NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES

EXOTIC AQUATIC SPECIES PROGRAM REPORT

2013-2017

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

R-WD-18-19

Exotic Species Program Report 2013-2017

Prepared by
Amy P. Smagula
Limnologist/Exotic Species Program Coordinator
Watershed Management Bureau

Robert Scott, Commissioner
Clark Freise, Assistant Commissioner
Rene Pelletier, Water Division Assistant Director

New Hampshire Department of Environmental Services
29 Hazen Drive
Concord, NH 03301
des.nh.gov

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EXECUTIVE SUMMARY

This report summarizes the spread and distribution of exotic aquatic species in New Hampshire and the activities of New Hampshire's Exotic Aquatic Plant Program to control these species. The program history is summarized in this report, and activities that occurred from 2013 through 2017 are described in detail. While this report will focus on state-listed invasive aquatic plants, it will also include information on invasive aquatic animals documented in the state.

The first exotic aquatic plant infestation in New Hampshire was discovered in 1965 in Lake Winnipesaukee. By the end of 2017, there were 113 infestations in 88 waterbodies, including six waterbodies infested with the Asian clam (Figure 1 and Figure 2).

Several waterbodies now have more than one species of exotic aquatic plants: Mine Falls Pond, Nashua (variable milfoil, Eurasian water milfoil, fanwort, European naiad, curly-leaf pondweed); Robinson Pond and Otternic Pond, Hudson (milfoil and fanwort); Lake Massabesic, Auburn (milfoil and fanwort); the Nashua River, Nashua (variable milfoil, Eurasian milfoil, fanwort, curly-leaf pondweed and water chestnut); the Connecticut River south of Hanover (Eurasian water milfoil, two exotic water naiads, curly-leaf pondweed and water chestnut); Phillips Pond in Sandown (variable milfoil and fanwort) Winnipesaukee River/Silver Lake in Tilton (variable milfoil and curly-leaf pondweed); Turtle Pond in Concord (variable milfoil and curly-leaf pondweed); and Glen Lake in Goffstown (variable milfoil and European naiad).

Exotic aquatic plant fragments can easily become attached to aquatic recreational equipment, such as boats, motors and trailers, and can spread from waterbody to waterbody through transient boating activities. Infestations can have detrimental effects on the ecological, recreational, aesthetic and economic values of the state's surface waters, limiting use of the waterbodies and potentially decreasing shorefront property values by as much as 10% to 20%according to a UNH study (Halstead, et al., 2001).

Since its inception in 1981 with the passage of RSA 487:15, the Exotic Aquatic Plant Program has grown to become a cooperative effort among state agencies, lake organizations and concerned citizens. At the state level, this involves a partnership among the New Hampshire Department of Environmental Services, New Hampshire Fish and Game, the Department of Safety, the Department of Natural and Cultural Resources, and the Department of Agriculture, Markets, and Foods to prevent the spread of exotic plants to new waterbodies and to monitor and treat infestations. Many lake associations and other nonprofit organizations, such as the New Hampshire Lakes Association and the New Hampshire Rivers Council, and individual lake and river associations, participate in monitoring, education and control efforts.

Program funding is derived from a fee on boat registrations. In 2014, additional funds were added by legislation for control activities ($2.00 increase). The Exotic Species Program receives a total of $9.50 per boat registration. There are roughly 94,000 boats registered in New Hampshire each year, yielding a working budget of approximately $893,000 annually.

Recent Program Activities

Program activities fall into five focus areas: 1) Prevention of new infestations through education and outreach; 2) Monitoring for early detection of new infestations; 3) Control of new and established

infestations; 4) Research towards new control methods; and 5) Regional/national cooperation with other exotic species programs.

Education, Outreach, and Prevention:

From 2013 through 2017, the Exotic Aquatic Plant Program gave more than 175 presentations on exotic aquatic plants across the state and beyond. These presentations took place during annual lake association meetings, special training sessions, legislative committee meetings, municipal conservation commission meetings, lake management meetings, high school and college classes, and professional meetings. Additionally, the NHDES Exotic Species Program participated in some notable New Hampshire public media stories, including participation in New Hampshire Public Radio's *The Exchange*, and WMUR's *NH Chronicle*.

Prevention activities were strengthened by expanded legislation and regulations during this reporting period, adding to the list of prohibited species, and banning transport of any plants on recreational gear. A new law passed in 2017 mandates removal of drain plugs for water-containing devices to help promote clean and drain initiatives to ward off additional infestations of invasive aquatic animals, whose larvae can travel in mere drops of water.

Monitoring for Early Detection:

Each year, NHDES staff biologists and the Exotic Species Program Coordinator monitor for early detection of invasive species. The NHDES Lake Assessments program was reinstated in 2013, getting biologists out on about 10 new lakes a year, with visits to 30 total waterbodies each summer during the sample rotation. In 2016, staff biologists participated in the National Lake Assessment Program and surveyed 31 waterbodies across New Hampshire. No new infestations were found during those assessments. The Exotic Species Program Coordinator performed over 400 inspections on waterbodies across the state in this reporting period (many infested waterbodies had repeat surveys, and approximately two dozen investigations were performed each year on waterbodies where complaints were received about potential infestations).

To ensure high quality data, a Quality Assurance Project Plan (QAPP) was written in 2013, and it was subsequently approved by the Environmental Protection Agency. This document outlines the scope of program activities, and provides detailed methodologies on field and laboratory data collected under the Exotic Species Program. The QAPP expires in 2018, and updates and revisions will be made to extend the QAPP into future years.

Retail pet store inspections are conducted directly by Exotic Species program staff, usually seasonal interns, to ensure that the listed prohibited plants are not offered for sale, and that store owners and their staff are aware of state regulations pertaining to invasive species.

During the 2013-2017 fall seasons, NHDES staff performed 158 pet store investigations. During these visits, a thorough inspection of all fish tanks and ponds was conducted for any prohibited plant species. The owner or the employee in charge during the inspections was given educational materials about invasive plants and the state laws prohibiting their sale. The owner or employee in charge was then asked to sign the inspection sheet confirming that they have received the appropriate information and are aware of the prohibited plant list. Table 4 in this report summarizes the outcomes of these inspections.

Control Activities for New and Existing Infestations

In this four-year reporting period, $4,939,061 has been spent on exotic aquatic plant control activities in New Hampshire, which paid for multi-faceted and integrated control activities in over 40 waterbodies (just shy of half of the infested waterbodies in the state). Of that, $1,712,041 (35%) was supported with state grant funds. The balance of the costs was assumed by local entities such as lake associations and municipalities.

In general, non-chemical means of control (diving, Diver-Assisted Suction Harvesting) are on the rise, and use of herbicides has declined during the reporting period. There has been a solid increase in divers earning the specialty Weed Control Diver Certification, allowing them to work in their own waterbody as volunteers, or as contract divers for hire, greatly expanding our non-chemical control options statewide.

Research

Initiating and participating in research activities is a key element in the Exotic Aquatic Plant Program. During this reporting period, NHDES participated in six research projects with various partners, to evaluate various control options for variable milfoil in New Hampshire. NHDES also stays informed about emerging technologies and what other states are doing to manage exotic aquatic species.

Regional Cooperation

NHDES has worked on a regional level to standardize the key legislation and education initiatives between the New England states. If a standardized list of exotic plants can be prohibited in New England and neighboring states, the likelihood of success in preventing the spread of these species to new waterbodies is increased.

Looking to 2018 and beyond, NHDES would like to promote programs that meet the challenge of preventing new exotics infestations, controlling existing ones, and researching new techniques for control and even eradication of exotic aquatic species.

SECTION 1 - PROGRAM OVERVIEW

1.1 Purpose and Overview

This report describes the activities of New Hampshire's Exotic Aquatic Plant Program from 2013 through 2017. It also summarizes the spread and distribution of exotic aquatic plants in New Hampshire and the program history.

The primary purpose of New Hampshire's Exotic Aquatic Plant Program is to "prevent the introduction and further dispersal of exotic aquatic weeds and to manage or eradicate exotic aquatic weed infestations in the surface waters of the state" (RSA 487:17, II). The program focuses on submerged exotic aquatic plants, including variable milfoil (*Myriophyllum heterophyllum*), Eurasian milfoil (*Myriophyllum spicatum*), fanwort *(Cabomba caroliniana*), Brazilian elodea (*Egeria densa*), and water chestnut (*Trapa natans*), among other species (reference Env-Wq 1303.02 in Appendix 1 for full list of aquatic plants that are prohibited in New Hampshire). While the emphasis of this report is to convey information relative to invasive aquatic plants, some information will also be provided relative to state-listed invasive aquatic animals, as NHDES does document their spread and distribution in the state as well; however, New Hampshire Fish and Game is responsible for regulating and managing animal species.

The program, initiated in 1981, has five focus areas: 1) Prevention of new infestations; 2) Monitoring for early detection of new infestations to facilitate rapid control activities; 3) Control of new and established infestations; 4) Research towards new control methods with the goal of reducing or eliminating infested areas; and 5) Regional cooperation. The program is funded through a fee derived from New Hampshire boat registrations (details on revenues and expenditures can be found in Section 3 of this report).

1.2 The Problem

"Exotic aquatic plants" are plants living in lakes, rivers, and other waterbodies that are not part of New Hampshire's native aquatic flora. These plants are sometimes called "nuisance" or "invasive" species, or "weeds." As a group, these are often referred to as aquatic invasive species or aquatic nuisance species depending on the source (and in the enacting legislation in New Hampshire "exotic aquatic weeds").

Exotic aquatic plants pose a threat to the ecological, aesthetic, recreational, and economic values of lakes and ponds (Luken & Thieret, 1997, Halstead, 2000). Under some circumstances, dense growth and near monotypic stands of invasive aquatic plants have the potential to reduce overall species diversity in both plant and animal species, and can alter the physical and chemical characteristics of water and indigenous aquatic habitat structure.

Since January 1, 1998, the sale, distribution, importation, propagation, transportation and introduction of key exotic aquatic plants have been prohibited activities (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 28 exotic aquatic plant taxa 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 Section 305(b) and 303(d) of the Clean Water Act (CWA) and detailed in NHDES' 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." As such, waterbodies with exotic aquatic plants do not attain water quality standards and are listed as impaired. Exotic non-native species are considered non-pollutants, and cannot be expressed in terms of a loading, so Total Maximum Daily Load assessments are not required when waterbodies are listed as impaired for invasive species.

Exotic aquatic plants are adaptive in how they can expand their populations. Many aquatic plants propagate primarily by fragmentation, in which a stem broken from a mature plant can grow roots, settle in a new location, and begin growth of a new plant. Plant fragments created by human activity (fishing, boating), can easily become entangled on boats, trailers, fishing equipment, or diving gear, thus spreading from waterbody to waterbody. Invasive aquatic animals are small-bodied, and often have microscopic larvae, making their spread via transient recreational activities a high risk. Recreational boat registrations in New Hampshire have fluctuated from a low of 95,000 to a high of 103,000 over the years, with an unaccounted number of boaters registered in other states who visit New Hampshire's waterbodies throughout the boating season. With this rise in transient boating and other water-based recreational activities, there is increased potential for the spread of exotic aquatic plants and animals to new locations and waterbodies. In addition to fragmentation, many of the invasive aquatic plants can produce long-lived viable seeds and also expand their coverage through rhizomes and other vegetative means.

The first exotic aquatic plant infestation in New Hampshire was discovered in 1965 in Lake Winnipesaukee. By the end of 2017, there were 113 infestations on 88 waterbodies, including six waterbodies infested with the Asian clam (Figure 1 and Table 1).

Several waterbodies now have more than one species of exotic aquatic plants: Mine Falls Pond, Nashua (variable milfoil, Eurasian water milfoil, fanwort, European naiad, curly-leaf pondweed); Robinson Pond and Otternic Pond, Hudson (variable milfoil and fanwort); Lake Massabesic, Auburn (variable milfoil and fanwort); the Nashua River, Nashua (variable milfoil, Eurasian milfoil, fanwort, curly-leaf pondweed and water chestnut); the Connecticut River south of Hanover (Eurasian water milfoil, two exotic water naiads, curly-leaf pondweed and water chestnut); Phillips Pond in Sandown (variable milfoil and fanwort); the Winnipesaukee River/Silver Lake in Tilton (variable milfoil and curly-leaf pondweed); Turtle Pond in Concord (variable milfoil and curly-leaf pondweed); and Glen Lake in Goffstown (variable milfoil and European naiad).

Figure 2 depicts the trend of exotic aquatic plant infestations by species from 1960-2017. Variable milfoil is still the most common and widespread exotic aquatic plant in New Hampshire. Asian clam is currently confirmed in 6 waterbodies, including:

- Merrimack River from Bow, south
- Cobbetts Pond, Windham
- Long Pond, Pelham
- Wash Pond, Sandown
- Beaver Lake, Derry
- Great Pond, Kingston

Figure 1- Exotic Aquatic Species Infestations in New Hampshire

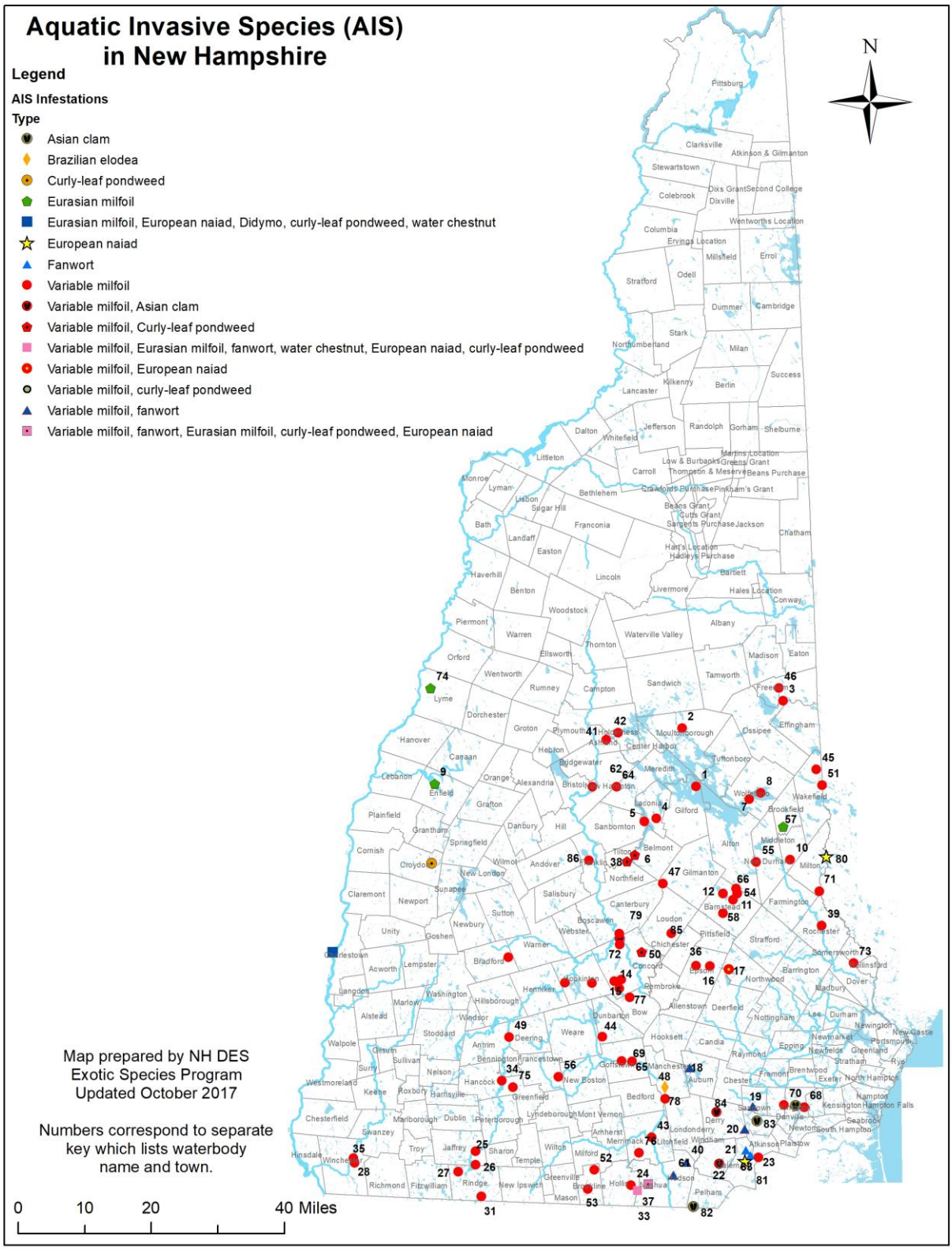


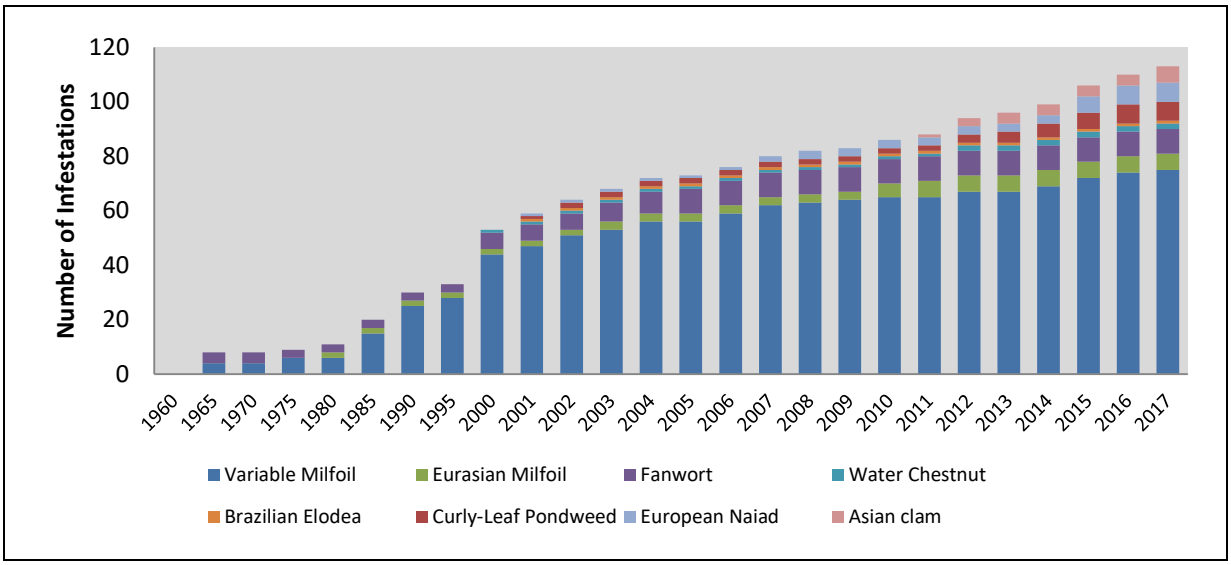
Table 1- Aquatic Invasive Species Infestations in New Hampshire (key to Figure 1)

Year Listed	Number	Waterbody (TOWN)	Species
1965	1	Winnipesaukee Lake (ALL TOWNS)	Variable milfoil
1975	2	Lees Pond (MOULTONBOROUGH)	Variable milfoil
1995	3	Ossipee Lake (Broad Bay) (FREEDOM)	Variable milfoil
1990	4	Opechee Lake (LACONIA)	Variable milfoil
1995	5	Winnisquam Lake (MEREDITH/BELMONT)	Variable milfoil
1995	6	Silver Lake (TILTON)	Variable milfoil, curly-leaf pondweed
1980	7	Crescent Lake (WOLFEBORO)	Variable milfoil
1995	8	Wentworth Lake (WOLFEBORO)	Variable milfoil
2000	9	Mascoma Lake (ENFIELD)	Eurasian milfoil
1998	10	Sunrise Lake (MIDDLETON)	Variable milfoil
1990	11	Locke Lake (BARNSTEAD)	Variable milfoil
1995	12	Suncook Lakes (BARNSTEAD)	Variable milfoil
1990	13	St Paul's School Pond (CONCORD)	Variable milfoil
1990	14	Little Turkey Pond (CONCORD)	Variable milfoil
1990	15	Big Turkey Pond (CONCORD)	Variable milfoil
1998	16	Bixby Pond (EPSOM)	Variable milfoil
1990	17	Northwood Lake (NORTHWOOD)	Variable milfoil, European naiad (2015)
1995	18	Massabesic Lake (AUBURN)	Variable milfoil,Fanwort
1980	19	Phillips Pond (SANDOWN)	Variable milfoil, Fanwort
1965	20	Big Island Pond (DERRY)	Variable milfoil, Fanwort
1965	21	Arlington Mill Reservoir (SALEM)	Fanwort
1995	22	Cobbetts Pond (WINDHAM)	Variable milfoil, Asian clam
1996	23	Captain Pond (SALEM)	Variable milfoil
1990	24	Flints Pond (HOLLIS)	Variable milfoil
1995	25	Cheshire Pond (JAFFREY)	Variable milfoil
1990	26	Contoocook Lake (JAFFREY)	Variable milfoil
1975	27	Pearly Pond (RINDGE)	Variable milfoil
1998	28	Forest Lake (WINCHESTER)	Variable milfoil
1995	29	Connecticut River (CHARLESTOWN)	Eurasian milfoil, European naiad, didymo, curly-leaf pondweed, water chestnut
1997	30	Massasecum Lake (BRADFORD)	Variable milfoil
2000	31	Monomonac Lake (RINDGE)	Variable milfoil
2000	32	Hopkinton Lake/Dam (HOPKINTON)	Variable milfoil
2000	33	Nashua River (NASHUA)	Variable milfoil, Eurasian milfoil, fanwort, water chestnut, European naiad, curly-leaf pondweed

