF FL51) EDGE FIELD	HAND PULL	5	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
7/24/2014	WHALEBACK BAY NE COVE S SIDE	ABA DASH	40	AB AQUATICS
7/24/2014	SMC E SHORE OF COVE E OF FINGERS	CS DASH	120	AB AQUATICS
7/24/2014	SMC W SHORE AND CENTER OF COVE E OF FINGERS	CS DASH	125	AB AQUATICS
7/25/2014	N OF LITTLE PINE ISLAND (ESE OF FL51)	ABA DASH/HAND PULL	80	AB AQUATICS
7/25/2014	S OF LITTLE PINE ISLAND WHALEBACK BAY	ABA DASH	80	AB AQUATICS
7/25/2014	SMC FIRST COVE AFTER ENTRANCE TO S	CS DASH	190	AB AQUATICS
7/29/2014	NE COVE OF WHALEBACK BAY	HAND PULL	5	AB AQUATICS
7/29/2014	LEES MILL BAY, LOON CTR DOCK AREA	HAND PULL	5	AB AQUATICS
7/29/2014	BRYANTS PT S SIDE NEAR FL52	HAND PULL	10	AB AQUATICS
7/29/2014	SALMON MEADOW COVE, 1ST COVE W	CS DASH	30	AB AQUATICS
7/29/2014	ASH COVE	CS DASH	10	AB AQUATICS
7/29/2014	BLACK CAT ISLAND COVE	CS DASH	50	AB AQUATICS
7/30/2014	BRYANTS PT S SIDE NEAR FL52	HAND PULL	12	AB AQUATICS
7/30/2014	BRYANTS PT E SIDE	HAND PULL	5	AB AQUATICS
7/30/2014	BIRCH HILL ISLAND	HAND PULL	3	AB AQUATICS
7/30/2014	BLACKEY COVE	CS DASH	200	AB AQUATICS
7/30/2014	HERMIT ISLAND, PER WW REPORT	SURVEY	-	AB AQUATICS
7/31/2014	GANZY PT NEAR HALF ACRE I	HAND PULL	35	AB AQUATICS
7/31/2014	SUISSEVALE COVE ESE OF BIRCH ISLAND	CS DASH	50	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
8/1/2014	GANZY PT NEAR HALF ACRE I	ABA	20	AB AQUATICS
8/1/2014	STATES LANDING S SIDE	ABA	15	AB AQUATICS
8/1/2014	SUISSEVALE COVE ESE OF BIRCH ISLAND	CS DASH	90	AB AQUATICS
8/4/2014	COVE INTO CHANNEL BIRCH ISLAND AND SUISSEVALE	CS DASH	115	AB AQUATICS
8/5/2014	CHANNEL BETWEEN BIRCH ISLAND AND SUISESSVALE	CS DASH	120	AB AQUATICS
8/6/2014	CHANNEL BETWEEN BIRCH ISLAND AND SUISESSVALE	CS DASH	55	AB AQUATICS
8/7/2014	CHANNEL BETWEEN BIRCH ISLAND AND SUISESSVALE	CS DASH	62	AB AQUATICS
8/8/2014	STATES LANDING S SIDE	CS DASH	30	AB AQUATICS
8/8/2014	CHANNEL BETWEEN BIRCH ISLAND AND SUISESSVALE	CS DASH	30	AB AQUATICS
8/11/2014	Between half acre and ganzy islands	HAND PULL	2	AB AQUATICS
8/11/2014	E SHORE GANZY ISLAND	HAND PULL	5	AB AQUATICS
8/12/2014	ENE SHORE GANZY ISLAND	HAND PULL	4	AB AQUATICS
8/12/2014	NE COVE GANZY ISLAND	HAND PULL	2	AB AQUATICS
8/12/2014	W SHORE GANZY POINT BY GANZY ISLAND	HAND PULL	4	AB AQUATICS
8/14/2014	S SHORE BRYANTS PT NEAR FL52	HAND PULL	15	AB AQUATICS
8/14/2014	SHADY, COZY ISLANDS	HAND PULL	15	AB AQUATICS
8/15/2014	E SHORE LINCOLN ISLAND	HAND PULL	5	AB AQUATICS
8/15/2014	N SHORE LINCOLN ISLAND	HAND PULL	10	AB AQUATICS
8/15/2014	W SHORE SHADY COZY ISLAND	HAND PULL	5	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
8/18/2014	RESORT	DASH	140	NE MILFOIL
8/19/2014	RESORT	DASH	340	NE MILFOIL
8/19/2014	CHANNEL BETWEEN BIRCH ISLAND AND SUISESSVALE	ABA DASH	70	AB AQUATICS
8/20/2014	CHANNEL BETWEEN BIRCH ISLAND AND SUISESSVALE	ABA DASH	5	AB AQUATICS
8/20/2014	NE POINT SHADY ISLAND	ABA DASH	10	AB AQUATICS
8/20/2014	E SHORE LINCOLN ISLAND	ABA DASH	5	AB AQUATICS
8/20/2014	W SHORE COZY ISLAND	ABA DASH	25	AB AQUATICS
8/21/2014	S SHORE COZY ISLAND	ABA DASH	5	AB AQUATICS
8/21/2014	COVE NW OF SUISSEVALE MARINA	ABA DASH	70	AB AQUATICS
8/25/2014	COVE NNW OF SUISSEVALE MARINA	ABA DASH	105	AB AQUATICS
8/26/2014	RED BOUY W OF SUISSEVALE MARINA	ABA DASH	145	AB AQUATICS
8/27/2014	RED BOUY W OF SUISSEVALE MARINA	ABA DASH	185	AB AQUATICS
8/27/2014	LEES MILLS BAY, SE COVE (NEAR LOON NEST)	HAND PULL	20	AB AQUATICS
8/28/2014	LEES MILLS BAY, SE COVE (NEAR LOON NEST)	HAND PULL	10	AB AQUATICS
8/28/2014	NNE OF LITTLE PINE ISLAND	HAND PULL	20	AB AQUATICS
8/28/2014	N OF BASIN ISLAND	HAND PULL	15	AB AQUATICS
8/29/2014	S OF BASIN ISLAND	ABA DASH/HAND PULL	35	AB AQUATICS
8/29/2014	BRYANT'S PT NEAR FL52	ABA DASH	30	AB AQUATICS
9/2/2014	LEES MILLS BAY NE COVE	ABA DASH	60	AB AQUATICS
9/2/2014	COVE NW OF SUISSEVALE MARINA	ABA DASH	80	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
9/2/2014	S OF BASIN ISLAND WHALEBACK BAY	ABA DASH	30	AB AQUATICS
9/3/2014	N SHORE, HEMLOCK PT	ABA DASH	20	AB AQUATICS
9/3/2014	COVE NW OF SUISSEVALE MARINA	ABA DASH	165	AB AQUATICS
9/4/2014	N SHORE, HEMLOCK PT	ABA DASH	70	AB AQUATICS
9/8/2014	N SHORELINE HEMLOCK PT.	ABA DASH	50	AB AQUATICS
9/9/2014	N OF BADGER ISLAND	HAND PULL	14	AB AQUATICS
9/9/2014	COVE BETWEEN GOODWIN'S ISLAND	HAND PULL	1	AB AQUATICS
9/9/2014	GANZY PT (NEAR SUISSEVALE M) R/W BUOY	ABA DASH	25	AB AQUATICS
9/10/2014	VARIED	2,4-D BEE (G)	14.5 ACRES	ACT
9/10/2014	SE OF FL52 CHANNEL	SURVEY	0	AB AQUATICS
9/10/2014	NW OF BADGER ISLAND	ABA DASH	30	AB AQUATICS
9/10/2014	NE OF BADGER ISLAND	HAND PULL	1	AB AQUATICS
9/10/2014	ROUND ISLAND	HAND PULL	1	AB AQUATICS
9/10/2014	S AND SE BLANCHARD ISLAND	ABA DASH	5	AB AQUATICS
9/10/2014	SSW OF EVERGREEN ISLAND	HAND PULL	3	AB AQUATICS
9/11/2014	SALMON MEADOW COVE, SOUTH FINGER	ABA DASH	50	AB AQUATICS
9/12/2014	SALMON MEADOW COVE, CENTER OF FINGERS	ABA DASH	45	AB AQUATICS
9/12/2014	SALMON MEADOW COVE, NORTH FINGER	ABA DASH	45	AB AQUATICS
15-Sep	SALMON MEADOWS, NORTH FINGER	ABA DASH	45	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
9/15/2014	SALMON MEADOWS, CENTER OF FINGERS HEADING OUT OF MAIN CHANNEL	ABA DASH	45	AB AQUATICS
9/16/2014	N SHORELINE OF OUTER COVE OF THE FINGERS	SURVEY	0	AB AQUATICS
9/17/2014	SALMON MEADOWS, N SHORELINE HEADING WEST TOWARDS FINGERS	ABA DASH	125	AB AQUATICS
9/18/2014	SALMON MEADOW COVE, S SHORELINE OF CENTER OF FINGERS HEADING WEST	ABA DASH	15	AB AQUATICS
9/18/2014	SALMON MEADOW COVE, CENTER COVE OF FINGERS IN CHANNEL	ABA DASH	30	AB AQUATICS
9/18/2014	SALMON MEADOW COVE, SECOND COVE	ABA DASH	40	AB AQUATICS
9/19/2014	ASH COVE	ABA DASH	5	AB AQUATICS
9/19/2014	SALMON MEADOW COVE, FIRST COVE	ABA DASH	15	AB AQUATICS
24-Oct	LEES MILLS BAY, COVE BY LOON CTR DOCKS	ABA DASH	40	AB AQUATICS
10/28/2014	BALMORAL BASIN	ABA DASH	20	AB AQUATICS
10/29/2014	HARILLA LANDING	ABA DASH	40	AB AQUATICS
10/30/2014	HARILLA LANDING	ABA DASH	40	AB AQUATICS
10/31/2014	BALMORAL BASIN	HAND PULL	10	AB AQUATICS
10/31/2014	HARILLA LANDING	HAND PULL	10	AB AQUATICS
6/2/2015	Z2 S8	DASH	2	AB AQUATICS
6/3/2015	Z2 S8	DASH	100	AB AQUATICS
6/4/2015	Z2 S8	DASH	80	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
6/5/2015	SWEEP AROUND Z2 S8	DASH	60	AB AQUATICS
6/11/2015	SUISSEVALE MARINA	DASH	120	AB AQUATICS
6/12/2015	SUISSEVALE MARINE MOUTH	DASH	135	AB AQUATICS
6/13/2015	N SIDE OF COVE W OF SUISSEVALE MARINA	DASH	135	AB AQUATICS
6/15/2015	Cove W of Suissevale Marina	DASH	140	AB AQUATICS
6/16/2015	S-most point off of islands	DASH	400	AB AQUATICS
6/17/2015	N end of Southern Island	DASH	380	AB AQUATICS
6/18/2015	S-most point of smallest island	DASH	145	AB AQUATICS
6/19/2015	W side of channel	DASH	220	AB AQUATICS
6/20/2015	N-most point of barrier surrounding Lincoln Island	DASH	80	AB AQUATICS
6/22/2015	Ganzy Island	DASH	425	AB AQUATICS
6/23/2015	MOULTONBOROUGH PORTIONS	2,4-D BEE (G)	14 ACRES	ACT
6/23/2015	Ganzy Island	DASH	75	AB AQUATICS
6/24/2015	Hanson Cove	DASH	174	AB AQUATICS
6/25/2015	Raoul's Cove	DASH	262	AB AQUATICS
6/26/2015	Balmoral Basin	DASH	371	AB AQUATICS
6/29/2015	ESE of Al's Dock, and Balmoral Basin	DASH	92	AB AQUATICS
6/30/2015	Lily Pad Lines, and Balmoral Canal	DASH	236	AB AQUATICS
7/1/2015	Resort by the Bay	DASH	120	NE MILFOIL
7/1/2015	Lily Pad Lines	DASH	100	AB AQUATICS
7/2/2015	Z3 S2	DASH	155	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
7/3/2015	Whaleback Island, and Badger Island	DASH	188	AB AQUATICS
7/6/2015	Channel FL-52	DASH	155	AB AQUATICS
7/7/2015	Northeast end of Badger Island, Shoreline of Whaleback Island	DASH	180	AB AQUATICS
7/8/2015	Green Basin, Shoreline of Whaleback Island	DASH	90	AB AQUATICS
7/9/2015	Badger Cove, Red Spar buoy	DASH	166	AB AQUATICS
7/10/2015	Southwestern Shoreline, western shore of Whaleback	DASH	62	AB AQUATICS
7/13/2015	Northwestern Shoreline of Round Island, Ambrose Cove	DASH	150	AB AQUATICS
7/14/2015	Northwestern Shoreline of Round Island, Ambrose Cove	DASH	310	AB AQUATICS
7/15/2015	N/NW of Spring Island, Black Pt rocks	DASH	160	AB AQUATICS
7/16/2015	MOULTONBOROUGH PORTIONS	2,4-D BEE (G)	21 ACRES	ACT
7/16/2015	N/NW of Spring Island, Ambrose cove	DASH	205	AB AQUATICS
7/17/2015	Black Point Rocks, SE Shoreline	DASH	261	AB AQUATICS
7/20/2015	HARILLA LANDING	DASH	60	AB AQUATICS
7/21/2015	Salmon Meadow Cove	DASH	95	AB AQUATICS
7/22/2015	ASH COVE	DASH	105	AB AQUATICS
7/23/2015	Salmon Meadow Cove	DASH	50	AB AQUATICS
7/24/2015	N shoreline	DASH	75	AB AQUATICS
7/27/2015	East shoreline	DASH	275	AB AQUATICS
7/28/2015	NW points	DASH	80	AB AQUATICS
7/29/2015	Red rock spar buoy	DASH	70	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
7/30/2015	Black point Cove	DASH	60	AB AQUATICS
7/31/2015	Black Points Rock	DASH	35	AB AQUATICS
8/3/2015	Black Point, Wyman Lagoon	DASH	40	AB AQUATICS
8/4/2015	FL72	DASH	20	AB AQUATICS
8/5/2015	FL72, Melanson Cove	DASH	20	AB AQUATICS
8/6/2015	Melanson Cove	DASH	45	AB AQUATICS
8/7/2015	Wyman Lagoon, Melanson Cove, Lee's Mill Cove	DASH	150	AB AQUATICS
8/10/2015	Lee's Mill Cove, Melanson Cove	DASH	155	AB AQUATICS
8/12/2015	Lee's Mill Cove, Melanson Cove	DASH	120	AB AQUATICS
8/13/2015	Lee's Mill Bay, Lee's Mill Cove, Loon Center Cove	DASH	100	AB AQUATICS
8/14/2015	Loon Center Cove, FL51	DASH	100	AB AQUATICS
8/17/2015	Lee's Mill Bay, NE Channel of FL51, Whaleback Cove, parking lot	DASH	215	AB AQUATICS
8/18/2015	SW of FL51, N of Al's, Lee's Mill Bay	DASH	127	AB AQUATICS
8/19/2015	Lee's Mill Bay, Al's	DASH	300	AB AQUATICS
8/20/2015	Lee's Mill Bay, Badger Pt, Al's, SW of FL52, Bryant's Pt, Gilman Pt	DASH	165	AB AQUATICS
8/21/2015	Evergreen Island, Bryants Pt, Spring Island, Ganzy Pt	DASH	145	AB AQUATICS
8/24/2015	Zone 4	DASH	20	AB AQUATICS
8/25/2015	Ganzy Channel	DASH	40	AB AQUATICS
8/26/2015	NW of Ganzy Channel	DASH	90	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
8/27/2015	Castle Shores shoreline	DASH	130	AB AQUATICS
8/28/2015	N of Birch Hill Island	DASH	90	AB AQUATICS
8/31/2015	SUISSEVALE MARINA	DASH	60	AB AQUATICS
9/1/2015	Lees Mill Launch	DASH	100	AB AQUATICS
9/2/2015	N Shoreline	DASH	70	AB AQUATICS
9/10/2015	N finger on W side	DASH/HAND PULL	221	AB AQUATICS
9/11/2015	S most end of S-4	DASH/HAND PULL	125	AB AQUATICS
9/14/2015	Red rock spar buoy	DASH	170	AB AQUATICS
9/15/2015	Red SW rock spar buoy	DASH	60	AB AQUATICS
9/16/2015	HARILLA LANDING	DASH	110	AB AQUATICS
9/17/2015	ASH COVE	DASH	25	AB AQUATICS
9/18/2015	Z-21, S-3	DASH	55.25	AB AQUATICS
9/21/2015	Blackey Cove	DASH	155	AB AQUATICS
9/22/2015	MOULTONBOROUGH PORTIONS	2,4-D BEE (G)	18 ACRES	ACT
9/22/2015	Blackey Cove	DASH	160	AB AQUATICS
9/23/2015	Blackey Cove	DASH	123	AB AQUATICS
9/24/2015	Blackey Cove	DASH	125	AB AQUATICS
6/6/2016	Zone S-Z5	DASH/HAND PULL	55	AQUALOGIC
6/6/2016	Ganzy Point	DASH	95	AB AQUATICS
6/7/2016	Zone S-Z5 and S-Z8	DASH	30	AQUALOGIC
6/7/2016	Ganzy Point	DASH	75	AB AQUATICS
6/8/2016	Zone S-Z1 and S-Z2	DASH/HAND PULL	30	AQUALOGIC

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
6/8/2016	Ganzy Point	DASH	36	AB AQUATICS
6/8/2016	Ganzy Island	DASH	20	AB AQUATICS
6/9/2016	Zone S-Z1	HAND PULL	20	AQUALOGIC
6/9/2016	Spring Island	DASH	50	AB AQUATICS
6/9/2016	Balmoral Basin	DASH	38	AB AQUATICS
6/10/2016	Zone S-Z1 and S-Z3	HAND PULL	51	AQUALOGIC
6/13/2016	Suissevale Marina	DASH	110	AQUALOGIC
6/13/2016	Balmoral Basin	DASH	150	AB AQUATICS
6/13/2016	Salmon Meadow Cove	DASH	8	AB AQUATICS
6/14/2016	Balmoral Basin	DASH	190	AB AQUATICS
6/14/2016	Salmon Meadow Cove	DASH	19	AB AQUATICS
6/15/2016	Balmoral Basin	DASH	183	AB AQUATICS
6/15/2016	Ash Cove	DASH	45	AB AQUATICS
6/16/2016	Balmoral Basin	DASH	150	AB AQUATICS
6/16/2016	Salmon Meadow Cove	DASH	4	AB AQUATICS
6/16/2016	Ash Cove	DASH	66	AB AQUATICS
6/16/2016	Suissevale Marina	DASH	55	AQUALOGIC
6/17/2016	Balmoral Basin	DASH	110	AB AQUATICS
6/17/2016	Ash Cove	DASH	8	AB AQUATICS
6/17/2016	Suissevale Marina	DASH	50	AQUALOGIC
6/20/2016	Balmoral Basin	DASH	64	AB AQUATICS
6/20/2016	Suissevale Marina	DASH	30	AQUALOGIC