2000	34	Powder Mill Pond (HANCOCK)	Variable milfoil
2000	35	Ashuelot River (WINCHESTER)	Variable milfoil
2000	36	Little Suncook River (EPSOM/NORTHWOOD)	Variable milfoil
2000	37	Mine Falls Pond (NASHUA)	Variable milfoil, fanwort, Eurasian milfoil, curly-leaf pondweed, European naiad
2000	38	Winnipesaukee River (TILTON)	Variable milfoil, curly-leaf pondweed
2000	39	Cocheco River (ROCHESTER)	Variable milfoil
2000	40	Robinson Pond (HUDSON)	Variable milfoil,Fanwort
2000	41	Squam River (ASHLAND)	Variable milfoil
2000	42	Squam Lakes (HOLDERNESS/ASHLAND)	Variable milfoil
2000	43	Horseshoe Pond (MERRIMACK)	Variable milfoil
2000	44	Gorham Pond (DUNBARTON)	Variable milfoil
2000	45	Belleau Lake (WAKEFIELD)	Variable milfoil
2000	46	Danforth Pond (FREEDOM)	Variable milfoil
2000	47	Rocky Pond (GILMANTON)	Variable milfoil
2001	48	Nutts Pond (MANCHESTER)	Brazilian elodea
2001	49	Contoocook River (VARIOUS LOCATIONS)	Variable milfoil
2002	50	Turtle Pond (CONCORD)	Variable milfoil, curly-leaf pondweed
2002	51	Balch Lake (WAKEFIELD)	Variable milfoil
2002	52	Melendy Pond (BROOKLINE)	Variable milfoil
2002	53	Potanipo Lake (BROOKLINE)	Variable milfoil
2002	54	Brindle Pond (BARNSTEAD)	Variable milfoil
2002	55	Jones Pond (Stumpfield Pond) (NEW DURHAM)	Variable milfoil
2002	56	Scobie Pond/Haunted Lake (FRANCESTOWN)	Variable milfoil
1992	57	Mountain Pond (BROOKFIELD)	Eurasian milfoil
2003	58	Barnstead Parade Pond/Suncook (BARNSTEAD/ PITTSFIELD)	Variable milfoil
2004	59	Merrimack River (MULTIPLE TOWNS)	Variable milfoil, Asian clam
2004	60	Kimball Pond (HOPKINTON)	Variable milfoil
2004	61	Ottarnic Pond (HUDSON)	Variable milfoil,Fanwort
2005	62	Pemigewasset River (SANBORNTON)	Variable milfoil
2005	63	Wilson Lake (SALEM)	Fanwort
2006	64	Lake Pemigewasset (MEREDITH)	Variable milfoil
2006	65	Piscataquog River (GOFFSTOWN)	Variable milfoil
2007	66	Halfmoon Pond (BARNSTEAD)	Variable milfoil
2007	67	Rockybound Pond (CROYDON)	Curly-leaf Pondweed

2008	68	Powwow Pond (KINGSTON)	Variable milfoil
2008	69	Glen Lake (GOFFSTOWN)	Variable milfoil, European naiad
2008	70	Long Pond (DANVILLE)	Variable milfoil
2008	71	Spaulding Pond (MILTON)	Variable milfoil
2009	72	Upper Goodwin Pond (CONCORD)	Variable milfoil
2010	73	Willand Pond (DOVER)	Variable milfoil
2010	74	Post Pond (LYME)	Eurasian milfoil
2011	75	Otter Pond (GREENFIELD)	Variable milfoil
2013	76	Naticook Lake (MERRIMACK)	Variable Milfoil
2014	77	Turee Pond (BOW)	Variable milfoil
2014	78	Pine Island Pond (MANCHESTER)	Variable milfoil
2014	79	Oxbow Lake (CANTERBURY)	Variable milfoil
2015	80	Northeast Pond (MILTON)	European naiad
2015	81	Milville Lake (SALEM)	European naiad
2013	82	Long Pond (PELHAM)	Asian clam
2015	83	Wash Pond (SANDOWN)	Asian clam
2015	84	Beaver Lake (DERRY)	Variable milfoil, Asian clam
2016	85	Crooked Pond (LOUDON)	Variable milfoil
2017	86	Chance Pond Brook (FRANKLIN)	Variable milfoil
2017	87	Great Pond (KINGSTON)	Asian clam

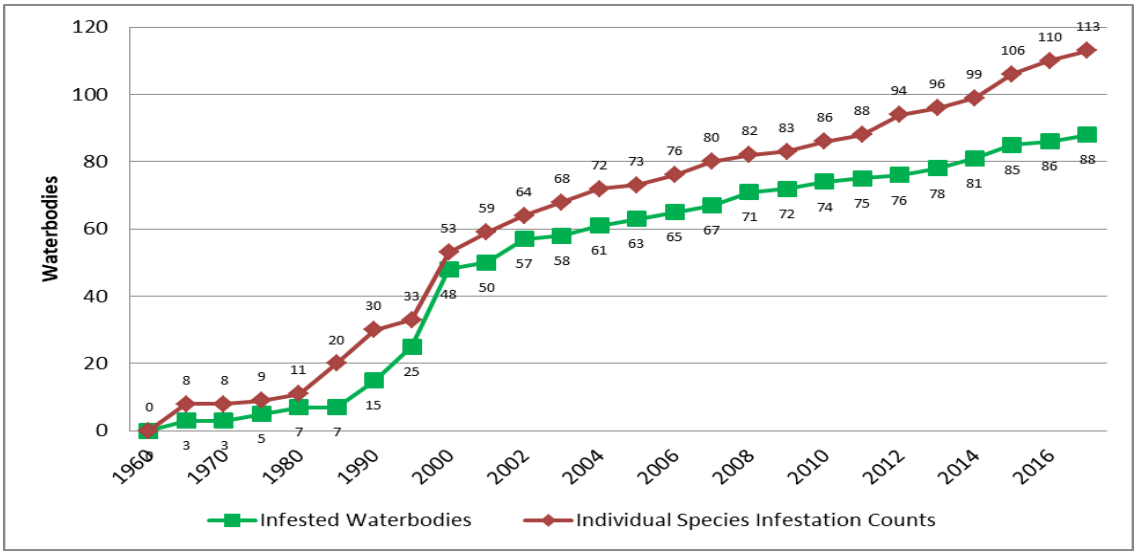
Figure 2- Number and Types of Infestations of Invasive Aquatic Plants and Animals (Asian clam) in New Hampshire



Typically, once infested with a well-established infestation, the waterbody is rarely delisted, because eradication is not often feasible. Figure 3 depicts the trend in the number of infested waterbodies (green line) in New Hampshire over time, and the counts of the species of infestations over time (red line). Both have increased over time, and the number of waterbodies supporting more than one type of infestation has increased more quickly in recent years. Having just one infestation type in a waterbody is

a challenge, but the complication and compounded effects of multiple species, including a mix of invasive aquatic plants and animals in some systems, can mean significant impacts for the system.

Figure 3- Trends in Infested Waterbodies and Numbers of Infestations



1.3 History

Activities associated with the control of exotic aquatic plants formally began in 1981 with the passage of an exotic plant control law, RSA 487:15. In 1998, RSA 487:16-a was adopted, establishing the current legislative basis for the Exotic Aquatic Plant Program. In September of 1999, Chapter Env-Ws 1300 was adopted, further defining the provisions of the exotic aquatic plant program, and listing certain aquatic plants as prohibited in New Hampshire.

Since program inception, various refinements have been made to the legislation and the administrative rules. Copies of the program legislation and regulations are included in Appendix 1. Table 2 provides a brief summary of key events and activities that have occurred since the beginning of the program. A more complete chronology of program events and activities from 1981 through 2017 is provided in Appendix 2.

Table 2: Summary of Key Program Events and Activities

Year	Activity/Event
1981	➢ Exotic Weed Legislation (RSA 149-F:3) enacted.
1982	➢ Citizen Aquatic Weed Control Advisory Committee formed by a group of volunteers.
1984	➢ Milville Lake dredged to control a fanwort infestation.
1985	➢ Exotic plant control funding suspended due to changes in legislation. No control techniques employed this year.
1986	➢ Exotic plant control funding became available once again due to legislative action.
1987	➢ $45,000 grant awarded to the Aquatic Biology Department at the University of New Hampshire, Durham to conduct a literature search to determine adequate control techniques for exotic aquatic plants.
1988	➢ Weed Watcher Program initiated.

Year	Activity/Event
1991	➢ Discovery of larval form of *Paraponyx allionealis* (an aquatic moth) on *Myriophyllum heterophyllum* (variable milfoil) in Lees Pond, Moultonborough, which led to research on the possible use of this organism as a biological control for milfoil. The insect was not specific to milfoil, so it is not a good biological control option. ➢ Exotic aquatic plants sign developed for posting at public access sites.
1992	➢ First infestation of *Myriophyllum spicatum* (Eurasian milfoil) discovered in Mountain Pond, Brookfield, New Hampshire.
1993	➢ First aquatic plant workshop held at NHDES for lake association members and volunteers ➢ Presentation on exotic plants given to BASS Master Associations.
1995	➢ Weed Watcher Wheel developed for use in identification of exotic plants.
1996	➢ Exotic plant identification workshop held for NH Fish and Game.
1998	➢ RSA 487:16-a became effective on January 1, 1998, increasing funding for the Exotic Species Program. ➢ Env-Ws 1300 Exotic Weed Control Rules adopted on September 5, 1998. Fourteen species of exotic aquatic plants listed as prohibited plants in rules. ➢ A mailing to 700 aquatic plant retailers in New Hampshire conducted to inform them of prohibitions associated with 14 listed exotic aquatic plants. ➢ First Restricted Use Area (RUA) established on Lake Massasecum, Bradford. ➢ *Trapa natans* (water chestnut) found in Nashua River, Nashua.
1999	➢ *Myriophyllum spicatum* (Eurasian milfoil) first identified in Lake Mascoma, Enfield.
2000	➢ RSA 487:16-b relative to exotic aquatic plant penalties adopted.
2001	➢ Amendment to Env-Ws 1304.01(a) passed to modify provisions for the use of Restricted Use Areas on waterbodies with limited infestations of exotic aquatic plants. ➢ First infestation of *Egeria densa* (Brazilian elodea) found in New Hampshire in Nutts Pond, Manchester. ➢ Restricted Use Areas installed in Lake Sunapee and Squam Lake.
2002	➢ Significant expansion of Weed Watcher Program. ➢ Pilot Lake Host Program Launched by New Hampshire Lakes Association.
2003	➢ RSA 487:23 became effective, establishing the Milfoil Prevention and Research Grant Program. ➢ First round of Milfoil Prevention Grants awarded to three applicants. Lake Host Program received state funding to staff 37 public access sites. Sixteen boats with milfoil detected and cleaned, preventing new infestations.
2004	➢ New infestations of variable milfoil were documented in the Merrimack River in Penacook, Kimball Pond in Hopkinton, and the Pemigewasset River in Sanbornton. Fanwort was newly documented in Otternic Pond in Hudson. ➢ The NH Department of Environmental Services was the recipient of a $1 million federal appropriation to conduct research on variable milfoil. NHDES funded 6 projects with this funding. ➢ The Exotic Aquatic Weeds and Species Committee was initiated by RSA-487:30 to evaluate the Exotic Aquatic Plant Program, and work on legislation to expand the scope and funding of the program.
2005	➢ No new milfoil infestations this year. ➢ One new fanwort infestation was documented in Wilson Lake in North Salem. ➢ The Lake Host Program continues to grow to cover 61 public access sites, and 54 boats with milfoil detected and cleaned, preventing new infestations.

Year	Activity/Event
2006	➢ MOA with Fish and Game signed regarding development of Long-Term Management Plans for exotic aquatic plants, for all infested waterbodies seeking to perform control activities ➢ Three new infestations of exotic plants: 2 variable milfoil infestations and 1 curly-leaf pondweed infestation.
2007	➢ Initiated rulemaking process to add new species to prohibited aquatic plant list, essentially doubling the list of species. ➢ Increased outreach activities with aquarium and water garden dealers in New Hampshire pursuant to newly amended exotic aquatic plant rules, including expanded list of prohibited aquatic plants. ➢ Two new infestations of variable milfoil: Lake Pemigewasset (New Hampton) and Glen Lake (Goffstown). ➢ Commissioned the construction of a prototype diver-assisted suction harvester (DASH) for use by NHDES. ➢ Initiated the Weed Control Diver Program and Certification Course.
2008	➢ Field trials and retrofitting the NHDES DASH unit. ➢ Two new infestations of variable milfoil documented: Long Pond (Danville) and Spaulding Pond (Milton). ➢ Contracted work on developing an Underwater Surveillance Vessel (USV) to enhance mapping techniques of NHDES biologists.
2009	➢ Statutory change goes into effect increasing program funding to allow for increases in prevention and control grant awards. ➢ New variable milfoil infestation found in Upper Goodwin Pond in Concord. ➢ Didymo expands into Halls Stream, Mohawk Brook and Indian Stream. ➢ Field research study to examine low and double dose application rates of Navigate for variable milfoil control. ➢ Expansion of DASH use.
2010	➢ New Eurasian water milfoil infestation in Post Pond in Lyme. ➢ New variable milfoil infestation in Willand Pond in Dover. ➢ No new Didymo expansion documented. ➢ Field research to examine three formulations of 2,4-D for variable milfoil control in portions of Lake Winnisquam.
2011	➢ New variable milfoil infestation in Rocky Pond in Hollis. Early detection and rapid response activities lead to likely eradication of the plants (not added to list of infested waters due to likely eradication). ➢ No new Didymo expansion documented. ➢ Field research to compare efficacy and target specificity of Renovate Max G on variable milfoil in SunRay Shores area of Lake Winnisquam, and Flints Pond.
2012	➢ Eradication of variable milfoil growth in Rocky Pond, Hollis (first documented in 2011) confirmed. No carryover growth into 2012, no new growth in waterbody found. ➢ New infestation of variable milfoil reported in Otter Lake in Greenfield. Field survey confirmed widespread growth around pond, infestation likely 3 years old. ➢ New infestation of variable milfoil reported in Naticook Lake in Merrimack. Field survey confirmed widespread growth in half of pond, infestation likely 2-3 years old. ➢ Field research project on Mine Falls Pond in Nashua to evaluate a new aquatic herbicide (Clipper) to control multiple species of invasive aquatic plants in this system.
2013	➢ HB 292 introduced relative to registration fees for commercial, private and pleasure

Year	Activity/Event
	vessels, increasing control funding by $2/boat registration. Passed. ➢ HB 527 introduced relative to repealing the exotic aquatic weeds and species committee. The bill was voted ITL, and the committee still stands. ➢ Participated in the International Didymo Conference held in Rhode Island. ➢ Exotic Species Program QAPP written. ➢ Partnered with EPA Region 1 to conduct an assessment of Asian clam populations in NH. ➢ Initiated an Asian clam volunteer monitoring program.
2014	➢ Increase to the boat registration fee from $7.50 to $9.50 with additional $2 earmarked for control activities. ➢ Bill to increase the membership of EAWSC as follows: one person from the NH Rivers Council; the Executive Director of Fish and Game, or designee; one person from the Connecticut River Watershed Council; one person from the NH Marine Trades Association; the Commissioner of NHDES, or designee; the Commissioner of Agriculture, Markets, and Food, or designee; and one person from the Northeast Aquatic Plant Management Society. ➢ Env-Wq 1300 rule revisions and re-adoption.
2015	➢ HB 281 was introduced, defining exotic aquatic species of wildlife, and relative to duties of the exotic aquatic weeds and species committee. This bill passed. ➢ HB 667 was introduced, relative to aquatic invasive species and authorizing a program to inspect boats for the presence of aquatic invasive species. This bill was deemed ITL. ➢ Didymo deemed a “nuisance native species” and not a non-native species.
2016	➢ HB1589 was introduced, relative to prohibiting the transport of aquatic plants and animals. This bill passed and became law. ➢ Compiled information for use in creating a dashboard on invasive species issues in NH for NHDES website. ➢ Data from Dr. Max Bothwell and collaborators suggests that Didymo, an algal species previously assumed to be an invasive, is actually a native alga responding to changing environmental conditions, and not an invasive. This led to many states in the region dropping this is a species of concern.
2017	➢ January 1, 2017, transport, clean and drain, and enforcement (components of HB1589) go into effect. ➢ Statewide Aquatic Nuisance Species Management Plan drafted and reviewed by USFWS, completed plan to be submitted in 2018 for approval. ➢ A guide for nonprofits and municipalities, titled “Dealing with Exotic Aquatic Plants and Animals” was prepared and routed to interested entities. ➢ A guide for diving and diver-assisted suction harvesting was prepared to assist interested groups and individuals in gearing up to assist in this capacity. The guide is titled “Diving as a Technique to Control Exotic Aquatic Plants.” ➢ Funded a feasibility analysis for boat wash station development in New Hampshire.

1.4 Partnerships

Most of the activities for the Exotic Species Program listed above are conducted or directed by the Exotic Species Program Coordinator. The program employs a multifaceted approach to prevent and control the spread of exotic aquatic plants. As the scope of the Exotic Aquatic Plant Program has grown over time, key cooperatives with various stakeholder groups have been developed through partnerships

among state agencies, local government and volunteer groups. The shared expertise, capacity and knowledge base of the program activities built through these partnerships are key elements to program success. Partnerships have been based around research, education, outreach and other activities.

Many state agencies and nonprofit groups participate in program activities, including NH Fish and Game, the Department of Safety, the Department of Agriculture Markets and Foods, the New Hampshire Lakes Association and the New Hampshire River Council. The roles of the partner organizations are briefly outlined in Table 3.

Table 3: Partner Organizations and their Responsibilities

I. STATE AGENCIES
New Hampshire Department of Environmental Services (NHDES) • The NHDES Exotic Species Program coordinates all aspects of the Exotic Aquatic Plant Program. • The NHDES Wetlands Bureau works with the NHDES Exotic Species Program to review projects where wetlands work is proposed that may cause or impact exotic plant infestations. • The NHDES Wetlands Bureau also works with the NHDES Exotic Species Program to amend/establish rules and regulations to allow for specific control activities in jurisdictional areas.
New Hampshire Fish and Game (NHF&G) • Conducts reviews of special aquatic permits for herbicide application to determine potential impacts to aquatic animal habitat. • Provides assistance in the designation and enforcement of restricted use areas on waterbodies. • Coordinates and performs education/outreach activities that include information on exotic species. • Displays aquatic plant signs at NHF&G owned boat launch facilities. • Collaborates with NHDES on the development and production of educational materials for their magazine, and *Fishing Digest*. • Holds responsibility for prohibiting, restricting and managing invasive aquatic animals in New Hampshire.
New Hampshire Department of Safety (NHDOS) • Provides assistance in the designation and enforcement of restricted use areas on waterbodies. • Collaborates with NHDES on the implementation of the Milfoil Prevention Grant Program. • Includes exotic plant awareness in boater safety instruction courses. • Ensures that all Marine Patrol officers are aware of exotic aquatic plant problems and know the protocols associated with inspecting their boats and trailers for attached plant fragments.
New Hampshire Department of Agriculture, Markets and Food (NHDA) • Permits and oversees the application of herbicide for control of nuisance exotic plants. • Provides technical information on aquatic herbicides.
New Hampshire Department of Natural and Cultural Resources (DNCR) • Provides information on rare and endangered species through the Natural Heritage Bureau in the event that an exotic aquatic plant may impact a threatened habitat or species.
II. OTHER ORGANIZATIONS
Legislative Working Groups • The Exotic Aquatic Weeds and Species Committee (EAWS) was enacted by RSA-487:30 to evaluate the Exotic Aquatic Plant Program and to work on legislation to expand the scope and funding of the

program. This workgroup was almost repealed in 2013, however the committee has value in examining and strategizing around the exotic species growth in the state, and the bill to repeal it was deemed inexpedient to legislate. The committee membership was expanded in 2014, and the scope of the committee was expanded to include invasive aquatic animals in 2015. This group meets monthly to discuss issues related to exotic aquatic species in New Hampshire.

Municipalities

- Manchester Water Works performs a number of milfoil control activities on Lake Massabesic including installation of benthic barriers and designation of restricted use areas
- Various municipalities across New Hampshire have formed exotic species subcommittees under their conservation commissions or board of selectmen, to include milfoil or invasive species committees, to keep local discussions going on planning and strategizing for invasive species prevention, early detection and management activities. These groups work closely with the Exotic Species Program.

New Hampshire Water Works Association (NHWWA)

- NHWWA incorporates information on invasive aquatic plants (and other species) in their training sessions and information they share with water suppliers across the state. NHWWA has requested that the NHDES Exotic Species Program participate in various training sessions by giving presentations, providing educational information and/or points of contact for identification or management of invasive species in water supplies.

University of New Hampshire, Durham

- Makes specimens in Hodgdon Herbarium available for verification of species.
- Offers trained botanists' time to verify a species identification.
- Provides outreach and education materials through the NH LAKES Lay Monitoring Program (NHLLMP) and Cooperative Extension.
- Brings the Exotic Species Program Coordinator and other specialists in to speak about resource management and invasive species with their natural resources classes.

North Carolina State University

- NHDES partners with NC State researchers from time to time to evaluate variable milfoil and other aquatic plant species in ongoing studies in their programs. Data obtained from these studies are used to refine management approaches in New Hampshire and beyond.

New Hampshire Rivers Council (NHRC)

- Works closely with individual river groups across the state and shares information about AIS with those groups.

New Hampshire Lakes Association (NHLA)

- Works closely with individual Lake Associations.
- Coordinates with NHDES for the implementation and funding for the Lake Host Program.
- Works with NHDES to draft appropriate legislation that pertains to exotic aquatic plants.

Marinas

- Provide information to boaters about exotic aquatic plants.
- Work to ensure their staff is aware of invasive species issues, and report any movement of suspicious species on boats and associated gear.

Private Citizens

- Participate in NH Weed Watchers Program by frequently monitoring the littoral zone of waterbodies during the growing season.
- Mail or deliver suspected exotic plants to NHDES for identification of species.

SECTION 2 - PROGRAM ACTIVITIES

As outlined in Section 1, the Exotic Species Program has five focus areas: 1) Prevention of new infestations, 2) Monitoring for early detection of new infestations, 3) Control of new and established infestations, 4) Research towards new control methods with the goal of reducing or eliminating infested areas, and 5) Cooperation between regional and national groups. Activities in each focus area are discussed below.

Following is a summary of the activities associated with each focus area during the 2013-2017 reporting period.

2.1 Prevention of New Infestations – Education and Outreach

Education and outreach activities are the key to prevention. On local, state, regional and national levels, efforts are under way to boost the level of information that is available to the general public about exotic aquatic plant species. The more individuals are aware of the problems associated with exotic aquatic plants, the lesser the likelihood the plants will continue to be spread throughout the state. Education and outreach initiatives are targeted toward the users of our surface waters (boaters, personal water craft users, and others), special interest groups (fishermen, seaplane operator groups), and aquarium and water garden hobbyists.

Outreach efforts are aimed at educating the public and various interest groups about the characteristics of exotic aquatic plants and animals, including:

- The negative environmental and economic impacts of exotic aquatic plants.
- Exotic aquatic plant and animal identification.
- How exotic aquatic plants spread.
- How to minimize the spread.
- Control techniques.
- New Hampshire's exotic aquatic plant laws and regulations.
- Listed prohibited exotic aquatic plants in New Hampshire.

2.1.1 Presentations

From 2013 through 2017, the Exotic Aquatic Plant Program gave more than 175 presentations on exotic aquatic plants across the state and beyond. These presentations took place during annual lake association meetings, special training sessions, legislative committee meetings, municipal conservation commission meetings, lake management meetings, high school and college classes, and professional meetings.

The Exotic Species Program Coordinator also attended annual lake festivals, conferences, and environmental awareness festivals throughout the state. At these events, written materials were provided for distribution while the coordinator interacted on an individual basis with interested members of the public. Live specimens of exotic plants and look-alike native plants were also on display for close examination and comparison. A list of fact sheets, pamphlets, and other materials routinely provided at these presentations, and links to each on the NHDES website, are included in Appendix 3.

2.1.2 Dissemination of Exotic Aquatic Plant Information through the Media

The Exotic Aquatic Plant Program was the focus of two live radio broadcasts during this reporting period. Both were with NH Public Radio's show *The Exchange* and focused on special topics related to the problem of invasive species. A show in 2013 focused on invasive aquatic animals, and a show in 2014 focused on invasive species in general.

In printed media, the exotic species issue was the subject of several newspaper articles. Hippo Press did an article on invasive species in New Hampshire in 2014, which covered a variety of topics and species. NHDES also provided information to the New Hampshire Fish and Game for publication in their *Fishing Digest*, and to the Department of Safety for publication in their *Boater's Guide*.

Some video productions about invasive species were also filmed during this reporting period. The Northern Forest Canoe Trail committee produced a video about cleaning, draining and drying canoes between sites for long-distance canoers in 2014. Also in 2014, the New Hampshire Lakes Association filmed a new education video and a training video about invasive aquatic species in New Hampshire, to be used in part for Lake Host Program training, and for other outreach and education activities. In 2016, NH Chronicle from WMUR filmed a segment on invasive species that aired during summer 2016, and again in spring 2017. The NH Chronicle episode covered topics related to types of invasive aquatic plants, Weed Watching, Lake Hosting and Diver-Assisted Suction Harvesting activities.

The Exotic Aquatic Plant Program maintains a regularly updated webpage on the NHDES website at http://des.nh.gov/organization/divisions/water/wmb/exoticspecies/index.htm. The website provides links to exotic plant identification information, Weed Watching information, exotic aquatic plant distribution maps, and copies of fact sheets and exotic aquatic plant legislation and regulations. The site is frequently updated with new information on lake and river infestations, facts and figures on exotic aquatic plants, and reports from various state and federally funded research projects.

To inform boaters and other users of our surface waters, NHDES, New Hampshire Fish and Game, and the Department of Natural and Cultural Resources have collaborated to post signs at each of the state-owned public access sites. These signs warn boaters about exotic plant infestations and where to look on their recreational equipment for tag-along plant fragments. The signs were updated in 2013 to include a Clean, Drain, Dry message, and included a re-design of the sign layout. Additionally, NHDES has worked with municipalities, lake associations and marinas to have signage placed at locally or privately owned access sites around the state. An image of the sign is included in Appendix 4.

2.1.3 AIS Prevention Activities

A primary means of spread for aquatic invasive species is through the unintentional transport of aquatic species on boats, trailers and other recreational equipment. Efforts to prevent the spread of invasive species are focused on people and their habits, as outlined above, and include legislation, regulations, education, outreach, and the boat greeter program, among others.

During 2016, HB 1589 was introduced to limit the potential impact of this vector. Specifically, HB 1589 removed the requirement that a person must "knowingly, recklessly, or purposely" offer for sale, distribute, sell, import, purchase, propagate, or introduce exotic aquatic weeds into NH waterbodies in order to be guilty of a violation. The bill also made it a violation to negligently transport aquatic plants or exotic aquatic weeds on the outside of vehicles, boats, ski craft, trailers, or other equipment. The bill further required all boats and related equipment to be drained of all water prior to leaving a water body and that all drain plugs and other similar devices be removed or open while in transport. Finally, the bill

established fines from $50 to $250 for violations of these new provisions. HB 1589 was adopted as law (RSA 487:16-c through 16-e), and went into effect on January 1, 2017.

To further promote invasive species prevention activities and stimulate cooperative ventures with various interest groups, NHDES implements an AIS prevention grant program. Funding for this program was established through legislation (RSA 487:25-29); $4 from each boat registration fee is allocated towards implementing this grant program. Three quarters of the revenue from this program is used for prevention grants, the balance is used for research grants (additional information on program revenue and expenditures is detailed in Section 3 of this report).

The Program also attempts to prevent the introductions of invasive species that have the potential to move into the state. To do so, the program identifies potentially invasive species in other areas of the country and around the world, predicts pathways of spread, and develops and implements strategies designed to reduce the potential for introduction and spread in New Hampshire. The list of prohibited species in the state includes several species that are not in New Hampshire yet, and these are considered species high risk to New Hampshire, including the hydrilla for plants, and the spiny water flea for animals.

Prevention efforts are often undertaken in collaboration with other states, agencies, and partners with similar concerns. This includes the Lake Host Program implemented by NH LAKES, with funds from the Prevention Grant Program. The Lake Host Program focuses on educating transient boaters at popular public access sites across the state, and performing courtesy boat inspections during a brief interaction. During the inspection, the Lake Host asks the boater questions about where the boat last was, their awareness of the issue of invasives, and more. One of our near-term goals is to work with NH LAKES to utilize Lake Host Program data to conduct a vector analysis and risk assessment for New Hampshire, based on the origin of boaters visiting the state's waters. NHDES worked with NH LAKES in winter 2017 to restructure their data gathering and database capabilities, so this information is captured and usable going forward.

In 2017, NHDES also provided grant funds to NH LAKES to conduct a feasibility study for implementing a boat wash program in New Hampshire. Their report included an overview of other state's laws and protocols, types of equipment and methodologies that are available, and recommendations for future pilot projects in New Hampshire. We will be focusing on this opportunity over the next couple of years.

Additionally, a regional approach at spread prevention is critical. For this reason, NHDES works with other states in the region to review and update legislation and regulations relating to aquatic invasive species, so that we have a unified and comprehensive approach at prevention activities throughout the region. Much of this work is accomplished through regional panels, workgroups and collaboratives like establishing protocols for boat washing, sharing joint resources like fact sheets and information cards, and conducting joint field surveys for pioneering infestations.

2.1.4 Listing of Exotic Aquatic Plants as Prohibited

Earlier in program history (2007 and 2008), the Exotic Species Program worked to expand the list of prohibited exotic aquatic plants in New Hampshire. In 2012 and 2013, during the process of reviewing and re-adopting the program's Administrative Rules (Env-Wq 1300) the list was reviewed and three new species were proposed for listing as prohibited: water hyacinth (*Eichhornia crassipes*), water lettuce (*Pistia stratiotes*) and giant salvinia (*Salvinia molesta*). These are common water garden plants in

New Hampshire in the summer, and there is concern that with warmer and shorter winters, the plants could potentially overwinter and adapt to cooler climates. Also, around this same time, the Chicago Botanical Garden discovered what they suspected could be overwintering populations of water hyacinth and water lettuce in the Chicago River and parts of the drainage system of the gardens (Bob Kirschner, personal communication), suggesting that these plants could overwinter in northern latitudes. NHDES included these three species in the proposed rule revisions, and received significant pushback from the water garden community in the state, due to the popularity of the plants. Without peer-reviewed data documenting seed production and overwintering to solidly support these two species being an imminent risk to New Hampshire, they were not included in the final rule updates. Giant salvinia was included in the rules as a prohibited species. The list will be reviewed periodically as needed.

2.2 Early Detection: Monitoring and Identification

Early detection is considered a second line of defense after prevention efforts. NHDES takes an active role in monitoring both the natural environment and retailers of aquatic plants to prevent new introductions of nuisance species into New Hampshire's surface waters. Early detection efforts, coupled with rapid response initiatives, make control practices more successful because invasives are detected before they have an opportunity to expand. Invasive aquatic plants are much easier to manage as compared to invasive aquatic animals, which have microscopic life stages and are notoriously harder to manage. A process for early detection and rapid response for exotic aquatic plants was developed and incorporated into rule (see Env-Wq 1305), and response activities are tailored to site specific conditions when an infestation is detected. Following is a summary of the various monitoring activities for AIS from 2012-2017:

2.2.1 Field Monitoring by Biologists

Field sampling by state biologists occurs through both scheduled surveys as well as in response to complaints about potential infestations.

National Lake Assessments

In 2017, NHDES biologists participated in the National Lake Assessment Program by sampling 11 randomly selected ponds in New Hampshire. During these surveys and data collection activities, the biologists also patrolled the waterbodies searching for invasive aquatic plants. No new infestations of AIS were documented as part of the 2017 Lake Assessments.

New Hampshire Lake Assessments

In the past, NHDES biologists performed summer sampling on 30-40 randomly selected lakes across the state. This Lake Assessment Program was valuable in that it often focused on a number of waterbodies that did not have active lake associations or many residents around them. Biologists would perform plant surveys as part of their assessments. This resulted in additional finds of new infestations where they may otherwise have gone undocumented until the infestation was very large. The Lake Assessment Program was cut in 2009 due to lack of state funds.

In 2013, NHDES reinstituted its Lake Assessment Program, with roughly 9-10 waterbodies sampled each year. The waterbodies are often not otherwise surveyed, as priority is given to waterbodies where the dataset is sparse and sampling was last conducted more than 10 years ago. Since the program was reinitiated, about 50 waterbodies have been sampled across the state. Just one of these was found to support a new infestation of a state-listed invasive plant (curly-leaf pondweed in

Silver Lake in Tilton). The waterbody was already state-listed for supporting an infestation of variable milfoil. State maps and lists of infested waterbodies were updated accordingly.

Exotic Species Program Surveys

In addition to the survey work for the National Lake Assessment and New Hampshire Lake Assessment Programs by staff biologists, the NHDES Exotic Species Program biologists inspected more than 80 waterbodies each growing season, often with at least 2-3 visits each summer to track growth, management program success, and other parameters. Many of these are routine and repeat inspections for exotic plant growth, and some were the result of complaints filed by concerned shoreline residents or visitors to the waterbody.

During the surveys, GPS units are used to systematically map the extent of infestations in each waterbody, and more accurate and detailed electronic records of infestations were established using Geographic Information Systems (GIS). This allows NHDES to better plan for control activities, increase precision of field documentation of infestations, and to track the spatial and temporal characteristics of infestations and related control activities.

As part of fostering quality assurance and quality control in our methods and data collection, a Quality Assurance Project Plan (QAPP) was written in 2013, and it was subsequently approved by the Environmental Protection Agency (EPA). This document outlines the scope of program activities, and provides detailed methodologies on all activities associated with field, laboratory and data related activities performed under the Exotic Species Program. The QAPP expires in 2018, and updates and revisions will begin in spring 2018 to ensure the document is current.

2.2.2 Pet and Plant Nursery Store Monitoring

In 1998, legislation went into effect banning certain activities associated with exotic aquatic plants in New Hampshire. Specifically, RSA 487:16-a states: "*No exotic aquatic weeds shall be offered for sale, distributed, sold, imported, purchased, propagated, transported, or introduced in the state of New Hampshire."* To implement this program, the New Hampshire Department of Environmental Services adopted rules to prohibit a number of species of aquatic plants in New Hampshire.

The Department of Agriculture inspects 600+ nurseries across the state to make sure they are in compliance with state regulations. The inspector does look for and report back on any aquatic plants they encounter that are potentially invasive. Further, the Exotic Species Program corresponds with the nurseries any time there are legislative or regulatory changes that may affect them. In 2013, after the administrative rules were re-adopted with amendments, NHDES sent an official letter to all nurseries and aquatic plant retailers in New Hampshire, informing them of relevant updates that they should be aware of, including the addition of giant salvinia to the list of prohibited species.

Retail pet store inspections are conducted directly by Exotic Species program staff, usually seasonal interns, to ensure that the listed prohibited plants are not offered for sale, and that store owners and their staff are aware of state regulations pertaining to invasive species.

During the 2013-2017 fall seasons, NHDES staff performed 158 pet store investigations. During these visits, a thorough inspection of all fish tanks and ponds was conducted for any prohibited plant species. The owner or the employee in charge during the inspections was given educational materials about invasive plants and the state laws prohibiting their sale. The owner or employee in charge was

then asked to sign the inspection sheet confirming that they have received the appropriate information and are aware of the prohibited plant list.

During the 2013 fall season, 43 pet stores were inspected, none of which had prohibited plant sale violations. During the 2014 fall season, 35 pet stores were inspected and none of them had prohibited plant sale violations. During the 2015 fall season, 36 pet stores were inspected and four of them had prohibited plant sale violations (Table 4). During the 2016 and 2017 fall seasons, a total of 44 pet stores were inspected and two were found to have violations in 2016 (Table 4), and no violations were found in 2017.

Table 4: Summary of Violations Identified During Retail Inspections

Date	Facility	Location	Exotic Plant	Action
11/10/2015	Little Critters Pet Center	Exeter	*Marsilea quadrifolia* - Water Fern	Removed and LOD issued
11/10/2015	Zoo Creatures	Plaistow	*Marsilea quadrifolia* - Water Fern	Removed and LOD issued
11/18/2015	Friend-Lee Pets	Lee/Barrington	*Hydrilla verticillata* Hydrilla or Anacharis	Removed and LOD issued
11/20/2015	One Stop Country Pet Supply	Keene	Milfoil sp. and Hydrilla sp.	Removed and LOD issued
10/25/2016	Friend-Lee Pets	Lee/Barrington	*Hydrilla verticillata* and *Salvinia molesta* – Hydrilla and Giant Salvinia	Removed and LOD issued
12/2/2016	Little Critters Pet Center	Exeter	*Marsilea quadrifolia* – Water fern	Removed and LOD issued

2.2.3 Volunteer Weed Watcher Program

The goal of the Weed Watcher program is to promote a volunteer, grass-roots effort to monitor lakes, ponds and rivers for the early detection of exotic aquatic plant infestations. Because eradication of established exotic plant infestations is rarely possible, early detection is of utmost importance. NHDES-trained Weed Watchers monitor waterbodies for new infestations once a month through the growing season, and report suspected new infestations to NHDES. This allows NHDES biologists to respond rapidly before the infestation has an opportunity to expand further, and lends a measure of efficiency to the program as volunteers are asked to send voucher specimens of suspect plants (either live plants dropped off or mailed in, or photographs of plants via email) for verification prior to a biologist's visit. Most often, suspect plants that are found are native look-alike species that do not

require field inspection, and this system of voucher specimens helps to maximize the time that the program biologist can spend focusing on exotic aquatic plants.

Weed Watcher volunteers are trained by NHDES biologists to identify both exotic aquatic plants and native plants that are common in their waterbody. Training typically involves providing volunteer groups with photographic keys to native and exotic plant species and accompanying them in the field during a scheduled training session to instruct them how to identify plants within their chosen waterbody. If no exotics are present, the program coordinator will provide specimens of exotic aquatic plants for the volunteers to use as learning tools.

Volunteers are supplied with vegetation maps that were prepared by the NHDES Lake Assessment Program for their waterbody, a Weed Watcher Kit containing fact sheets on the exotic plants, instructions on how to Weed Watch, maps of infestations in the state, and laminated plant identification guides. Instructions on how to immediately report any suspected new infestations are also included in the kit, as well as how to collect and send samples of suspect plants to NHDES for positive identification. The Weed Watcher Kits were updated and reformatted in 2017 to be more user-friendly. Plans for the future include making the entire kit available on the NHDES website for easy online access and download as needed.

Between 2013 and 2017, over 2,000 plants were sent to the NHDES Limnology Center for identification and verification. Most of these were derived from activities of the Lake Host Program (a prevention program funded in part by the Exotic Species Program, implemented by the NH LAKES Association, and described below), and some were from Weed Watcher activities across the state.

Each year, there is typically one new infestation identified through the efforts of vigilant volunteers. In most cases, this allows for rapid response and eradication of most new finds. In 2015, thanks to the efforts of lake residents on Beaver Lake in Derry, an infestation of variable milfoil was documented early, and diving work has kept up with the growth, with the exception of a downstream wetland area where milfoil has settled in dense stands. In Pawtuckaway Lake, volunteers reported scattered stems of variable milfoil in 2016, and thanks to a good partnership with local Weed Watchers and state divers, the infestation remains in check. In 2017, a local resident noted growth of expansive variable milfoil in Chance Pond Brook in Franklin. This waterbody did not have an active group of Weed Watchers out monitoring, therefore the infestation was nearly 15 acres in size and quite dense by the time it was surveyed.

2.2.4 Lake Host Program

The Lake Host Program was developed to educate transient boaters about the problem of invasive species, and to conduct courtesy boat inspections at public access sites with the goal of reducing the spread of invasive species. Transient boaters are the primary vector for spread of invasive aquatic species. The New Hampshire Lakes Association (NH LAKES) is a nonprofit organization that runs the Lake Host Program with state and federal grant funds, and local contributions. NH LAKES recruits both paid and volunteer staff to implement the program at launches across the state, and coordinates trainings and support through the boating season to the groups. Lake Hosts remove any plant material they find on transient boats, and sends the material to NHDES for identification. Any invasive plants that are found are considered “saves,” whereby the invasive plant was removed before it was introduced into a new waterbody. In this four-year reporting period, 309 “saves” were documented among the 100+ access sites staffed by this program.

2.2.5 Clean, Drain, Dry Signs and Informational Cards

A working group was established in 2014 to evaluate signage and informational materials relative to the Clean, Drain, Dry initiative. The group was comprised of agency staff from the Department of Safety, NH Fish and Game, and the Department of Environmental Services. Additionally, NH LAKES and a public member from the Lake Sunapee Protective Association participated in discussions. This workgroup designed updated signage for public access sites, as well as information cards for organized group events, like angler tournaments and on-water boat events (races, regattas, etc), so that event organizers had a standard item to distribute about AIS concerns and Clean, Drain, Dry. Both the sign and the cards were printed and have been distributed statewide.

2.3 Control Activities

Control activities are performed on waterbodies to contain, manage, or potentially eradicate infestations, based on their type, scale and complexity. Control activities are based on field data collected with geographic position systems (GPS) and mapped using geographic information systems (GIS) so that accurate locations, densities, and pre- and post-management actions can be assessed.

The Exotic Aquatic Plant Program relies on a number of methods to control exotic plant infestations, including physical control, chemical control, mechanical control and habitat manipulation. NHDES typically integrates one or more of these control strategies, when appropriate, for each waterbody, in a method termed 'Integrated Pest Management' (IPM). IPM strategies generally result in more effective and longer term control than any one control method used alone.