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
6/21/2016	Balmoral Basin	DASH	106	AB AQUATICS
6/21/2016	Suissevale Marina	DASH	120	AQUALOGIC
6/22/2016	Balmoral Basin	DASH	25	AB AQUATICS
6/22/2016	E side of Whaleback Island	DASH	40	AB AQUATICS
6/22/2016	Suissevale Marina	DASH	90	AQUALOGIC
6/23/2016	Balmoral Basin	DASH	10	AB AQUATICS
6/23/2016	E side of Whaleback Island	DASH	70	AB AQUATICS
6/23/2016	Suissevale Marina	DASH	120	AQUALOGIC
6/24/2016	E side of Whaleback Island	DASH	55	AB AQUATICS
6/24/2016	Castle Shores shoreline	DASH	120	AQUALOGIC
6/25/2016	Castle Shores shoreline	DASH	100	AQUALOGIC
6/27/2016	E side of Whaleback Island	DASH	80	AB AQUATICS
6/28/2016	Lees Mill Launch	DASH	86	AB AQUATICS
6/28/2016	Whaleback Shoal	DASH	120	AB AQUATICS
6/29/2016	Whaleback Shoal	DASH	60	AB AQUATICS
6/29/2016	Lees Mill Launch	DASH	12	AB AQUATICS
6/30/2016	Suissevale Out Shoal	DASH	60	AB AQUATICS
6/30/2016	E side of Whaleback Island	DASH	16	AB AQUATICS
7/14/2016	Z-1 S-2 launch area	DASH	20	AB AQUATICS
7/14/2016	Z-1 S-8 W shore S of planned treatment	DASH	60	AB AQUATICS
7/15/2016	Z-1 S-8 W shore S of planned treatment	DASH	60	AB AQUATICS
7/15/2016	Z-1 S-7 W shore N of planned treatment	DASH	40	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
7/15/2016	E of channel FL 51 N end	DASH	25	AB AQUATICS
7/18/2016	Z-1 S-6 NE of FL51	DASH	155	AB AQUATICS
7/19/2016	Z-1 S-6 NE of FL51	DASH	20	AB AQUATICS
7/19/2016	Loon Cove outside bouy line	DASH	20	AB AQUATICS
7/19/2016	Lees Mill Bay	DASH	80	AB AQUATICS
7/20/2016	Lees Mill Bay	DASH	0	AB AQUATICS
7/20/2016	Lees Mill Cove	DASH	130	AB AQUATICS
7/21/2016	Lees Mill Cove	DASH	155	AB AQUATICS
7/26/2016	Lees Mill River	DASH	160	AB AQUATICS
7/28/2016	Lees Mill River	DASH	110	AB AQUATICS
7/29/2016	Z2 S3 E of FL51	DASH	180	AB AQUATICS
8/1/2016	North of FL51	DASH	120	AB AQUATICS
8/2/2016	North of FL52	DASH	20	AB AQUATICS
8/2/2016	E side channel FL51	DASH	5	AB AQUATICS
8/2/2016	W Shore, S of Treatment by FL52	DASH	50	AB AQUATICS
8/3/2016	VARIED (4 SITES)	2,4-D BEE (G)	25.9	SOLitude LAKE MANAGEMENT
8/3/2016	N & W Shore of Whaleback Island	DASH	100	AB AQUATICS
8/4/2016	W Shore of Whaleback Island	DASH	60	AB AQUATICS
8/5/2016	S Shore of Whaleback Island	DASH	60	AB AQUATICS
8/8/2016	SW Shore of Whaleback Point	DASH	42	AB AQUATICS
8/9/2016	WSW and SNW Shore of Whaleback Point	DASH	120	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
8/10/2016	WNW Shore of Whaleback Point	DASH	35	AB AQUATICS
8/11/2016	WNW Shore of Whaleback Point	DASH	15	AB AQUATICS
8/11/2016	Lees Mill Cove	DASH	95	AB AQUATICS
8/12/2016	Lees Mill Cove	DASH	125	AB AQUATICS
8/15/2016	Lees Mill Cove	DASH	80	AB AQUATICS
8/15/2016	Z-6 S-7 Outside & W Balmoral Basin	DASH	80	AB AQUATICS
8/16/2016	Z-6 S-7 Outside & W Balmoral Basin	DASH	100	AB AQUATICS
8/17/2016	Z-6 S-7 Outside & W Balmoral Basin	DASH	100	AB AQUATICS
8/18/2016	Z-6 S-7 Outside & W Balmoral Basin	DASH	20	AB AQUATICS
8/18/2016	Z-2 S-4 Whaleback Cove SE	DASH	80	AB AQUATICS
8/19/2016	Z-2 S-4 Whaleback Cove SE	DASH	130	AB AQUATICS
8/24/2016	Z-6 S-8 SW shore Whaleback Point	DASH	50	AB AQUATICS
8/25/2016	Z-6 S-8 SW shore Whaleback Point	DASH	96	AB AQUATICS
8/25/2016	Z-1 S-5 Loon nest cove Lees Mill Bay	DASH	4	AB AQUATICS
8/26/2016	Z-1 S-5 Loon nest cove Lees Mill Bay	DASH	40	AB AQUATICS
8/26/2016	Z-9 S-1 Cove WNW Suissevale Marina	DASH	50	AB AQUATICS
8/29/2016	Z-9 S-1 Suissevale NW Cove	DASH	100	AB AQUATICS
8/30/2016	Z-9 S-1 Suissevale NW Cove	DASH	170	AB AQUATICS
8/30/2016	Z-6 S-6 Balmoral Basin	DASH	20	AB AQUATICS
8/30/2016	Z-3 S-4 between Evergreen & Coast to S	DASH	25	AB AQUATICS
8/31/2016	Z-3 S-4 between Evergreen & Coast to S	DASH	160	AB AQUATICS
8/31/2016	Z-9 S-1 Suissevale NW Cove	DASH	140	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
9/1/2016	Z-9 S-1 Suissevale NW Cove	DASH	20	AB AQUATICS
9/1/2016	Z-9 S-4 between Suissevale & Birch Hill Island	DASH	110	AB AQUATICS
9/1/2016	Z-3 S-4 between Evergreen & Coast to S	DASH	160	AB AQUATICS
9/2/2016	Z-9 S-4 between Suissevale & Birch Hill Island	DASH	170	AB AQUATICS
9/6/2016	Z-4 S-4 between Evergreen & S cost	DASH	90	AB AQUATICS
9/6/2016	Z-6 S-6 Balmoral Basin	DASH	2	AB AQUATICS
9/6/2016	Z-6 S-10 Whaleback Island	DASH	20	AB AQUATICS
9/6/2016	Z-9 S-4 Suissevale shore near Birch Hill I	DASH	120	AB AQUATICS
9/7/2016	Z-12 S-2 far W of FL14 near rocky point	DASH	150	AB AQUATICS
9/7/2016	Z-9 S-4 near B/W spar	DASH	75	AB AQUATICS
9/8/2016	Z-12 S-3 Wyman Lagoon	DASH	44	AB AQUATICS
9/8/2016	Z-12 S-2 far W of FL14 near rocky point	DASH	100	AB AQUATICS
9/8/2016	Z-9 S-4 Birch Hill Island S end cove	DASH	80	AB AQUATICS
9/8/2016	Z-9 S-5 Castle Shore	DASH	70	AB AQUATICS
9/9/2016	Z-12 S-3 Wyman Lagoon	DASH	15	AB AQUATICS
9/9/2016	Z-12 S-2 far W of FL14 near rocky point	DASH	120	AB AQUATICS
9/9/2016	Z-9 S-5 Castle Shore	DASH	105	AB AQUATICS
9/13/2016	Z-9 S-5 Castle Shore	DASH	55	AB AQUATICS
9/14/2016	Z-6 S-7 Balmoral SW Shore	DASH	65	AB AQUATICS
9/15/2016	Z-3 S-1 NE Little Badger Island	DASH	40	AB AQUATICS
9/15/2016	Z-3 S-2 North shore line shallows	DASH	20	AB AQUATICS
9/15/2016	Z-4 S-5 NW Little Badger Island	DASH	4	AB AQUATICS
9/16/2016	Z-4 S-5 NW Little Badger Island	DASH	10	AB AQUATICS
9/16/2016	Z-5 S-1 beginning of Greens Basin	DASH	50	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
9/17/2016	Z-3 S-3 NW side Evergreen Island	DASH	100	AB AQUATICS
9/17/2016	Z-3 S-4 SW side Evergreen Island	DASH	80	AB AQUATICS
9/19/2016	Z-3 S-2 Badger Island Point	DASH	40	AB AQUATICS
9/20/2016	VARIED (4 SITES)	2,4-D BEE (G)	15.5	SOLitude LAKE MANAGEMENT
9/20/2016	Z-9 S-5 Castle Shores	DASH	20	AB AQUATICS
9/20/2016	Z-9 S-8 E of Shady & Cozy	DASH	20	AB AQUATICS
9/20/2016	Z-9 S-8 between small islands	DASH	60	AB AQUATICS
9/21/2016	Z-9 S-8 W of Lincoln I & N end Shady I.	DASH	30	AB AQUATICS
9/21/2016	Z-7 S-4 S end Ganzy Point	DASH	30	AB AQUATICS
9/26/2016	Z-9 S-6 shoal off Hemlock Point	DASH	190	AB AQUATICS
9/27/2016	S-9 S-6 NW rock pt. W end Hemlock Point	DASH	60	AB AQUATICS
9/27/2016	Z-3 S-3 E side Evergreen Island	DASH	20	AB AQUATICS
9/27/2016	Z-3 S-4 South End Evergreen island	DASH	200	AB AQUATICS
9/28/2016	Z-3 S-4 South End Evergreen island	DASH	50	AB AQUATICS
9/28/2016	Z-1 S-1 Lee River	DASH	50	AB AQUATICS
9/29/2016	Z-1 S-1 Lee River	DASH	100	AB AQUATICS
9/29/2016	Z-1 S-2 launch basin	DASH	50	AB AQUATICS
9/29/2016	Z-2 S-3 ESE of FL51 E shore	DASH	20	AB AQUATICS
9/29/2016	Z-2 S-4 S of Pine Island Whaleback Cove	DASH	120	AB AQUATICS
9/30/2016	Z-1 S-2 launch basin	DASH	10	AB AQUATICS
9/30/2016	Z-1 S-7 NW Section Lees Mill Bay	DASH	10	AB AQUATICS
10/3/2016	Z-2 S-7 SW Basin Island	DASH	40	AB AQUATICS
10/3/2016	Z-1 S-5 Loon Cove Lees Mill Bay	DASH	20	AB AQUATICS
10/3/2016	Z-1 S-3 Lees Mill Cove S side	DASH	20	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
10/4/2016	Z-1 S-3 Lees Mill Cove E shore	DASH	120	AB AQUATICS
10/5/2016	Z-1 S-1 Lee River	DASH	20	AB AQUATICS
10/5/2016	Z-1 S-3 Lees Mill Cove E shore to N end	DASH	60	AB AQUATICS
10/6/2016	Z-1 S-1 Lee River	DASH	20	AB AQUATICS
10/6/2016	Z-1 S-7 SW cove of Lees Mill Bay	DASH	20	AB AQUATICS
10/6/2016	Z-3 S-7 Blanchards Island	DASH	25	AB AQUATICS
10/10/2016	Z-3 S-7 Blanchards Island	DASH	30	AB AQUATICS
10/10/2016	3S6 Raouls Cove	DASH	10	AB AQUATICS
10/11/2016	Z-5 S-6 Greens Basin N end	DASH	10	AB AQUATICS
10/11/2016	Z-5 S-6 Greens Basin NWN side	DASH	4	AB AQUATICS
10/11/2016	Z-5 S-3 Greens Basin SW Shoal	DASH	3	AB AQUATICS
10/11/2016	Z-5 S-3 Greens Basin E center shoal	DASH	3	AB AQUATICS
10/12/2016	Z-5 S-1 Greens Basin ENE end	DASH	120	AB AQUATICS
10/13/2016	Z-1 S-2 Lees Mill Launch	DASH	6	AB AQUATICS
10/13/2016	Z-5 S-1 Greens Basin ENE end	DASH	60	AB AQUATICS
10/14/2016	Z-5 S-1 Greens Basin ENE end	DASH	65	AB AQUATICS
10/14/2016	Z-4 S-4 South side Badger Island S tip and cove	DASH	15	AB AQUATICS
10/14/2016	Z-4 S-5 ESE Badger Island	DASH	40	AB AQUATICS
10/15/2016	Z-4 S-5 ESE Badger Island	DASH	15	AB AQUATICS
10/15/2016	Z-6 S-3 Quay Island		50	
10/17/2016	Z-6 S-3 Quay Island	DASH	90	AB AQUATICS
10/18/2016	Z-6 S-3 Quay Island	DASH	125	AB AQUATICS
10/19/2016	Z-6 S-3 Quay Island	DASH	60	AB AQUATICS
10/19/2016	Z-8 S-1 Wentworth Shore	DASH	10	AB AQUATICS
10/20/2016	Z-8 S-1 Wentworth Shore	DASH	120	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
10/25/2016	Z-8 S-2 Wentworth Shores	DASH	80	AB AQUATICS
10/26/2016	Z-9 S-7 Outer Shoal, off Suissevale	DASH	0	AB AQUATICS
10/26/2016	Z-9 S-2 Suissevale Marina	DASH	20	AB AQUATICS
10/27/2016	Z-10 S-2 Melanson Cove	DASH	60	AB AQUATICS
10/27/2016	Z-10 S-1 Outside Mewlanson Cove	DASH	25	AB AQUATICS
10/27/2016	Z-10 S-3 Ambrose Marina	DASH	15	AB AQUATICS
10/31/2016	Z-15 S-2 Harilla Landing	DASH	65	AB AQUATICS
11/1/2016	Z-8 S-3 W Shore of FL72	DASH	80	AB AQUATICS
5/22/2017	Z-1 S-2 LEES MILL LAUNCH AND DOCKS	DASH	40	AB AQUATICS
5/23/2017	Z-9 S-2 Suissevale Marina	DASH	30	AB AQUATICS
5/23/2017	Z-10 S-3 Ambrose Marina	DASH	10	AB AQUATICS
5/24/2017	Z-12 S-3 Wyman Lagoon	DASH	10	AB AQUATICS
5/24/2017	Z-12 S-2 OFF SMALL ISLAND W OF FL14	DASH	50	AB AQUATICS
5/25/2017	Z-12 S-2 OFF SMALL ISLAND W OF FL14	DASH	40	AB AQUATICS
5/30/2017	Z-9 S-7 SUISSEVALE SHOALS	DASH	50	AB AQUATICS
5/30/2017	Z-6 S-10 Whaleback Island	DASH	10	AB AQUATICS
5/30/2017	Z-6 S-2 OFF SMALL ISLAND W OF FL14	DASH	0	AB AQUATICS
5/31/2017	Z-10 S-2 Melanson Cove	DASH	5	AB AQUATICS
5/31/2017	Z-6 S-9 WHALEBA CK SHOAL	DASH	5	AB AQUATICS
6/13/2017	Z-9 S-4 Birch Island	DASH	90	AB AQUATICS
6/14/2017	Z-9 S-4 Birch Island	DASH	30	AB AQUATICS
6/14/2017	Z-9 S-1 Suissevale NW Cove	DASH	20	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
6/15/2017	Z-9 S-1 Suissevale NW Cove	DASH	80	AB AQUATICS
6/16/2017	Z-9 S-1 Suissevale NW Cove	DASH	70	AB AQUATICS
6/16/2017	Z-6 S-6 Balmoral Basin	DASH	140	AB AQUATICS
6/19/2017	Z-9 S-1 Suissevale NW Cove	DASH	5	AB AQUATICS
6/19/2017	Z-10 S-1 Outside Melanson Cove	DASH	280	AB AQUATICS
6/20/2017	Z-9 S-1 Suissevale NW Cove	DASH	105	AB AQUATICS
6/21/2017	Z-10 S-2 Melanson Cove	DASH	140	AB AQUATICS
6/22/2017	Z-10 S-2 OUTSIDE MELANSON COVE	DASH	40	AB AQUATICS
6/22/2017	Z-10 S-2 Melanson Cove	DASH	30	AB AQUATICS
6/23/2017	Z-6 S-6 inside and outside Balmorl Basin	DASH	100	AB AQUATICS
6/26/2017	Z-10 S-3 Ambrose Marina	DASH	45	AB AQUATICS
6/27/2017	Z-6 S-6 Outside Balmoral Basin	DASH	120	AB AQUATICS
6/28/2017	Z-7 S-4 South End Granzy Pt	DASH	100	AB AQUATICS
6/29/2017	Z-6 S-7 S Side Whaleback Pt	DASH	60	AB AQUATICS
6/29/2017	Z-9 S-1 Suissevale NW Cove	DASH	100	AB AQUATICS
6/30/2017	Z-9 S-5 Castle Shores South	DASH	60	AB AQUATICS
6/30/2017	Z-9 S-1 Suissevale NW Cove, outer edge (S)	DASH	180	AB AQUATICS
7/3/2017	Z-9 S-5 Castle Shores South	DASH	30	AB AQUATICS
7/3/2017	Z-9 S-4 Castle Shores SE cove	DASH	110	AB AQUATICS
7/6/2017	Z-1 S-2 Lees Mill Launch	DASH	80	AB AQUATICS
7/6/2017	Z-9 S-4 Castle Shores SE cove	DASH	60	AB AQUATICS
7/7/2017	Z-9 S-4 Shores SE cove	DASH	200	AB AQUATICS
7/8/2017	Z-9 S-5 Castle Shores South, W end	DASH	190	AB AQUATICS
7/10/2017	Z-9 S-4 SE Cove Castle Shores	DASH	250	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
7/10/2017	Z-9 S-1 NW cove off Suissevale marina	DASH	260	AB AQUATICS
7/11/2017	Z-9 S-4 SE Cove Castle Shores	DASH	250	AB AQUATICS
7/11/2017	Z-9 S-2 Suissevale Marina	DASH	140	AB AQUATICS
7/12/2017	Z-9 S-4 SE Cove Castle Shores	DASH	160	AB AQUATICS
7/12/2017	Z-9 S-2 Suissevale Marina	DASH	70	AB AQUATICS
7/13/2017	Z-9 S-4 SE Cove Castle Shores	DASH	80	AB AQUATICS
7/13/2017	Z-9 S-2 Suissevale Lagoon and Outside	DASH	60	AB AQUATICS
7/13/2017	Z-12 S-3 Wyman Lagoon	DASH	30	AB AQUATICS
7/14/2017	Z-1 S-7 Lees Mill Bay SW Cove	DASH	55	AB AQUATICS
7/14/2017	Z-2 S-2 Whaleback Bay, N Side	DASH	20	AB AQUATICS
7/14/2017	Z-9 S-4 SE between Castle Shores Birch Hill I	DASH	85	AB AQUATICS
7/14/2017	Z-12 S-3 Wyman Lagoon	DASH	5	AB AQUATICS
7/14/2017	Z-11 S-1 Black Point	DASH	5	AB AQUATICS
7/14/2017	Z-6 S-3 Quay Island	DASH	20	AB AQUATICS
7/17/2017	Z-9 S-4 Castle Shores	DASH	280	AB AQUATICS
7/17/2017	Z-21 S-8 SMC finger	DASH	40	AB AQUATICS
7/17/2017	Z-21 S-6 SMC	DASH	5	AB AQUATICS
7/17/2017	Z-21 S-7 SMC finger	DASH	15	AB AQUATICS
7/18/2017	Z-9 S-4 Castle Shores	DASH	125	AB AQUATICS
7/18/2017	Z-21 S-3 SMC	DASH	52	AB AQUATICS
7/18/2017	Z-21 S-2 SMC	DASH	30	AB AQUATICS
7/19/2017	Z-9 S-4 Castle Shores	DASH	85	AB AQUATICS
7/19/2017	Z-22 S-3 Ash Cove	DASH	230	AB AQUATICS
7/20/2017	Z-9 S-4 Castle Shores	DASH	180	AB AQUATICS
7/20/2017	Z-22 S-3 Ash Cove	DASH	100	AB AQUATICS
7/21/2017	Z-9 S-5 Castle Shores	DASH	0	AB AQUATICS
7/21/2017	Z-9 S-9 Birch Hill Island	DASH	5	AB AQUATICS
7/21/2017	Z-9 S-4 Castle Shores	DASH	120	AB AQUATICS
7/21/2017	Z-21 S-2 SMC	DASH	5	AB AQUATICS
7/21/2017	Z-22 S-3 Ash Cove	DASH	60	AB AQUATICS
7/24/2017	Z-9 S-5 Castle Shores	DASH	4	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
7/24/2017	S-9 S-4 Castle Shores	DASH	60	AB AQUATICS
7/24/2017	Z-22 S-3 Ash Cove	DASH	90	AB AQUATICS
7/25/2017	Z-9 S-5 Castle Shores last south cove	DASH	20	AB AQUATICS
7/25/2017	Z-9 S-6 Shoal off Castle Shores	DASH	40	AB AQUATICS
7/25/2017	Z-22 S-3 Ash Cove	DASH	35	AB AQUATICS
7/26/2017	Z-10 A-4 Childrens Cove	DASH	140	AB AQUATICS
7/26/2017	Z-21 S-8 SMC right finger	DASH	25	AB AQUATICS
7/26/2017	Z-21 S-8 SMC left finger	DASH	30	AB AQUATICS
7/27/2017	Z-6 S-11 Whaleback island	DASH	90	AB AQUATICS
7/27/2017	Z-21 S-5 SMC northeast end	DASH	5	AB AQUATICS
7/27/2017	Z-21 S-7 SMC left finger	DASH	5	AB AQUATICS
7/27/2017	Z-21 S-6 SMC W shore	DASH	5	AB AQUATICS
7/27/2017	Z-21 S-3 SMC SW cove	DASH	2	AB AQUATICS
7/27/2017	Z-19 S-1 Black Cat Island Cove	DASH	155	AB AQUATICS
7/28/2017	Z-8 S-3 Curtis Lane Shore	DASH	250	AB AQUATICS
7/28/2017	Z-19 S-1 Black Cat Island Cove	DASH	230	AB AQUATICS
7/28/2017	Z-19 S-2 Black Cat Island Shore	DASH	0	AB AQUATICS
7/31/2017	Z-8 S-3 Curtis Lane Shore	DASH	20	AB AQUATICS
7/31/2017	Z-19 S-1 Black Cat Island Cove	DASH	20	AB AQUATICS
8/1/2017	Z-8 S-3 Curtis Lane Shore	DASH	140	AB AQUATICS
8/1/2017	Z-6 S-10 Whaleback Island	DASH	30	AB AQUATICS
8/1/2017	Z-3 S-4 Guay Island	DASH	55	AB AQUATICS
8/1/2017	Z-2 S-1 Bryants Point South Shore	DASH	10	AB AQUATICS
8/2/2017	Z-6 S-10 Whaleback Island	DASH	50	AB AQUATICS
8/2/2017	Z-6 S-8 SW shore Whaleback Point South Shore	DASH	70	AB AQUATICS
8/2/2017	Z-23 S-7 Blackey Cove	DASH	120	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
8/3/2017	Z-6 S-7 Whaleback Point South Shore	DASH	45	AB AQUATICS
8/3/2017	Z-6 S-8 Whaleback Point South Shore	DASH	45	AB AQUATICS
8/3/2017	Z-23 S-7 Blackey Cove	DASH	115	AB AQUATICS
8/4/2017	Z-6 S-8 Whaleback Point South Shore	DASH	65	AB AQUATICS
8/4/2017	Z-23 S-7 Blackey Cove	DASH	30	AB AQUATICS
8/7/2017	Z-1 S-2 Lees Mill launch and docks	DASH	80	AB AQUATICS
8/7/2017	Z-1 S-1 Lees Mill River extending straight out	DASH	245	AB AQUATICS
8/7/2017	Z-23 S-1 Blackey Cove	DASH	110	AB AQUATICS
8/8/2017	Z-1 S-1 Lees Mill River just by parking shore	DASH	245	AB AQUATICS
8/9/2017	Z-1 S-7 E of Bryants Point	DASH	25	AB AQUATICS
8/10/2017	Z-1 S-7 E of Bryants Point	DASH	120	AB AQUATICS
8/11/2017	Z-1 S-5 Loon Center Cove	DASH	340	AB AQUATICS
8/11/2017	Z-2 S-1 South of Bryants Point	DASH	240	AB AQUATICS
8/14/2017	Z-1 S-5 Loon Center Cove	DASH	40	AB AQUATICS
8/14/2017	Z-1 S-6 W of the Loon Center Cove	DASH	80	AB AQUATICS
8/14/2017	Z-1 S-7 E of Bryants Point	DASH	70	AB AQUATICS
8/15/2017	Z-2 S-2 East and South of Pinehurst Island	DASH	20	AB AQUATICS
8/15/2017	Z-2 S-1 South of Bryants Point	DASH	70	AB AQUATICS
8/15/2017	Z-2 S-8 and SE of FL 52	dASH	20	AB AQUATICS
8/16/2017	Z-2 S-6 SW portion of Whaleback Point	DASH	130	AB AQUATICS
8/16/2017	z-2 s-6 NW portion of Whaleback Point	DASH	95	AB AQUATICS
8/17/2017	Z-2 S-6 SW portion of Whaleback Point	DASH	0.1	AB AQUATICS
8/17/2017	z-2 s-6 NW portion of Whaleback Point	DASH	6.4	AB AQUATICS
8/18/2017	Z-4 S-5 NE of Badger Island	DASH	20	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
8/18/2017	Z-4 S-3 NW of Badger Island	DASH	160	AB AQUATICS
8/28/2017	Z-2 S-7 Basin Island area	DASH	200	AB AQUATICS
8/29/2017	Z-3 S-3 N&W side of Evergreen Island	DASH	140	AB AQUATICS
8/29/2017	Z-3 S-4 S&E side of Evergreen Island	DASH	40	AB AQUATICS
8/30/2017	Z-2 S-7 Basin Island area	DASH	10	AB AQUATICS
8/30/2017	Z-6 S-1 West shoreline of Whaleback Island	DASH	1	AB AQUATICS
8/30/2017	Z-3 S-3 North of Evergreen Island	DASH	100	AB AQUATICS
9/5/2017	Z-3 S-2 NNE of Evergreen Island	DASH	290	AB AQUATICS
9/6/2017	Z-3 S-2 off Badger Point	DASH	280	AB AQUATICS
9/7/2017	Z-5 S-6 N end of Greens Basin	DASH	120	AB AQUATICS
9/8/2017	Z-3 S-6 Raouls Cove	DASH	50	AB AQUATICS
9/8/2017	Z-3 S-5 Blanchard Island	DASH	20	AB AQUATICS
9/19/2017	Various	2,4-D BEE (G)	3832 lbs for 24 acres	SOLitude LAKE MANAGEMENT
9/21/2017	Z-3 S-7 Blanchards Island	DASH	160	AB AQUATICS
9/21/2017	Z-4 S-2 Gilman Pt. and Goodwin Islands	DASH	40	AB AQUATICS
9/22/2017	Z-4 A-3 East side Big Goodwin Island	DASH	20	AB AQUATICS
9/22/2017	Z-4 S-1 East side Goodwin Islands	DASH	5	AB AQUATICS
9/22/2017	Z-4 S-4 South side Badger Island and Round Island	DASH	25	AB AQUATICS
9/25/2017	Z-8 S-1 Wentworth Shore	DASH	290	AB AQUATICS
9/27/2017	Z-8 S-1 Wentworth Shore	DASH	100	AB AQUATICS
9/27/2017	Z-6 S-3 Quay Island	DASH	105	AB AQUATICS
9/28/2017	Z-7 S-5 Ganzy Island South side	DASH	170	AB AQUATICS
9/28/2017	Z-7 S-3 Ganzy Island SE and E side	DASH	60	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
9/29/2017	Z-7 S-1 Spring Island	DASH	260	AB AQUATICS
10/2/2017	Z-7 S-1 Castle Shores North	DASH	30	AB AQUATICS
10/2/2017	Z-6 S-4 States Landing and Blamoral docks	DASH	40	AB AQUATICS
10/2/2017	Z-6 S-6 Balmoral Basin	DASH	50	AB AQUATICS
10/3/2017	Z-6 S-6 Outside Balmoral Basin	DASH	90	AB AQUATICS
10/3/2017	Z-6 S-7 Balmoral SW Shore	DASH	60	AB AQUATICS
10/4/2017	Z-7 S-1 near Spring Island	DASH	20	AB AQUATICS
10/4/2017	Z-7 S-2 between Spring and Gansy Island	DASH	30	AB AQUATICS
10/4/2017	Z-7 S-3 between Gansy Point and Gansy Island	DASH	90	AB AQUATICS
10/4/2017	Z-3 S-5 Blanchard Island	DASH	176	AB AQUATICS
10/5/2017	Z-7 S-3 E and NE side of Gansy Island	DASH	140	AB AQUATICS
10/5/2017	Z-7 S-7 North side of Gansy Island	DASH	25	AB AQUATICS
10/5/2017	Z-3 S-5 Blanchard Island	DASH	254	AB AQUATICS
10/6/2017	Z-3 S-5 Blanchard Island	DASH	20	AB AQUATICS
10/6/2017	Z-7 S-3 SE Gansy Island	DASH	75	AB AQUATICS
10/9/2017	Z-9 S-4 Castle Shores SE of Birch Hill Island	DASH	220	AB AQUATICS
10/10/2017	Z-22 S-2 Ash Cove outer	DASH	0	AB AQUATICS
10/10/2017	Z-22 S-3 Ash Cove	DASH	55	AB AQUATICS
10/11/2017	Z-21 S-8 SMC North finger	DASH	50	AB AQUATICS
10/12/2017	Z-21 S-2 SE cove	DASH	0	AB AQUATICS
10/12/2017	Z-21 S-3 SW cove	DASH	0	AB AQUATICS
10/12/2017	Z-21 S-5 NE cove	DASH	0	AB AQUATICS
10/13/2017	Z-21 S-7 South finger	DASH	90	AB AQUATICS
10/16/2017	Z-9 S-4 Castle Shores near Birch Hill Island	DASH	105	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
10/17/2017	Z-9 S-4 Castle Shores near Birch Hill Island	DASH	135	AB AQUATICS
10/18/2017	Z-9 S-4 Castle Shores near Birch Hill Island	DASH	100	AB AQUATICS
10/19/2017	Z-9 S-4 Castle Shores near Birch Hill Island	DASH	20	AB AQUATICS
10/20/2017	Z-10 S-1 Outside Melanson Cove	DASH	20	AB AQUATICS
10/20/2017	Z-10 S-2 Melanson Cove	DASH	80	AB AQUATICS
10/23/2017	Z-10 S-1 Outside Melanson Cove	DASH	105	AB AQUATICS
10/23/2017	Z-10 S-2 Melanson Cove	DASH	75	AB AQUATICS
10/23/2017	Z-6 S-5 Balmoral Canal	DASH	130	AB AQUATICS
10/24/2017	Z-15 S-2 Harilla Landing	DASH	230	AB AQUATICS
10/24/2017	Z-9 S-8 Shady, Cozy and Lincoln Islands	DASH	170	AB AQUATICS
10/25/2017	Z-9 S-2 Suissevale beach island	DASH	100	AB AQUATICS
10/25/2017	Z-9 S-2 Suissevale Marina	DASH	80	AB AQUATICS
10/25/2017	Z-15 S-2 Harilla Landing	DASH	70	AB AQUATICS
10/26/2017	Z-6 S-5 Balmoral Canal	DASH	5	AB AQUATICS
10/26/2017	Z-8 S-3 W shore opposite Ambrose Cove	DASH	20	AB AQUATICS
10/27/2017	Z-10 S-2 Melanson Cove	DASH	100	AB AQUATICS
6/11/2018	Z-6 S-7 Balmoral Basin Outer	24D6	80 gallons	AB AQUATICS
6/11/2018	Z-6 S-6 Balmoral Basin outer to inner	24D6	150 gallons	AB AQUATICS
6/12/2018	Z-6 S-6 Balmoral Basin outer to inner	24D6	200 gallons	AB AQUATICS
6/13/2018	Z-6 S-6 Balmoral Basin outer to inner	24D6	160 gallons	AB AQUATICS
6/13/2018	Z-6 S-7 Balmoral Basin Outer	24D6	50 gallons	AB AQUATICS
6/14/2018	Z-6 S-7 Balmoral Basin Outer	24D6	230 gallons	AB AQUATICS
6/15/2018	Z-6 S-6 Balmoral Basin Outer	24D6	160 gallons	AB AQUATICS
6/15/2018	Z-6 S-7 Balmoral Basin Outer	24D6	100 gallons	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
7/2/2018	Z-1 S-7 LEES MILL SW COVE	DASH	20	AB AQUATICS
7/2/2018	Z-2 S-2 PINEHURST ISLAND S SIDE	DASH	40	AB AQUATICS
7/3/2018	Z-2 S-2 PINEHURST ISLAND S SIDE	DASH	70	AB AQUATICS
7/4/2018	Z-1 S-8 S&W LEES MILL DOCKS	DASH	40	AB AQUATICS
7/4/2018	Z-1 S-7 LEES MILL SW COVE	DASH	20	AB AQUATICS
7/5/2018	Z-9 S-4 Castle Shores	DASH	125	AB AQUATICS
7/6/2018	Z-9 S-4 Castle Shores	DASH	240	AB AQUATICS
7/7/2018	Z-9 S-4 Castle Shores	DASH	240	AB AQUATICS
7/9/2018	Z-6 S-7 Shoal off Balmoral Basin	DASH	260	AB AQUATICS
7/9/2018	Z-6 S-9 WHALEBA CK SHOAL	DASH	10	AB AQUATICS
7/9/2018	Z-9 S-7 W most shoal off Suissevale	DASH	60	AB AQUATICS
7/9/2018	Z-9 S-7 N most shoal off Suissevale	DASH	80	AB AQUATICS
7/10/2018	Z-9 S-6 SW shoal off Castle Shores	DASH	30	AB AQUATICS
7/10/2018	Z-9 S-5 Rocks and castle shores	DASH	130	AB AQUATICS
7/10/2018	Z-9 S-7 SE shoal off Suissevale	DASH	120	AB AQUATICS
7/11/2018	Z-9 S-5 Castle Shores	DASH	330	AB AQUATICS
7/11/2018	Z-9 S-4 Birch Hill Island	DASH	50	AB AQUATICS
7/11/2018	7-9 S-7 SE Shoal off Suissevale	DASH	220	AB AQUATICS
7/12/2018	Z-9 S-4 SE section	DASH	160	AB AQUATICS
7/12/2018	Z-9 S-4 Birch Hill Island N to Castle Shores	DASH	80	AB AQUATICS
7/13/2018	Z-9 S-4 Castle shore between two spars	DASH	280	AB AQUATICS
7/13/2018	Z-9 S-5 Castle Shores around rocks	DASH	20	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
7/13/2018	Z-9 S-9 BHI, NW to SW following W shore	DASH	50	AB AQUATICS
7/16/2018	Z-9 S-4 between Castle Shores & Birch Hill I.	DASH	280	AB AQUATICS
7/16/2018	Z-9 S-4 Birch Hill I. E. Side N to NW cove	DASH	140	AB AQUATICS
7/17/2018	Z-6 S-7 Balmoral W shore	DASH	120	AB AQUATICS
7/17/2018	Z-4 S-8 E shore	DASH	2	AB AQUATICS
7/17/2018	Z-4 S-4 between Round and Badger Island	DASH	18	AB AQUATICS
7/18/2018	Z-7 S-1 Spring Island	DASH	90	AB AQUATICS
7/18/2018	Z-4 S-4 between Round and Badger Islands	DASH	20	AB AQUATICS
7/18/2018	Z-4 S-3 between Badger and Goodwin's	DASH	80	AB AQUATICS
7/19/2018	Z-5 S-1 near first spar in Green's Basin	DASH	140	AB AQUATICS
7/19/2018	Z-4 S-3 between Badger and Goodwin's	DASH	260	AB AQUATICS
7/20/2018	Z-10 S-1 W of Hemlock Pt	DASH	160	AB AQUATICS
7/20/2018	Z-4 S-3 between Badger and Goodwin's	DASH	300	AB AQUATICS
7/21/2018	Z-10 S-2 Melanson Cove	DASH	340	AB AQUATICS
7/23/2018	Z-21 S-4 Salmon Meadow Cove	DASH	0	AB AQUATICS
7/23/2018	7-21 S-2 SMC lower cove	DASH	1	AB AQUATICS
7/24/2018	Z-21 S-7 south finger	DASH	140	AB AQUATICS
7/24/2018	Z-4 S-3 W side of Badger Island	DASH	170	AB AQUATICS
7/25/2018	Z-21 S-8 north finger	DASH	40	AB AQUATICS
7/25/2018	Z-21 S-6 SMC center W	DASH	0	AB AQUATICS
7/25/2018	Z-4 S-3 W side Badger Island	DASH	170	AB AQUATICS
7/26/2018	Z-22 S-3 Ash Cove	DASH	140	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
7/26/2018	Z-4 S-3 E/ Goodwin & W/ Badger Island	DASH	30	AB AQUATICS
7/26/2018	Z-4 S-1 E side Goodwin Island	DASH	10	AB AQUATICS
7/26/2018	Z-4 S-4 SW side Badger Island	DASH	10	AB AQUATICS
7/27/2018	Z-22 S-1 Ash Cove mouth	DASH	0	AB AQUATICS
7/27/2018	7-22 S-3 Ash Cove	DASH	40	AB AQUATICS
7/28/2018	Z-4 S-2 between mainland & Big Goodwin I	DASH	370	AB AQUATICS
7/30/2018	Z-21 s-7 left finger	DASH	40	AB AQUATICS
7/30/2018	Z-21 S-8 right finger	DASH	20	AB AQUATICS
7/30/2018	Z-4 S-2 Big Goodwin I. W & SW	DASH	250	AB AQUATICS
7/31/2018	Z-19 S-1 Black Cat Island Cove	DASH	180	AB AQUATICS
7/31/2018	Z-4 S-2 Big Goodwin I. W & SW	DASH	220	AB AQUATICS
8/1/2018	Z-23 S-1 from S bountry to N shore	DASH	20	AB AQUATICS
8/1/2018		DASH	200	AB AQUATICS
8/1/2018	Z-4 S-2 W of little Goodwin Island	DASH	170	AB AQUATICS
8/2/2018	Z-23 S-1 northeast corner	DASH	400	AB AQUATICS
8/2/2018	Z-4 s-5 east edge S-3 N of Badger Island	DASH	220	AB AQUATICS
8/3/2018	Z-23 S-1 Northeast cove	DASH	360	AB AQUATICS
8/3/2018	Z4, S5, South and West of Mainland	DASH	170	AB AQUATICS
8/6/2018	Z-23 S-1 NE cove	DASH	240	AB AQUATICS
8/7/2018	Z-23 S-1 NE cove	DASH	90	AB AQUATICS
8/8/2018	Z-23 S-1 NE cove	DASH	40	AB AQUATICS
8/9/2018	Z-4 S-3 NE to E of Badger Island	DASH	160	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
8/10/2018	Z-4 S-3 N and NE of Badger Island	DASH	80	AB AQUATICS
8/13/2018	Z-4 S-3 NNW Badger Island	DASH	140	AB AQUATICS
8/14/2018	Z-4 S-3 NNW Badger Island, along lily pads	DASH	280	AB AQUATICS
8/15/2018	Z-4 S-3 NNW Badger Island, along lily pads	DASH	160	AB AQUATICS
8/16/2018	Z-5 S-6 N cove of Greens Basin	DASH	220	AB AQUATICS
8/16/2018	Z-1 S-1 Lee River	DASH	240	AB AQUATICS
8/17/2018	Z-10 S-2 Melanson Cove Entrance	DASH	230	AB AQUATICS
8/18/2018	Z-10 S-2 Melanson Cove Right Side	DASH	70	AB AQUATICS
8/27/2018	Z-10 S-2 Melanson Cove	DASH	440	AB AQUATICS
8/27/2018	Z-15 S-2 Harilla Landing	DASH	200	AB AQUATICS
8/28/2018	Z-10 S-2 Melanson Cove	DASH	440	AB AQUATICS
8/28/2018	Z-15 S-2 Harilla Landing	DASH	140	AB AQUATICS
8/29/2018	Z-10 S-2 Melanson Cove	DASH	180	AB AQUATICS
8/29/2018	Z-23 S3 Ash Cove	DASH	50	AB AQUATICS
8/29/2018	Z-23 S2 Ash Cove	DASH	0	AB AQUATICS
8/30/2018	Z-10 S-2 Melanson Cove	DASH	130	AB AQUATICS
8/30/2018	Z-23 S3 Ash Cove	DASH	25	AB AQUATICS
8/30/2018	Z-23 S2 Ash Cove	DASH	5	AB AQUATICS
8/31/2018	Z-10 S-2 Melanson Cove	DASH	120	AB AQUATICS
8/31/2018	Z-5 S-6 Greens Basin North End	DASH	115	AB AQUATICS
8/31/2018	Z-5 S-7 Greens Basin Northeast Shore	DASH	5	AB AQUATICS
9/3/2018	Z-7 S-3 of Ganzy Island	DASH	80	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
9/4/2018	Z-9 S-5 Castle Shores	DASH	120	AB AQUATICS
9/4/2018	Z-3 S-2 S end lily pads, N into pads	DASH	160	AB AQUATICS
9/5/2018	S-9 S-8 Lincoln Island (real, not Google's)	DASH	220	AB AQUATICS
9/5/2018	Z-3 S-2 S end lily pads, N into pads	DASH	180	AB AQUATICS
9/6/2018	S-9 S-8 Lincoln Island (real, not Google's)	DASH	140	AB AQUATICS
9/6/2018	Z-3 S-6 Following boat path	DASH	40	AB AQUATICS
9/6/2018	SZ-3 S-6 following shore around	DASH	10	AB AQUATICS
9/6/2018	Z-3 S-7 Blanchard Island	DASH	0	AB AQUATICS
9/7/2018	Z-3 S-2 following boat path	DASH	180	AB AQUATICS
9/7/2018	Z-3 S-6 Cove at far end, very shallow	DASH	20	AB AQUATICS
9/7/2018	Z-3 S-7 Blanchard Island 2017 deep spot	DASH	40	AB AQUATICS
9/7/2018	S-9 S-8 Lincoln Island (real, not Google's)	DASH	160	AB AQUATICS
9/8/2018	Z-9 S-8 Shady & Cozy Islands	DASH	50	AB AQUATICS
9/10/2018	Z-3 S-2 Boat path to NE end Badger Point	DASH	200	AB AQUATICS
9/11/2018	Z-8 S-3 West shore, opposite Ambrose Cove	DASH	40	AB AQUATICS
9/11/2018	Z-3 S-2 Boat path main channel & to east	DASH	200	AB AQUATICS
9/12/2018	Z-8 S-3 West shore, opposite Ambrose Cove	DASH	60	AB AQUATICS
9/12/2018	Z-3 S-2 Large boat path & path N of tiny Island	DASH	120	AB AQUATICS
9/13/2018	Z-6 S-6 Balmoral Basin	DASH	160	AB AQUATICS
9/13/2018	Z-3 S-2 Boat path N & S of tiny inland	DASH	160	AB AQUATICS
9/14/2018	Z-7 S-3 Ganzy Island channel	DASH	220	AB AQUATICS
9/14/2018	Z-3 S-2 Boat paths around tiny island	DASH	120	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
9/15/2018	Z-3 S-5 South side of W of FL52	DASH	40	AB AQUATICS
9/15/2018	Z-2 S-1 W of rocks NW of FL 52	DASH	20	AB AQUATICS
9/15/2018	Z-2 S-8 SE of FL 51	DASH	60	AB AQUATICS
9/15/2018	Z-2 S-2 S of Pinehurst Island	DASH	20	AB AQUATICS
9/17/2018	Z-2 S-6 along whaleback point	DASH	60	AB AQUATICS
9/17/2018	Z-6 S-8 SW shore Whaleback Point	DASH	120	AB AQUATICS
9/17/2018	Z-3 S-2 Boat paths of tiny islands & S pts	DASH	80	AB AQUATICS
9/18/2018	Z-1 S-3 Lees Mill Cove	DASH	180	AB AQUATICS
9/18/2018	Z-3 S-2 along south of sector	DASH	80	AB AQUATICS
9/19/2018	Z-6 S-8 SW shore Whaleback Point	DASH	440	AB AQUATICS
9/19/2018	Z-1 S-5 Lees Mill Loon Cove	DASH	15	AB AQUATICS
9/19/2018	Z-1 S-6 E of FL 52	DASH	40	AB AQUATICS
9/19/2018	Z-1 S-7 N of Pinehurst Island	DASH	65	AB AQUATICS
9/19/2018	MOULTONBOROUGH PORTIONS	2,4-D BEE (G)	40.5 ACRES	SOLitude LAKE MANAGEMENT
9/20/2018	Z-6 S-8 SW shore Whaleback Point	DASH	140	AB AQUATICS
9/20/2018	Z-2 S-3 SE from LF 52	DASH	20	AB AQUATICS
9/20/2018	Z-2 S-4 Cove NE Whaleback Point	DASH	20	AB AQUATICS
9/21/2018	Z-6 S-8 SW shore Whaleback Point	DASH	80	AB AQUATICS
9/21/2018	Z-2 S-5 NW side Whaleback Point	DASH	20	AB AQUATICS
9/21/2018	Z-2 S-7 Loans Island	DASH	100	AB AQUATICS
9/24/2018	Z-6 S-3 Quay Island	DASH	40	AB AQUATICS
9/24/2018	Z-2 S-7 Loans Island	DASH	140	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
9/25/2018	Z-8 S-1 Wentworth Shores S of Quay I.	DASH	60	AB AQUATICS
9/25/2018	Z-2 S-7 Loans Island	DASH	120	AB AQUATICS
9/26/2018	Z-1 S-3 Lees Mill Cove	DASH	100	AB AQUATICS
9/26/2018	Z-2 S-7 Loans Island	DASH	60	AB AQUATICS
9/26/2018	Z-6 S-11 Whaleback Island W cove	DASH	60	AB AQUATICS
9/27/2018	Z-10 S-3 Ambrose Cove Marina	DASH	40	AB AQUATICS
9/27/2018	Z-12 S-3 Wyman Lagoon	DASH	10	AB AQUATICS
9/27/2018	Z-12 S-2 NE of Wyman Lagoon	DASH	10	AB AQUATICS
9/28/2018	Z-12 S-2 NE of Wyman Lagoon	DASH	40	AB AQUATICS
9/29/2018	Z-10 S-1 W of land Hemlock Pt to FL 72	DASH	20	AB AQUATICS
9/29/2018	Z-8 S-3 B/W spar opposite FL 72	DASH	0.5	AB AQUATICS
10/1/2018	Z-10 S-4 Childrens Island	DASH	50	AB AQUATICS
10/1/2018	Z-11 S-1 rock shoals	DASH	20	AB AQUATICS
10/2/2018	Z-10 S-3 Melanson Point	DASH	20	AB AQUATICS
10/2/2018	Z-8 S-3 W shore opposite Amrbose Cove	DASH	0	AB AQUATICS
10/2/2018	Z-7 S-5 south side Gansy Island	DASH	40	AB AQUATICS
10/3/2018	Z-10 S-2 Melanson Cove	DASH	105	AB AQUATICS
10/4/2018	Z-10 S-2 Melanson Cove	DASH	80	AB AQUATICS
10/4/2018	Z-11 S-1 Blacks landing cove	DASH	20	AB AQUATICS
10/5/2018	Z-10 S-1 Hemlock Point	DASH	30	AB AQUATICS
10/5/2018	Z-7 S-2 Castle Shore Rd N of Gansy Island	DASH	40	AB AQUATICS
10/8/2018	Z-9 S-4 Birch Hill I. & Suissevale shore	DASH	100	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
10/9/2018	Z-6 S-6 outside Balmoral Basin	DASH	140	AB AQUATICS
10/9/2018	Z-9 S-4 Birch Hill I. & Suissevale shore	DASH	60	AB AQUATICS
10/10/2018	Z-6 S-6 outside Balmoral Basin	DASH	20	AB AQUATICS
10/10/2018	Z-6 S-7 outside Balmoral Basin S of R/W spar	DASH	80	AB AQUATICS
10/10/2018	Z-1 S-2 Lees Mill Launch	DASH	40	AB AQUATICS
10/10/2018	Z-9 S-4 Birch Hill I. & Suissevale shore	DASH	60	AB AQUATICS
10/11/2018	Z-6 S-8 side Whaleback point	DASH	140	AB AQUATICS
10/11/2018	Z-9 S-4 Birch Hill I. & Suissevale shore	DASH	20	AB AQUATICS
10/12/2018	Z-6 S-7 outside Balmoral Basin S of R/W spar	DASH	20	AB AQUATICS
10/12/2018	Z-9 S-7 Castle Shores	DASH	0	AB AQUATICS
10/17/2018	Z-6 S-6 outside Balmoral Basin	DASH	40	AB AQUATICS
10/18/2018	Z-6 S-7 West of rock shoal	DASH	80	AB AQUATICS
10/19/2018	Z-6 S-7 East of rock shoal	DASH	80	AB AQUATICS
10/22/2018	Z-9 S-3 Suissevale Beach	DASH	120	AB AQUATICS
10/24/2018	Z-9 S-6 Shoal off Hemlock Point	DASH	18	AB AQUATICS
10/24/2018	Z-10 S-1 Shoal off Hemlock Point	DASH	2	AB AQUATICS
10/25/2018	Z-9 S-3 Suissevale Beach	DASH	140	AB AQUATICS
10/26/2018	Z-21 S-8 SMC RT finger	DASH	20	AB AQUATICS
6/3/2019	Z-1 S-2 Lees Mill Launch basin	DASH	20	AB AQUATICS
6/3/2019	Z-1 S-8 W shore, N of river	DASH	20	AB AQUATICS
6/3/2019	Z-1 S-6 SSE of FL51	DASH	20	AB AQUATICS
6/4/2019	Z-1 S-6 SSE of FL51	DASH	10	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
6/4/2019	Z-1 S-7 S&SW of FL51	DASH	60	AB AQUATICS
6/5/2019	Z-2 S-8 W shore of FL52	DASH	20	AB AQUATICS
6/5/2019	Z-1 S-7 S&SW of FL51	DASH	50	AB AQUATICS
6/6/2019	Z-2 S-6 SSW side Whaleback Point	DASH	10	AB AQUATICS
6/6/2019	Z-2 S-5 NW side Whaleback Point	DASH	30	AB AQUATICS
6/10/2019	Z-6 S-6 Balmoral Basin	DASH	30	AB AQUATICS
6/10/2019	Z-1 S-2 Lees Mill Launch & Docks	DASH	4	AB AQUATICS
6/10/2019	Z-6 S-10 Whaleback Island S&E sides	DASH	40	AB AQUATICS
6/10/2019	Z-6 S-11 Whaleback Island N&W sides	DASH	40	AB AQUATICS
6/11/2019	Z-6 S-6 Balmoral Basin	DASH	38	AB AQUATICS
6/11/2019	Z-6 S-9 N of shoal	DASH	2	AB AQUATICS
6/11/2019	Z-6 S-11 Whaleback Island N&W sides	DASH	40	AB AQUATICS
6/11/2019	Z-6 S-10 Whaleback Island S&E sides	DASH	40	AB AQUATICS
6/12/2019	Z-4 S-5 between Badger & Little Badger Islands	DASH	25	AB AQUATICS
6/12/2019	Z-4 S-4 S side of Badger Island	DASH	30	AB AQUATICS
6/12/2019	Z-6 S-2 E coast Wentworth Shores	DASH	190	AB AQUATICS
6/13/2019	Z-4 S-4 S side Badger Island, between Round Is	DASH	2	AB AQUATICS
6/13/2019	Z-3 S-7 Blanchard Island	DASH	18	AB AQUATICS
6/14/2019	Z-3 S-7 Blanchard Island	DASH	10	AB AQUATICS
6/14/2019	Z-3 S-6 end of Raouls Cove	DASH	10	AB AQUATICS
6/14/2019	Z-6 S-9 Whaleback shoal	DASH	25	AB AQUATICS
6/14/2019	Z-6 S-7 WSW outside Balmoral Basin	DASH	10	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
6/14/2019	Z-6 S-2 E coast Wentworth Shores	DASH	100	AB AQUATICS
6/17/2019	Z-7 S-3 SE of Gansy Is., around Half Acre Is.	DASH	100	AB AQUATICS
6/18/2019	Z-7 S-3 by Half Acre Is., N thru Channel	DASH	240	AB AQUATICS
6/19/2019	Z-7 S-3 NE end Gansy Is., S thru Channel	DASH	160	AB AQUATICS
6/20/2019	Z-8 S-1 Wentworth Shores	DASH	20	AB AQUATICS
6/21/2019	Z-9 S-3 W side Swissevale Is. & swim beach	DASH	240	AB AQUATICS
6/24/2019	Z-6 S-3 N side Quay Island	DASH	60	AB AQUATICS
6/25/2019	Z-6 S-7 WSW shore of Balmoral	DASH	120	AB AQUATICS
6/26/2019	Z-6 S-7 WSW shore of Balmoral	DASH	200	AB AQUATICS
6/27/2019	Z-9 S-3 Swissevale Beach	DASH	360	AB AQUATICS
6/28/2019	Z-6 S-7 WSW shore of Balmoral	DASH	45	AB AQUATICS
6/28/2019	Z-6 S-6 outside Balmoral Basin	DASH	115	AB AQUATICS
7/1/2019	Z-6 S-4 Balmoral docks and States Landing	DASH	90	AB AQUATICS
7/2/2019	Z-9 S-1 Swissevale Cove	DASH	260	AB AQUATICS
7/3/2019	Z-9 S-1 Swissevale Cove	DASH	110	AB AQUATICS
7/5/2019	Z-9 S-8 Cozy & Shady Islands	DASH	160	AB AQUATICS
7/24/2019	Z-9 S-8 3 small islands west of Birch Hill Island	DASH	210	AB AQUATICS
7/25/2019	Z-7 S-5 souh side Gansy Island	DASH	120	AB AQUATICS
7/25/2019	Z-7 S-6 west side Gansy Island	DASH	40	AB AQUATICS
7/26/2019	Z-7 S-6 west side Gansy Island	DASH	20	AB AQUATICS
7/26/2019	Z-9 S-1 Swissevale Cove	DASH	40	AB AQUATICS
7/26/2019	Z-9 S-8 3 small islands west of Birch Hill Island	DASH	25	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
7/29/2019	Z-9 S-2 Swissevale Lagoon	DASH	2	AB AQUATICS
7/29/2019	Z-1 S-2 Lees Mill Launch basin while repairs ongoing	DASH	7	AB AQUATICS
7/29/2019	Z-9 S-2 Swissevale Lagoon	DASH	8	AB AQUATICS
8/1/2019	Z-9 S-2 Swissevale Lagoon	DASH	40	AB AQUATICS
8/1/2019	Z-9 S-9 Birch Hill Island west side	DASH	40	AB AQUATICS
8/2/2019	Z-9 S-9 Birch Hill Island west side	DASH	30	AB AQUATICS
8/2/2019	Z-9 S-2 Swissevale Lagoon	DASH	20	AB AQUATICS
8/2/2019	Z-9 S-4 prior "deep" area S of red spar	DASH	0	AB AQUATICS
8/6/2019	Z-7 S-1 adjacent to State Landing	DASH	50	AB AQUATICS
8/7/2019	Z-7 S-1 adjacent to State Landing	DASH	10	AB AQUATICS
8/7/2019	Z-7 S-2 Castle Shores NE of Gansy	DASH	60	AB AQUATICS
8/7/2019	Z-7 S-3 between Gansy Point and Island	DASH	0	AB AQUATICS
8/7/2019	MOULTONBOROUGH PORTIONS	ProcellaCOR EC (Florpyrauxifen-benzyl)	25.4 acres	SOLitude LAKE MANAGEMENT
8/8/2019	Z-9 S-3 Swissevale Beach	DASH	215	AB AQUATICS
8/8/2019	Z-2 S-2 Pinehurst Island	DASH	5	AB AQUATICS
8/9/2019	Z-2 S-1 Bryants Point	DASH	120	AB AQUATICS
8/9/2019	Z-2 S-7 Loans Island	DASH	60	AB AQUATICS
8/14/2019	Z-6 S-6 Balmoral Basin	DASH	230	AB AQUATICS
8/14/2019	Z-6 S-6 Balmoral Basin, outside	DASH	30	AB AQUATICS
8/15/2019	Z-10 S-2 Melanson Cove	DASH	270	AB AQUATICS
8/16/2019	Z-6 S-6 Balmoral Basin, outside	DASH	60	AB AQUATICS
8/16/2019	z-6 s-7 Balmoral SW shoreline	DASH	30	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
9/3/2019	Z-6 S-5 Balmoral Canal	DASH	30	AB AQUATICS
9/4/2019	Z-6 S-5 Balmoral Canal	DASH	40	AB AQUATICS
9/5/2019	Z-6 S-7 Balmoral West End	DASH	140	AB AQUATICS
9/6/2019	Z-6 S-7 Balmoral West End	DASH	80	AB AQUATICS
9/9/2019	Z-10 S-2 Melanson Cove	DASH	20	AB AQUATICS
9/9/2019	Z-10 S-2 Melanson Cove	DASH	20	AB AQUATICS
9/9/2019	Z-10 S-1 Hemlock Point	DASH	100	AB AQUATICS
9/10/2019	Z-10 S-1 Hemlock Point	DASH	60	AB AQUATICS
9/11/2019	Z-9 S-4 Castle Shores Cove	DASH	30	AB AQUATICS
9/12/2019	Z-4 S-3 N of Badger Island	DASH	140	AB AQUATICS
9/13/2019	Z-4 S-3 N of Badger Island	DASH	260	AB AQUATICS
9/16/2019	Z-4 S-2 W of little Goodwin Island	DASH	20	AB AQUATICS
9/16/2019	Z-4 S-5 between Badger & Little Badger Islands	DASH	60	AB AQUATICS
9/17/2019	Z-4 S-5 between Badger & Little Badger Islands	DASH	40	AB AQUATICS
9/17/2019	Z-2 S-1 Bryants Point	DASH	5	AB AQUATICS
9/17/2019	Z-1 S-7 N of Pinehurst Island	DASH	2	AB AQUATICS
9/17/2019	Z-5 S-6 N end of Greens Basin	DASH	40	AB AQUATICS
9/18/2019	Z-3 S-1 SE Little Badger Island	DASH	40	AB AQUATICS
9/18/2019	Z--3 S-2 E of Badger Point	DASH	20	AB AQUATICS
9/18/2019	Z-3 S-1 SE Little Badger Island	DASH	40	AB AQUATICS
9/18/2019	Z-3 s-3 N&E of Evergreen Island	DASH	5	AB AQUATICS
9/18/2019	Z-3 S-4 S of Evergreen Island	DASH	0	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
9/20/2019	Z-21 S-2, 3,5,& 6	DASH	0	AB AQUATICS
9/23/2019	Z-21 S-7, S-8 S-6 Salmon Meadow Cove	DASH	0	AB AQUATICS
9/24/2019	Z-19 S-1 Black Cat Island Cove	DASH	610	AB AQUATICS
9/30/2019	Z-15 S-2 Harilla Landing	DASH	100	AB AQUATICS
10/1/2019	Z-19 S-1 Black Cat Island Cove	DASH	140	AB AQUATICS
10/8/2019	Z-1 S-3 Lees Mill Cove	DASH	30	AB AQUATICS
10/9/2019	Z-6 S-7 Balmoral Point	DASH	30	AB AQUATICS
10/10/2019	Z-3 S-3 Evergreen Island South End	DASH	40	AB AQUATICS
10/10/2019	Z-3 S-4 Evergreen Island West Side	DASH	40	AB AQUATICS
10/11/2019	Z-4 S-7 ENE end of Hanson Cove	DASH	0	AB AQUATICS
10/11/2019	Z-2 S-4 Whaleback Cove	DASH	10	AB AQUATICS
10/11/2019	Z-2 S-6 North of Little Pine Island	DASH	5	AB AQUATICS
10/11/2019	Z-1 S-6 East of FL 51	DASH	5	AB AQUATICS
10/11/2019	Z-1 S-5 Loon Cove	DASH	0	AB AQUATICS
10/15/2019	Z-10 S-2 Melanson Cove	DASH	60	AB AQUATICS
10/16/2019	Z-9 S-5 Castle Shores	DASH	10	AB AQUATICS
10/18/2019	Z-12 S-3 Wyman Lagoon	DASH	5	AB AQUATICS
10/18/2019	Z-12 S-2 just north of Wyman Lagoon	DASH	5	AB AQUATICS
10/21/2019	Z-9 S-8 Lincoln Island	DASH	5	AB AQUATICS
10/21/2019	Z-9 S-9 Birch Hill Island	DASH	0	AB AQUATICS
10/21/2019	Z-6 S-8 S side Whaleback Point	DASH	35	AB AQUATICS
10/22/2019	Z-9 S-7 three shoals W of Suissevale beach	DASH	20	AB AQUATICS