For nearly every infested waterbody in New Hampshire, a Long-Term Management Plan (LTMP) has been prepared by NHDES (with input from other state agencies and local entities) to help guide management efforts over time. The plans outline the history and status of the infestation, chemical and biological characteristics of the waterbody, evaluates control options, and provides a five-year IPM strategy for controlling the infestation(s) within the subject waterbody. LTMPs are based on a general template for structure and content, but the information within each plan is tailored to the individual waterbodies. Completed LTMPs are posted on the NHDES website and are accessible via the NHDES Lake Mapper application at http://nhdes.maps.arcgis.com/apps/webappviewer/index.html?id=1f45dc20877b4b959239b8a4a60ef540. Simply zoom in on a waterbody of interest, click on the waterbody, and a dialogue box will appear allowing you to select the various reports you wish to view. If the waterbody is infested, a link will be provided to the LTMP for that waterbody.

State grant funds are available each year to help local groups implement the control strategies. NHDES funded (at full or partial levels) control projects are conducted on a variety of waterbodies each year, with an increasing number of control projects conducted annually over the years due to rising numbers of infestations and desire to reduce the overall impact of infestations in waterbodies.

Figure 4 summarizes the historical trends in control practices since 1981. A trend in diversification of control method is evident, particularly in the last five years as new methods have come in to play and as LTMPs have required integrated approaches at management be employed. Diving and Diver-Assisted Suction Harvesting (DASH) projects have been on the rise, and one or both are integrated into most management practices (Figure 5). The number of non-herbicide control activities have been steadily on the rise, and have exceeded the number of herbicide treatments for several years (Figure 6).

Figure 4: Historical Trends in Control Practices over Time

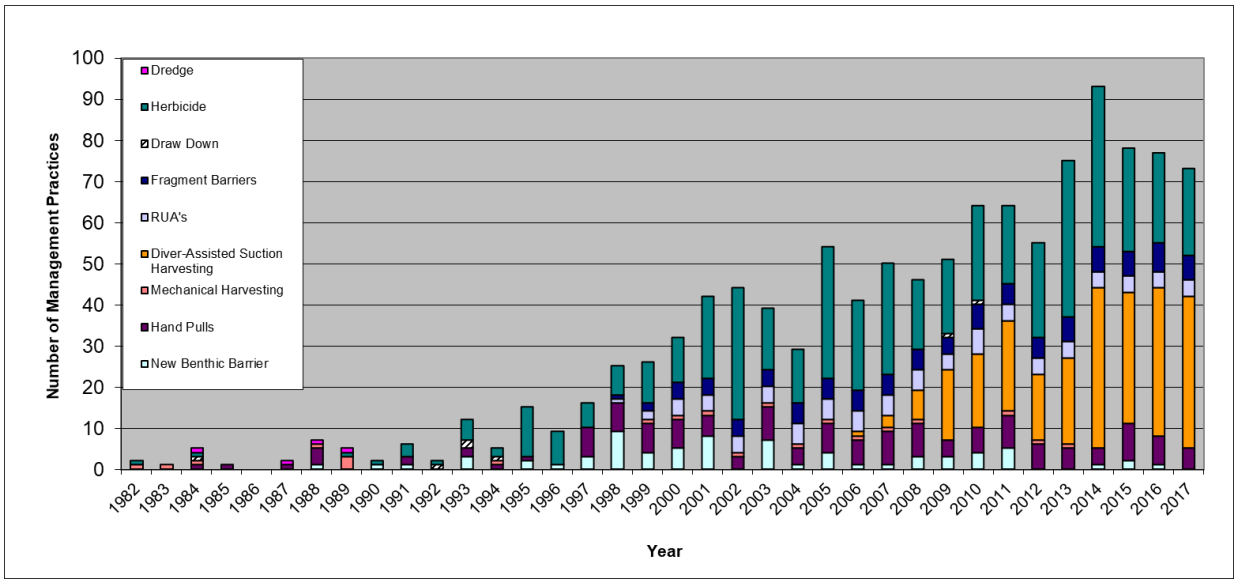


Figure 5: Uses of Various Control Practices over Time

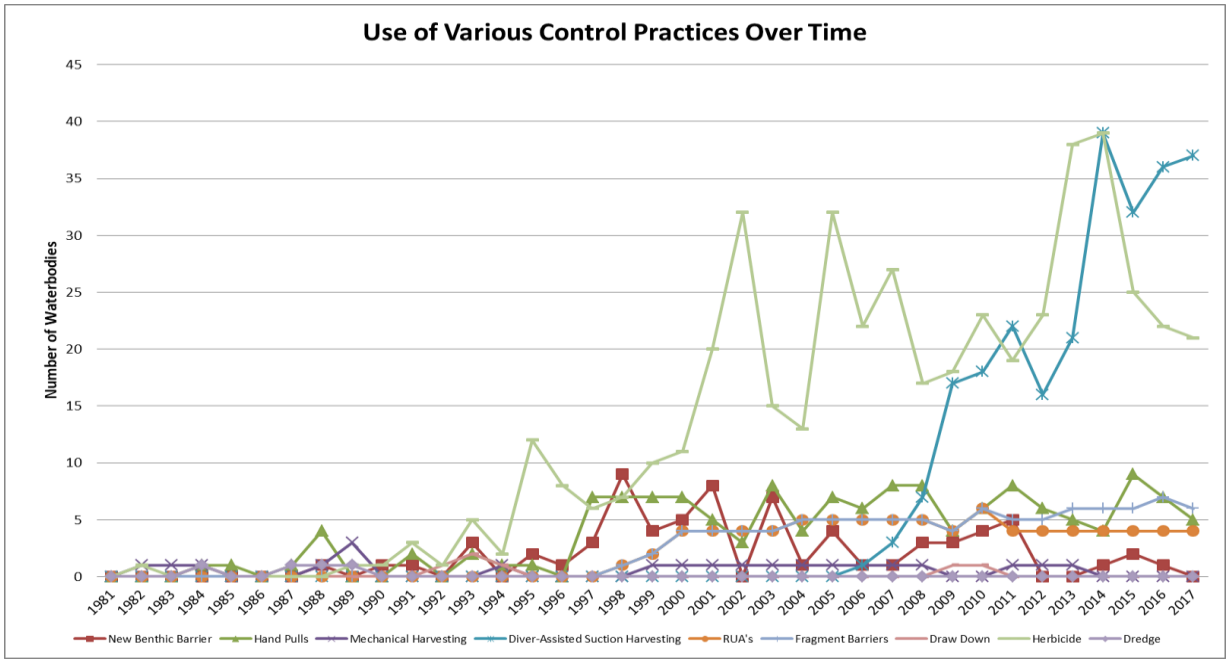
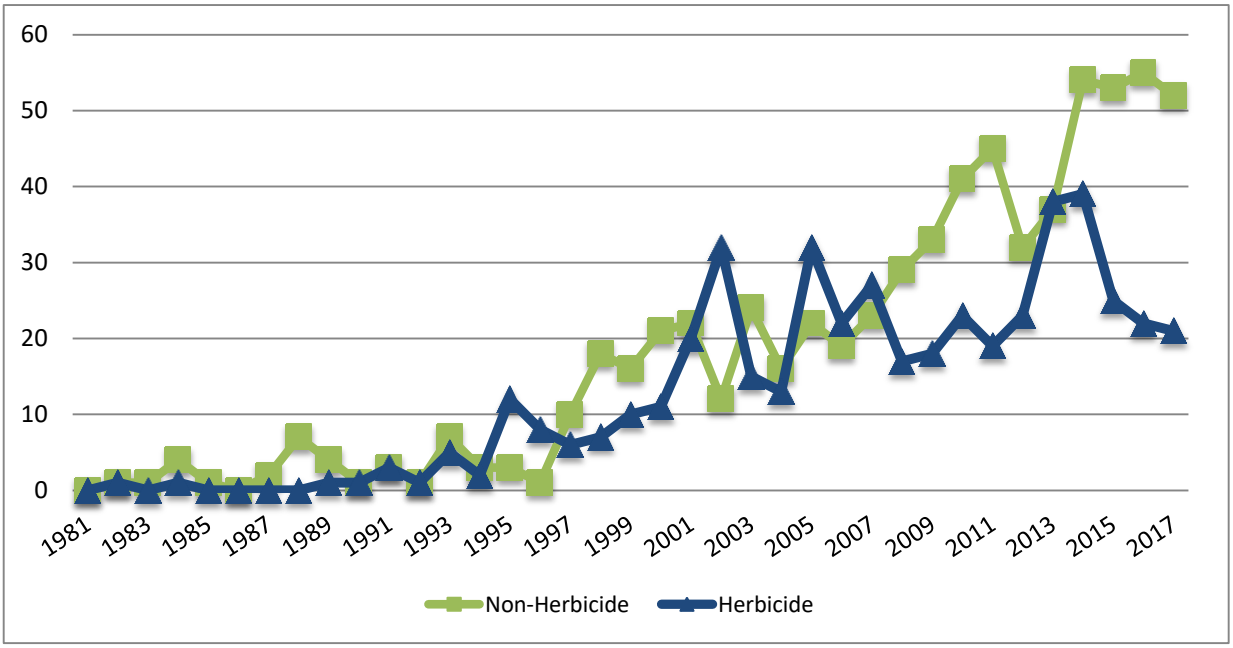


Figure 6: Comparison of Non-Chemical and Chemical Control Activities over Time



Following is a summary of the various control strategies that are used in New Hampshire. Descriptions for the control activities are closely modeled after those prescribed by the Aquatic Ecosystem Restoration Foundation (AERF). Additional information can also be obtained from a document prepared for the Commonwealth of Massachusetts called the Generic Environmental Impact Report for Lakes and Ponds. Both can be found online using common search functions for report names.

2.3.1 Restricted Use Areas and/or Fragment Barriers

A Restricted Use Area (RUA) is a tool that can be used 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 strung to establish an enclosure (or exclosure). 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. RUAs are demarcated with specialized navigation buoys.

Fragment barriers are used alone or in concert with RUAs. Fragment barriers are erected when there are small isolated areas of dense milfoil (or other exotic plant) growth. The areas are generally small enough to surround or cordon-off with a fragment net suspended in the water column and marked with buoys. Navigation is not restricted in the area, as with an RUA, but the enclosure still serves to trap fragments and limit use of the area while control efforts are under way.

RUAs often require regular maintenance and inspection to remove built-up plant material and organic debris which may accumulate on lines and nets. Usually, local groups or volunteer monitors serve as tenders to ensure that the nets remain clear and functional through the growing season.

Table 5 lists the locations of active Restricted Use Areas and/or fragment barriers and the years in which they were initiated.

Table 5: Locations of Restricted Use Areas and/or Fragment Barriers

Waterbody	Town	Date Installed	Date Removed
Lake Massabesic	Auburn	1996	Still in place
Lake Massasecum	Bradford	1998	Still in place
Little Squam Lake*	Ashland	2001	Removed for 2003 season, reinstalled in 2004, removed in 2007
Lake Sunapee	Georges Mill	2001	2002
Balch Lake*	Wakefield	2002	Still in place
Big Squam Lake	Holderness	2005	Discontinued
Otternic Pond*	Hudson	2010	Discontinued in 2013
Lees Pond	Moultonborough	2010	Discontinued in 2013
Lake Winnipesaukee	Moultonborough	2012	Discontinued in 2013
Forest Lake	Winchester	2012	Variable use
Lake Winnipesaukee	Wolfeboro	2017	Still in place in Back Bay, screening fragments from frog pond inlet

*This RUA is more of a containment device for fragments. Access is not restricted.

2.3.2 Hand Harvesting by Divers

Hand-pulling (or hand harvesting) exotic aquatic plants is a technique used on both new and existing infestations, as circumstances allow. Divers carefully hand-remove the shoots and roots of plants from infested areas and place the plant material in mesh dive bags for collection 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 portion of the waterbody that may have previously been uninfested. It is a routine follow-up technique that is included in most management plans because it can effectively control very small-scale plant growth.

In 2007, a new program was created through a cooperative between a volunteer monitor who is a certified dive instructor and the NHDES Exotic Species Program. A Weed Control Diver (WCD) Course was developed and approved through the Professional Association of Dive Instructors (PADI) and the NHDES Wetlands Bureau to expand the number of certified divers available to assist with hand-pulling activities. NHDES has only two certified divers in the Limnology Center to handle problems with aquatic plants, and more help was needed. There is a skill involved with hand-removing plants from the lake bottom, and if the process is not conducted correctly, the plants could spread. For this reason, training and certification are continually needed to help ensure success.

Furthermore, the Exotic Species Program worked with the NHDES Wetlands Bureau to amend the rules pertaining to the requirement of Wetlands Permits for hand removal projects. Typically a permit

would be needed to do any plant removal from the lake bottom, through hand-removal or otherwise. Now, WCDs may perform hand-removal activities for exotic aquatic plants without a permit, as long as they follow guidelines in Wetlands rules, including notification requirements to the Exotic Species Program. Those divers that are not WCD certified must still obtain a Wetlands Permit to do any hand-removal.

The WCD course involves a day of classroom training and then a series of open water dives to train the diver in the field on how to remove exotic aquatic plants and properly dispose of them. By the end of 2017, over 230 divers were certified through this program. NHDES maintains a list of these divers and shares them with waterbody groups and municipalities that may be seeking diver assistance for controlling exotic aquatic plants. Classes are offered two to three times per summer.

In 2017, the Exotic Species Program prepared a guidance document for divers, lake associations, and others who are interested in helping support such a program on their waterbody. The guide provides an overview of the hand harvesting and WCD operations, and includes information for how divers and non-divers can be helpful in activities related to this type of exotic plant management in their waterbody.

2.3.3 Diver Assisted Suction Harvesting (DASH)

Diver Assisted Suction Harvesting (DASH) has become established as a valuable control technique in aquatic plant management. 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 hand-harvested 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.

There are a few companies that have been in existence in New Hampshire, that provide DASH services on a contract basis. Their services are regularly employed on dozens of infested waterbodies across the state.

2.3.4 Benthic Barriers

Benthic barriers are pieces of 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, 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 organic gas accumulation and bubbling beneath the barrier that is hard to maintain).

2.3.5 Dredging

Dredging is the process of mechanically removing bottom sediment from a lake. This method can deepen the lake bottom beyond the photic zone and also result in the physical removal of plants from a waterbody. Because this method is not completely effective in removing all exotic plants or their seeds, and because it is often cost prohibitive, it is not a method that is regularly considered for exotic aquatic plant management.

2.3.6 Targeted Application of Aquatic Herbicides

Application of aquatic herbicides is a proven tool 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 herbicide formulations and concentrations, but research performed by the Army Corps of Engineers has isolated target specificity of a variety of aquatic herbicides for different species. Collaborative research between NHDES and the Corps of Engineers, as well as contractors employed by NHDES, have resulted in the further refinement of herbicide selection and dosing for site specific applications.

NHDES continues to collaborate with researchers to continue to dial in products and dosing so they are as target specific as possible. Most recently, NHDES partnered with SePRO Corporation to conduct a field trial on a new active ingredient/aquatic herbicide. The product was evaluated on a one-acre test plot in a variable milfoil infested backwater of Hopkinton Lake, with good success. NHDES is now collaborating with NC State to perform tank studies to refine treatment dosing appropriate for successful variable milfoil control with this product (tradename ProcellaCOR). The product is labeled as a reduced risk herbicide due to low toxicity, thus the product will carry fewer use restrictions.

A special aquatic permit is needed before an herbicide can be applied to a surface water in New Hampshire, and only licensed aquatic applicators can perform these treatments. The Department of Agriculture is the permitting agency for aquatic herbicides in New Hampshire, and treatments must be performed by specially licensed applicators authorized to work in New Hampshire.

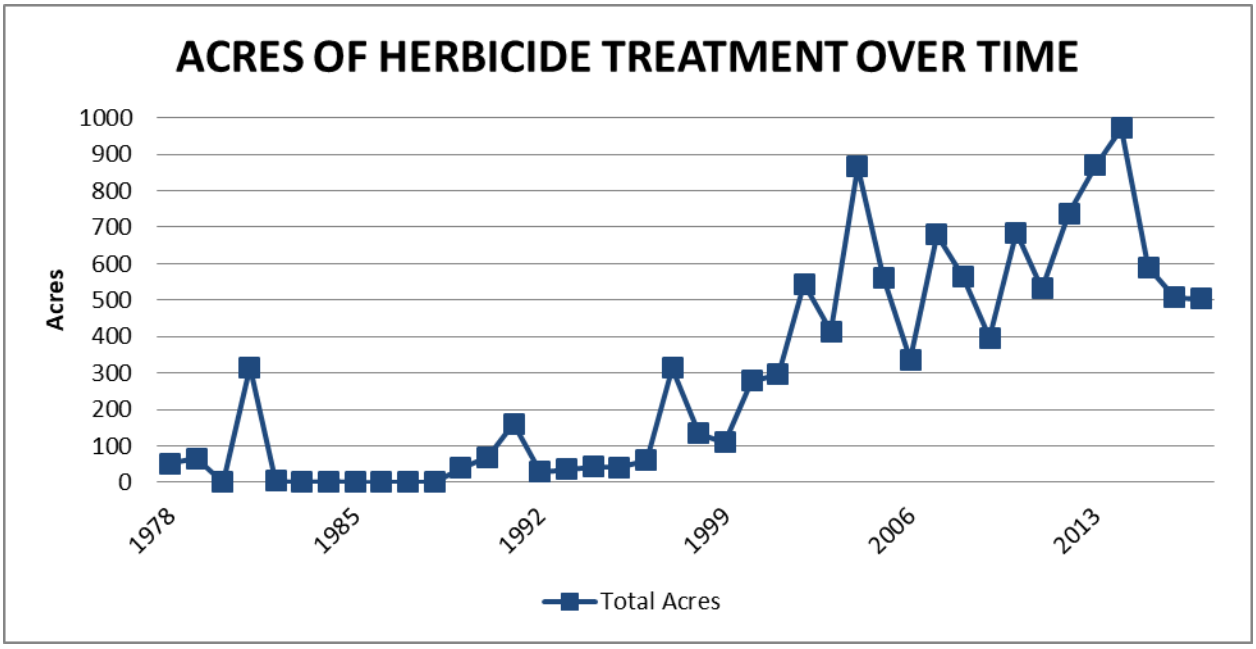
Over time, the number of acres where herbicide treatment has been performed has fluctuated (Figure 7), but it has been on the decline for the last few years. Fluctuations in acreage result from new infestations being found, new management actions being performed, and/or other reasons. Ideally we'd like to see a decrease in herbicide use over time; however, this remains an important tool for managing larger and denser infestations. On average, about 300 acres of invasive aquatic plants are managed each year using aquatic herbicides, and treatment acreages have ranged from a high of 737 acres in a year to a low of zero acres treated in a year.

2.3.7 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 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).

Figure 7: Acres of Herbicide Treatment over Time



Appendix 6 outlines these recognized control methods, including information on target plant specificity, advantages, disadvantages and approximate cost. Criteria for the selection of control techniques in New Hampshire are presented in Appendix 7.

2.4 Research

Research activities are a key element in the Exotic Aquatic Plant Program. Variable milfoil is the most common exotic aquatic plant in New Hampshire but not a common nuisance species in most of the United States, therefore little research nationwide has been conducted on the plant's biology, ecological relationships and potential control strategies. By performing research activities, the Program can address the needs for finding viable control solutions that apply to existing infestations and the development of more effective prevention mechanisms.

2.4.1 State Funded Research Projects

Several exciting research endeavors were initiated between 2009 and 2012 with Milfoil Research Grants, which were established under RSA-487:23. Table 6 provides a summary of each project.

Table 6- List of Milfoil Research Projects

Year	Grantee	Project Summary	Grant Amount
2013	None	No research projects this year	No cost
2014	n/a	Partnership project with Applied Biochemists to evaluate various chemistries for controlling variable milfoil	No cost
2015	n/a	Partnership project with Applied Biochemists to evaluate various chemistries for controlling variable milfoil	No cost

Year	Grantee	Project Summary	Grant Amount
2016	NC State	Project with NC State to evaluate concentration-exposure times for ProcellaCOR herbicide on variable milfoil plants supplied from NH waterbodies	$5,000.00
2016	n/a	Field research project to evaluate ProcellaCOR herbicide efficacy in controlling variable milfoil in a one-acre study plot in Hopkinton Flood Control Area	No cost
2017	n/a	One year follow-up analysis on Hopkinton Flood Control area variable milfoil control using ProcellaCOR herbicide	No cost

2.5 Regional Cooperation

A primary goal of regional cooperation is to standardize management and control activities associated with exotic aquatic plants among New England states, including the establishment of common legislation, regulations, prohibited species lists, educational materials and rapid response protocols with neighboring states.

From 2013-2017, New Hampshire participated in several regional initiatives to share information and develop consistency between states. These took place via email exchanges, conference calls, meetings and other formats.

Additionally, in an effort to promote further cooperation among the New England states and the northeast area in general, New Hampshire is active in various professional organizations associated with exotic species control and outreach activities. Goals of these organizations include fostering partnerships between states to reduce the transport of exotic plants, sharing success and failure information with regards to control practices, and strategizing to enhance existing programs and laws to reduce the impacts of invasive plants. Following is a list of the regional, national and international organizations with which NHDES is involved:

- **Northeast Aquatic Plant Management Society (NEAPMS)** – State and regional government officials, academia, and plant management specialists are represented with the goal of sharing resources and information concerning management practices and innovative technologies, as well as providing a forum for interaction between government, academia and managers.
    - In 2013-2017, annual conferences were held that allowed for the exchange of information on various management strategies employed within the various states, as well as the development of new legislation and regulations, and the certification of new aquatic herbicides for use on exotic aquatic plants. Information gained from the meeting is used to update and streamline New Hampshire's activities associated with preventing and controlling exotic aquatic plants.

- **North American Lake Management Society (NALMS)** – This organization focuses on a variety of holistic lake and watershed management issues, including invasive aquatic plants and animals, and impacts to lake ecology as a result of exotic species infestations. This organization is representative of state, federal, regional and international government officials, academia, professional research organizations, and miscellaneous non-government officials and organizations. NALMS meets once annually for a national symposium on lake-related topics, and also has regional chapters throughout North America that meet at least on an annual basis.
    - In 2013-2017, NALMS offered special extended sessions on invasive species

management at their annual symposia.

- **NH Invasive Species Committee (ISC)** – This committee was established by RSA 430:54 in 2000. This committee is comprised of one representative from each state agency (including the Departments of Agriculture, Fish and Game, Environmental Services, and Natural and Cultural Resources), one representative from academia (UNH), one from the nursery industry, and three members at large from the public. The group is charged with developing a list of prohibited species to include terrestrial plants and animals (aquatic plants are already coordinated through NHDES, and aquatic animals through Fish and Game) in New Hampshire, finding ways to enforce compliance with listed species, and developing education and outreach materials for target audiences that are affected by the plants and animals. This group meets regularly in the Concord, NH area.

- **Northeast Aquatic Nuisance Species Panel (NEANS) –** This group is a regional panel of the National Aquatic Nuisance Species Task Force. The goals of this group are to assist the northeastern states and Eastern Canadian provinces in developing state, provincial, and regional Aquatic Nuisance Species Management Plans and standardize educational messages and materials in the region. The group is represented by state agencies across the northeast, and meets two times each year (spring and fall).
    - During 2013-2017, this group worked on a number of initiatives, including development of outreach and education materials, reviews of legislation and regulations, feedback on federal initiatives and spotlights on species.

- **Northeast Hydrilla Workgroup –** A new workgroup formed in 2017 to evaluate strategies for mapping and controlling infestations of hydrilla in the Connecticut River system in Connecticut. This group is comprised of many individuals who are regularly involved in invasive species efforts throughout the region, to collaborate on the issue of hydrilla in the Connecticut River.

SECTION 3 – PROGRAM REVENUE AND EXPENDITURES

3.1 Funding History

Beginning in 1981, exotic plant control activities were funded by a $0.50 fee added to boat registrations. In 1998, the legislature established the Lake Restoration and Preservation Fund and a fee of $1.50 per boat registration was deposited in the fund for the Exotic Aquatic Plants Program. In 2003, program funds were again increased with the enactment of RSA 487:26, which established a Milfoil and Other Exotic Aquatic Plant Prevention and Research Fund. This new legislation added an additional $3 fee per boat registration in the state. In 2009, new fees went into effect, adding an additional $2.50 per boat registration to increase revenues for prevention and control activities. In 2014, additional funds were added by legislation for control activities ($2.00 increase).

Table 7 summarizes the breakdown of the boat registration fee as of the last increase in 2014. The Exotic Species Program receives a total of $9.50 per boat registration. There are roughly 94,000 boats registered in New Hampshire each year, yielding a working budget of approximately $893,000 annually. Program revenues are fixed, and in statute. Demands on program funds have increased steadily over the years, across all categories. We have kept our staff small and administrative costs low, in an effort to maximize the amount of funds that are available for grant awards out to the community.

Table 7- Exotic Species Program Funding (Per boat registration, effective January 1, 2014)

Program	Funding	Activities
Clean Lakes Program	$0.50	• Lake and watershed studies • Sampling • Administrative costs/staff
Invasive Aquatic Plant Control Program	$5.00	• Monitoring for exotic plants • Control grants • Benthic barrier supplies • Educational materials • Administrative costs
Milfoil and other Exotic Plant Prevention and Research Grant Program	$4.00	• Funding for prevention grants • Funding for research grants • Program staff

Most (3/4) of the revenues for the program are used for grants back to communities and various entities for control, prevention, or research work. Administrative costs are used to support the salary and benefits of two full-time employees and two summer/seasonal interns. Some funds are also allocated toward administrative costs for education and outreach activities as well.

Control Grants

Control grants are those that are awarded to local entities (municipalities, lake associations and other such groups) for projects to control exotic aquatic plant growth in waterbodies in the state.

Cost sharing on grants for exotic plant control activities is outlined under RSA 487:21. Costs for control actions have been increasing annually, as more waterbodies become infested, and costs for control efforts increase. Additionally, integrated plant management activities, where more than one type of control practice is used at a given site, have added costs to management; however, the gains realized from reduced infestations because of better control actions are also being realized.

Grant match is determined based on an annual evaluation of projects, requests for funds and funds available. The requests for control grants are expected to continue to exceed the current budgeted amount for control activities, which put more of the burden of cost on a local entity, like a municipality or nonprofit organization.

Table 8 shows a rough estimate of cumulative project costs and grants made each year from 2012 through 2017. Funds available for granting vary due to amount of balance forward funds available to supplement budgeted funds (i.e., unspent grant funds in the previous grant cycle are liquidated and added back to the grant fund line for the next grant year, so available funds do fluctuate from year to year).

Table 8- Control Grant Requests and Actual Available Grant Funds

Year	Requests for Grants	Cumulative Cost of Projects	Available to Grant	Grants Awarded
2013	40	$777,250.00	$343,799.00	40[1]
2014	40	$963,960.00	$398,762.00	42
2015	45	$1,173,725.00	$198,553.00	45
2016	44	$1,009,850.00	$432,158.00	45[2]
2017	41	$1,134,422.00	$343,789.00	41

[1]Two funded at 100% level for new infestations
[2]Three funded at 100% level for new infestations

Figure 8 shows the number of infested waterbodies, compared to the number of waterbodies funded for management actions each year since 2005. Due to lack of local infrastructure (associations, funding) there are a number of waterbodies that are infested that do not have regular management actions performed on them.

For those waterbodies where management is performed, much of the cost (at least 50%) is assumed by the local entity, be it a lake or river association or a municipality, or other such group. State funding for control activities does not increase annually as mentioned above, while infestations and needs for management do. Therefore, smaller grant awards are awarded each year to groups, necessitating more input from local entities. Figure 9 shows the trend in costs and match over time for control projects.

Figure 8- Control Grant Requests and Actual Available Grant Funds

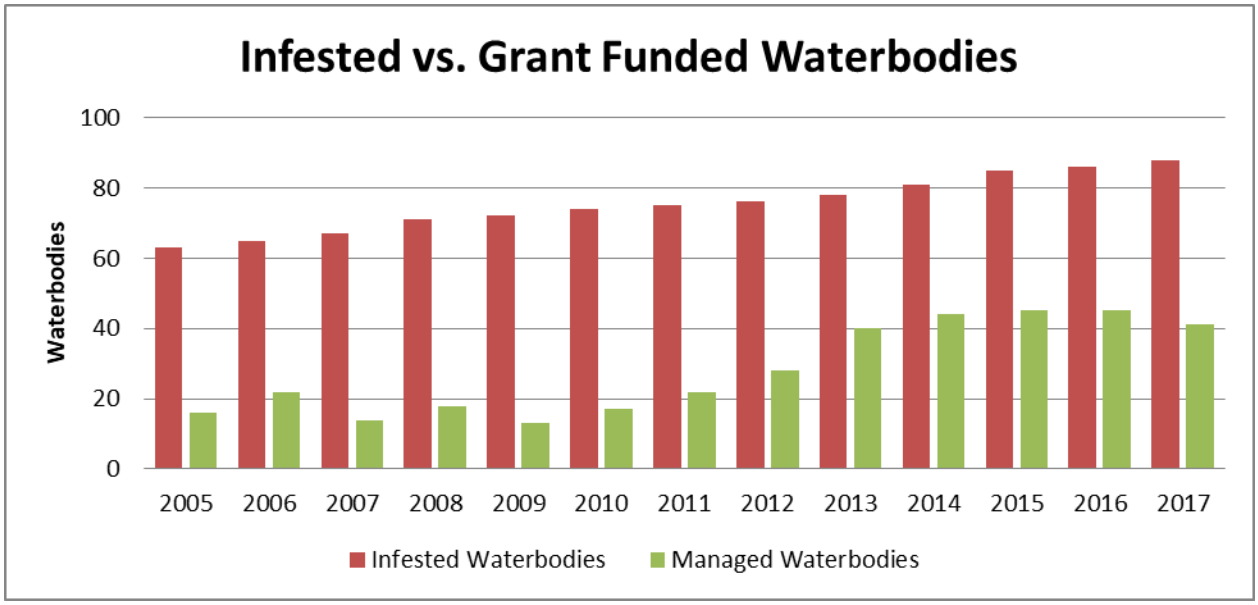
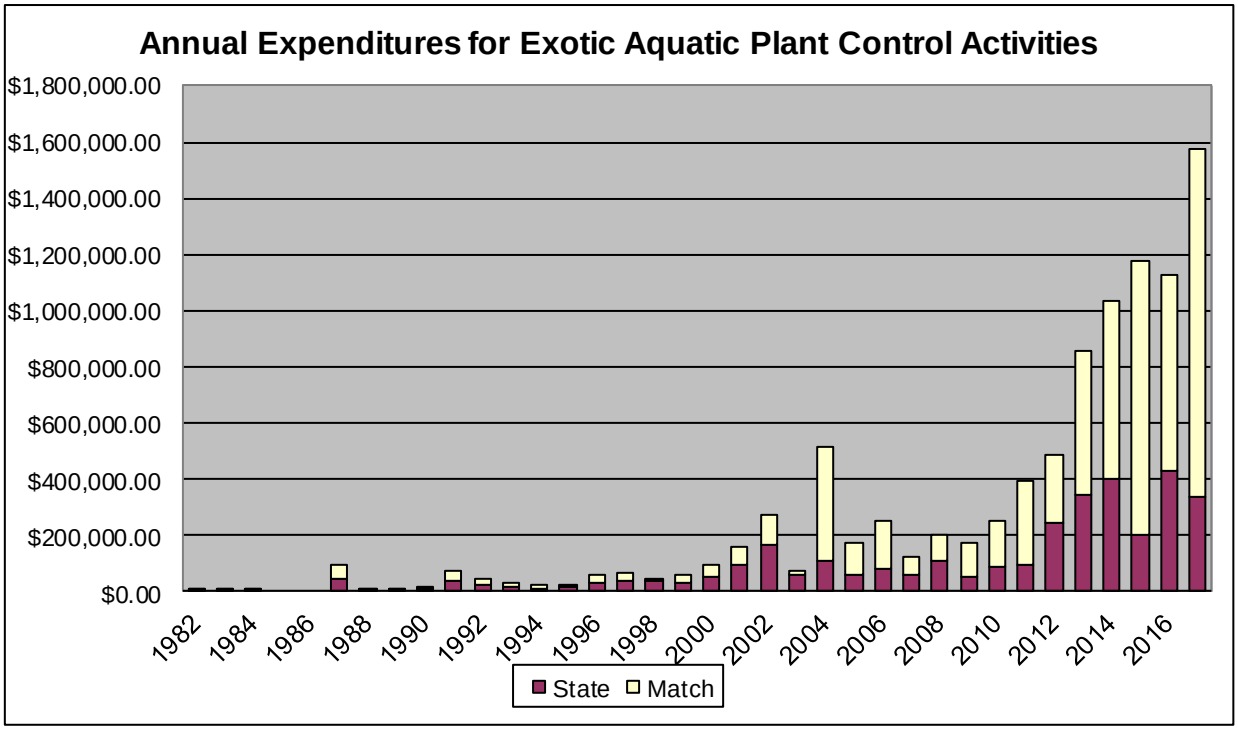


Figure 9 Expenditures for Exotic Plant Control over Time



Prevention and Research Grants

In 2002, 487:26 went into effect establishing a prevention and research grant program. The grant program, as indicated in Table 9 above, is funded by a portion of the lake restoration and preservation fund, established in RSA 487:25, and allocated to the milfoil and other exotic aquatic plants prevention program.

Approximately 3/4 of the moneys distributed from the fund to the milfoil and other exotic aquatic plants prevention program are used for the purposes of awarding milfoil and other exotic aquatic plants prevention grants, and the remainder are allocated to milfoil and other exotic aquatic plants remediation research, as appropriate, based on grant requests.

SECTION 4 – THE FUTURE

The goals of the Exotic Aquatic Plant Program are to limit the further spread of exotic aquatic plants, control new and existing infestations, and to research new ways to contain or even decrease the spread of these plants. Objectives in the five focus areas are:

Education and Outreach: Foster increased partnerships among lake associations, state agencies, regional groups and other aquatic interests to provide and disseminate innovative and proactive educational materials that inform the public about exotic aquatic plants, how they are spread, and how they can be controlled.

Monitoring for Early Detection and Rapid Response: Expand the Weed Watcher Program and coordinate training activities with volunteer monitors from other lakes management programs. Map infestations using global positioning systems to more accurately document and track the occurrence and distribution of infestations over time.

Control: Develop a more streamlined process for conducting herbicide applications, including appropriate monitoring and environmental assessment.

Research: Send out Requests for Proposals (RFPs) for specialists to conduct research on long-term control methods and potential means for eradication of exotic aquatic plants. Develop DNA gene sequencing methods for positive identification of variable milfoil during all life stages. Provide this technology to the NHDES Limnology Center so samples will not have to be sent out to other universities for analyses. Encourage state universities and colleges to submit proposals for research on exotic aquatic plants.

Regional Cooperation: Foster partnerships with other states across the northeast region to better promote an understanding of exotic aquatic plants and their impacts on our water resources. Assist other states in developing and/or enhancing exotic species legislation.

Looking to 2018 and beyond, we would like the program to grow to meet the challenge of preventing new exotic infestations, controlling existing ones, and researching new techniques for control and even eradication of exotic aquatic plants. We expect the recent dramatic increase in requests for control grants to continue, spurred by increased public awareness and interest. There is much to be done.

The sections below summarize a vision for program activities in the coming years.

4.1 Education and Outreach Goals

- Update and revise each NHDES Fact Sheet that relates to exotic species.
- Continue to expand education and outreach activities as needed.
- Conduct plant identification and Weed Watcher workshops in conjunction with the annual Volunteer Lake Assessment Program Refresher Workshop and Lake Host trainings.

- Give educational presentations to lake associations and other stakeholder groups.
- Post the Weed Watcher Kit contents on the NHDES website so that they can be readily downloaded as needed.
- Update information on the NHDES Lake Mapper App relative to invasive species and LTMP updates.
- Create a map showing the location of key programs active in the state regarding invasive species, including layers such as Weed Watchers, Lake Hosts, management programs, types of management.
- In 2020, prepare a 2018-2019 Program Report.

4.2 Prevention, Monitoring and Identification Goals

- Collaborate with NH LAKES and other partners to develop a pilot program for boat wash stations in New Hampshire.
- Partner with NH LAKES to use their data on transient boaters to perform a vector analysis and develop a risk assessment for new infestations and infestation spread.
- Expand the Weed Watcher Program to include more waterbodies and train additional volunteer Weed Watchers to locate new exotic plant infestations earlier in the growing season.
- Update mapping technology and techniques based on successful methods developed by other researchers and field experience of NHDES biologists.
- Prepare and/or update long-term management plans for each lake with an exotic aquatic plant, outline the status of the infestation, special species of concern, and management goals and timetables.
- Assist the Pesticide Control Board of the Department of Agriculture with aquatic herbicide permits and evaluations and special studies.
- Continue to conduct annual inspections of aquarium stores and nurseries to investigate illegal sales of exotic aquatic plants.
- Continue to track spread of infestations in region and beyond and update list of prohibited species in New Hampshire as appropriate.
- Continue to support the efforts of Lake Hosts and other groups that monitor public access sites to prevent the further introduction of exotic aquatic plants.
- Develop reportable metrics for exotic aquatic plant program for inclusion in the surface water quality monitoring reports.

4.3 Rapid Response and Long-Term Management Goals

- Continue to explore avenues to increase funding for control practices through legislation, grants and federal appropriations.

- Continue to explore alternative methods of control through participation in regional and national conferences associated with exotic aquatic plant and lake management and through scientific literature reviews.

- Award research grants to research entities to explore new avenues for aquatic plant management.

- Track invasive species movements and be on alert for new species moving in the region.

4.4 Research

- Provide grants for innovative research projects related to exotic aquatic plants from funds derived from the Milfoil Research Grant Program.

4.5 Regional Cooperation

- Collaborate with NHFG on activities related to invasive aquatic animals.

- Attend invasive species conferences to keep up with current research methods, educational activities, control measures, and exotic aquatic plants programs and share New Hampshire information.

- Collaborate with regional partners on mapping and tracking hydrilla expansion in the Connecticut River System.

- Assist neighboring and nearby New England states in promoting and drafting exotics legislation by giving presentations to appropriate legislative committees, if asked, and provide copies of New Hampshire's legislation and annual reports, among other resources.

- Continue to actively participate in regional groups and organizations to expand resources and the knowledge base for New Hampshire's program.

4.6 Legislation and Regulations

- Continue to work with the Exotic Aquatic Weeds and Species Study Committee to refine and expand the NHDES Exotic Species Program through legislation, as applicable.

- Work with the Department of Agriculture and the Pesticide Control Board to explore the feasibility of multi-year permits based on Long-Term Management Plans, as is being done in Connecticut and Vermont.

TITLE L
WATER MANAGEMENT AND PROTECTION

CHAPTER 487
CONTROL OF MARINE POLLUTION AND AQUATIC GROWTH

New Hampshire Clean Lakes Program

Section 487:15

[RSA 487:15 effective until January 1, 2017; see also RSA 487:15 set out below.]

487:15 Purpose. –

The general court recognizes that rapidly escalating pressures of shorefront development and recreational uses of public waters have placed increasing strains upon the state's lake resources, thereby accelerating the eutrophication process in many of our public lakes through nuisance growths of aquatic macrophyton and phytoplankton (algae) and thus posing a threat to water quality. The general court further recognizes the need to restore, preserve and maintain the state's lakes and ponds in order that these significant environmental, aesthetic and recreational assets will continue to benefit the social and economic well-being of the state's citizens.

[RSA 487:15 effective January 1, 2017; see also RSA 487:15 set out above.]

487:15 Purpose. --

The general court recognizes that rapidly escalating pressures of shorefront development and recreational uses of public waters have placed increasing strains upon the state's lake resources, thereby accelerating the eutrophicationprocess in many of our public lakes through nuisance growths of aquatic macrophytes (aquatic plants) and phytoplankton (algae) and thus posing a threat to water quality. The general court further recognizes that transporting boats from one water body to another increases the risk of inadvertent transport of aquatic nuisance species, some of which are invisible to the unaided eye. This risk can be reduced by inspecting and draining all boats and water-related equipment upon leaving state waters. The general court further recognizes the need to restore, preserve and maintain the state's lakes and ponds in order that these significant environmental, aesthetic and recreational assets will continue to benefit the social and economic well-being of the state's citizens.

Source. 1990, 143:2, eff. June 18, 1990. 2016, 227:1, eff. Jan. 1, 2017.

Section 487:16

487:16 Definitions. – In this subdivision:

I. "Department" means the department of environmental services.

I-a. "Exotic aquatic species of wildlife" means wildlife, as defined in RSA 207:1, XXXV, that:

(a) Depend on a freshwater aquatic environment; and

(b) Are not naturally occurring in New Hampshire or have not become established in New Hampshire as a result of an intentional introduction program by a state agency.

II. The term "exotic aquatic weeds" includes only those species of vascular aquatic plants which were not part of New Hampshire's native aquatic flora before 1950. Cabomba caroliniana and Myriophyllum heterophyllum are examples of exotic aquatic weeds.

III. "Federal program" means the federal Water Pollution Control Act, 33 U.S.C.A. 1324, the federal clean lakes program (P.L. 92-500, section 314), as amended, now known as the Water Quality Act of

1987 (P.L. 100-4), as amended.

IV. "Commissioner" means the commissioner of the department of environmental services. [Paragraph V effective January 1, 2017.]

V. "Aquatic plants" means plants that are adapted to live in freshwater aquatic environments, also referred to as aquatic macrophytes.

Source. 1990, 143:2. 1996, 228:98, 99. 1997, 185:2, eff. Jan. 1, 1998. 2015, 164:1, eff. Aug. 25, 2015. 2016, 227:2, eff. Jan. 1, 2017.

Section 487:16-a

487:16-a Exotic Aquatic Weed Prohibition. – No exotic aquatic weeds shall be offered for sale, distributed, sold, imported, purchased, propagated, transported, or introduced in the state. The commissioner may exempt any exotic aquatic weed from any of the prohibitions of this section consistent with the purpose of this subdivision.

Source. 1997, 185:3, eff. Jan. 1, 1998.

Section 487:16-b

[RSA 487:16-b effective until January 1, 2017; see also RSA 487:16-b set out below.]

487:16-b Exotic Aquatic Weed Penalties. –

It shall be unlawful to knowingly, recklessly, or purposely offer for sale, distribute, sell, import, purchase, propagate, or introduce exotic aquatic weeds into New Hampshire waterbodies. Notwithstanding RSA 487:7, any person engaging in such an activity shall be guilty of a violation.