DATE	SITE	ACTION	ACRES (HERBICIDE) OR GALLONS (DIVER/DASH)	ENTITY
10/22/2019	Z-9 S-6 shoal W of Castle Shore/Hemlock point	DASH	5	AB AQUATICS

Feasibility Evaluation of Control Options in this Waterbody

DES has evaluated the feasibility of potential control practices on Moultonborough Bay Area, Lake Winnipesaukee. The following table summarizes DES' control strategy recommendations for Moultonborough Bay Area, Lake Winnipesaukee

Control Method	Use on Moultonborough Bay and Lake Winnipesaukee Areas in Moultonborough
Restricted Use Areas	Restricted Use Areas (RUAs) may be used in areas identified as appropriate by DES based on field data. When infestations are small and localized and restriction of those areas could reduce spread of milfoil, an RUA may be considered.
Hand-pulling/Diver-Assisted Suction Harvesting (DASH)	DES will make recommendations about hand removal or DASH following a thorough mapping of the milfoil in this portion of the lake. It is expected that diver work and DASH will be a widely used technique in many areas as either a primary control effort for small infestations, as a follow up to other control efforts, or in combination with other techniques to reduce overall milfoil density. The town will have one or two DASH units available for use in this area.
Mechanical Harvesting/Removal	Mechanical harvesting is not recommended in any area of Lake Winnipesaukee due to the threat of spreading variable milfoil to uninfested areas of the lake through the generation of fragments. While variable milfoil is widespread in Moultonborough Bay there is still some uninfested habitat, and the generation of fragments that may not be well-contained in a harvesting project could drift. Also, this is not a permanent solution and harvesting would become a routine activity due to re-growth.
Benthic Barriers	Benthic barriers are recommended for areas where small growths are persistent, and where the barriers could feasibly be used (much of the lake bed in this area is rocky and not conducive to benthic barrier placement, but DES will recommend this technique as/if appropriate).
Herbicides	A target specific, systemic herbicide (like 2,4-D or similar) is recommended as needed to control larger and denser areas of growth and to reduce density/distribution of variable

Control Method	Use on Moultonborough Bay and Lake Winnipesaukee Areas in Moultonborough
	milfoil so that other non-chemical controls can be more feasibly used.
Extended Drawdown	Drawdown is not an effective control method for variable milfoil and is not feasible in this location of the lake.
Dredge	Not recommended due to nature of exotic plant distribution, the cost, or the ancillary ecological impacts that the dredge could have.
Biological Control	There are no approved biological controls for variable milfoil at this time in New Hampshire.
No Control	We have seen over the years that a no control option only allows for the further distribution of this non-native exotic plant in NH. Fragments generated by variable milfoil perpetuate the problem in the lake as a whole, and many towns are rallying to reduce the overall presence of variable milfoil in Lake Winnipesaukee.

Recommended Actions, Timeframes and Responsible Parties

Year	Action	Responsible Party	Recommended Schedule
2020	Field mapping of milfoil and planning for growing season control actions	NHDES	June/July/August
	Weed Watching and marking of areas of growth and Lake Hosting	Local Weed Watchers and Lake Hosts	Monthly from May through September
	Diving and DASH in areas recommended by DES based on field survey data	Contract Divers	June - October
	Herbicide treatment if/where needed (see maps in Figure 2 for specified growing season)	SOLitude Lake Management, LLC	Mid July
	End of season mapping/checks of management areas and planning for next growing season	NHDES/interested parties	September
2021	Field mapping of milfoil and planning for growing season control actions	NHDES	June/July/August

Year	Action	Responsible Party	Recommended Schedule
	Weed Watching and marking of areas of growth and Lake Hosting	Local Weed Watchers and Lake Hosts	Monthly from May through September
	Diving and DASH in areas recommended by DES based on field survey data	Contract Divers	June - October
	Herbicide treatment if/where needed (see maps in Figure 2 for specified growing season)	SOLitude Lake Management, LLC	Mid July
	End of season mapping/checks of management areas and planning for next growing season	NHDES/interested parties	September
2022	Field mapping of milfoil and planning for growing season control actions	NHDES	June/July/August
	Weed Watching and marking of areas of growth and Lake Hosting	Local Weed Watchers and Lake Hosts	Monthly from May through September
	Diving and DASH in areas recommended by DES based on field survey data	Contract Divers	June - October
	Herbicide treatment if/where needed (see maps in Figure 2 for specified growing season)	SOLitude Lake Management, LLC	Mid July
	End of season mapping/checks of management areas and planning for next growing season	NHDES/interested parties	September
2023	Field mapping of milfoil and planning for growing season control actions	NHDES	June/July/August
	Weed Watching and marking of areas of growth and Lake Hosting	Local Weed Watchers and Lake Hosts	Monthly from May through September

Year	Action	Responsible Party	Recommended Schedule
	Diving and DASH in areas recommended by DES based on field survey data	Contract Divers	June - October
	Herbicide treatment if/where needed (see maps in Figure 2 for specified growing season)	SOLitude Lake Management, LLC	Mid July
	End of season mapping/checks of management areas and planning for next growing season	NHDES/interested parties	September
2024	Field mapping of milfoil and planning for growing season control actions	NHDES	June/July/August
	Weed Watching and marking of areas of growth and Lake Hosting	Local Weed Watchers and Lake Hosts	Monthly from May through September
	Diving and DASH in areas recommended by DES based on field survey data	Contract Divers	June - October
	Herbicide treatment if/where needed (see maps in Figure 2 for specified growing season)	SOLitude Lake Management, LLC	Mid July
	End of season mapping/checks of management areas and planning for next growing season	NHDES/interested parties	September
2025	Assessment of milfoil situation and long-term management plan update	DES and Town of Moultonborough	Winter

Notes

Target Specificity

It is important to realize that aquatic herbicide applications are conducted in a specific and scientific manner. To the extent feasible, the permitting authority favors the use of selective herbicides that, where used appropriately, will control the target plant with little or no impact to non-target species, such that the ecological functions of native plants for habitat, lake ecology, and chemistry/biology will be maintained. *Not all aquatic plants will be impacted as a result of an herbicide treatment.*

Adaptive Management

Because this is a natural system that is being evaluated for management, it is impossible to accurately predict a management course over five years that could be heavily dependent on uncontrolled natural circumstances (weather patterns, temperature, adaptability of invasive species, etc).

This long-term plan is therefore based on the concept of adaptive management, where current field data drive decision making, which may result in modifications to the recommended control actions and timeframes for control. As such, this management plan should be considered a dynamic document that is geared to the actual field conditions that present themselves in this waterbody.

If circumstances arise that require the modification of part or all of the recommendations herein, interested parties will be consulted for their input on revisions that may be needed to further the goal of variable milfoil management in the subject waterbody.

Therefore, the approach for Moultonborough is to perform regular surveys to track the variable milfoil growth and to guide management activities based on real-time condition in the system. Diving will be done when feasible, and herbicides will only be used if densities or distribution of milfoil preclude successful dive activity.

Figure 1: Variable Milfoil Infestation Over Time

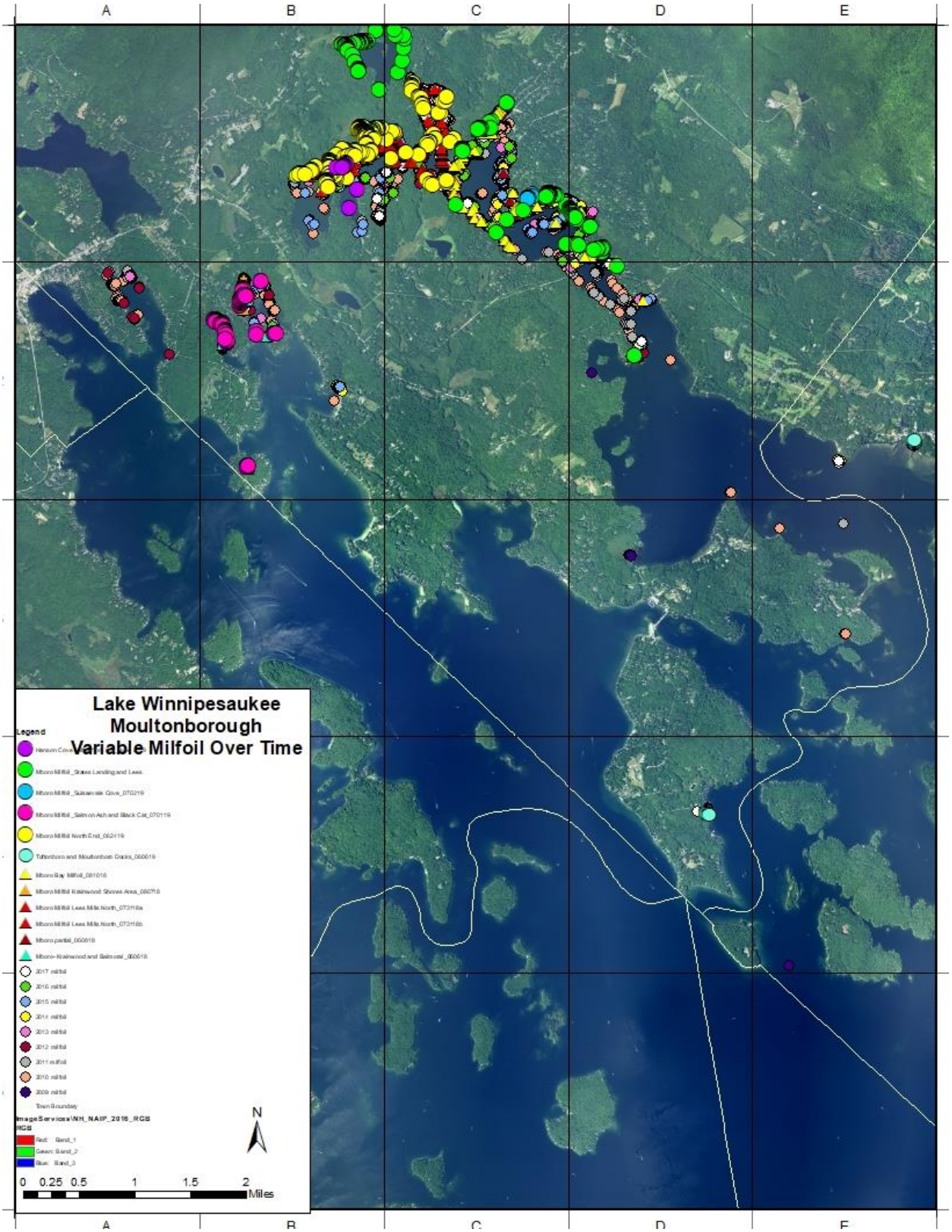
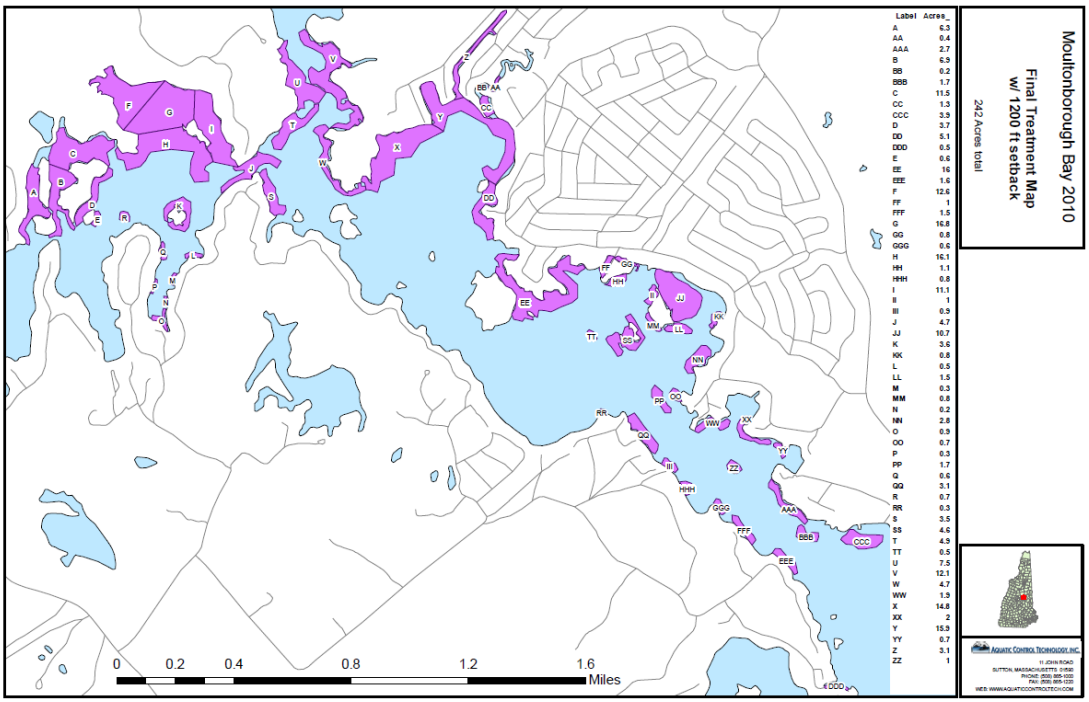
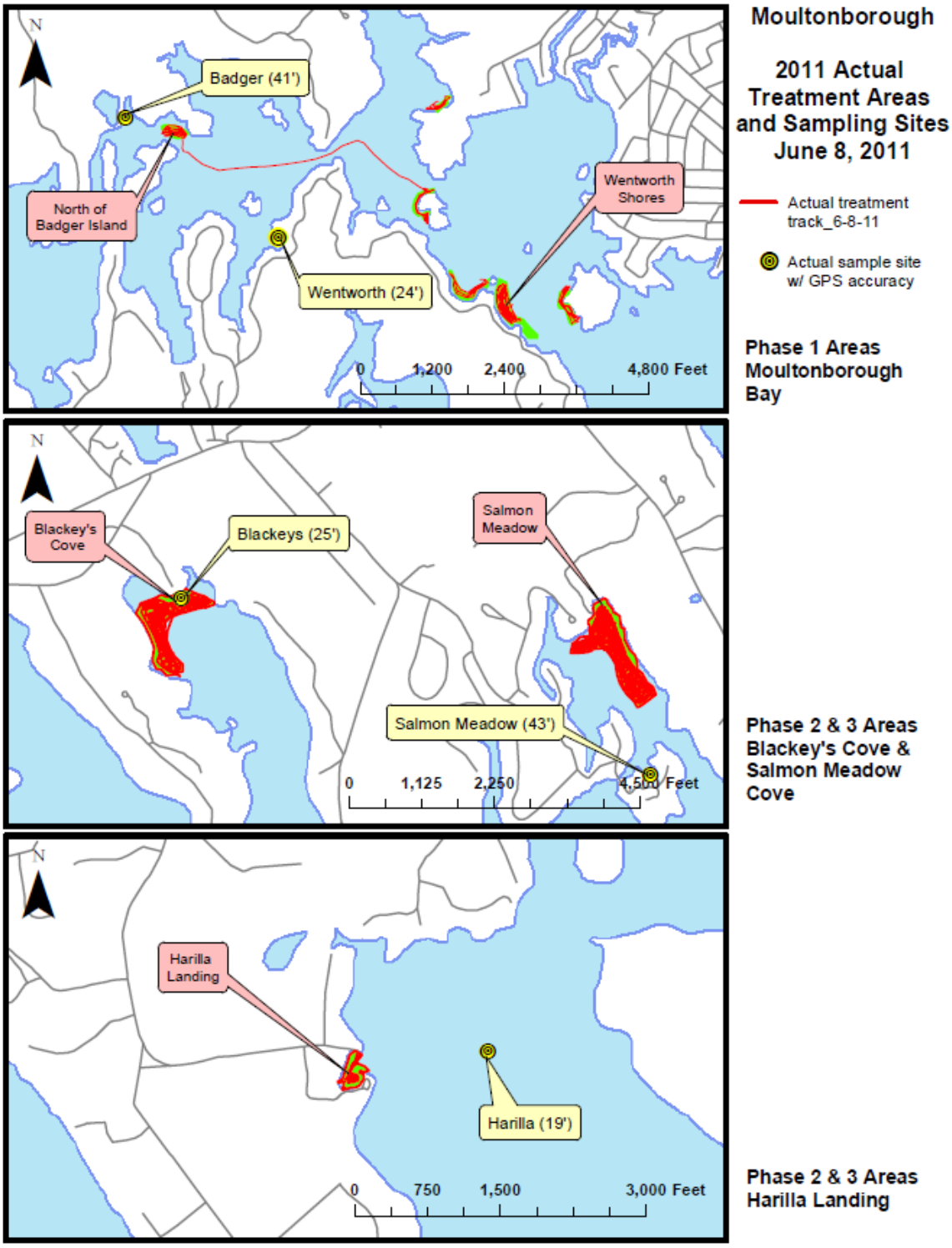


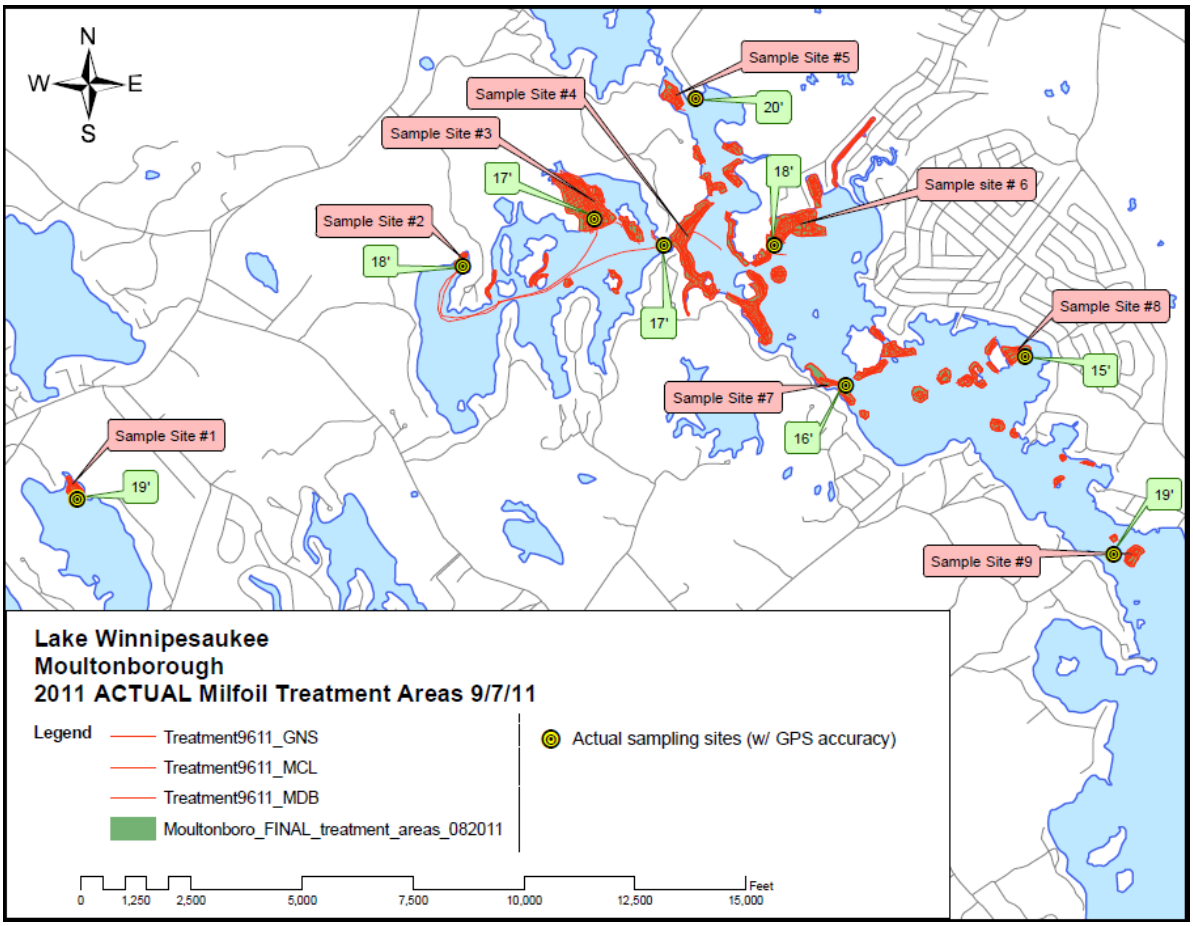
Figure 2: Variable Milfoil Control Actions

2010 (map produced by Aquatic Control Technology)

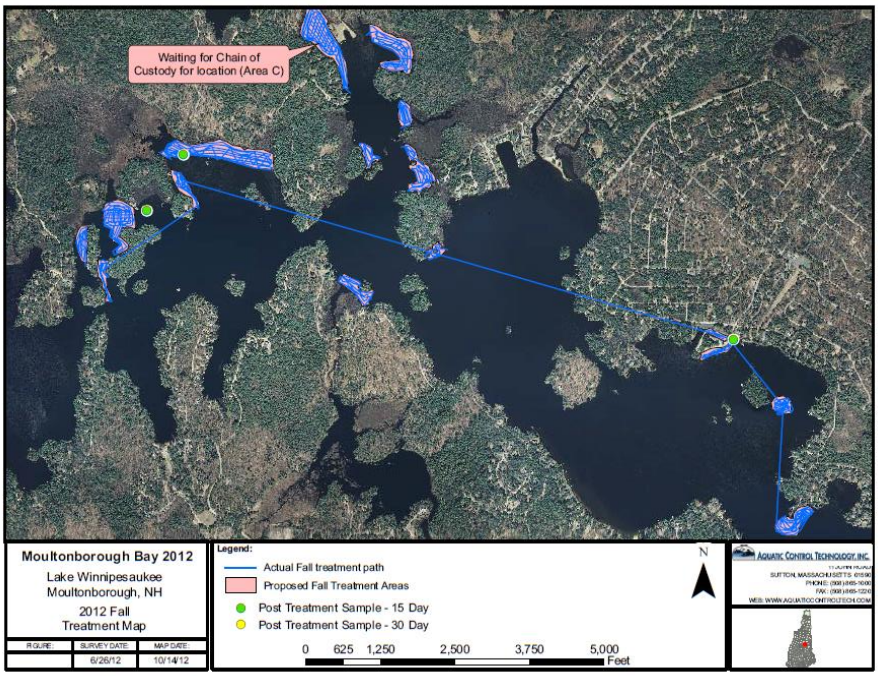


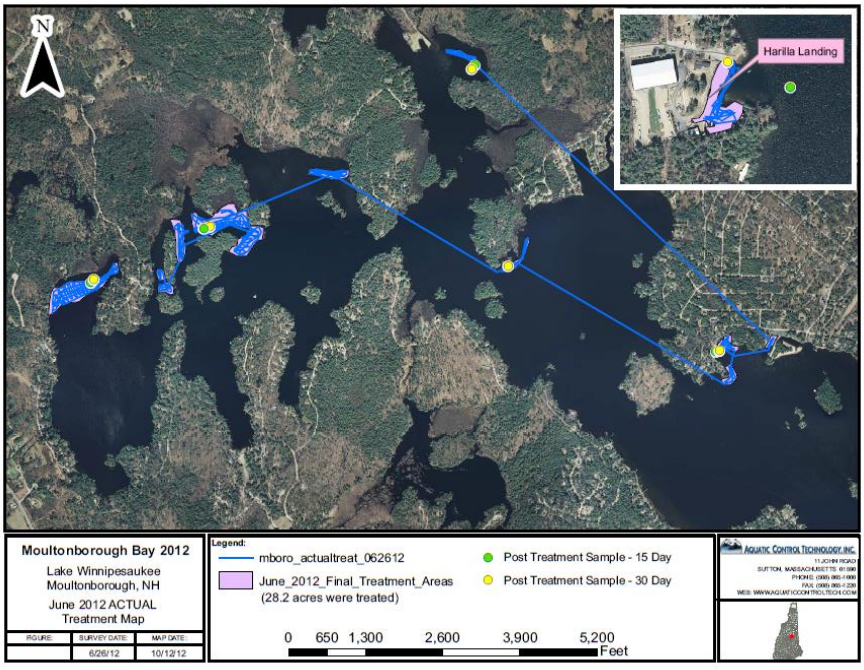
2011 (maps produced by Aquatic Control Technology)



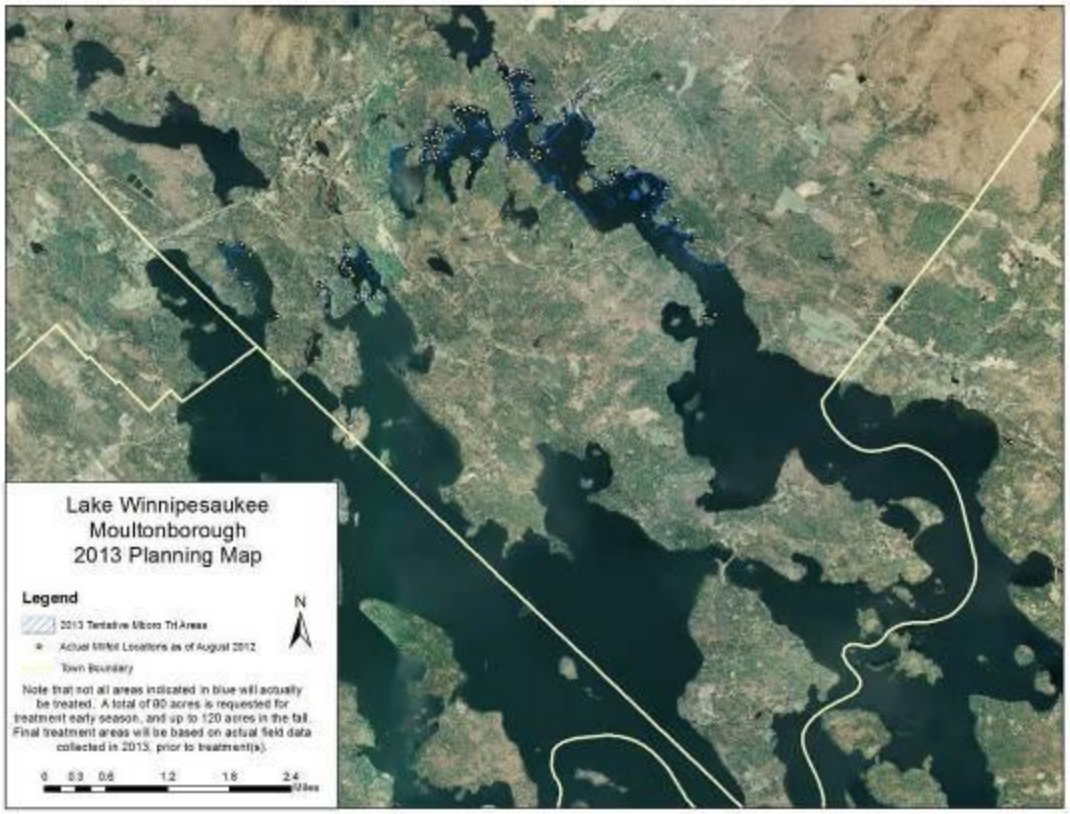

N
W
E
S
Sample Site #5
20'
Sample Site #4
Sample Site #3
17'
18'
Sample site # 6
Sample Site #2
18'
17'
Sample Site #8
15'
Sample Site #7
16'
Sample Site #1
19'
19'
Sample Site #9
Lake Winnipesaukee
Moultonborough
2011 ACTUAL Milfoil Treatment Areas 9/7/11
Legend
Treatment9611_GNS
Treatment9611_MCL
Treatment9611_MDB
Moultonboro_FINAL_treatment_areas_082011
Actual sampling sites (w/ GPS accuracy)
0
1,250
2,500
5,000
7,500
10,000
12,500
15,000
Feet

2012 (maps produced by Aquatic Control Technology)

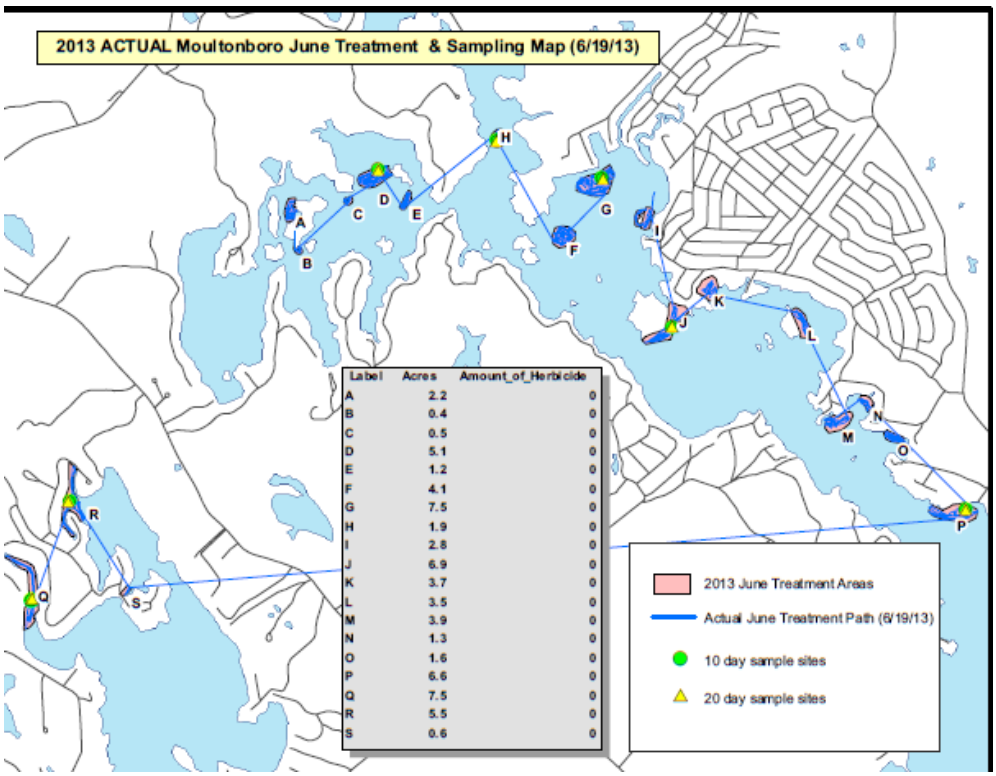




2013 (proposed)



2013 (actual, maps produced by Aquatic Control Technology)



Label	Acres	Amount_of_Herbicide
A	2.2	0
B	0.4	0
C	0.5	0
D	5.1	0
E	1.2	0
F	4.1	0
G	7.5	0
H	1.9	0
I	2.8	0
J	6.9	0
K	3.7	0
L	3.5	0
M	3.9	0
N	1.3	0
O	1.6	0
P	6.6	0
Q	7.5	0
R	5.5	0
S	0.6	0