[RSA 487:16-b effective January 1, 2017; see also RSA 487:16-b set out above.]

487:16-b Exotic Aquatic Weed Penalties. –

It shall be unlawful to offer for sale, distribute, sell, import, purchase, propagate, negligently transport, or introduce exotic aquatic weeds into New Hampshire waterbodies. Notwithstanding RSA 487:7, any person engaging in such an activity shall be guilty of a violation.

Source. 1999, 204:3, eff. Jan. 1, 2000. 2016, 227:3, eff. Jan. 1, 2017.

Section 487:16-c

[RSA 487:16-c effective January 1, 2017.]

487:16-c Transport of Aquatic Plants or Exotic Aquatic Weeds On Outside of Boats, Vehicles, and Equipment. –

No person shall negligently transport any aquatic plants or plant parts or exotic aquatic weed or weed parts to or from any New Hampshire waters on the outside of a vehicle, boat, ski craft as defined in RSA 270:73, trailer, or other equipment.

Source. 2016, 227:4, eff. Jan. 1, 2017.

Section 487:16-d

[RSA 487:16-d effective January 1, 2017.]

487:16-d Draining of Water Conveyances. –

I. When leaving waters of the state, a person shall drain his or her boat and other water-related equipment that holds water, including live wells and bilges.

II. Drain plugs, bailers, valves, or other devices used to control the draining of water from ballast tanks, bilges, and live wells shall be removed or opened while transporting boats and other water-related equipment, if the vessel is so equipped.

III. Commercial enterprises transporting boats for off-site storage, maintenance, or repairs, and emergency response vehicles and their related equipment are exempted from paragraphs I and II, however all such exempt commercial enterprises shall drain all water-related equipment holding water and live wells and bilges prior to transporting the equipment to another water body.

Source. 2016, 227:4, eff. Jan. 1, 2017.

Section 487:16-e

[RSA 487:16-e effective January 1, 2017.]

487:16-e Penalties. –

Notwithstanding RSA 487:7, any person who violates RSA 487:16-c through 487:16-d shall be guilty of a violation punishable by a fine of $50 for a first offense, $100 for a second offense, and $250 for any subsequent offense. The authority to enforce these sections shall extend to all peace officers in the state of New Hampshire.

Source. 2016, 227:4, eff. Jan. 1, 2017.

Section 487:17

487:17 Program Established. –

I. A program for the preservation and restoration of New Hampshire lakes and ponds eligible under RSA 487:20 shall be established and administered within the department of environmental services. Said program shall function to limit the eutrophication process in New Hampshire lakes by reducing nuisance growths of macrophyton and phytoplankton. It shall reinforce and complement the program authorized by the federal program and shall serve 3 basic purposes:

(a) To diagnose degraded lakes and ponds and implement long-term solutions for the purpose of restoring water quality where such solutions are feasible and cost effective.

(b) To diagnose lakes and ponds and implement methods for long-term preservation of the water quality when such measures can be shown to be feasible and cost effective.

(c) To provide short-term remedial actions which can effectively maintain water quality conditions adequate for public recreation and enjoyment, including, but not limited to, the control or eradication of exotic aquatic weeds pursuant to paragraphs II and III.

II. The department is directed to prevent the introduction and further dispersal of exotic aquatic weeds and to manage, control, or eradicate exotic aquatic weed infestations in the surface waters of the state. The department is authorized to:

(a) Display and distribute promotional material and engage in educational efforts informing boaters of the problems with exotic aquatic weed control.

(b) Control or eradicate infestations of exotic aquatic weeds, according to the following criteria:

(1) The department shall have determined that the exotic aquatic weed can in fact be controlled or eradicated in the waterbody.

(2) The most environmentally sound treatment technique relative to the specific infestation will be used, which also meets the requirements of state rules, including rules adopted under RSA 430. Notwithstanding any law or interagency agreement to the contrary, the department's recommendation to use herbicide applications shall be made in consultation with the fish and game department and shall be implemented only if the department of agriculture, markets, and food issues the permit pursuant to RSA 430:33, with or without the concurrence of the department of fish and game.

(c) Develop an emergency response protocol to control or eradicate small new infestations. The protocol may include contractual agreements with one or more licensed pesticide applicators that would enable the prompt treatment of exotic aquatic weeds with herbicides consistent with the criteria provided in subparagraph (b).

(d) Designate, in consultation with the department of fish and game and the division of state police, department of safety, restricted use of exotic aquatic weed control areas.

III. After notice and opportunity for hearing and comment, the department may make financial grants to lakefront associations, private businesses, citizens, and local governmental agencies for the management of exotic aquatic weeds. All applications for grants by such groups shall be approved by the department, in consultation with the fish and game department, and shall meet state rule requirements.

Source. 1990, 143:2. 1996, 228:100, 106. 1997, 185:4. 2002, 201:4. 2006, 144:1. 2007, 263:102. 2011, 224:273, eff. July 1, 2011.

Section 487:18

487:18 Project Prioritization. – Project approval shall be based upon prioritization factors to be established by rules adopted under RSA 541-A. Such rules shall give first priority for expenditure of available funds to the control or eradication of new infestations of exotic aquatic weeds pursuant to RSA 487:17, II(b). Otherwise, preference shall be given to lakes that have public access or that serve as a public drinking water supply. Implementation measures shall be based upon an assessment of potential success, technical feasibility, practicability, and cost effectiveness. Restoration and preservation projects shall include watershed management plans to control and reduce incoming nutrients wherever possible through best management practices. Repeated short-term solutions shall be discouraged where long-term solutions are feasible and cost effective. Treatments shall be designed to minimize any adverse effect upon fish and wildlife, their habitats, and the environment.

Source. 1990, 143:2. 2002, 201:5. 2007, 263:103, eff. July 1, 2007.

Section 487:19

487:19 Public Hearings. – No project for the implementation of a lakes restoration or preservation program shall be approved or initiated until at least 2 public hearings have been held on the project. Said hearings shall be held in one or more of the affected municipalities.

Source. 1990, 143:3, eff. June 18, 1990.

Section 487:20

487:20 Eligibility. – To be eligible for funding under this subdivision, a body of water shall be any freshwater lake or pond which meets priorities established under RSA 487:18. Lakefront associations, private businesses, citizens and local government agencies shall be eligible to apply for funding under this subdivision.

Source. 1990, 143:3, eff. June 18, 1990.

Section 487:21

487:21 Cost Sharing. –

I. For diagnostic and feasibility studies where the federal government has made financial assistance available in the amount of 70 percent of the cost, the department may provide an amount not exceeding 30 percent of the total eligible costs as determined by the department. Where no federal funding is available, the department may provide an amount not exceeding 80 percent of the total eligible costs.

II. For implementation of restoration or preservation projects where the federal government has made financial assistance available in the amount of 50 percent of the costs, the department may provide an amount not exceeding 35 percent of the total eligible costs, as determined by the department. Where no federal funding is available, the department may provide an amount not exceeding 80 percent of the total eligible costs.

III. For water quality maintenance programs, the department may provide an amount of funding not to exceed 80 percent of the total eligible costs, as determined by the department, except that for the control of new infestations of exotic aquatic weeds the state may assume 100 percent of the cost.

IV. The local cost share shall be the cost of a project remaining after taking into account any state and federal funding.

V. An amount up to 10 percent of the total available funding may be expended on research that addresses the problems of lake eutrophication and exotic aquatic weeds.

Source. 1990, 143:3. 1996, 228:106. 2002, 201:6, eff. Jan. 1, 2003.

Section 487:22

487:22 Municipal Agreements. – Whenever a project requires a commitment of cooperative action or local cost sharing involving 2 or more municipalities, all participating municipalities shall execute an

intermunicipal agreement relative to their respective obligations. No project which requires a local match shall be initiated with state funding until such an agreement, if applicable, has been approved by the legislative bodies of all the involved municipalities.
Source. 1990, 143:3, eff. June 18, 1990.
Section 487:23
487:23 Agency Cooperation. – The department shall make a concerted effort to integrate and coordinate the clean lakes program with other environmental management programs involving lakes and their watersheds, whether such programs fall within the jurisdiction of the department of environmental services or within that of another state department. The university system and the department shall maintain regular communication for the purpose of sharing data bases and other relevant information.
Source. 1990, 143:3. 1996, 228:101, eff. July 1, 1996.
Section 487:24
487:24 Rulemaking. – The commissioner shall adopt rules, under RSA 541-A, relative to:
I. The criteria to be used in the prioritization of grants for diagnostic or feasibility studies.
II. The criteria used to determine the priority of implementation projects and maintenance projects.
III. Contracting procedures with local governments or private businesses.
IV. Application procedures to participate in the program.
V. Criteria for the determination of project eligibility.
VI. Criteria governing the conduct of and reporting requirements on diagnostic and feasibility studies, implementation projects and maintenance projects.
VII. Designation of plants as exotic aquatic weeds as defined in RSA 487:16, II.
VII-a. Administration and enforcement of, and exemptions to, the exotic aquatic weed prohibition under RSA 487:16-a.
VII-b. Criteria governing the emergency response protocol under RSA 487:17, II(c).
VII-c. Designation of restricted use exotic aquatic weed control areas under RSA 487:17, II(d).
VIII. Any other matters that are necessary to implement the provisions of this subdivision.
Source. 1990, 143:3. 1997, 185:5. 1999, 204:4, eff. Jan. 1, 2000.
Section 487:25
487:25 Lake Restoration and Preservation Fund; Addition to Boat Fee. –
I. The fee of $9.50 collected under the provisions of RSA 270-E:5, II(a) shall be paid to the director of the division of motor vehicles. The director of the division of motor vehicles shall pay over said fee to the state treasurer who shall keep the fee in a special fund to be expended by the department of environmental services. The department shall use $.50 of the fee for lake restoration and preservation measures, exclusive of exotic aquatic weed control, $5 of the fee for the control of exotic aquatic weeds, and $4 of the fee for the milfoil and other exotic aquatic plants prevention program. The department shall deposit the $4 into a special account within the lake restoration and preservation fund which shall be used to administer the milfoil and other exotic aquatic plants prevention program. The special fund shall be nonlapsing. All funds received under this section are continually appropriated to the department for the purposes of this subdivision.
II. The department is authorized to utilize such methods of control and to employ such personnel, consultant services, and equipment as, in its judgment, will control aquatic nuisances in the surface waters of the state as defined in RSA 485-A:2.
III. The department shall be the agency to receive and utilize federal funds, gifts, or grants from any person or association, which may be made available for the purposes of this subdivision.
Source. 1990, 143:3. 1996, 228:102, 106. 1997, 185:6. 2002, 201:2. 2009, 144:149, eff. Aug. 28, 2009. 2014, 231:2, eff. Jan. 1, 2015.
Milfoil and Other Exotic Aquatic Plants Prevention

Section 487:26

487:26 Grant Program Established. – There is hereby established a grant program to be administered by the department of environmental services for the allocation of money to state agencies, non-profit organizations, and municipalities or political subdivisions of the state which seek to administer a milfoil and other exotic aquatic plants prevention program, and to institutions of higher learning which seek to conduct research on milfoil and other exotic aquatic plants remediation techniques. The grant program shall be funded by the portion of the lake restoration and preservation fund, established in RSA 487:25, and allocated to the milfoil and other exotic aquatic plants prevention program. Approximately 3/4 of the moneys distributed from the fund to the milfoil and other exotic aquatic plants prevention program shall be allocated for the purposes of milfoil and other exotic aquatic plants prevention and the remainder shall be allocated to milfoil and other exotic aquatic plants remediation research, as appropriate, based on grant requests. Of the moneys in the milfoil and other exotic aquatic plants prevention program, the moneys allocated specifically for the purposes of the milfoil and other exotic aquatic plants prevention shall be distributed upon approval of the commissioner of the department of environmental services and the commissioner of safety. Of the moneys in the milfoil and other exotic aquatic plants prevention program, the moneys allocated specifically for the purposes of milfoil and other exotic aquatic plants remediation research shall be distributed upon approval of the commissioner of the department of environmental services.

Source. 2002, 201:3. 2010, 352:1, eff. Sept. 18, 2010.

Section 487:27

487:27 Management Plan. – The commissioner of the department of environmental services, or designee, in consultation with the commissioner of safety, or designee, shall establish a management plan to implement the grant program. The management plan shall include, but not be limited to:

I. Eligibility determination criteria and procedures.

II. Application requirements and procedures.

III. Project selection and prioritization requirements and procedures.

IV. Stewardship requirements and procedures, including annual reporting to the department by the grantee.

Source. 2002, 201:3, eff. Jan. 1, 2003.

Section 487:28

487:28 Eligible Applicants; Matching Funds. –

I. The department of environmental services shall distribute funds for projects to further the purposes of this program only to eligible applicants. Eligible applicants shall include:

(a) Publicly-supported nonprofit corporations exempt from federal income taxation under Section 501(c) of the Internal Revenue Code.

(b) Municipalities or other political subdivisions of the state.

(c) Institutions of higher learning.

(d) State agencies.

II. All eligible applicants shall provide a minimum level of matching resources equal to 50 percent of the proposed program budget. The department may exempt institutions of higher learning from the required match. The cost-sharing match may be met through the use of in-kind services. Qualifying matching funds from the applicant may include, but are not limited to, municipal appropriations, private donations, federal funds, and the value of goods and services provided by the applicant.

Source. 2002, 201:3, eff. Jan. 1, 2003.

Section 487:29

487:29 Milfoil and Other Exotic Aquatic Plants Prevention; Grant Fund Report and Budget. – The department of environmental services shall submit an annual report, beginning on January 1, 2004, to the speaker of the house, president of the senate, and the governor and council which shall include, but

not be limited to, a description of prevention and research projects funded by the milfoil and other exotic aquatic plants prevention program and the extent of aid to municipalities or subdivisions of the state, non-profit corporations, and research institutions.

Source. 2002, 201:3, eff. Jan. 1, 2003.

Section 487:30

487:30 Exotic Aquatic Weeds and Species Committee. –

I. There is established a committee to study exotic aquatic weeds and exotic aquatic species of wildlife in the state of New Hampshire.

II. (a) The members of the committee shall be as follows:

(1) Five members of the house of representatives, appointed by the speaker of the house.

(2) One member of the senate and 2 public members, appointed by the president of the senate.

(3) One member of the New Hampshire Lakes Association, appointed by the chairman of the board of that association with the concurrence of the chairperson of the committee.

(4) One member of the New Hampshire Rivers Council, appointed by the president of that organization.

(5) The executive director of the fish and game department, or designee.

(6) One member of the Connecticut River Watershed Council, appointed by the executive director of that organization.

(7) One member of the New Hampshire Marine Trades Association, appointed by the president of that organization.

(8) The commissioner of the department of environmental services, or designee.

(9) The commissioner of the department of agriculture, markets, and food, or designee.

(10) One member of the Northeast Aquatic Plant Management Society, appointed by the president of that organization.

(b) Legislative members of the committee shall serve terms which are coterminous to their terms on the general court and shall receive mileage at the legislative rate when attending to the duties of the committee.

III. The committee shall:

(a) Study the spread of exotic aquatic weeds and exotic aquatic species of wildlife, as defined in RSA 487:16, I-a, in the waters of New Hampshire including education, management, and potential means to eliminate the spread of these weeds and wildlife.

(b) Aid the department of environmental services in the control and eradication of milfoil.

(c) Study the best management practices used in other states to prevent the introduction of, and to research, monitor, control, and eradicate exotic aquatic weeds and wildlife.

(d) Recommend to the department of fish and game a program for research, monitoring, control, or eradication if an invasive exotic aquatic species of wildlife is discovered in the state.

III-a. The committee may solicit, hold, and expend gifts, grants, and donations from any source to carry out the purposes of the committee.

IV. The members of the committee shall elect a chairperson from among the members. The first meeting of the committee shall be called by the first-named house member. The first meeting of the committee shall be held within 45 days of the effective date of this section. Four members of the committee shall constitute a quorum.

V. The committee shall report its findings and any recommendations for proposed legislation to the speaker of the house of representatives, the senate president, the house clerk, the senate clerk, the governor, and the state library on or before November 1 of each year.

Source. 2004, 115:1. 2005, 240:2. 2009, 167:5, 6. 2011, 90:1, 2, eff. May 27, 2011. 2014, 133:1, eff. June 16, 2014. 2015, 164:2, 3, eff. Aug. 25, 2015.

CHAPTER Env-Wq 1300 NEW HAMPSHIRE CLEAN LAKES PROGRAM
Statutory Authority: RSA 487:18 and 24

Revision Note #1:

Document #8703-A, effective 9-5-06, readopted with amendments and redesignated former Chapter Env-Ws 1300 entitled Exotic Aquatic Weed Control as Env-Wq 1300, pursuant to a rules reorganization plan for Department rules approved by the Director of the Office of Legislative Services on 9-7-05 and changed the chapter heading to New Hampshire Clean Lakes Program.

Former Chapter Env-Ws 1300 was filed under document #6852, effective 9-5-98.

Revision Note #2:

Document #10696, effective 10-18-14, readopted or readopted with amendments all of the rules in Env-Wq 1301 through Env-Wq 1307, which had last been filed in Chapter Env-Wq 1300 under Document #8703-A. Changes in Document #10696 included the internal renumbering of many of the former rules within Env-Wq 1302, Env-Wq 1306, and Env-Wq 1307. Document #10696 also adopted new Part Env-Wq 1308 and new Part Env-Wq 1309.

Although Env-Wq 1300 had last been filed under Document #8703-A, effective 9-5-06, these rules did not expire on 9-5-14 since they were extended pursuant to RSA 541-A:14-a until entirely replaced by the rules in Document #10696, effective 10-18-14.

PART Env-Wq 1301 PURPOSE AND APPLICABILITY

Env-Wq 1301.01 Purpose. The purpose of these rules is to implement the following statutory provisions:

(a) RSA 487:16-a, which prohibits the sale, distribution, importation, purchase, propagation, transportation, or introduction of exotic aquatic weeds into the state;

(b) RSA 487:17 relative to limiting the eutrophication of lakes and ponds, controlling exotic aquatic weeds, designating restricted use areas, and making financial grants for management of exotic aquatic weeds;

(c) RSA 487:18 relative to project prioritizations;

(d) RSA 487:20 relative to eligibility requirements;

(e) RSA 487:21 relative to cost sharing; and

(f) RSA 487:22 relative to municipal agreements.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1301.02 Applicability. These rules shall apply to:

(a) Individuals who live, work, and recreate on the surface waters of New Hampshire; and

(b) Persons who:

(1) Own or manage places of business that offer the sale or other distribution of exotic aquatic weeds; or

(2) Are responsible for or are otherwise interested in monitoring, maintaining, or investigating exotic aquatic weed-related water quality.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

PART Env-Wq 1302 DEFINITIONS

Env-Wq 1302.01 “Bottom barrier” means a semi-permeable, fine mesh screening, laid over an area of sediments in a surface water to shade and physically inhibit plant growth.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1302.02 “Commissioner” means the commissioner of the department.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1302.03 "Cultivar" means a cultivated species of plant for which there is no wild form.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1302.04 "Department" means the department of environmental services.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1302.05 "Diagnostic and feasibility study" means a study as contemplated by RSA 487:21, I, to identify sources of pollution to a surface water and recommend the most cost effective practices to restore or preserve water quality.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1302.06 "Exotic aquatic weeds" means "exotic aquatic weeds" as defined in RSA 487:16, II, as reprinted in Appendix B.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1302.07 "Herbaria" means collections of dried, pressed plants for the purposes of education and scientific study.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1302.08 "Infested waters" means water and water bodies having populations of prohibited exotic aquatic weeds such as milfoil or fanwort.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1302.09 "Integrated pest management (IPM)" means an aquatic plant management approach that includes:

(a) Defining the problem or need;

(b) Identifying the desired exotic aquatic plant management goals;

(c) Making decisions based on site-specific information;

(d) Using ecosystem, watershed, and cost perspectives to determine long-term strategies;

(e) Developing a system of integrated exotic plant control methods, including mechanical-physical, biological, chemical, and cultural BMPs; and

(f) Quantitatively assessing the results of the control methods.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1302.10 "Limited infestations" means an infestation of 5 acres or less.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1302.11 "Maintenance project" means a project designed to remediate a water impairment through the short-term control of an exotic aquatic weed infestation or a water quality problem by treating the problem but not the underlying cause.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1302.12 "New infestation" means an infestation that was not previously reported to or otherwise identified by the department.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1302.13 “Person” means “person” as defined in RSA 485-A:2, IX, as reprinted in Appendix B.
Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1302.14 “Public access” means “public access” as defined in RSA 271:20-a, I, as reprinted in Appendix B.
Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1302.15 “Public access site” means a location for public access.
Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1302.16 “Public boat access area” means an area adjacent to a public body of water that:

(a) Is owned or controlled by the state, is available for public use, and has been designated by the fish and game department as a boat launching area under the statewide public boat access program; or

(b) Has otherwise been formally designated by the appropriate authority as available for public use, without any residency requirement.
Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1302.17 “Public bodies of water” means:

(a) Public waters as defined in RSA 271:20;

(b) Any impoundment of a stream, lake, pond, or tidal or marine waters of 10 acres or more; and