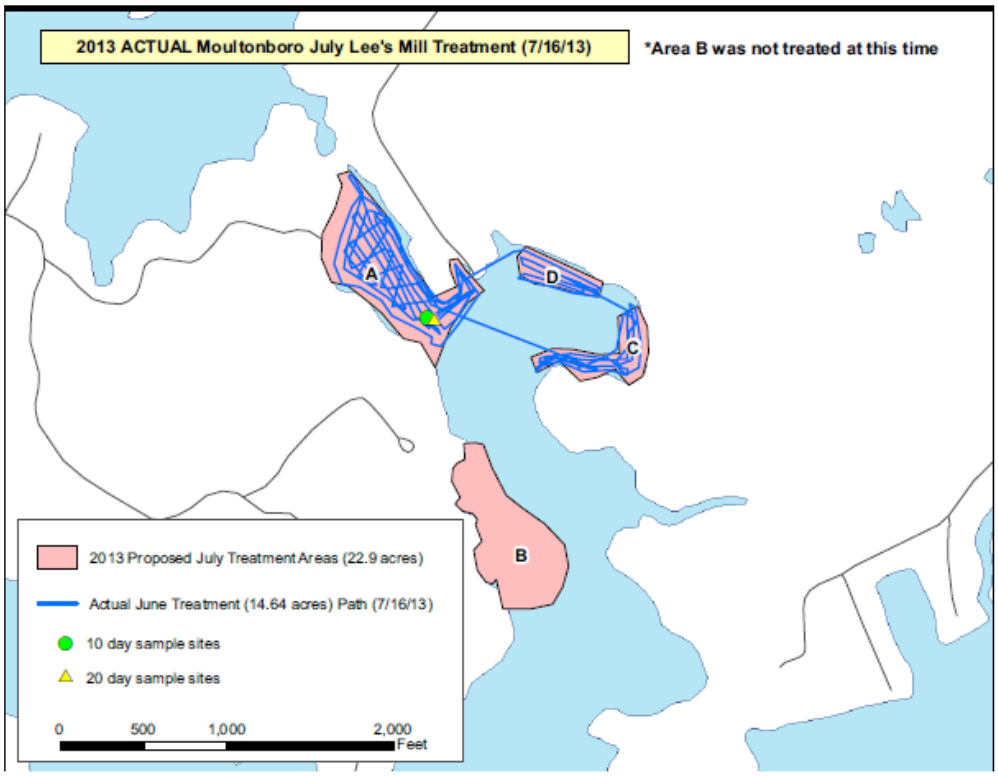
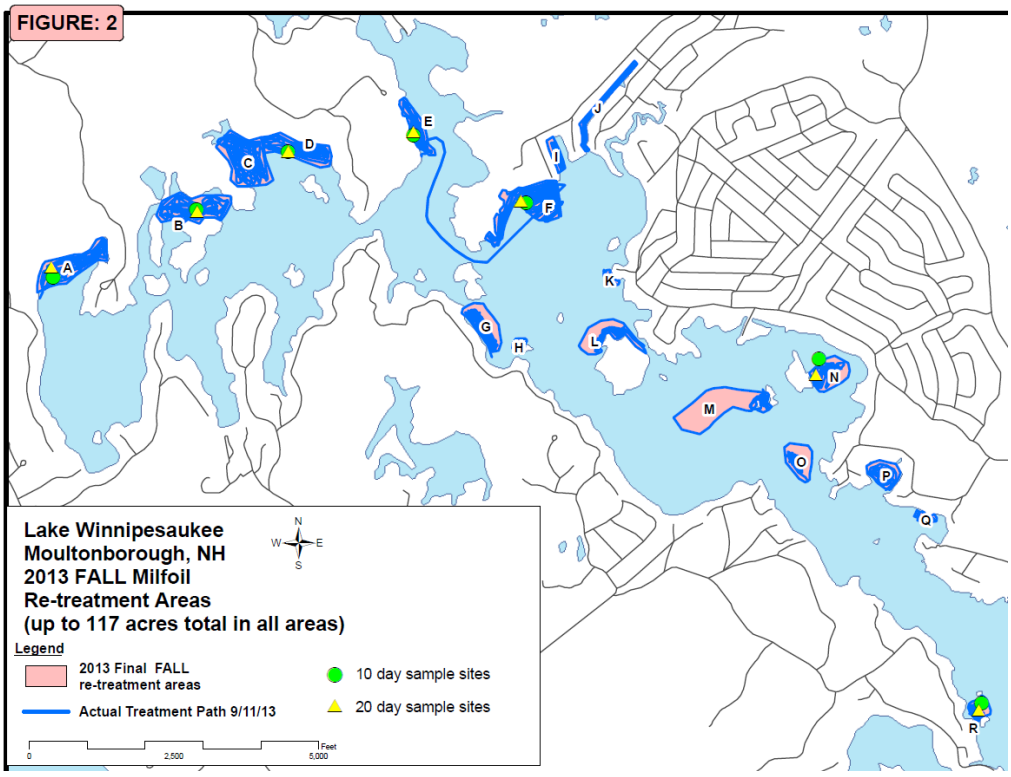
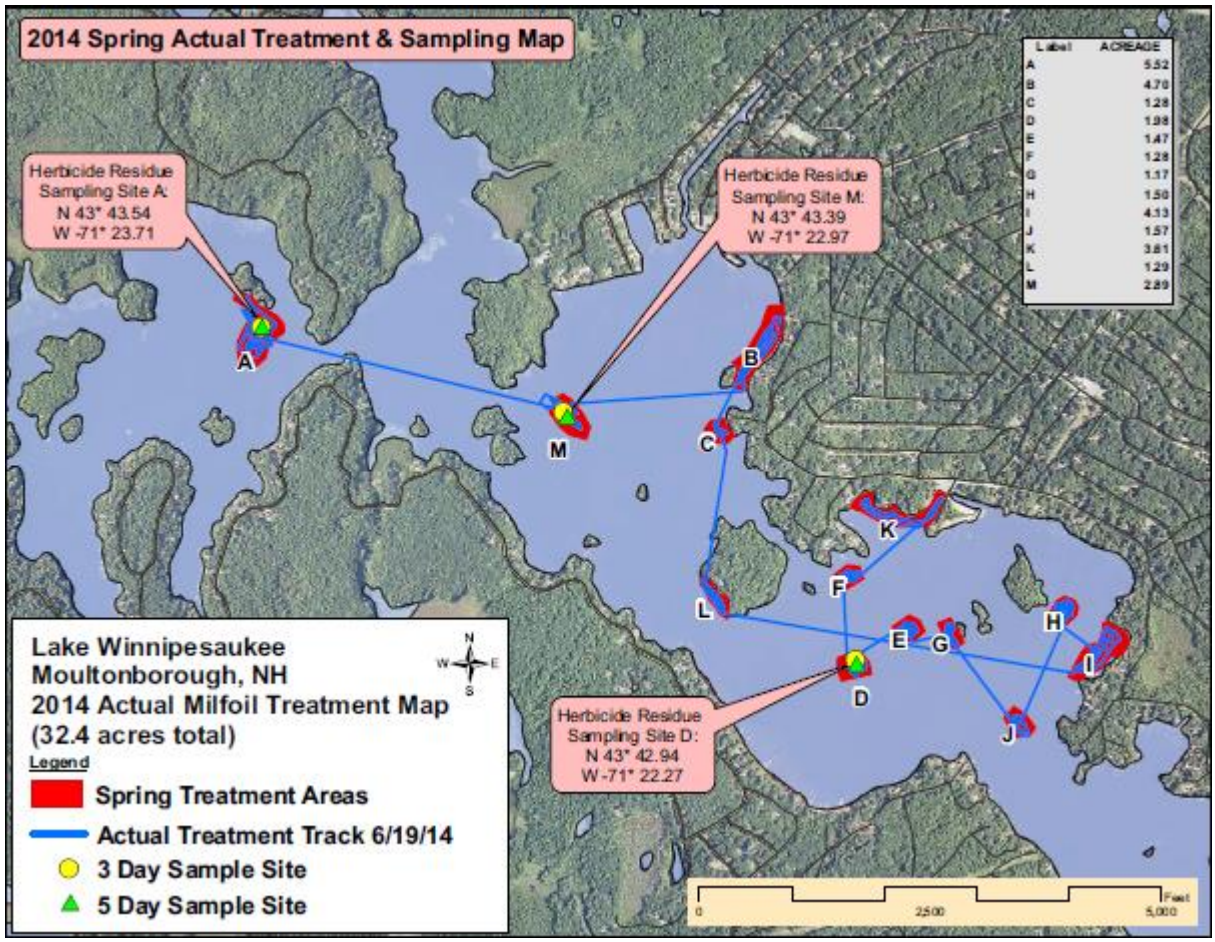

2013 ACTUAL Moultonboro July Lee's Mill Treatment (7/16/13)
*Area B was not treated at this time
A
B
C
D
2013 Proposed July Treatment Areas (22.9 acres)
Actual June Treatment (14.64 acres) Path (7/16/13)
10 day sample sites
20 day sample sites
0
500
1,000
2,000
Feet

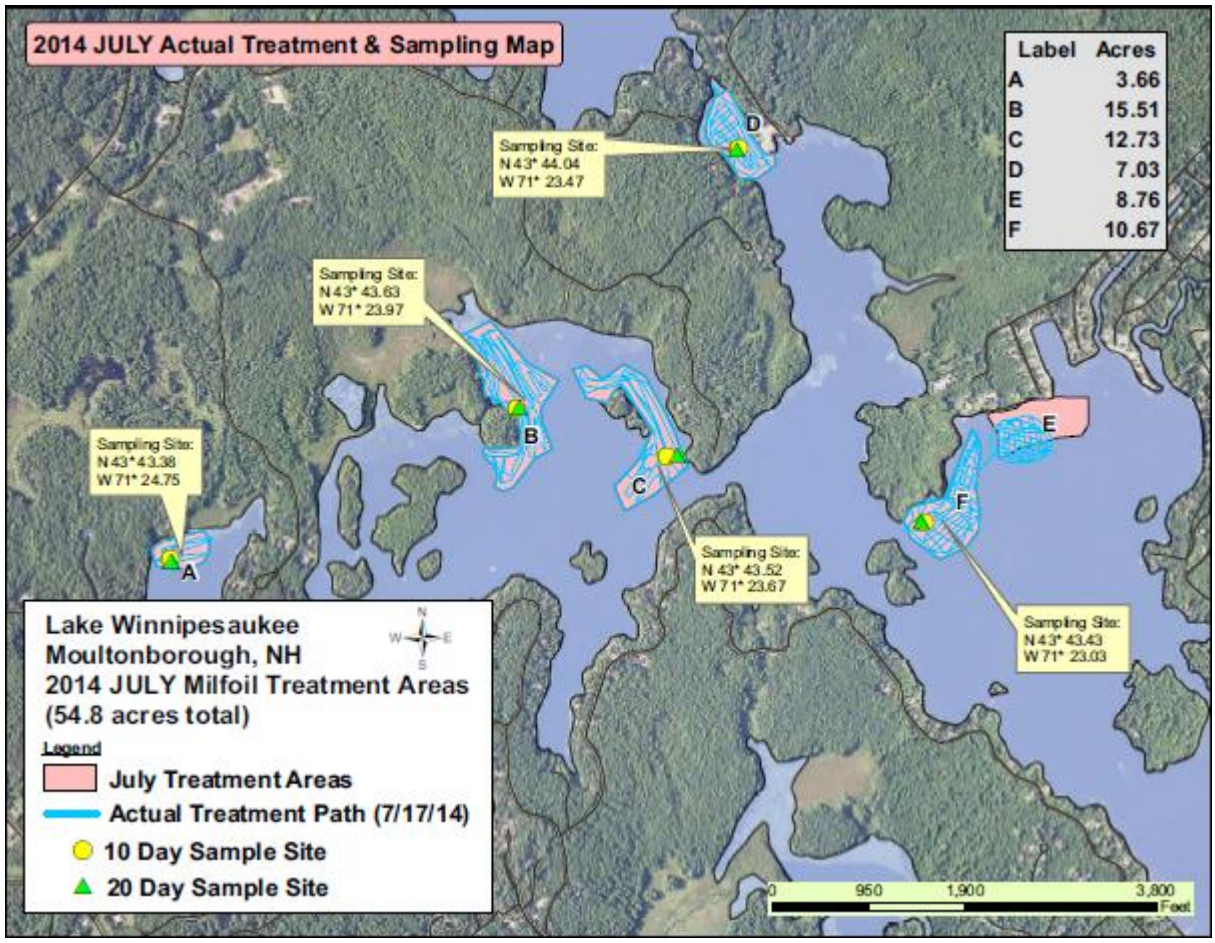
FIGURE: 2

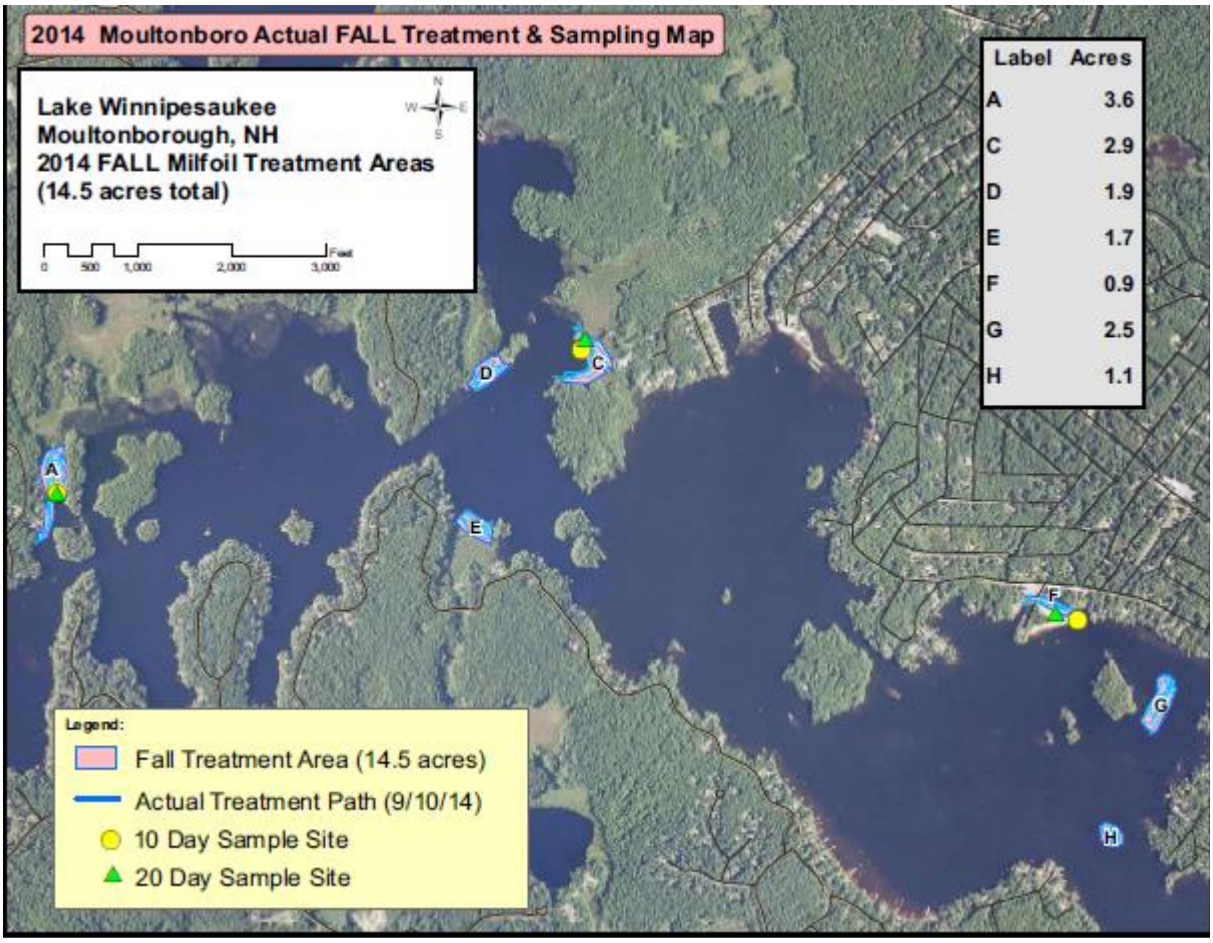

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
Lake Winnipesaukee
Moultonborough, NH
2013 FALL Milfoil
Re-treatment Areas
(up to 117 acres total in all areas)
Legend
2013 Final FALL re-treatment areas
Actual Treatment Path 9/11/13
10 day sample sites
20 day sample sites
N
W
E
S
0
2,500
5,000
Feet

2014 (proposed)

2014 (actual, maps provided by ACT)

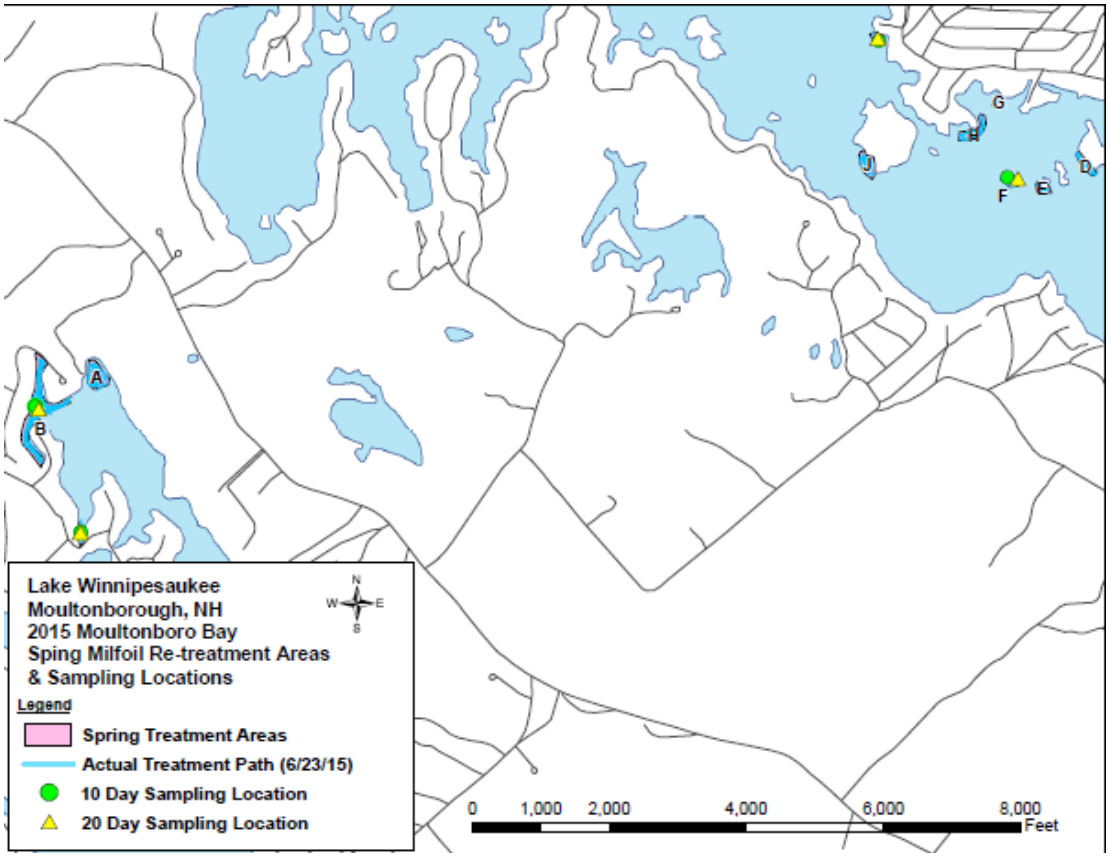


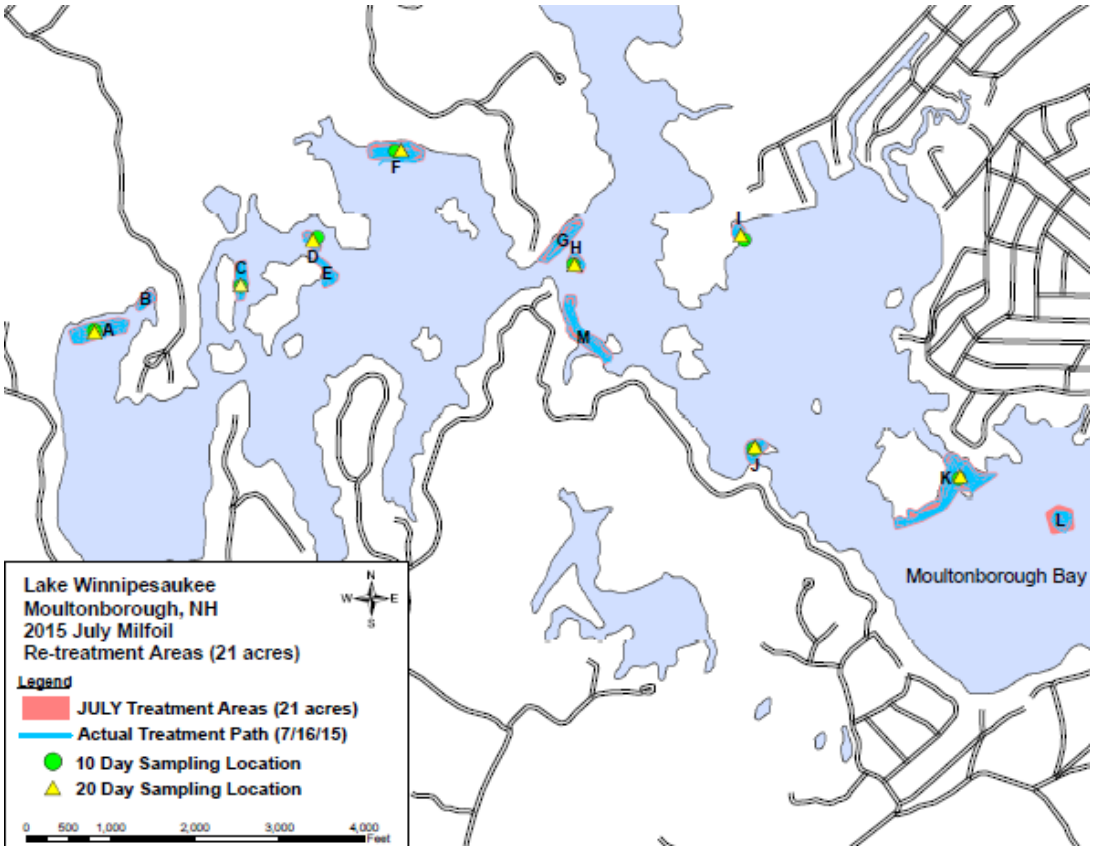

2014 JULY Actual Treatment & Sampling Map
Label Acres
A 3.66
B 15.51
C 12.73
D 7.03
E 8.76
F 10.67
Sampling Site:
N 43° 44.04
W 71° 23.47
Sampling Site:
N 43° 43.63
W 71° 23.97
Sampling Site:
N 43° 43.38
W 71° 24.75
Sampling Site:
N 43° 43.52
W 71° 23.67
Sampling Site:
N 43° 43.43
W 71° 23.03
Lake Winnipesaukee
Moultonborough, NH
2014 JULY Milfoil Treatment Areas
(54.8 acres total)
Legend
July Treatment Areas
Actual Treatment Path (7/17/14)
10 Day Sample Site
20 Day Sample Site
0 950 1,900 3,800
Feet

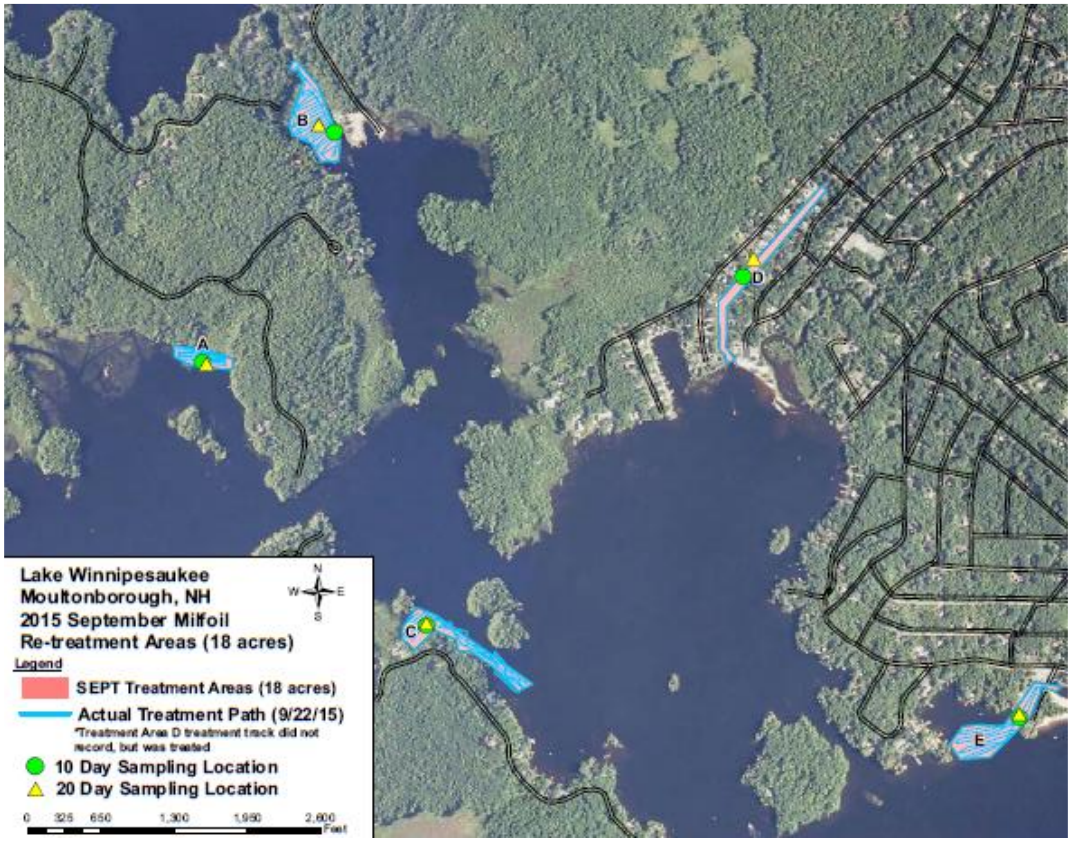

2014 Moultonboro Actual FALL Treatment & Sampling Map
Lake Winnipesaukee
Moultonborough, NH
2014 FALL Milfoil Treatment Areas
(14.5 acres total)
0 500 1,000 2,000 3,000 Feet
Label Acres
A 3.6
C 2.9
D 1.9
E 1.7
F 0.9
G 2.5
H 1.1
Legend:
Fall Treatment Area (14.5 acres)
Actual Treatment Path (9/10/14)
10 Day Sample Site
20 Day Sample Site

2015 (proposed)

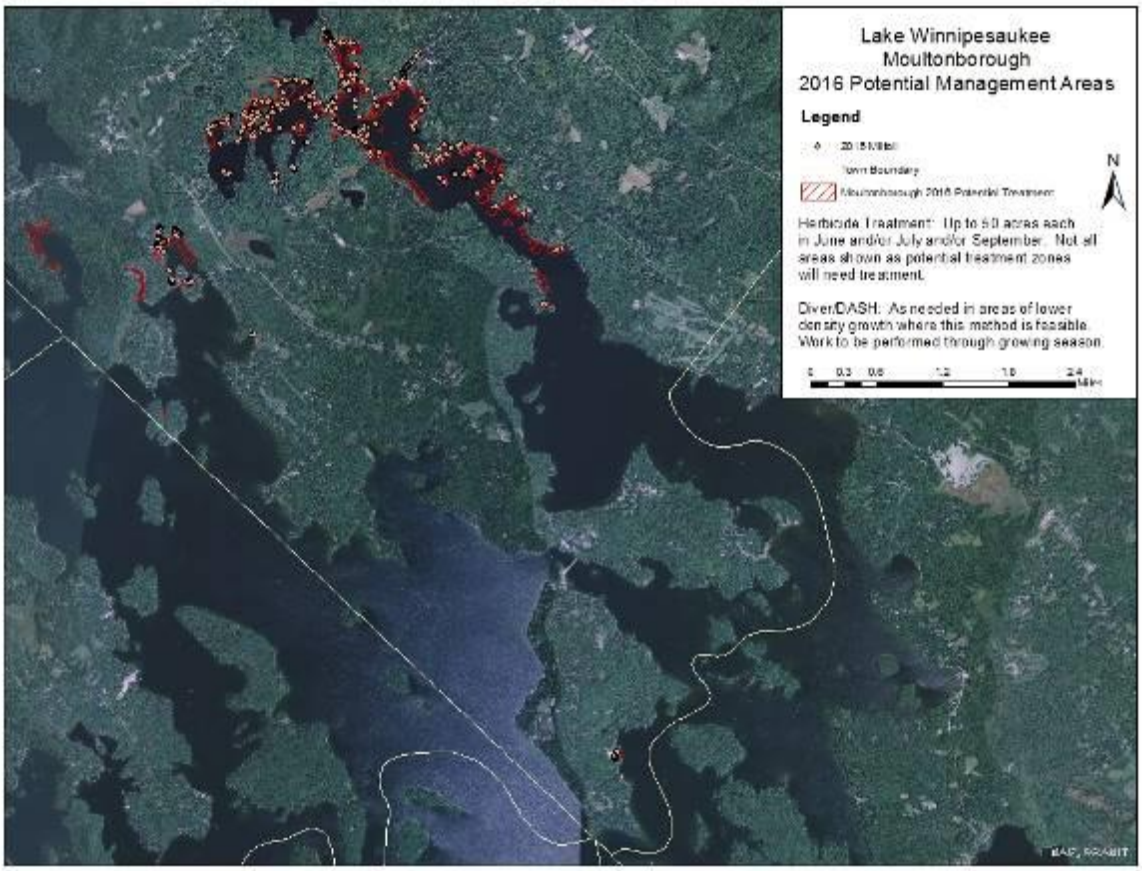
2015 (actual, maps prepared by SŌLitude Lake Management)



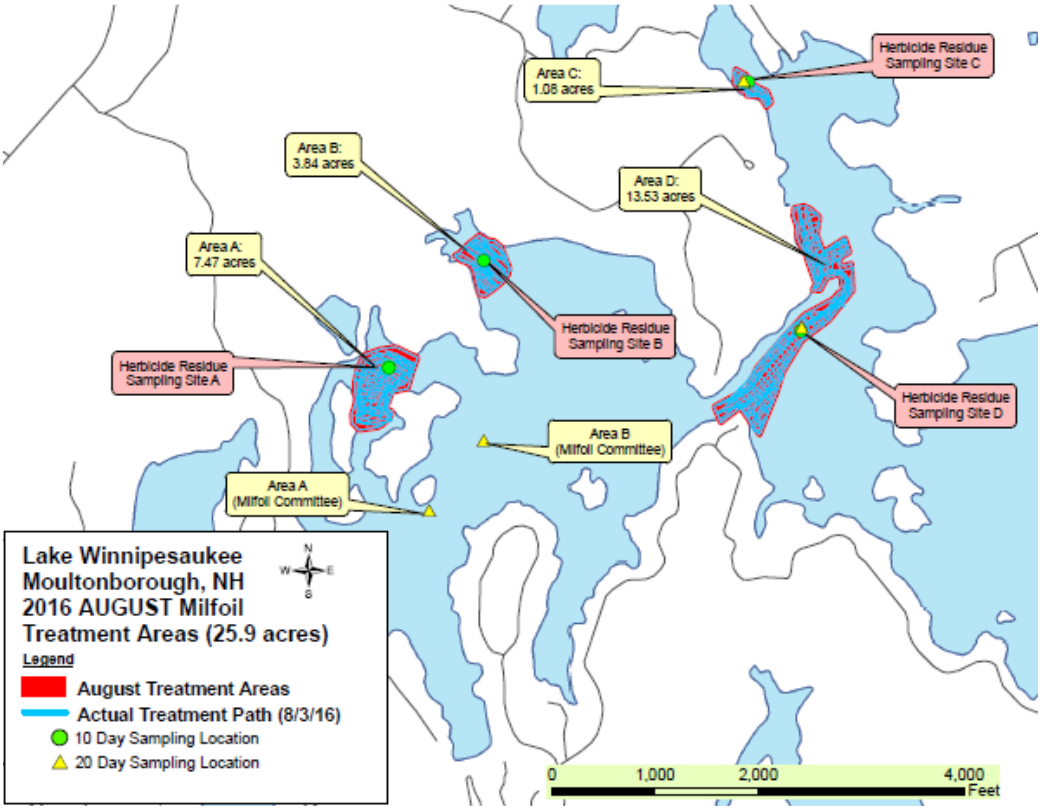

Lake Winnipesaukee
Moultonborough, NH
2015 July Milfoil
Re-treatment Areas (21 acres)
Legend
JULY Treatment Areas (21 acres)
Actual Treatment Path (7/16/15)
10 Day Sampling Location
20 Day Sampling Location
0 500 1,000 2,000 3,000 4,000
Feet
N
W
E
S
A
B
C
D
E
F
G
H
I
J
K
L
M
Moultonborough Bay

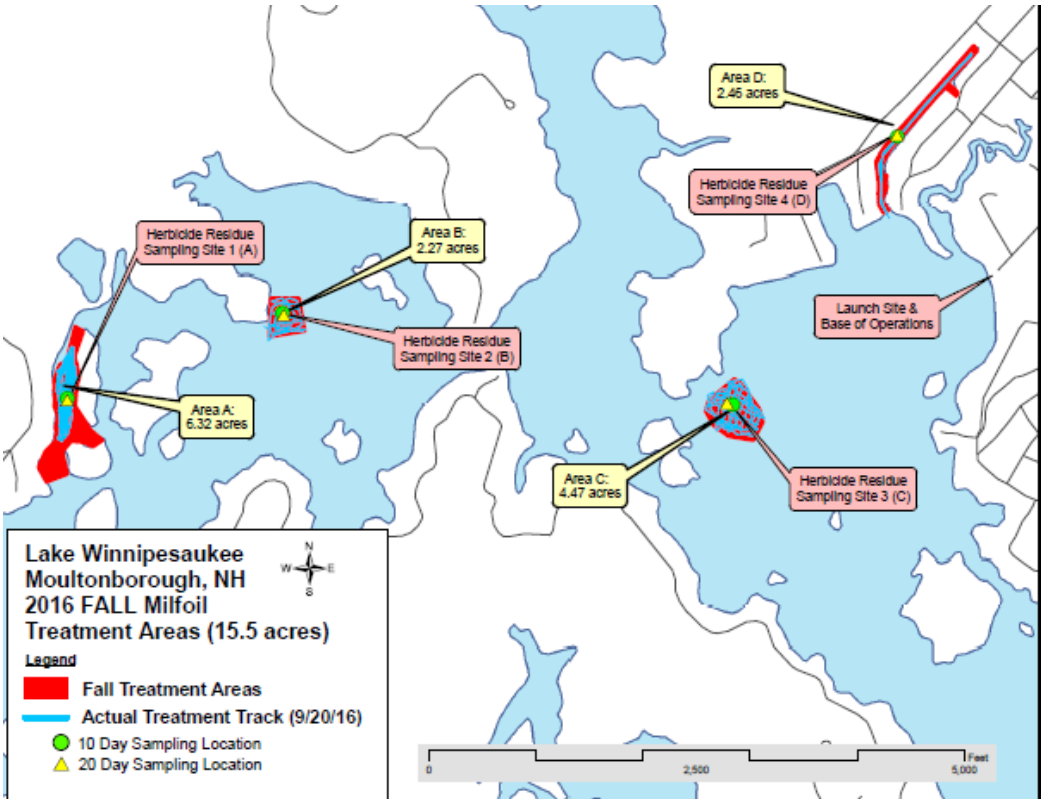

Lake Winnipesaukee
Moultonborough, NH
2015 September Milfoil
Re-treatment Areas (18 acres)
Legend
SEPT Treatment Areas (18 acres)
Actual Treatment Path (9/22/15)
*Treatment Area D treatment track did not record, but was treated
10 Day Sampling Location
20 Day Sampling Location
0 325 650 1,300 1,950 2,600
Feet
N
W
E
S
A
B
C
D
E

2016 (proposed)

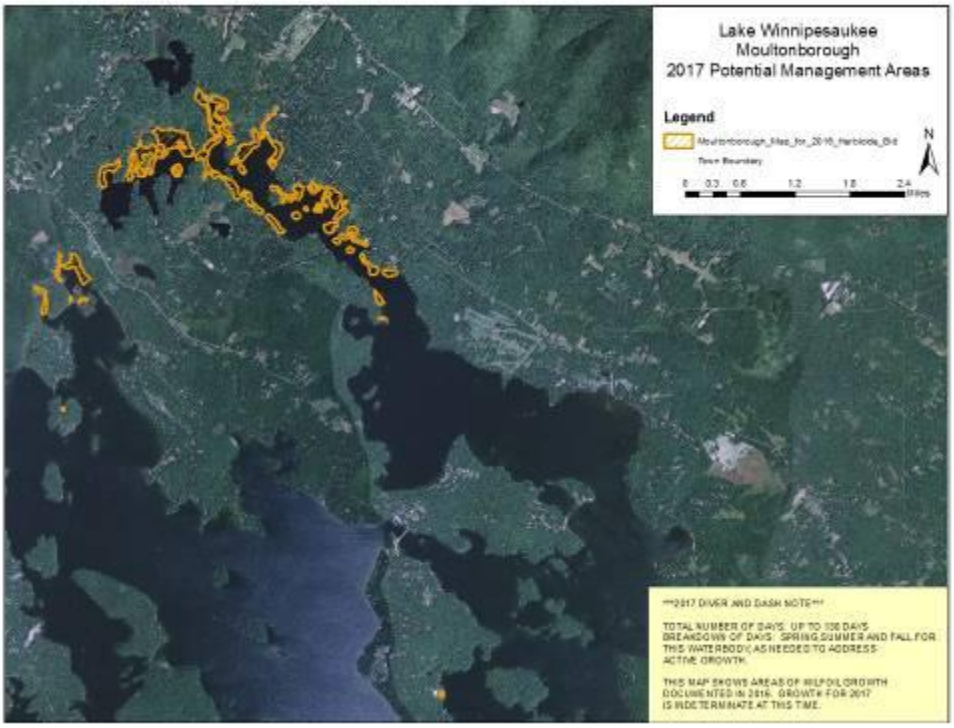


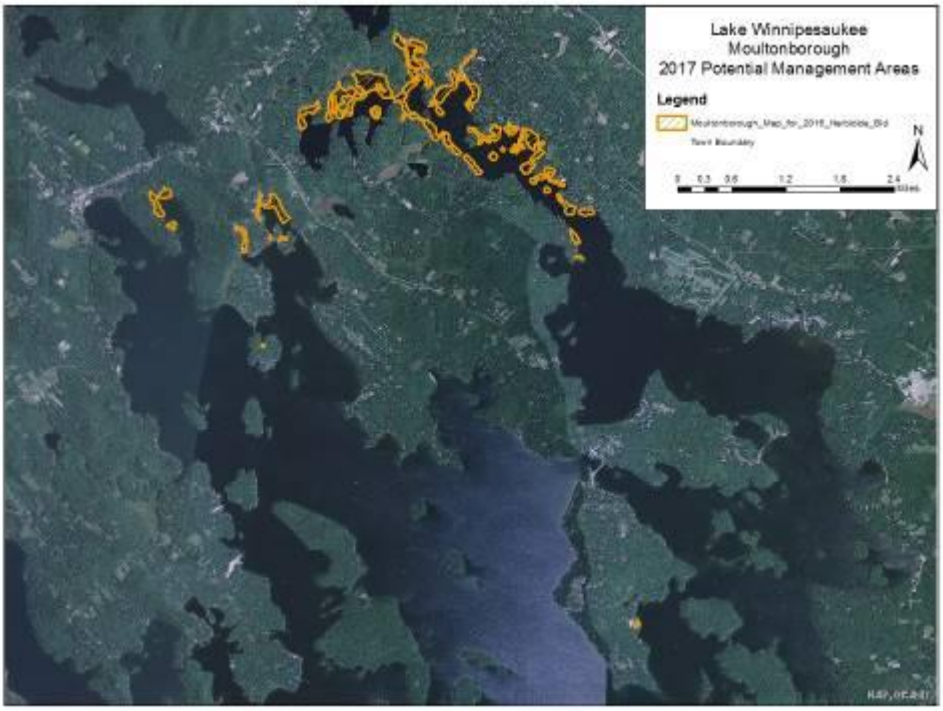
2016 (actual)


Area C:
1.08 acres
Herbicide Residue
Sampling Site C
Area B:
3.84 acres
Area D:
13.53 acres
Area A:
7.47 acres
Herbicide Residue
Sampling Site B
Herbicide Residue
Sampling Site A
Herbicide Residue
Sampling Site D
Area B
(Milfoil Committee)
Area A
(Milfoil Committee)
Lake Winnipesaukee
Moultonborough, NH
2016 AUGUST Milfoil
Treatment Areas (25.9 acres)
Legend
August Treatment Areas
Actual Treatment Path (8/3/16)
10 Day Sampling Location
20 Day Sampling Location
0
1,000
2,000
4,000
Feet


Area D:
2.46 acres
Herbicide Residue
Sampling Site 4 (D)
Herbicide Residue
Sampling Site 1 (A)
Area B:
2.27 acres
Launch Site &
Base of Operations
Herbicide Residue
Sampling Site 2 (B)
Area A:
6.32 acres
Area C:
4.47 acres
Herbicide Residue
Sampling Site 3 (C)
Lake Winnipesaukee
Moultonborough, NH
2016 FALL Milfoil
Treatment Areas (15.5 acres)
Legend
Fall Treatment Areas
Actual Treatment Track (9/20/16)
10 Day Sampling Location
20 Day Sampling Location
0
2,500
5,000
Feet

2017 (proposed)





2017 (actual)

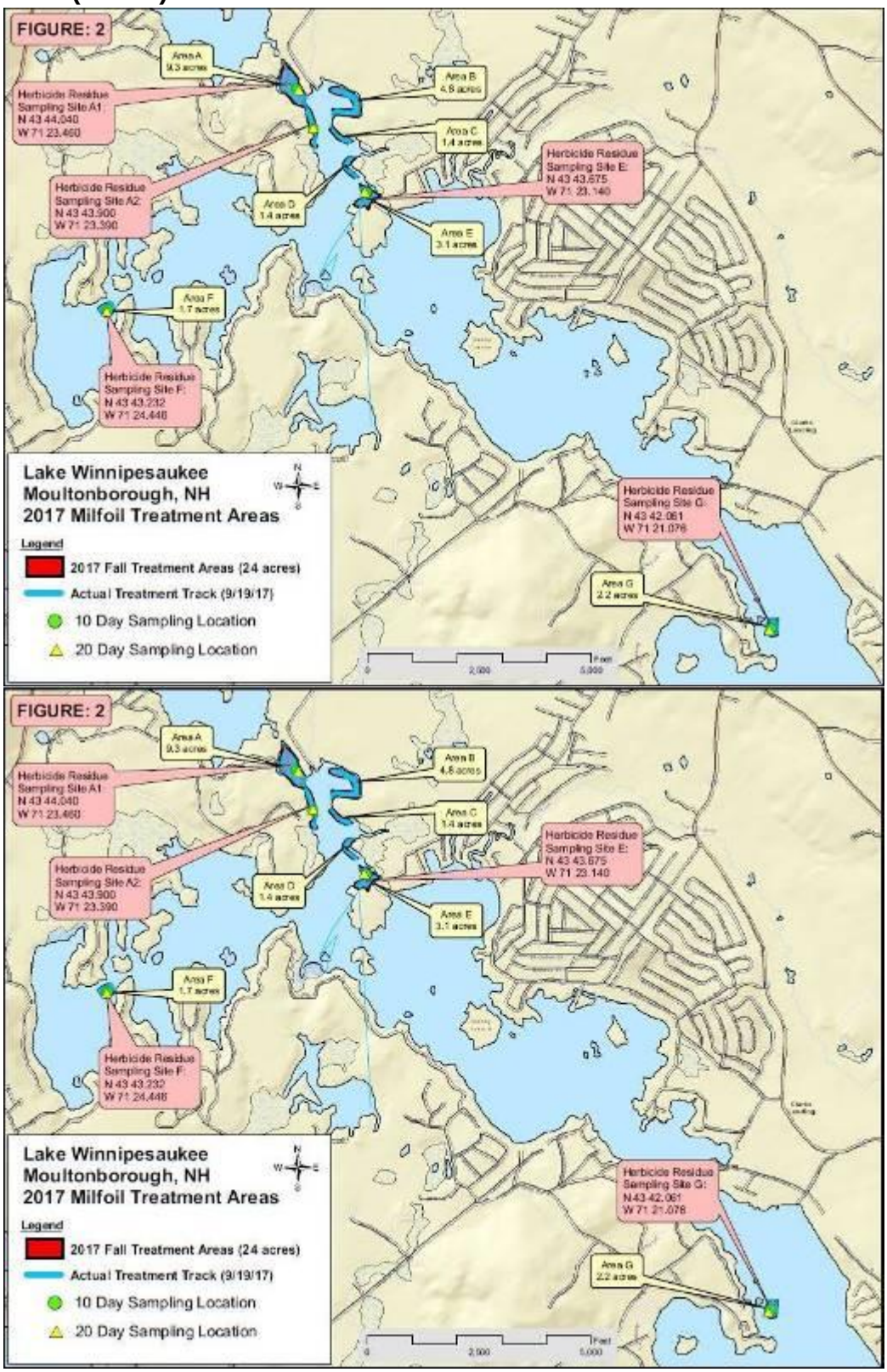
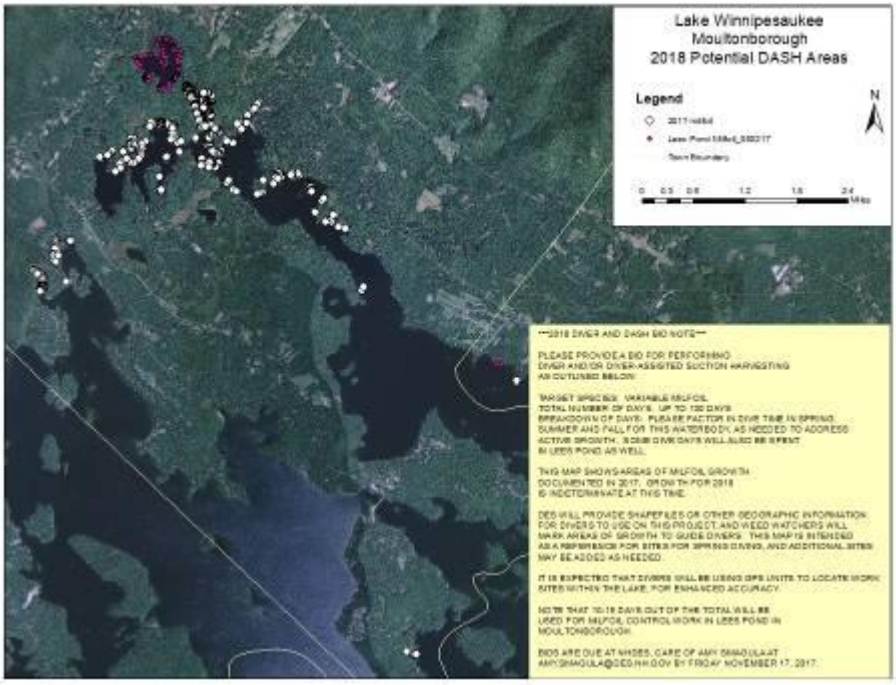
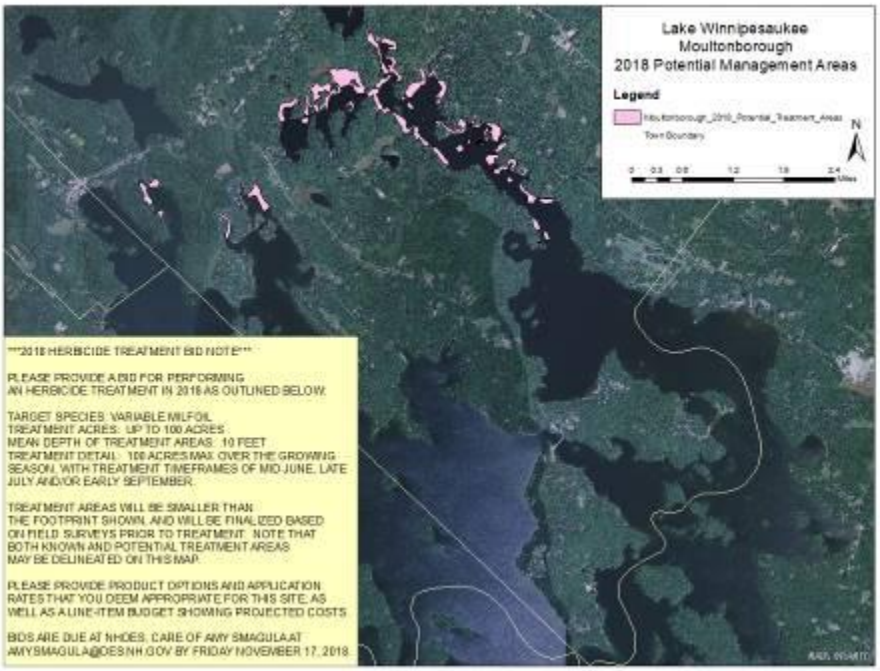


FIGURE: 2
Area A
9.3 acres
Area B
4.8 acres
Area C
1.4 acres
Area D
1.4 acres
Area E
3.1 acres
Area F
1.7 acres
Area G
2.2 acres
Herbicide Residue
Sampling Site A1
N 43 44.040
W 71 23.460
Herbicide Residue
Sampling Site A2
N 43 43.900
W 71 23.390
Herbicide Residue
Sampling Site E
N 43 43.675
W 71 23.140
Herbicide Residue
Sampling Site F
N 43 43.232
W 71 24.446
Herbicide Residue
Sampling Site G
N 43 42.061
W 71 21.076
Lake Winnipesaukee
Moultonborough, NH
2017 Milfoil Treatment Areas
Legend
2017 Fall Treatment Areas (24 acres)
Actual Treatment Track (9/19/17)
10 Day Sampling Location
20 Day Sampling Location
0
2,000
5,000
Feet

2018 (proposed)





2018 (Actual)

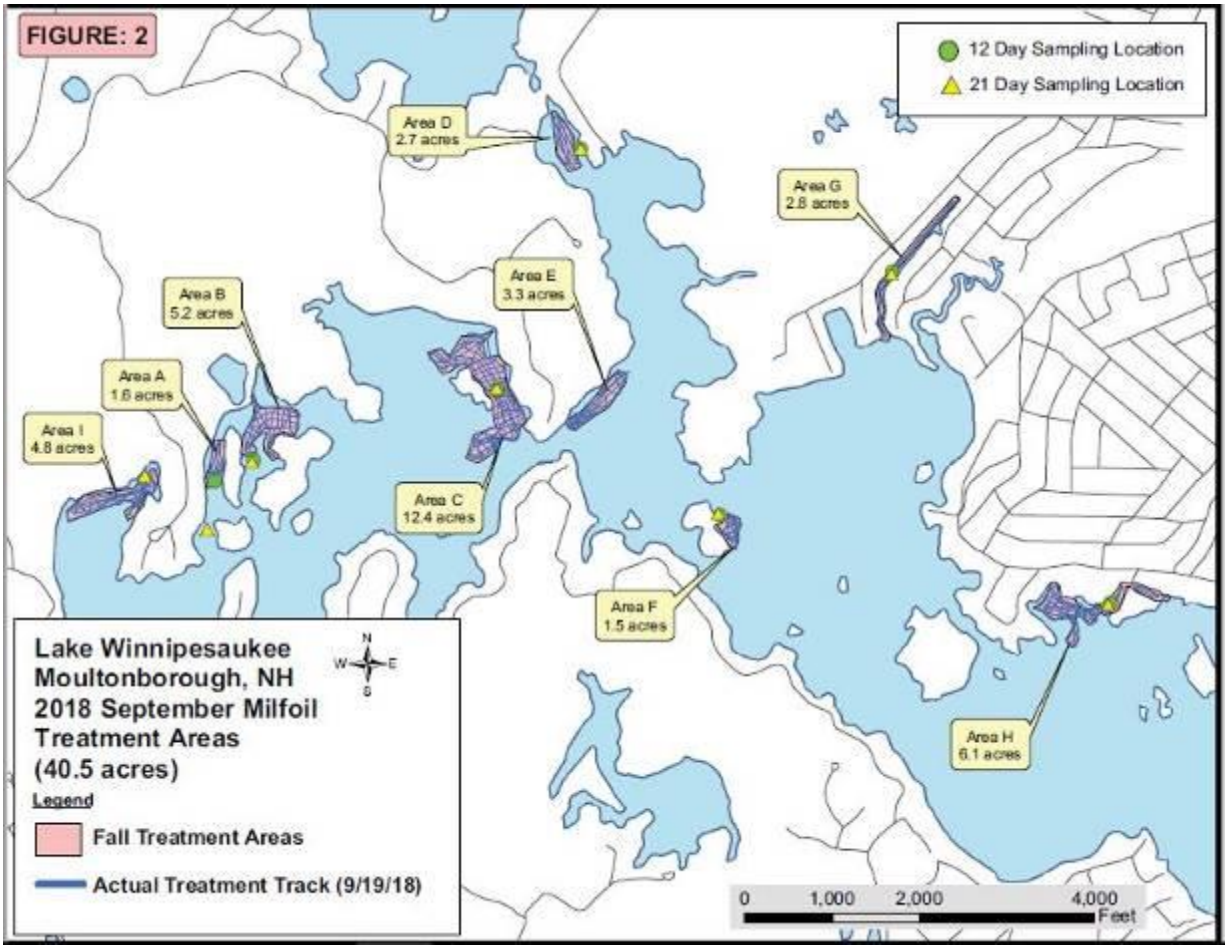
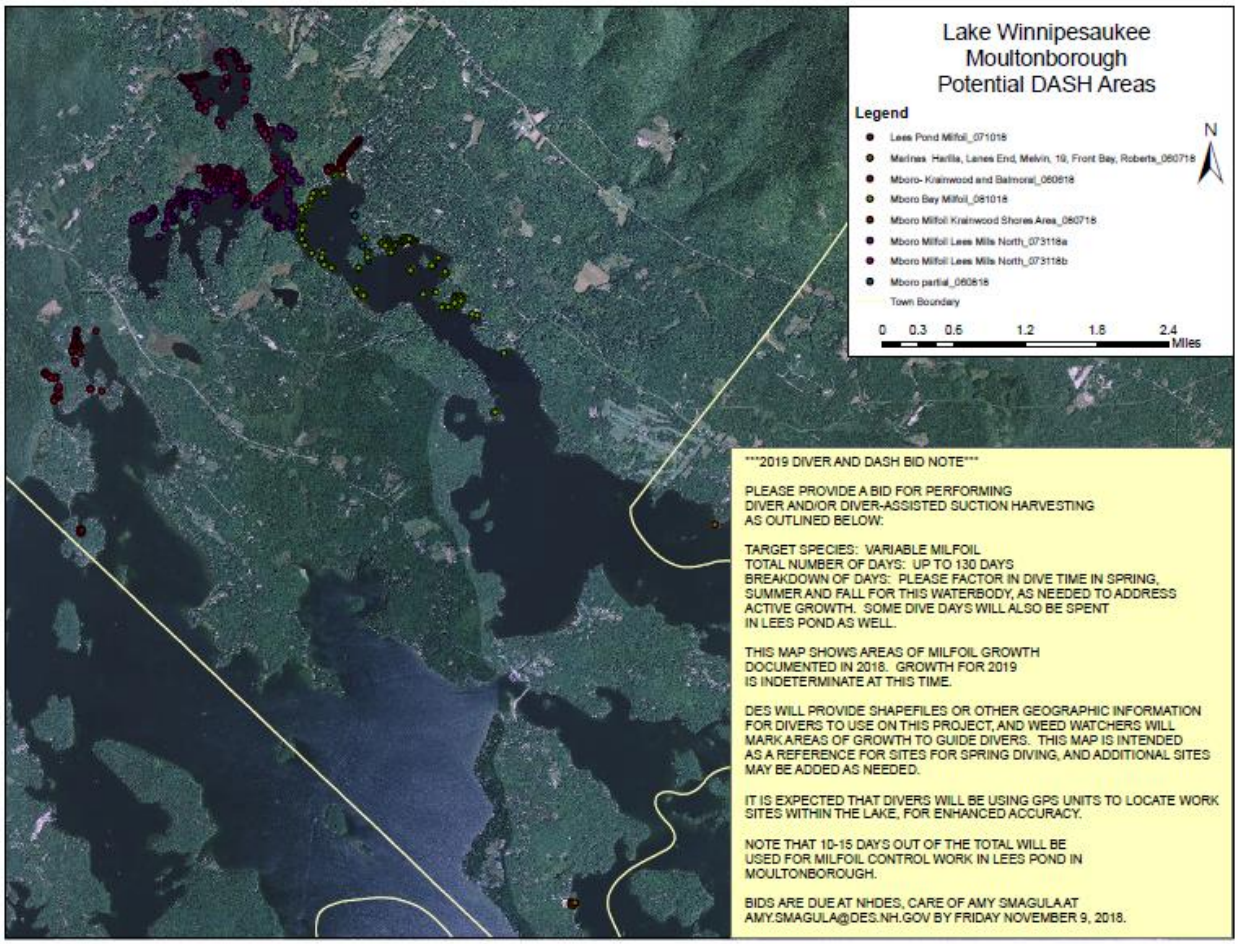
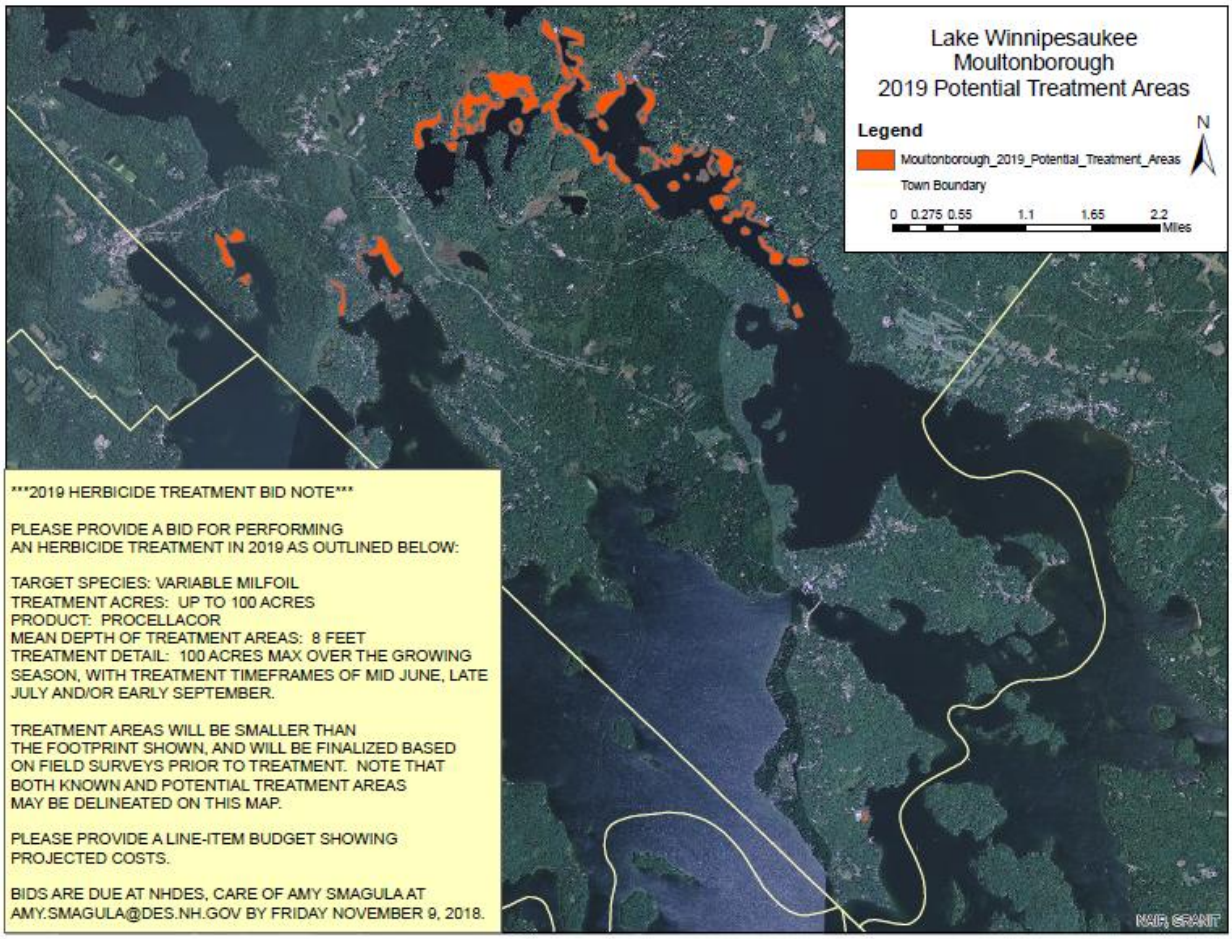