(c) Any other body of water owned by the state or by a state agency or department.
Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1302.18 “Restricted use area” means a marked area or marked areas of a water body where infestations of exotic aquatic weeds have been delineated in accordance with Env-Wq 1304, which is closed to entry by boaters, anglers, or other water users and their equipment except in emergency situations where property or human life is endangered.
Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1302.19 “Surface waters of the state” means “surface waters of the state” as defined in RSA 485-A:2, XIV, as reprinted in Appendix B.
Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

PART Env-Wq 1303 LISTING OF PROHIBITED EXOTIC AQUATIC WEEDS; EXEMPTIONS

Env-Wq 1303.01 Criteria for Listing Exotic Aquatic Weeds as Prohibited. The department shall list an aquatic plant species as prohibited if it meets any of the following criteria:

(a) The species does not naturally occur in New Hampshire and will cause or is likely to cause economic or environmental harm or harm to human health or safety if introduced to the area, because it grows or is likely to grow more rapidly than native plants so as to impair an ecosystem’s ability to function by altering its productivity, decomposition, water fluxes, nutrient cycling and loss, soil fertility, erosion, dissolved oxygen concentrations, or its ability to maintain its existing species diversity;

(b) The species is known to invade and disrupt aquatic and wetland ecosystems in other geographic areas where the climate is similar to that of New Hampshire;

(c) The species is able to create dense, monospecific stands or monotypic stands that displace or destroy native plant habitat, destroy fish and wildlife habitats, inhibit water circulation, hinder navigation or irrigation, or severely restrict the recreational use of waterways; and

(d) The species resists effective control by present technology or available management practices.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1303.02 Prohibited Exotic Aquatic Weeds. Subject to Env-Wq 1303.03, the following exotic aquatic weeds shall not be offered for sale, distributed, sold, imported, purchased, propagated, transported, or introduced in the state, pursuant to RSA 487:16-a, because they pose a substantial threat to native species in the state:

(a) Butomus umbellatus, commonly referred to as flowering rush;

(b) All Cabomba species, including but not limited to Cabomba caroliniana and commonly referred to as fanworts;

(c) Crassula helmsii, commonly referred to as swamp stonecrop;

(d) Egeria densa, commonly referred to as Brazilian elodea;

(e) Epilobium hirsutum, commonly referred to as great willow herb or hairy willow herb;

(f) Glyceria maxima, commonly referred to as reed sweet grass or manna grass;

(g) Hydrilla verticillata; commonly referred to as Hydrilla or Anacharis;

(h) Hydrocharis morsus-ranae, commonly referred to as frogbit;

(i) Hygrophila polysperma, commonly referred to as East Indian hygrophila;

(j) Ipomoea aquatica, commonly referred to as water spinach;

(k) Iris pseudocarus, commonly referred to as yellow iris or yellow flag iris;

(l) Lagarosiphon major, commonly referred to as African oxygen weed;

(m) Limnophila sessiliflora, commonly referred to as ambulia;

(n) Lythrum salicaria, L. virgatum, L. alatum and their cultivars, commonly referred to as purple loosestrife;

(o) Marsilea quadrifolia, commonly referred to as water fern;

(p) Myosotis scorpiodies, commonly referred to as water forget-me-not;

(q) All Myriophyllum species, including but not limited to Myriophyllum heterophyllum, Myriophyllum spicatum, and Myriophyllum aquaticum, and commonly referred to as milfoils or feather-foils;

(r) Najas minor, commonly referred to as European naiad;

(s) Nymphoides peltata, commonly referred to as yellow floating heart;

(t) Phragmites australis or P. communis, commonly referred to as common reed;

(u) Potamogeton crispus, commonly referred to as curly leaf pondweed;

(v) Sagittaria japonica, commonly referred to as double flowering arrowhead, Japanese arrowhead, or old world arrowhead;

(w) Sagittaria sagittifolia, commonly referred to as giant sagittaria;

(x) Salvinia molesta, commonly referred to as giant salvinia;

(y) All Trapa species, commonly referred to as water chestnuts;

(z) Typha gracilis, commonly referred to as slender cattail;

(aa) Typha laxmanii, commonly referred to as dwarf cattail or Laxman's cattail; and

(ab) Typha minima, commonly referred to as miniature cattail or micro-mini cattail.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1303.03 Synonymy.

(a) The prohibited status of exotic aquatic weeds shall apply to the most recent and accepted scientific and common names of the species as listed in Env-Wq 1303.02 and to undesignated synonyms for the listed species.

(b) Plant status shall be determined using the Latin name of the species.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1303.04 Inspections.

(a) For purposes of this section, "business" means a commercial establishment that is open to the public and maintains stocks of aquatic plants for sale or other distribution, including pet stores and nurseries.

(b) The department shall inspect, during a business's normal business hours, the aquatic plants on display to the public.

(c) If the department's inspector observes plants that are on the list of prohibited species, the inspector shall inform the on-site manager of the business of the prohibitions of RSA 487:16-a and request the manager to discontinue the sale or other distribution of the plants.

(d) If the department's inspector observes plants that could be on the list of prohibited species, the inspector shall inform the on-site manager of the business of the prohibitions of RSA 487:16-a and request the manager to provide a sample of the questionable aquatic plant material of sufficient size to allow identification of the plant material at no compensation.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1303.05 Exemptions for Transportation. Transportation of any exotic aquatic weed(s) on any road or highway in the state shall be exempt from the transportation prohibition of RSA 487:16-a, if:

(a) The transportation is for the purpose of disposal as part of a harvest control activity under the supervision of the department; or

(b) The transportation is for the purpose of identifying a species or reporting the presence of a species, and the plant material is in a sealed container.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1303.06 Acceptable Means of Disposal.

(a) Any exotic aquatic weed shall be immediately disposed of away from water or moist areas where it might survive.

(b) Acceptable means of disposal shall include:

(1) Burning or incinerating;
(2) Land filling;
(3) Disposing in a trash container whose contents are destined for incineration or land filling;
(4) Desiccating;
(5) Composting, if applied away from surface waters; and
(6) Any other method that ensures the plant material will not enter surface waters.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1303.07 Exemptions for Preserved Specimens, Research or Education, and Field Experimentation.

(a) Subject to (b) and (c), below, and as authorized by RSA 487:16-a, the following uses of exotic aquatic weeds shall be exempt from the prohibitions of RSA 487:16-a:

(1) Exotic aquatic weeds in the form of herbaria or other preserved specimens;
(2) Exotic aquatic weeds being used in a controlled environment, such as in a laboratory for research or for educational display; and
(3) Exotic aquatic weeds that are subjected to experimental processes or equipment in the field for the purpose of finding control mechanisms for such exotic aquatic weeds.

(b) All specimens shall be destroyed as specified in Env-Wq 1303.06 when they are no longer used as specified in (a), above.

(c) For plants subjected to experimental processes or equipment in the field, the exemption shall apply only if such experimental processes or equipment are conducted in a way that prevents the spread of such weeds.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1303.08 Notification Requirement.

(a) Any person, other than an employee of the department acting in his or her official capacity, who participates in any of the activities exempted pursuant to Env-Wq 1303.05 and Env-Wq 1303.07, shall notify the department prior to or within 24 hours after performing such activity, by calling 271-3503 and asking for the Exotic Species Program or Limnology Center.

(b) Notification shall not be required for disposal after removal from recreational watercraft and equipment such as trailers, motors, fishing equipment, or diving gear.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

PART Env-Wq 1304 RESTRICTED USE AREAS

Env-Wq 1304.01 Designation and De-listing of Restricted Use Areas.

(a) The commissioner shall designate as a restricted use area any area that contains a limited infestation of exotic aquatic weeds, such as:

(1) Areas with new infestations;

(2) Infestations in areas with a high risk of fragmentation; and

(3) Areas in waterbodies with previously-documented infestations where treatments or management practices have removed all but a small area of exotics that can be contained with the establishment of a restricted use area until such time that other management practices can remove the remainder of the population.

(b) After designation, a restricted use area shall be in place until the area is no longer infested as determined using the criteria in (a), above, or until a period of 3 years has expired since the time of designation, whichever is sooner.

(c) When an infestation has been eradicated or cannot be successfully treated or managed within the 3-year time limit, or the 3-year time limit has been reached, the commissioner shall evaluate the designated area to determine whether to de-list the area or extend the area's designation as restricted use.

(d) In considering whether to designate a restricted use area pursuant to (a), above, or whether to extend the designation pursuant to (c), above, the commissioner shall proceed as directed by RSA 487:17, II(d).

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1304.02 Notice of Restricted Use Areas.

(a) Whenever a restricted use area is established, the department shall:

(1) Post signs and place buoys warning of a restricted use area in accordance with Env-Wq 1304.03 and Env-Wq 1304.04;

(2) Issue a press release to the newspapers serving each town in which the waterbody having the restricted use area is located; and

(3) Add the waterbody to the list posted on the department's website pursuant to (b)(2), below.

(b) By June 1 of each year, the department shall:

(1) Issue press releases to the newspapers in the towns surrounding each water body in which a restricted use area is designated or has been de-listed within the past 12 months to inform the public that a list of restricted use areas is available on the department's web site; and
(2) Post a list that identifies each waterbody that has a restricted use area or an area that has been de-listed within the past 12 months on the department's website.

(c) The press release issued pursuant to (a)(2), above, and the list posted pursuant to (b)(2), above, shall include the following information:
(1) The town(s) in which the water body containing the restricted use area is located;
(2) The name of the water body containing the restricted use area;
(3) The specific location of the infestation within the water body;
(4) The type of infestation; and
(5) The general dimensions of the restricted use area.
Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1304.03 Delineation and Markers for Restricted Use Areas.

(a) The department or its designee shall mark restricted use areas using buoys and signs as specified in this section.

(b) For each surface water in which a restricted use area is located, at least one sign meeting the requirements of Env-Wq 1304.08 shall be posted at each public access site and public boat access area on the surface water.

(c) If the actual restricted use area is in a cove, then:
(1) A boat channel shall be marked using 2 buoys that are not connected to each other but are each connected to the nearest shore by rope with small floats at least every 8 feet, to restrict recreational access to the area while allowing access by boat to shorefront properties in the cove; and
(2) If either buoy is more than 300 feet from shore, one additional buoy shall be connected to the rope between that buoy and the shore.

(d) If the actual restricted use area is not in a cove, then:
(1) A minimum of 3 buoys that are connected to each other by rope with small floats at least every 8 feet shall be placed around the actual restricted use area; and
(2) The buoys shall be not more than 300 feet apart.

(e) All buoys required by (c) or (d), above, shall meet the requirements of Env-Wq 1304.04.

(f) Buoys and signs shall be removed at the end of each growing season, unless removed sooner pursuant to the de-listing process.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1304.04 Type of Warning Buoy. The buoy used to warn of a restricted use area shall:

(a) Be a standard state danger buoy;

(b) Be white and international orange in color;

(c) Have an orange diamond symbol with an X through it; and

(d) Read as follows: "Restricted Use Area, pursuant to RSA 487. NH Dept. of Environmental Services 603-271-3503."
Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1304.05 Marking of Restricted Use Areas by Municipalities.

(a) Any municipality with a method of marking restricted use areas within municipal surface water supplies that is similar to the method described in Env-Wq 1304.03 and Env-Wq 1304.04 may request

the department to approve the use of the method in lieu of Env-Wq 1304.03 and Env-Wq 1304.04, by submitting a request in writing to the department.

(b) The request shall describe the municipality's method of marking restricted use areas and identify the area(s) to which it is to be applied.

(c) The department shall authorize the municipality to mark municipal surface water supplies using the municipality's method if the municipality's method is equivalent to or more stringent than the method identified in Env-Wq 1304.03 and Env-Wq 1304.04.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1304.06 Navigation Prohibition. Subject to Env-Wq 1304.07, no person or equipment, including boaters, anglers, or other water users and private or commercial watercraft of any type, shall enter a restricted use area except in emergency situations where property or human life is endangered.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1304.07 Restricted Use Areas at Access Points. If an infestation occurs at an access point to a marina or private residence, or at a public or private boat ramp, the access point may continue to be used if a bottom barrier is put over the infestation to keep it from spreading or, if the water is too shallow for a bottom barrier, the weeds are hand-pulled, provided:

(a) The work is by SCUBA divers who have received weed control diver certification from the professional association of diving instructors;

(b) The project is conducted in accordance with a non-emergency response plan designed pursuant to Env-Wq 1305.03;

(c) The project is not located in prime wetlands, marshes, bogs, or tidal wetlands;

(d) Diver-assisted harvesting of exotic aquatic weeds in flowing waters may be initiated only at the most upstream location of the infestation;

(e) The project is not in a wetland that has been identified by the department of resources and economic development, natural heritage inventory as an exemplary natural community or that has documented occurrences of state- or federally-listed endangered or threatened species; and

(f) The owner of the property obtains any permit or provides any notice required by RSA 482-A or Env-Wt 100 et seq.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1304.08 Signs. The signs posted pursuant to Env-Wq 1304.03(a) shall:

(a) Be at least 8 ½ by 11 inches in size;

(b) Include a picture of a warning buoy; and

(c) Inform people that the purpose of the buoys is to mark a restricted use area and that the area must not be entered except in emergencies where property or human life is endangered.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1304.09 Installation and Removal of Buoys.

(a) The department shall install buoys during weekday office hours.

(b) The department shall remove the buoys at the end of each growing season, unless removed sooner pursuant to the de-listing process.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

PART Env-Wq 1305 RESPONSE PROTOCOLS FOR NEW INFESTATIONS

Env-Wq 1305.01 Emergency Response Protocol for Small New Infestations.

(a) Upon notification of a possible new infestation of exotic aquatic weeds, the department shall:

(1) Document the infestation in accordance with Env-Wq 1305.02; and

(2) Determine whether the infestation is small enough that eradication is reasonably possible based on the criteria specified in (b), below.

(b) The department shall determine that eradication is reasonably possible if:

(1) The infestation is present as:

a. A small patch or scattered individual stems, such that the infestation can be controlled by hand-pulling the subject plant stems using snorkeling or SCUBA diving activities; or

b. A single dense mat or a series of separate dense mats wherein each mat covers an area less than 400 square feet, such that the infestation can be controlled by installing bottom barriers; and

(2) The infestation is a new infestation in a previously-uninfested water body or in a previously-uninfested area of a water body having already-controlled or otherwise minimal infestations.

(c) If the infestation meets the criteria specified in (b), above, the department shall undertake hand-pulling or install bottom barriers, or both, as is most likely to control the infestation.

(d) If the infestation is not small enough to be controlled with hand-pulling or bottom barriers, the department shall develop a plan for an appropriate non-emergency response in accordance with Env-Wq 1305.03.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1305.02 Documentation of Infestation. To document a new infestation, the department shall:

(a) Conduct a site inspection of subject waterbody within 72 hours of a new report;

(b) Collect a specimen of the suspect plant;

(c) Determine whether the plant is a native or exotic species per RSA 487:16, II, as follows:

(1) When fruit or flower is present, the department shall make an identification directly; and

(2) When no fruit or flower is present, the department shall send the specimen for genetic analysis to verify the species level identification;

(d) Map and characterize the extent of the infestation;

(e) Document any native plant abundances and community structure around and dispersed within the exotic plant population; and

(f) Identify potential impacts to downstream habitats as a result of the infestation or possible control activities.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1305.03 Non-Emergency Response Plan.

(a) If an infestation does not qualify as a small new infestation per Env-Wq 1305.01, the department shall develop a plan in consultation with interested stakeholders, including affected municipalities and lake associations, to address the infestation as a non-emergency response.

(b) The department shall implement any portion of the plan developed pursuant to (a), above, that calls for department action.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

PART Env-Wq 1306 EXOTIC AQUATIC WEED INFESTATION CONTROL GRANTS

Env-Wq 1306.01 Eligibility for Exotic Aquatic Weed Infestation Control Grant. To be eligible for a grant under RSA 487:21, III for a project to control infestations of exotic aquatic weeds, the proposed project shall:

(a) Be for a surface water of the state that is infested with at least one exotic aquatic weed listed in Env-Wq 1303.02; and

(b) Incorporate integrated pest management (IPM) strategies.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #9488, eff 6-23-09; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1306.02 Application for Exotic Aquatic Weed Infestation Control Grant.

(a) The applicant for a grant to control one or more infestations of exotic aquatic weeds shall submit a completed application for funding assistance on a form obtained from the department to the department's Exotic Species Program by September 15 of the year preceding the year for which the grant is requested.

(b) The applicant shall provide the following information:

(1) The applicant's name and summer and winter mailing addresses;
(2) Whether the applicant is an individual, political subdivision, association, or private business or other legal entity;
(3) If the applicant is not an individual, the name, daytime telephone number with area code, and email address, if any, of an individual who can be contacted on behalf of the applicant with questions regarding the application;
(4) The year and season or months the applicant proposes to implement the project;
(5) The name of the surface water for which the grant is sought, whether it is public or private, and the name of each town in which it is located;
(6) For each town, the number of public access sites and public boat access areas on the surface water;
(7) The predominant use(s) of the surface water and surrounding land area, and if the surface water is the source for a public water system, the name of the public water system; and
(8) The name of each type of exotic aquatic weed with which the surface water is infested, and for each:
a. The size and location of the infestation;
b. Whether the infestation first occurred in the previous 12 months;
c. The impact of the infestation to recreational, ecological, and economic values of the surface water; and
d. The proposed control technique(s), including proposed IPM strategies.

(c) The applicant, if an individual, or a responsible official of the organization or political subdivision that is applying for the grant who has been authorized to sign the application shall sign and date the application and print or type his or her name and title.

(d) The signature provided pursuant to (c), above, shall constitute certification that the individual is duly authorized to sign the application on behalf of the applicant and that the information contained in the application is true and complete to the signer's information and belief.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1306.03 Eligibility Determinations.

(a) The department shall:

(1) Review all grant applications received on or before the deadline established in Env-Wq 1306.02(a) to determine whether the proposed project meets the eligibility criteria specified in Env-Wq 1306.01; and

(2) Assign points to the projects that meet the eligibility criteria in accordance with Env-Wq 1306.05.

(b) The department shall notify each applicant in writing of its eligibility determination, as follows:

(1) If a project is determined to be not eligible, the written notice shall specify the reason(s) for the determination; and

(2) If a project is determined to be eligible, the department shall request the applicant to:

a. Consult with the department to determine the scope and location of the proposed work;

b. Obtain bids for the proposed work; and

c. Submit a proposed grant amount based on the bids to the department within 30 days of the date of the notice.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1306.04 Grant Awards.

(a) After the deadline for submitting bids, the department shall allocate the available grant funds beginning with the highest-ranking project and continuing until no projects or funds remain, whichever occurs first.

(b) The department shall notify each applicant of the amount of grant funds awarded, if any.

(c) Each applicant who receives a grant award shall provide the following to the department prior to spending any grant funds:

(1) A new or updated W-9 form, as appropriate;

(2) An original Certificate of Good Standing or a Certificate of Existence from the New Hampshire secretary of state's office, as applicable;

(3) A signed and notarized standard state grant agreement form as promulgated by the New Hampshire departments of justice and administrative services or a document that contains equivalent terms; and

(4) A signed and notarized certificate of authority.