FIGURE: 2
12 Day Sampling Location
21 Day Sampling Location
Area D
2.7 acres
Area G
2.8 acres
Area E
3.3 acres
Area B
5.2 acres
Area A
1.6 acres
Area I
4.8 acres
Area C
12.4 acres
Area F
1.5 acres
Area H
6.1 acres
Lake Winnipesaukee
Moultonborough, NH
2018 September Milfoil
Treatment Areas
(40.5 acres)
Legend
Fall Treatment Areas
Actual Treatment Track (9/19/18)
N
W
E
S
0
1,000
2,000
4,000
Feet

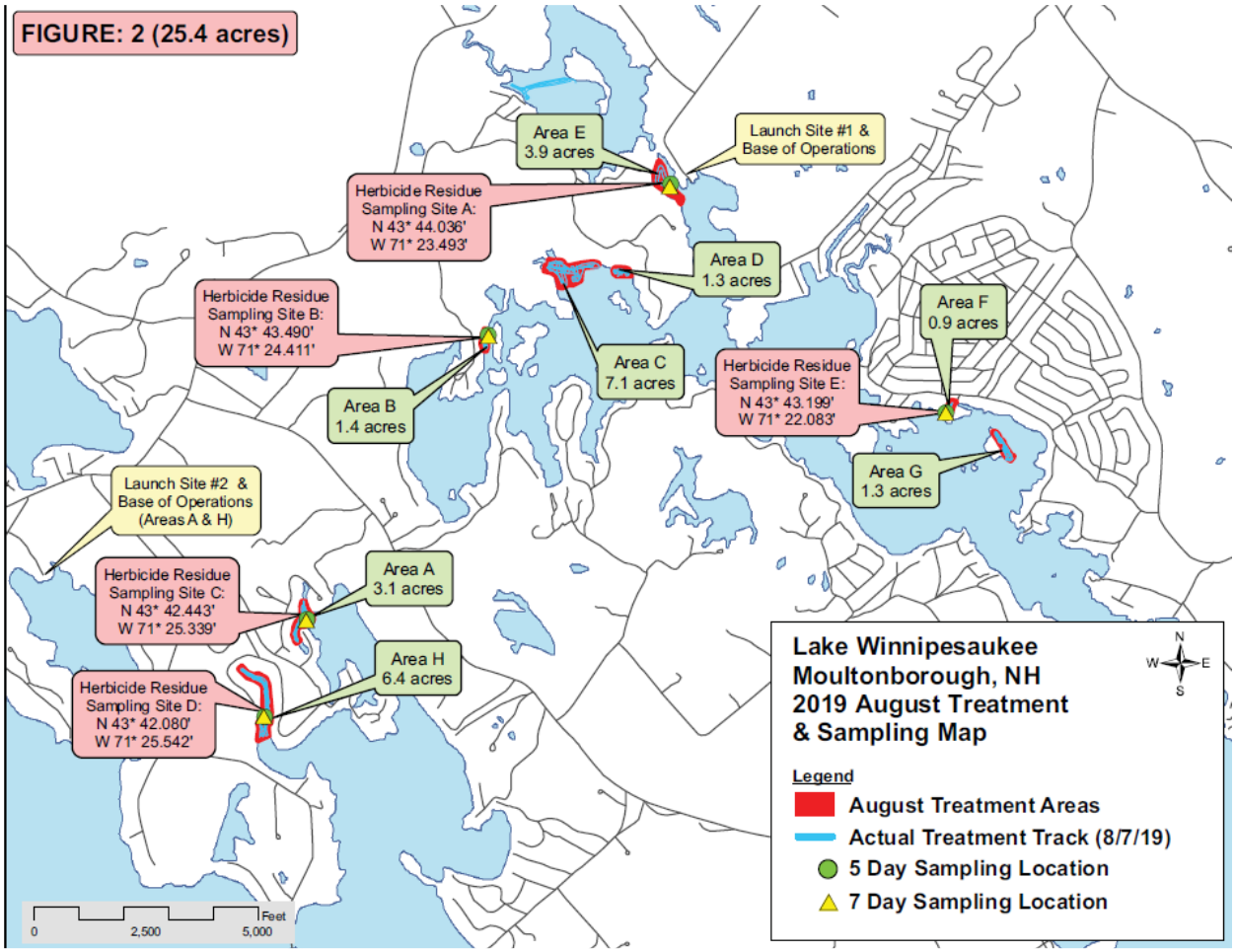
2019 Proposed



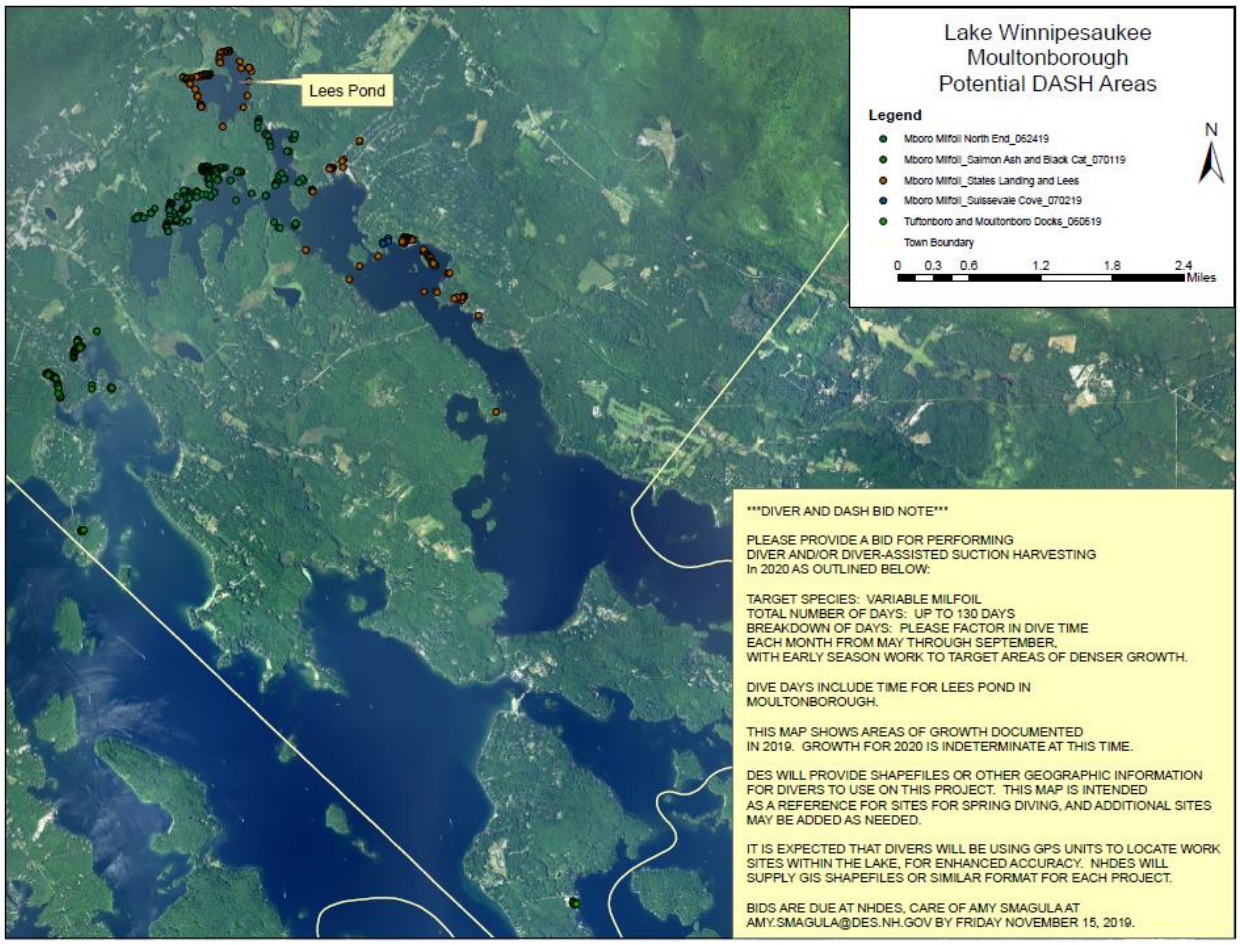

Lake Winnipesaukee
Moultonborough
2019 Potential Treatment Areas
Legend
Moultonborough_2019_Potential_Treatment_Areas
Town Boundary
N
0 0.275 0.55 1.1 1.65 2.2
Miles
2019 HERBICIDE TREATMENT BID NOTE
PLEASE PROVIDE A BID FOR PERFORMING
AN HERBICIDE TREATMENT IN 2019 AS OUTLINED BELOW:
TARGET SPECIES: VARIABLE MILFOIL
TREATMENT ACRES: UP TO 100 ACRES
PRODUCT: PROCELLACOR
MEAN DEPTH OF TREATMENT AREAS: 8 FEET
TREATMENT DETAIL: 100 ACRES MAX OVER THE GROWING SEASON, WITH TREATMENT TIMEFRAMES OF MID JUNE, LATE JULY AND/OR EARLY SEPTEMBER.
TREATMENT AREAS WILL BE SMALLER THAN
THE FOOTPRINT SHOWN, AND WILL BE FINALIZED BASED ON FIELD SURVEYS PRIOR TO TREATMENT. NOTE THAT BOTH KNOWN AND POTENTIAL TREATMENT AREAS MAY BE DELINEATED ON THIS MAP.
PLEASE PROVIDE A LINE-ITEM BUDGET SHOWING PROJECTED COSTS.
BIDS ARE DUE AT NHDES, CARE OF AMY SMAGULA AT AMY.SMAGULA@DES.NH.GOV BY FRIDAY NOVEMBER 9, 2018.
NAIP, GRANIT

2019 Actual

See dive records for 2019 work in table above.



2020 Proposed



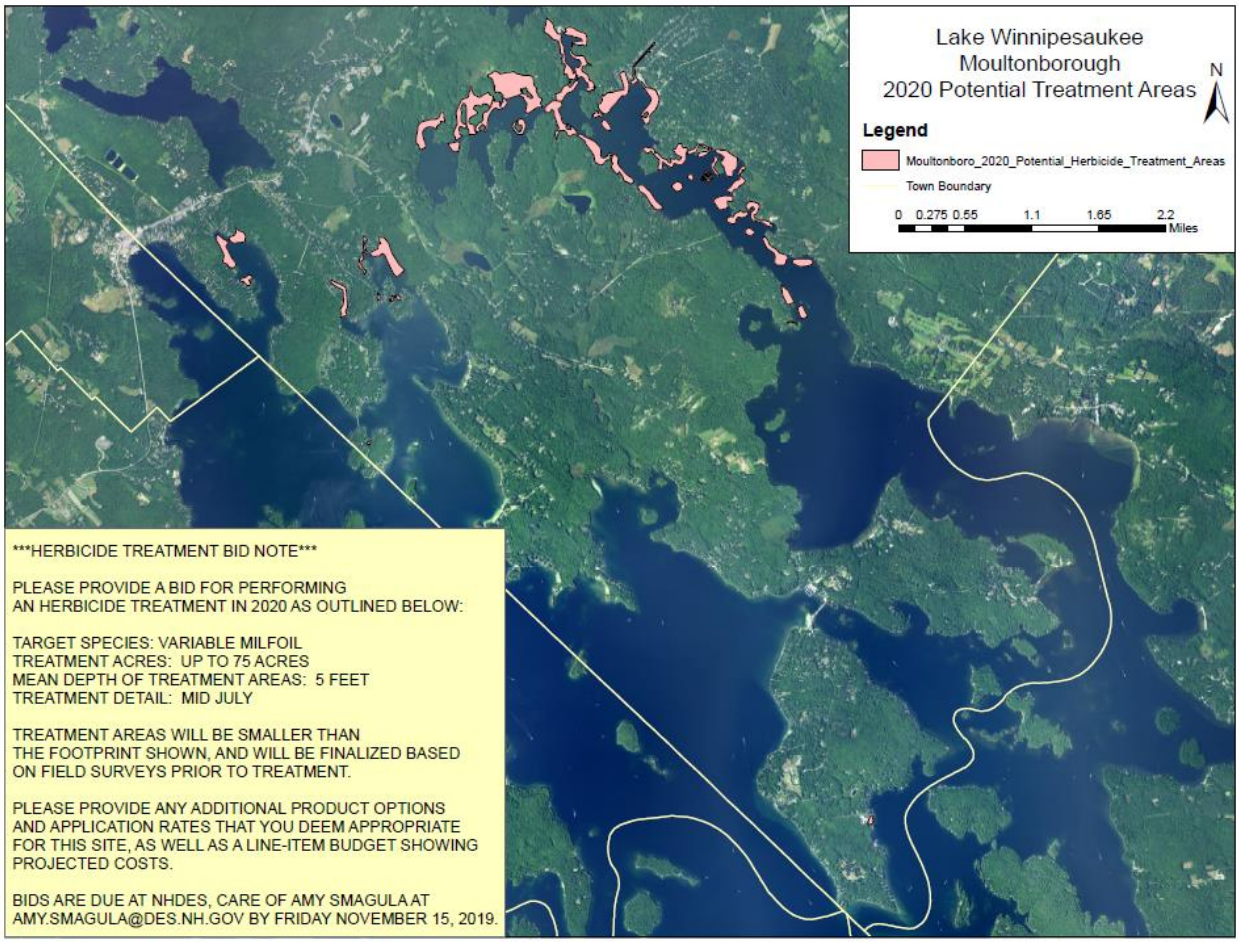
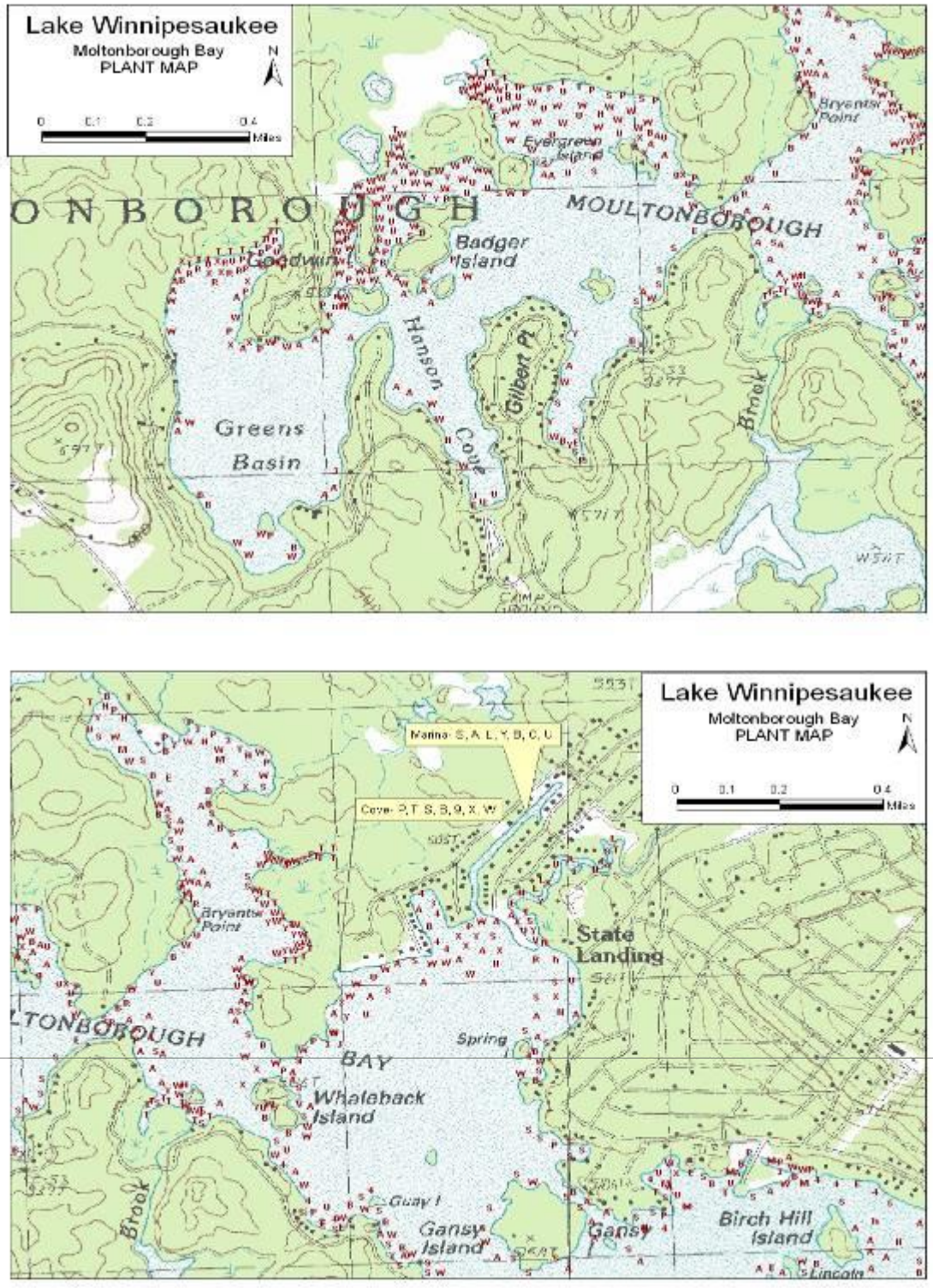
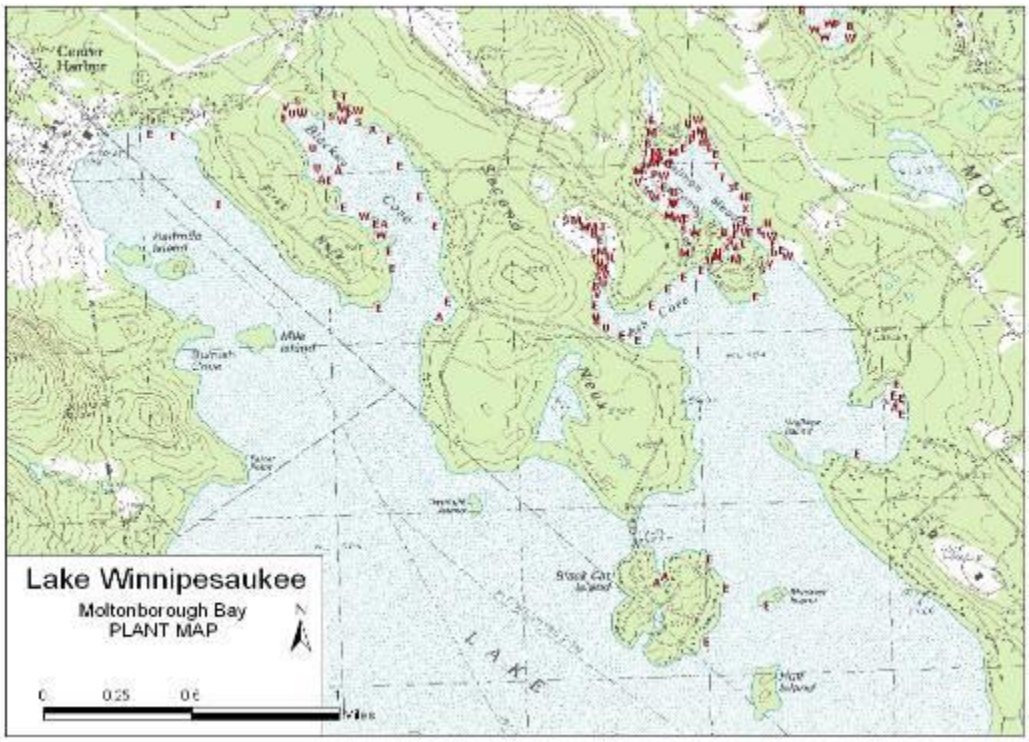
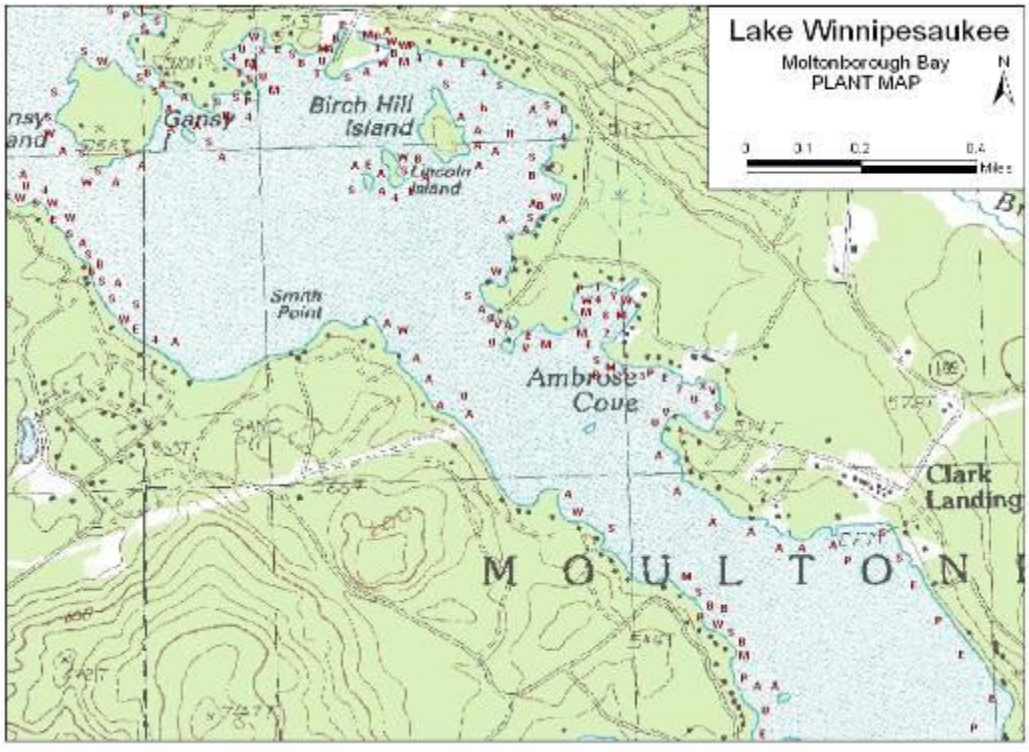

Lake Winnipesaukee
Moultonborough
2020 Potential Treatment Areas
N
Legend
Moultonboro_2020_Potential_Herbicide_Treatment_Areas
Town Boundary
0 0.275 0.55 1.1 1.65 2.2
Miles
HERBICIDE TREATMENT BID NOTE
PLEASE PROVIDE A BID FOR PERFORMING
AN HERBICIDE TREATMENT IN 2020 AS OUTLINED BELOW:
TARGET SPECIES: VARIABLE MILFOIL
TREATMENT ACRES: UP TO 75 ACRES
MEAN DEPTH OF TREATMENT AREAS: 5 FEET
TREATMENT DETAIL: MID JULY
TREATMENT AREAS WILL BE SMALLER THAN
THE FOOTPRINT SHOWN, AND WILL BE FINALIZED BASED
ON FIELD SURVEYS PRIOR TO TREATMENT.
PLEASE PROVIDE ANY ADDITIONAL PRODUCT OPTIONS
AND APPLICATION RATES THAT YOU DEEM APPROPRIATE
FOR THIS SITE, AS WELL AS A LINE-ITEM BUDGET SHOWING
PROJECTED COSTS.
BIDS ARE DUE AT NHDES, CARE OF AMY SMAGULA AT
AMY.SMAGULA@DES.NH.GOV BY FRIDAY NOVEMBER 15, 2019.

Figure 3: Map of Native Aquatic Macrophytes




Center Harbor
Lake Winnipesaukee
Moltonborough Bay
PLANT MAP
N
0
0.25
0.5
Miles


Lake Winnipesaukee
Moltonborough Bay
PLANT MAP
N
0
0.1
0.2
0.4
Miles
Ganzy
Birch Hill Island
Lincoln Island
Smith Point
Ambrose Cove
Clark Landing
M O U L T O N

Plant Key

*Note that some plants may be depicted by two symbols as mapping was done over time and alternate symbols may have been used to depict the same plant.

Symbol*	Common Name	Latin Name
n	Naiad	*Najas sp.*
l	Water lobelia	*Lobelia dortmanna*
E	Pipewort	*Eriocaulon septangulare*
S	Bur-reed	*Sparganium*
B	Watershield	*Brasenia schreberi*
W	White water-lily	*Nymphaea*
Y	Yellow water-lily	*Nuphar*
A	Bassweed	*Potamogeton amplifolius*
P	Pickerelweed	*Pontedaria cordata*
U	Bladderwort	*Utricularia*
X/4	Pondweed species	*Potamogeton*
T	Cattail	*Typha*
J	Rush	*Juncus*
G	Grassy pondweed	*Potamogeton gramineus*
p/2	Clasping-leaf pondweed	*Potamogeton perfoliatus*
8/g	Grassy arrowhead	*Sagittaria sp.*
V	Tapegrass	*Vallisneria americana*
e	Waterweed	*Elodea*
H	Floating heart	*Nymphoides cordata*
7	Nitella	*Nitella*
C	Coontail	*Ceratophyllum*
9	Water marigold	*Megalodonta bechii*
L	Purple loosestrife	*Lythrum salicaria*

Figure 4: Bathymetric Map

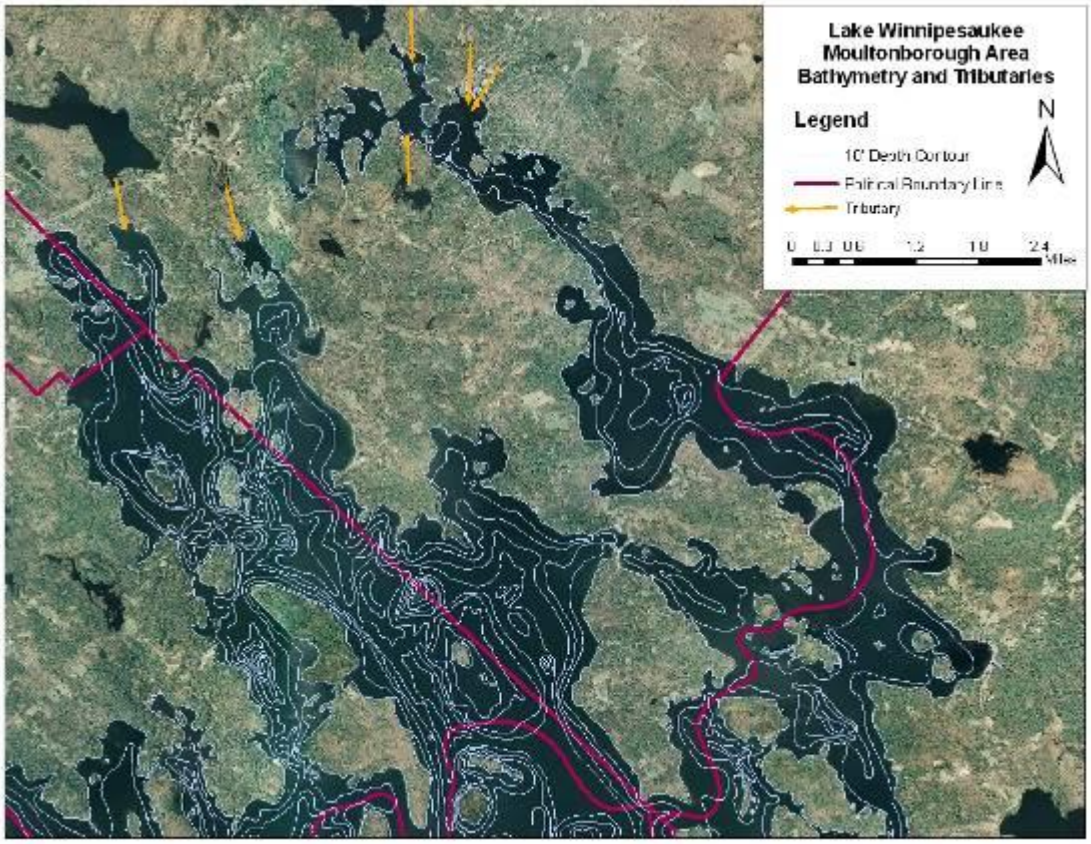


Figure 5: Critical Habitats or Conservation Areas

NHB19-4141

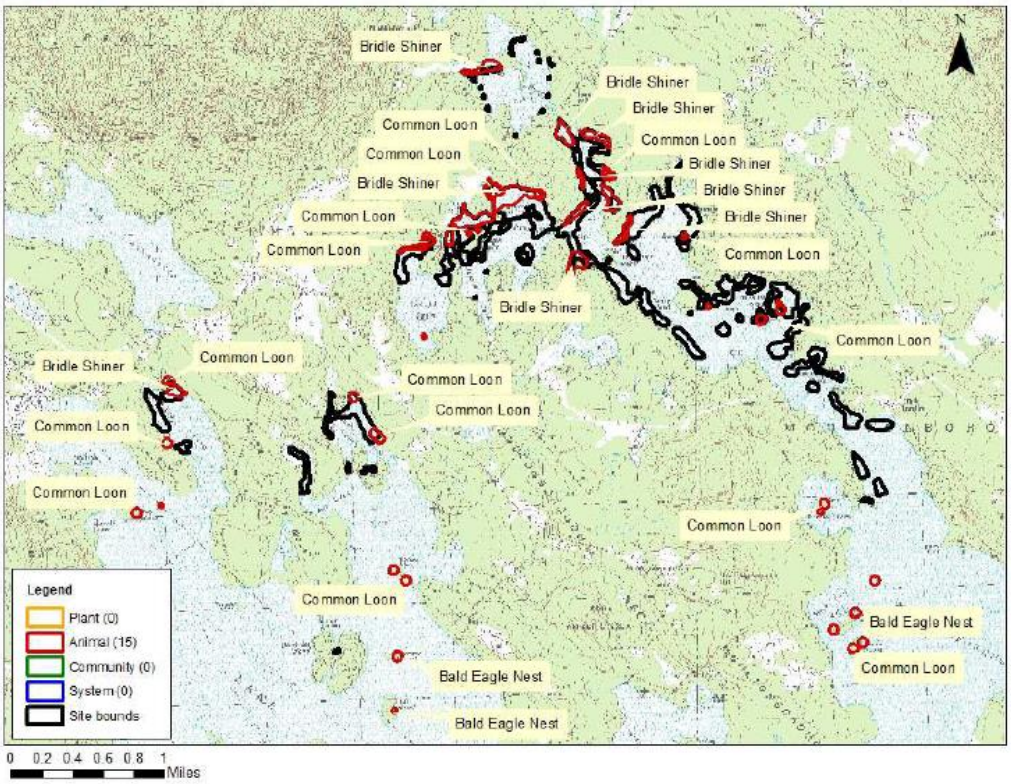

N
Bridle Shiner
Common Loon
Bald Eagle Nest
Legend
Plant (0)
Animal (15)
Community (0)
System (0)
Site bounds
0 0.2 0.4 0.6 0.8 1
Miles

Figure 6: Public Access Sites, Swim Areas

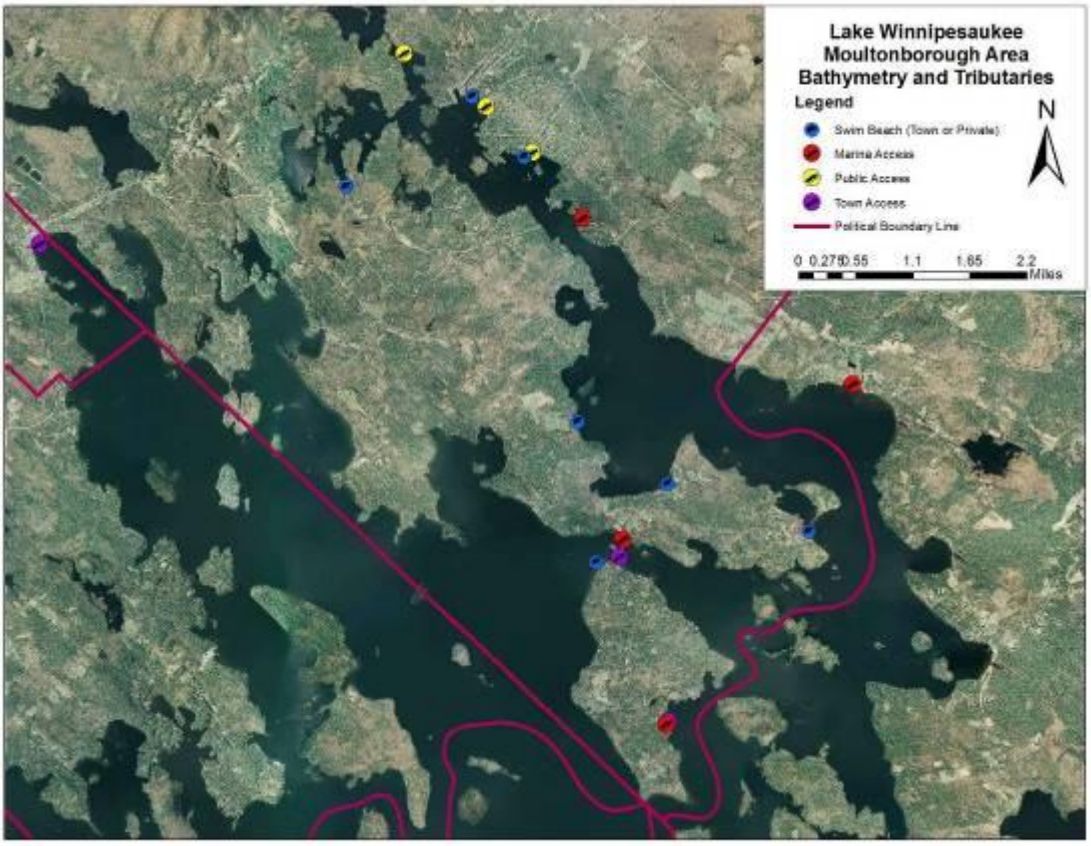
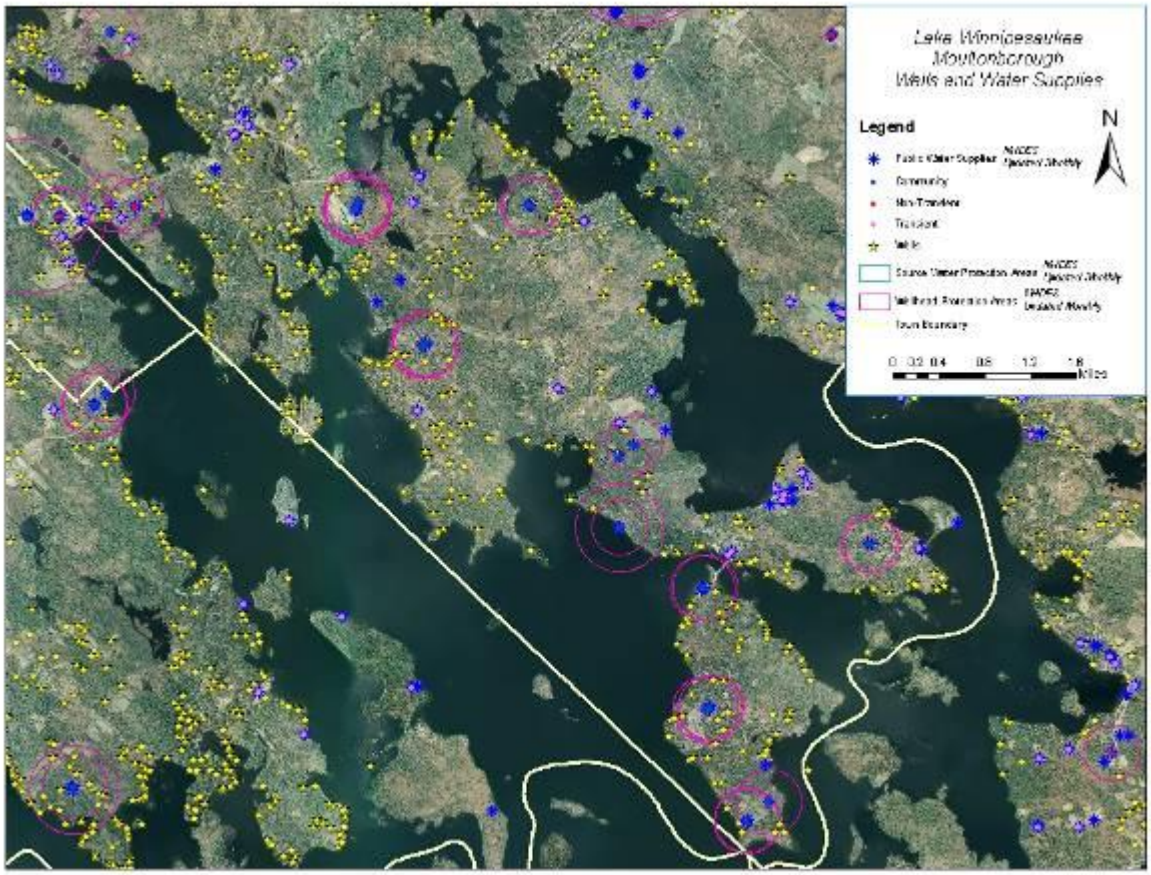


Figure 7: Wells and Water Supplies



Appendix A Aquatic Plant Control Techniques

Preliminary Investigations

I. Field Site Inspection

- Verify genus and species of the plant.
- Determine if the plant is a native or exotic species per RSA 487:16, II.
- Map extent of the plant infestation (area, water depth, height of the plant, density of the population).
- Document any native plant abundances and community structure around and dispersed within the exotic/nuisance plant population.

II. Office/Laboratory Research of Waterbody Characteristics

- Contact the appropriate agencies to determine the presence of rare or endangered species in the waterbody or its prime wetlands.
- Determine the basic relevant limnological characteristics of the waterbody (size, bathymetry, flushing rate, nutrient levels, trophic status, and type and extent of adjacent wetlands).
- Determine the potential impacts to downstream waterbodies based on limnological characteristics (water chemistry, quantity, quality).

Overall Control Options

For any given waterbody that has an infestation of exotic plants, one of four options will be selected, based on the status of the infestation, the available management options, and the technical knowledge of the DES Limnologists who have conducted the field work and who are preparing this plan. The options are as follows:

1) Eradication: The goal is to completely remove the exotic plant infestation over time. In some situations this may be a rapid response that results in an eradication event in a single season (such as for a new infestation), in other situations a longer-term approach may be warranted given the age and distribution of the infestation. Eradication is more feasible in smaller systems without extensive expanded growth (for example, Lake Winnipesaukee is unlikely to achieve eradication of its variable milfoil), or without upstream sources of infestation in other connected systems that continually feed the lake.

2) Maintenance: Waterbodies where maintenance is specified as a goal are generally those with expansive infestations, that are larger systems, that have complications of extensive wetland complexes on their periphery, or that have upstream sources of the invasive plant precluding the possibility for eradication. For waterbodies where maintenance is the goal, control activities will be performed on the waterbody to keep an infestation below a desirable threshold. For maintenance projects, thresholds of percent cover or other

measurable classification will be indicated, and action will occur when exotic plant growth exceeds the threshold.

3) Containment: The aim of this approach is to limit the size and extent of the existing infestation within an infested waterbody if it is localized in one portion of that waterbody (such as in a cove or embayment), or if a whole lake is infested action may be taken to prevent the downstream migration of fragments or propagules. This could be achieved through the use of fragment barriers and/or Restricted Use Areas or other such physical means of containment. Other control activities may also be used to reduce the infestation within the containment area.

4) No action. If the infestation is too large, spreading too quickly, and past management strategies have proven ineffective at controlling the target exotic aquatic plant, DES, in consultation with others, may elect to recommend 'no action' at a particular site. Feasibility of control or control options may be revisited if new information, technologies, etc., develop.

If eradication, maintenance or containment is the recommended option to pursue, the following series of control techniques may be employed. The most appropriate technique(s) based on the determinations of the preliminary investigation will be selected.

Guidelines and requirements of each control practice are suggested and detailed below each alternative, but note that site specific conditions will be factored into the evaluation and recommendation of use on each individual waterbody with an infestation.

A. Hand-Pulling and Diver Assisted Suction Harvesting(DASH)

- Hand-pulling can be used if infestation is in a small localized area (sparsely populated patch of up to 5' X 5', single stems, or dense small patch up to 2' X 2').
- DASH should be used for more expansive growth of greater densities
- Can be used if plant density is low, or if target plant is scattered and not dense.
- Use must be in compliance with the Wetlands Bureau rules.

B. Mechanically Harvest or Hydro-Rake

- Can not be used on plants which reproduce vegetatively by fragmentation (e.g., milfoil, fanwort, etc.) unless containment can be ensured.
- Can be used only if the waterbody is accessible to machinery.
- Can be used if there is a disposal location available for harvested plant materials.
- Can be used if plant depth is conducive to harvesting capabilities (~ <7 ft. for mower, ~ <12 ft. for hydro-rake).
- If a waterbody is fully infested and no other control options are effective, mechanical harvesting can be used to open navigation channel(s) through dense plant growth.

C. Herbicide Treatment

- Can be used if application of herbicide is conducted in areas where alternative control techniques are not optimum due to depth, current, use, or density and type of plant.
- Can be used for treatment of exotic plants where fragmentation is a high concern.
- Can be used where species specific treatment is necessary due to the need to manage other plants
- Can be used if other methods used as first choices in the past have not been effective.
- A licensed applicator should be contacted to inspect the site and make recommendations about the effectiveness of herbicide treatment as compared with other treatments.

D. Restricted Use Areas (per RSA 487:17, II (d))

- Can be established in an area that effectively restricts use to a small cove, bay, or other such area where navigation, fishing, and other transient activities may cause fragmentation to occur.
- Can not be used when there are several "patches" of an infestation of exotic aquatic plants throughout a waterbody.
- Can be used as a temporary means of control.

E. Bottom Barrier

- Can be used in small areas, preferably less than 10,000 sq. ft.
- Can be used in an area where the current is not likely to cause the displacement of the barrier.
- Can be used early in the season before the plant reaches the surface of the water.
- Can be used in an area to compress plants to allow for clear passage of boat traffic.
- Can be used in an area to compress plants to allow for a clear swimming area.
- Use must be in compliance with the Wetlands Bureau rules.

F. Drawdown

- Can be used if the target plant(s) are susceptible to drawdown control.
- Can be used in an area where bathymetry of the waterbody would be conducive to an adequate level of drawdown to control plant growth, but where extensive deep habits exist for the maintenance of aquatic life such as fish and amphibians.
- Can be used where plants are growing exclusively in shallow waters where a drawdown would leave this area "in the dry" for a suitable period of time (over winter months) to control plant growth.
- Can be used in winter months to avoid encroachment of terrestrial plants into the

aquatic system.

- Can be used if it will not significantly impact adjacent or downstream wetland habitats.
- Can be used if spring recharge is sufficient to refill the lake in the spring.
- Can be used in an area where shallow wells would not be significantly impacted.
- Reference RSA 211:11 with regards to drawdown statutes.

G. Dredge

- Can be used in conjunction with a scheduled drawdown.
- Can be used if a drawdown is not scheduled, though a hydraulic pumping dredge should be used.
- Can only be used as a last alternative due to the detrimental impacts to environmental and aesthetic values of the waterbody.

H. Biological Control

- Grass carp cannot be used as they are illegal in New Hampshire.
- Exotic controls, such as insects, cannot be introduced to control a nuisance plant unless approved by Department of Agriculture.
- Research should be conducted on a potential biological control prior to use to determine the extent of target specificity.

Appendix B Summary of Control Practices

Restricted Use Areas and Fragment Barrier:
Restricted Use Areas (RUAs) are a tool that can be use to quarantine a portion of a waterbody if an infestation of exotic aquatic plants is isolated to a small cove, embayment, or section of a waterbody. RUAs generally consist of a series of buoys and ropes or nets connecting the buoys to establish an enclosure (or exclosure) to protect an infested area from disturbance. RUAs can be used to prevent access to these infested areas while control practices are being done, and provide the benefit of restricting boating, fishing, and other recreational activities within these areas, so as to prevent fragmentation and spread of the plants outside of the RUA.

Hand-pulling:
Hand-pulling exotic aquatic plants is a technique used on both new and existing infestations, as circumstances allow. For this technique divers carefully hand-remove the shoots and roots of plants from infested areas and place the plant material in mesh dive bags for collect and disposal. This technique is suited to small patches or areas of low density exotic plant coverage.

For a new infestation, hand-pulling activities are typically conducted several times during the first season, with follow-up inspections for the next 1-2 years or until no re-growth is observed. For existing infestations, hand-pulling may be done to slow the expansion of plant establishment in a new area or where new stems are removed in a section that may have previously been uninfested. It is often a follow-up technique that is included in most management plans.

In 2007 a new program was created through a cooperative between a volunteer monitor that is a certified dive instructor, and the DES Exotic Species Program. A Weed Control Diver Course (WCD) was developed and approved through the Professional Association of Dive Instructors (PADI) to expand the number of certified divers available to assist with hand-pulling activities. DES has only four certified divers in the Limnology Center to handle problems with aquatic plants, and more help was needed. There is a unique skill involved with hand-removing plants from the lake bottom. If the process is not conducted correctly, fragments could spread to other waterbody locations. For this reason, training and certification are needed to help ensure success. Roughly 100 divers were certified through this program through the 2010 season. DES maintains a list of WCD divers and shares them with waterbody groups and municipalities that seek diver assistance for controlling exotic aquatic plants. Classes are offered two to three times per summer.

Diver Assisted Suction Harvesting

Diver Assisted Suction Harvesting (DASH) is an emerging and evolving control technique in New Hampshire. The technique employs divers that perform hand removal actions as described above, however, instead of using a dive bag a mechanical suction device is used to entrain the plants and bring them topside where a tender accumulates and bags the material for disposal. Because of this variation divers are able to work in moderately dense stands of plants that cover more bottom area, with increased efficiency and accuracy.

Mechanical Harvesting

The process of mechanical harvesting is conducted by using machines which cut and collect aquatic plants. These machines can cut the plants up to twelve feet below the water surface. The weeds are cut and then collected by the harvester or other separate conveyer-belt driven device where they are stored in the harvester or barge, and then transferred to an upland site.

The advantages of this type of weed control are that cutting and harvesting immediately opens an area such as boat lanes, and it removes the upper portion of the plants. Due to the size of the equipment, mechanical harvesting is limited to water areas of sufficient size and depth. It is important to remember that mechanical harvesting can leave plant fragments in the water, which if not collected, may spread the plant to new areas. Additionally harvesters may impact fish and insect populations in the area by removing them in harvested material. Cutting plant stems too close to the bottom can result in re-suspension of bottom sediments and nutrients. This management option is only recommended when nearly the entire waterbody is infested, and harvesting is needed to open navigation channels through the infested areas.

Benthic Barriers:

Benthic barriers are fiberglass coated screening material that can be applied directly to the lake bottom to cover and compress aquatic plant growth. Screening is staked or weighted to the bottom to prevent it from becoming buoyant or drifting with current. The barriers also serve to block sunlight and prevent photosynthesis by the plants, thereby killing the plants with time. While a reliable method for small areas of plants (roughly 100 sq. ft. or less), larger areas are not reasonably controlled with this method due to a variety of factors (labor intensive installation, cost, and gas accumulation and bubbling beneath the barrier).

Targeted Application of Herbicides:

Application of aquatic herbicides is another tool employed for controlling exotic aquatic plants. Generally, herbicides are used when infestations are too

large to be controlled using other alternative non-chemical controls, or if other techniques have been tried and have proven unsuccessful. Each aquatic plant responds differently to different herbicides and concentrations of herbicides, but research performed by the Army Corps of Engineers has isolated target specificity of a variety of aquatic herbicides for different species.

Generally, ProcellaCOR or 2,4-D (Navigate formulation) are the herbicides that are recommended for control of variable milfoil. Based on laboratory and field trials, these are the most effective herbicides in selectively controlling variable milfoil in New Hampshire's waterbodies.

A field trial was performed during the 2008 summer using the herbicide Renovate to control variable milfoil. Renovate is a systemic aquatic herbicide that targets both the shoots and the roots of the target plant for complete control. In this application it was dispersed as a granular formulation that sank quickly to the bottom to areas of active uptake of the milfoil plants. A small (<5 acre) area of Captains Pond in Salem was treated with this systemic herbicide. The herbicide was applied in pellet form to the infested area in May 2008, and showed good control by the end of the growing season. Renovate works a little more slowly to control aquatic plants than 2,4-D and it is a little more expensive, but presents DES with another alternative that could be used in future treatments.

During the summer of 2010, DES worked with other researchers to perform field trials of three different formulations of 2,4-D in Lake Winnisquam, to determine which product was most target-specific to the variable milfoil. Navigate formulation was used, as were a 2,4-D amine formulation, and a 2,4-D amine and triclopyr formulation (MaxG). All three products successfully reduced variable milfoil growth, and the study shows that the two newer formulations of 2,4-D (Sculpin and Renovate MaxG) could be added to the available options for herbicide selection.

Another herbicide, Fluridone, is sometimes also used in New Hampshire, mainly to control growths of fanwort (*Cabomba caroliniana*). Fluridone is a systemic aquatic herbicide that inhibits the formation of carotenoids in plants. Reduced carotenoids pigment ultimately results in the breakdown of chlorophyll and subsequent loss of photosynthetic function of the plants.

Other aquatic herbicides are also used in New Hampshire when appropriate (glyphosate, copper compounds, etc). The product of choice will be recommended based on what the target species is, and other waterbody-specific characteristics that are important to consider when selecting a product.

In 2018, a new aquatic formulation of an herbicide was labeled and licensed for use. ProcellaCOR is a reduced-risk liquid formulation herbicide that is a systemic. Based on New Hampshire field data, it works well on variable milfoil, it is taken up very quickly following treatment (hours) and it degrades quickly in the water column, with typical non-detect readings within 24-48 hours post treatment.

Extended Drawdown

Extended drawdown serves to expose submersed aquatic plants to dessication and scouring from ice (if in winter), physically breaking down plant tissue. Some species can respond well to drawdown and plant density can be reduced, but for invasive species drawdown tends to yield more disturbance to bottom sediments, something to which exotic plants are most adapted. In waterbodies where drawdown is conducted exotic plants can often outcompete native plants for habitat and come to dominate the system.

Some waterbodies that are heavily infested with exotic plants do conduct drawdowns to reduce some of the invasive aquatic plant density. During this reporting period both Northwood Lake (Northwood) and Jones Pond (New Durham) coordinated deep winter drawdowns to reduce growths of variable milfoil (the drawdown on Northwood Lake is primarily for flood control purposes, but they do see some ancillary benefits from the technique for variable milfoil control).

Dredging

Dredging is a means of physical removal of aquatic plants from the bottom sediments using a floating or land-based dredge. Dredging can create a variety of depth gradients creating multiple plant environments allowing for greater diversity in lakes plant, fish, and wildlife communities. However due to the cost, potential environmental effects, and the problem of sediment disposal, dredging is rarely used for control of aquatic vegetation alone.

Dredging can take place in to fashion, including drawdown followed by mechanical dredging using an excavator, or using a diver-operated suction dredge while the water level remains up.

Biological Control

There are no approved biological controls for submersed exotic aquatic plant at this time in New Hampshire.

References

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