Source. (See Revision Note 1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; and by #9488, eff 6-23-09; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1306.05 Prioritizing Exotic Aquatic Weed Infestation Control Projects. Pursuant to RSA 487:18, the priority of proposed exotic aquatic weed infestation control projects shall be determined by totaling the points assigned under each of the following categories:

(a) Points assigned based on the type of infestation in the surface water shall be as follows:

(1) A surface water having one or more widespread and well-established infestations shall receive one point;

(2) A surface water having one or more established infestations that are showing signs of spreading to uninfested portions of the waterbody shall receive 3 points;

(3) A surface water having one or more infestations that first occurred within the past 12 months and are small or localized shall receive 5 points; and

(4) The score for this category shall be multiplied by a weighting factor of 4;

(b) Points assigned based on the type of proposed control action shall be as follows:

(1) Projects where herbicide treatment will be followed by non-chemical management efforts, such as hand removal or bottom barriers, shall receive one point;

(2) Projects where only non-herbicide controls will be used shall receive 3 points;

(3) Projects where a new or innovative IPM strategy will be tried that will minimize adverse effects on fish and wildlife, their habitats, and the environment shall receive 5 points; and

(4) The score for this category shall be multiplied by a weighting factor of 3;

(c) Points assigned based on the type and availability of public access sites and public boat access areas shall be as follows:

(1) Private ponds shall receive no points;
(2) Public bodies of water with no known public access site shall receive one point;
(3) Public bodies of water where the public access site is open land or beach and there is no public boat access area shall receive 3 points;
(4) Public bodies of water where a public boat access area exists shall receive 5 points; and
(5) The score for this category shall be multiplied by a weighting factor of 2;

(d) Points assigned based on the predominant use(s) of the surface water and surrounding land area shall be as follows:

(1) Surface waters where less than 30% of the shorefront is developed shall receive no points;
(2) Surface waters where the surrounding land use is mostly residential and boating is predominantly small motorized and unmotorized craft shall receive one point;
(3) Surface waters where the surrounding land use is a mix of residential and transient and boating is a mix of large and small motorized and unmotorized craft, shall receive 3 points;
(4) Surface waters designated as public water supplies shall receive 5 points; and
(5) The score for this category shall be multiplied by a weighting factor of 2;

(e) Points assigned based on the impact of the infestation to recreational and economic values of the surface water shall be as follows:
(1) Infestations in areas of a surface water that are off-shore of mostly-undeveloped land areas where there is little impact to recreational or commercial uses shall receive no points;
(2) Infestations with mostly residential aesthetic impacts shall receive one point;
(3) Infestations with impacts to residential boat access or beaches as well as to residents shall receive 3 points; and
(4) Infestations with impacts to commercial operations, such as marinas, public beaches, motels, restaurants, and public docks, shall receive 5 points;

(f) Points assigned based on the impact of the infestation to ecological values of the surface water shall be as follows:
(1) Infestations that are physically contained and do not threaten the life cycle of native aquatic plant or animal communities shall receive no points;
(2) Infestations that are rapidly spreading and threaten the life cycle of native plant and animal communities shall receive 3 points; and
(3) Infestations that pose a risk to rare, threatened, or endangered plant or animal species within a surface water shall receive 5 points;

(g) Points assigned based on the treatment history of the surface water shall be as follows:
(1) Projects funded within the last 2 years shall receive no points;
(2) Projects not funded within the last 2 years where there was no request for funding in those 2 years shall receive one point;

(3) Projects not funded within the last 2 years where funding was requested and denied due to lack of available funds shall receive 3 points; and
(4) Projects not previously funded shall receive 5 points; and

(h) Points assigned based on the amount of local match shall be as follows:
(1) Projects where the applicant proposes to provide not more than 50% match for the project shall receive no points;
(2) Projects where the applicant proposes to provide at least 50% but less than 65% match for the project shall receive one point;
(3) Projects where the applicant proposes to provide at least 65% but less than 80% match for the project shall receive 3 points; and

(4) Projects where the applicant proposes to provide 80% or more match for the project shall receive 5 points.
Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1306.06 Contracting Procedures. Grant recipients shall comply with all applicable federal, state, and local contracting requirements when contracting for services to control or eradicate infestations of exotic aquatic weeds.
Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1306.07 Reporting Requirements.
(a) For maintenance projects using aquatic herbicides, the grant recipient shall submit a report at the end of the growing season that identifies the type of herbicide, rate of chemical application, success of the treatment, total project cost, and impacts to any non-target aquatic or land-based plant or animal species, and provides a summary of IPM strategies used during the grant period.
(b) To satisfy the reporting requirement of (a), above, the grant recipient may submit a photocopy or electronic copy of the aquatic pesticide project report submitted to the department of agriculture, markets and foods pursuant to Pes 603.03(c)(26), or any successor rule, that the grant recipient has supplemented with any information required by (a), above, that is not already in the report.
Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1306.08 Recordkeeping Requirements. All grant recipients shall keep detailed records of documented grant disbursements, match, and project tasks and deliverables for a period of 3 years from the end of the contractual period for the grant.
Source. (See Revision Note 1 at chapter heading for Env-Wq 1300) #10696, eff 10-18-14

PART Env-Wq 1307 DIAGNOSTIC AND FEASIBILITY STUDIES

Env-Wq 1307.01 Nomination for Diagnostic and Feasibility Study.
(a) A nomination for water body for inclusion in the diagnostic and feasibility study program established under RSA 487:21, I, shall be filed:
(1) By a municipality or an organization, such as a lake association, that is in good standing with the New Hampshire secretary of state; and
(2) For a surface water that meets the eligibility criteria specified in Env-Wq 1307.02.
(b) The nominating entity shall provide the information specified in Env-Wq 1307.03 in writing to the DES Limnology Center Director and Clean Lakes Program Coordinator.
Source. (See Revision Note 1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; amd by #9488, eff 6-23-09 ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1307.02 Eligibility Criteria for Diagnostic and Feasibility Studies. To be eligible for participation in the diagnostic and feasibility study program established under RSA 487:21, I, the water body shall be:
(a) A surface water of the state that is:
(1) Listed as impaired on the current or draft list prepared pursuant to §303(d) of the federal Clean Water Act as specified in 40 CFR 130.7;
(2) Identified as being at risk of being impaired in documented Volunteer Lake Assessment Program (VLAP) data demonstrating a statistically-significant decline in water quality; or

(3) Experiencing change(s) within its boundaries or within its watershed that are deemed a significant risk to the water quality and designated water uses by the department pursuant to section 305(b) of the federal Clean Water Act as specified in 40 CFR 130.8; and

(b) The subject of an organized and coordinated water quality monitoring program that has collected water quality data spanning 10 or more consecutive years, such that:

(1) The surface water is monitored at least 3 times from May 15 through October 1, with samples being taken at least 30 days apart; and

(2) All analyses were performed by a laboratory accredited for the analyses by the department pursuant to Env-C 300 or by EPA or another government agency using National Environmental Laboratory Accreditation Committee standards.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1307.03 Information Required for Nominations.

(a) The nominating entity shall provide the following information:

(1) The entity's name and mailing address;

(2) The name, daytime telephone number with area code, and email address, if any, of an individual who can be contacted on behalf of the entity with questions regarding the nomination;

(2) The name of the surface water that would be the subject of the study, whether it is public or private, and the name of each town in which it is located;

(3) Certification that the surface water meets the eligibility criteria specified in Env-Wq 1307.02;

(4) The reason(s) for nomination;

(5) Observations related to declines in the recreational, ecological, and economic value of the surface water due to impairment;

(6) Specific areas of concern in the surface water or watershed, or both;

(7) Desired outcomes for surface water and watershed conditions; and

(8) The level of financial support and volunteer participation the entity is prepared to provide during the study and implementation phases.

(d) A responsible official of the entity that is nominating the water body who has been authorized to sign the application shall sign and date the application and print or type his or her name and title.

(e) The signature provided pursuant to (a), above, shall constitute certification that the individual is duly authorized to sign the application on behalf of the entity and that the information contained in the application is true and complete to the signer's information and belief.

Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1307.04 Participation Determinations.

(a) The department shall review each nomination received to:

(1) Determine whether the nominating entity and water body meet the eligibility criteria specified in Env-Wq 1307.01(a) and Env-Wq 1307.02, respectively; and

(2) Assign points using the prioritization criteria specified in Env-Wq 1307.05 to each nomination that meets the eligibility criteria.

(b) The department shall notify each nominating entity in writing regarding whether or not the proposed project was selected for participation. If the proposed project was not selected, the written notice shall specify the reason(s) for the decision.

(c) The department shall maintain a list of accepted nominations, ranked in order of the number of points assigned.

(d) As funds become available, the department shall conduct diagnostic and feasibility studies in the order on the ranked list.
Source. (See Revision Note #1 at chapter heading for Env-Wq 1300) #8703-A, eff 9-5-06; ss by #10696, eff 10-18-14 (See Revision Note #2 at chapter heading for Env-Wq 1300)

Env-Wq 1307.05 Prioritizing Diagnostic and Feasibility Studies. Pursuant to RSA 487:18, project priority shall be determined by totaling the points assigned under each of the following categories:
(a) Points assigned based on the degree of impairment of the surface water shall be as follows:
(1) Lakes and ponds not listed as impaired on the current or draft list prepared pursuant to section 303(d) of the federal Clean Water Act as specified in 40 CFR 130.7 shall receive no points;
(2) Lakes and ponds not listed as impaired on the current or draft list prepared pursuant to section 303(d) of the federal Clean Water Act as specified in 40 CFR 130.7, but identified as being at risk of being impaired in documented Volunteer Lake Assessment Program (VLAP) data demonstrating a statistically-significant decline in water quality shall receive 3 points;
(3) Lakes and ponds listed as impaired on the current or draft list prepared pursuant to section 303(d) of the federal Clean Water Act as specified in 40 CFR 130.7 shall receive 5 points; and
(4) The score for this category shall be multiplied by a weighting factor of 4;
(b) Points assigned based on the type and availability of public access sites and public boat access areas shall be as follows:
(1) Privates lakes and ponds shall receive no points;
(2) Public bodies of water with no known public access site shall receive one point;
(3) Public bodies of water where the public access site is open land or beach and there is no public boat access area shall receive 3 points;
(4) Public bodies of water where a public boat access area exists shall receive 5 points; and
(5) The score for this category shall be multiplied by a weighting factor of 2;
(c) Points assigned based on the predominant use(s) of the surface water and surrounding land area shall be as follows:
(1) Surface waters where less than 30% of the shorefront is developed shall receive no points;
(2) Surface waters where the surrounding land use is mostly residential and boating is predominantly small motorized and unmotorized craft shall receive one point;
(3) Surface waters where the surrounding land use is a mix of residential and transient and boating is a mix of large and small motorized and unmotorized craft shall receive 3 points;
(4) Surface waters designated as public water supplies shall receive 5 points; and
(5) The score for this category shall be multiplied by a weighting factor of 2;
(d) Points assigned based on the impact of the impairment or potential impairment to recreational and economic values of the surface water shall be as follows:
(1) The impairment is to areas of a surface water that are off-shore of mostly-undeveloped land areas where there is little impact to recreational or commercial uses shall receive no points;
(2) The impairment is on lakes and ponds with mostly residential aesthetic impacts shall receive one point;
(3) The impairment impacts residential or public beaches shall receive 3 points; and
(4) The impairment impacts commercial operations, such as marinas, public beaches, motels, restaurants, and public docks, shall receive 5 points;
(e) Points assigned based on the impact of the impairment or potential impairment to ecological values of the surface water shall be as follows:
(1) Impairments to mostly non-native plant or animal communities in the lake or pond shall receive no points; and

(2) Impairments to native plant or animal species, such that the identified impairment would reduce the habitat for those species to the point where their abundance may be altered, shall receive 3 points; and

(f) Points assigned based on the amount of local match shall be as follows:
(1) Projects where the applicant proposes to provide not more than 50% match for the project shall receive no points;
(2) Projects where the applicant proposes to provide at least 50% but less than 65% match for the project shall receive one point;
(3) Projects where the applicant proposes to provide at least 65% but less than 80% match for the project shall receive 3 points; and
(4) Projects where the applicant proposes to provide 80% or more match for the project shall receive 5 points.
Source. (See Revision Note #2 at chapter heading for Env-Wq 1300) #10696, eff 10-18-14

PART Env-Wq 1308 EXOTIC AQUATIC WEED INFESTATION PREVENTION GRANTS

Env-Wq 1308.01 Eligibility for Exotic Aquatic Weed Infestation Prevention Grant. To be eligible for a grant under RSA 487:21, III for a project to prevent infestations of exotic aquatic weeds, the proposed project shall:
(a) Affect one or more surface waters of the state; and
(b) Address at least one of the exotic aquatic weed species identified in Env-Wq 1303.02.
Source. (See Revision Note #2 at chapter heading for Env-Wq 1300) #10696, eff 10-18-14

Env-Wq 1308.02 Application for Exotic Aquatic Weed Infestation Prevention Grant.
(a) The applicant for a grant to prevent infestations of exotic aquatic weeds shall submit a completed application for funding assistance to the department's Exotic Species Program by November 15 of the year preceding the year for which the grant is requested.
(b) To apply, the applicant shall provide:
(1) The information specified in Env-Wq 1308.03 on or with a form obtained from the department that has been signed as specified in Env-Wq 1308.04;
(2) If the project is targeted to a specific waterbody:
a. If applicable, copies of the written permissions obtained from owners of private property on which any project task will occur as described in Env-Wq 1308.03(h)(2)d.; and
b. Documentation demonstrating the local support described pursuant to Env-Wq 1308.03(h)(3); and

(3) Such additional information, including but not limited to designs and graphics, as the applicant deems relevant.
Source. (See Revision Note #2 at chapter heading for Env-Wq 1300) #10696, eff 10-18-14

Env-Wq 1308.03 Information Required for Exotic Aquatic Weed Infestation Prevention Grant Application. The information required by Env-Wq 1308.02(b)(1) shall be as follows:
(a) A short title for the project, for example "Boater Education for [Waterbody Name]";
(b) The applicant's name and mailing address;
(c) Whether the applicant is a political subdivision, association, or private business or other legal entity;
(d) The name, daytime telephone number with area code, and email address, if any, of an individual who can be contacted on behalf of the applicant with questions regarding the application;
(e) Whether the grant is for a state-wide project or a waterbody-specific project, and if the project is specific to a waterbody, the name of the waterbody and the name of each town in which it is located;

(f) The amount of the grant being requested, the amount of the local match, and the total project cost;

(g) A brief description of the project suitable for use in publicity if the proposal is selected for funding;

(h) A narrative of no more than 4 pages that includes the following:

(1) A clear and concise description of the purpose and goals of the project relative to exotic aquatic weed infestation prevention activities and, for each goal, how the determination of whether the goal was achieved will be made;

(2) A list of each task to be undertaken as part of the project and the following information for each:

a. Name of task;

b. Timeframe for task;

c. The name and daytime contact information for the individual who will perform the task;

d. A brief summary of task, including its purpose and result and whether the task will occur on privately-owned property; and

e. The name of each other project partner that has a role in accomplishing the task with a description of that role;

(3) A description of local support for the project, including support from nearby landowners, watershed groups, public water suppliers, municipalities, water users, and other organizations with an interest in milfoil and other exotic aquatic weed infestation prevention.

(4) The proposed start date and end date of the project;

(5) A concise summary of what the project is intended to accomplish, who will do it, and how it will be implemented;

(6) A list of target species; and

(7) A description of the target audience, if applicable; and

(i) A proposed project budget that identifies the quantity, rate or per unit cost, total cost, match amount and source, and grant amount for each budget item, including but not limited to equipment, labor, materials and supplies, salary and benefits, and contracted services, subject to the following:

(1) Applicants for prevention grants shall provide at least 50% match of the total project cost;

(2) The local match may include contributions of cash or the value of donated services from individuals, organizations, or municipalities;

(3) Volunteer labor may be valued as match at a rate identified for New Hampshire in the Independent Sector's Value of Volunteer Time, http://www.independentsector.org/volunteer_time;

(4) Donated professional services may be valued as match at a documented professional rate; and

(5) Donated equipment may be valued as match using market leasing rates; and

(j) A budget breakout that lists each project task and, for each, the amount of grant funding for the task, the amount of the match for the task, and the total cost for the task.

Source. (See Revision Note #2 at chapter heading for Env-Wq 1300) #10696, eff 10-18-14

Env-Wq 1308.04 Signature Required.

(a) A responsible official of the organization or political subdivision that is applying for the grant who has been authorized to sign the application shall sign and date the application and print or type his or her name and title.

(b) The signature provided pursuant to (a), above, shall constitute certification that the individual is duly authorized to sign the application on behalf of the applicant and that the information contained in the application is true and complete to the signer's information and belief.

Source. (See Revision Note #2 at chapter heading for Env-Wq 1300) #10696, eff 10-18-14

Env-Wq 1308.05 Funding Determinations.

(a) The department shall review all grant applications received prior to the deadline established in Env-Wq 1308.02(a), rank them using the prioritization criteria specified in Env-Wq 1308.06, and assign funding amounts based on available funds.

(b) The department shall notify each applicant in writing regarding whether or not a grant was awarded. If a grant is not awarded, the written notice shall specify the reason(s) for the decision.

(c) Upon notification of grant award, the applicant shall provide the following to the department:

(1) A new or updated W-9 form, as appropriate;

(2) An original Certificate of Good Standing or a Certificate of Existence from the New Hampshire secretary of state's office, as applicable;

(3) A signed and notarized standard state grant agreement form as promulgated by the New Hampshire departments of justice and administrative services or a document that contains equivalent terms; and

(4) A signed and notarized certificate of authority.

Source. (See Revision Note #2 at chapter heading for Env-Wq 1300) #10696, eff 10-18-14

Env-Wq 1308.06 Prioritizing Exotic Aquatic Weed Infestation Prevention Projects. Pursuant to RSA 487:18, project priority shall be determined by totaling the points assigned under each of the following categories:

(a) Points assigned based on the scope of the project's impact shall be as follows:

(1) A project to provide educational information at a single waterbody shall receive one point for each public access site and public boat access area at which the information will be provided and one point per 100 people who historically have used the access site or area; and

(2) A project intended to provide educational information at more than one waterbody shall receive one point for each waterbody, one point for each public access site and public boat access area at which the information will be provided, and one point per 100 people who historically have used the access site or area;

(b) Points assigned based on the number of species and the impact of potential infestations to ecological values of the surface water shall be as follows:

(1) A project shall receive one point for each exotic aquatic weed species listed in Env-Wq 1303.02 proposed to be addressed; and

(2) A project shall receive one additional point for each species that typically spreads rapidly and threatens the life cycle of native plant and animal communities;

(c) Points assigned based on the type of project shall be as follows:

(1) A project that proposes to use materials or methods that are completely untested shall receive no points;

(2) A project that proposes to use materials or methods that have been shown in limited uses to be effective shall receive 3 points; and

(3) A project that proposes to use materials or methods that have a strong record of success shall receive 5 points; and

(d) Points assigned based on the amount of local match shall be as follows:

(1) A project where the applicant proposes to provide a 50% match for the project shall receive no points;

(2) A project where the applicant proposes to provide at least 50% but less than 65% match for the project shall receive one point;

(3) A project where the applicant proposes to provide at least 65% but less than 80% match for the project shall receive 3 points; and

(4) A projects where the applicant proposes to provide 80% or more match for the project shall receive 5 points.
Source. (See Revision Note #2 at chapter heading for Env-Wq 1300) #10696, eff 10-18-14

Env-Wq 1308.07 Required Records.
(a) The grant recipient shall maintain:
(1) Accounting records to show how grant money was spent and how it was matched;
(2) A project record to document completion of each project task and whether any modifications were made to the task; and
(3) Records to document whether the goals of the project were achieved.

(b) The grant recipient shall make the records required by (a), above, available for review by the department during normal business hours at the department's request.
Source. (See Revision Note #2 at chapter heading for Env-Wq 1300) #10696, eff 10-18-14

Env-Wq 1308.08 Required Reports.
(a) The grant recipient shall submit a written report to the department at the completion of the project.
(b) The report required by (a), above, shall include:
(1) A description of any deviations or modifications to the project as described in the application were made, and if so, why;
(2) Whether the goals of the project were achieved, and if not achieved, the likely reason(s) why;
(3) A table summarizing and enumerating the tasks and deliverables realized/achieved for each task outlined in the project proposal.
(4) The final actual budget for the project, highlighting any amendments made during the course of the project, and including the types and amount of match contributed towards the grant.
Source. (See Revision Note #2 at chapter heading for Env-Wq 1300) #10696, eff 10-18-14

PART Env-Wq 1309 EXOTIC AQUATIC WEED RESEARCH GRANTS

Env-Wq 1309.01 Eligibility for Exotic Aquatic Weed Research Grant. To be eligible for a grant under RSA 487:21, III for a project to research exotic aquatic weeds, the proposed project shall:
(a) Address the biology, ecology, or control, or any combination thereof, of one or more exotic aquatic weeds listed in Env-Wq 1303.02;
(b) Be executed by researchers affiliated with academia or by private consultants holding degrees in aquatic ecology, biology, chemistry, or related fields; and
(c) Incorporate integrated pest management (IPM) strategies, if the project is related to an exotic aquatic weed control activity.
Source. (See Revision Note #2 at chapter heading for Env-Wq 1300) #10696, eff 10-18-14

Env-Wq 1309.02 Application for Exotic Aquatic Weed Research Grant.
(a) The applicant for an exotic aquatic weed research grant shall submit a completed application for funding assistance to the department's Exotic Species Program by November 15 of the year preceding the year for which the grant is requested.
(b) To apply, the applicant shall provide:
(1) The information specified in Env-Wq 1309.03 on or with a form obtained from the department that has been signed as specified in Env-Wq 1309.04;
(2) If the project is targeted to a specific waterbody:

a. A U.S. Geological Survey map having a 1:20,000 scale, with the project location and surrounding watershed clearly marked; and
b. If applicable, copies of the written permissions obtained from owners of private property on which any project task will occur; and
(3) Such additional information as the applicant deems relevant.
Source. (See Revision Note #2 at chapter heading for Env-Wq 1300) #10696, eff 10-18-14

Env-Wq 1309.03 Information Required for Exotic Aquatic Weed Research Grant Application. The information required by Env-Wq 1309.02(b)(1) shall be as follows:
(a) A title for the project;
(b) The applicant's name and mailing address;
(c) Whether the applicant is a political subdivision, association, or private business or other legal entity;
(d) The name, daytime telephone number with area code, and email address, if any, of an individual who can be contacted on behalf of the applicant with questions regarding the application;
(e) The amount of the grant being requested and the total project cost;
(g) A brief description of the project suitable for use in publicity if the proposal is selected for funding;
(h) A narrative of no more than 4 pages that includes the following:
(1) A clear and concise description of the purpose and goals of the project relative to exotic aquatic weed research and, for each goal, how the determination of whether the goal was achieved will be made;

(2) A concise summary of what the project is intended to accomplish, who will do it, specific field and/or laboratory methods to be used, where the work will occur, and estimated dates of project initiation and completion;
(3) A list of each research team member responsible for more than administrative functions, and for each a brief description of the individual's relevant experience and education;
(4) A list of each task to be undertaken as part of the project, and for each a brief explanation of what will be accomplished, who is responsible, and when it will be completed;
(5) A list of target species; and
(6) A description of the target audience, if applicable; and
(i) A proposed project budget that identifies the quantity, rate or per unit cost, total cost, match amount and source, and grant amount for each budget item, including but not limited to equipment, labor, materials and supplies, salary and benefits, and contracted services, subject to the following:
(1) Applicants for research grants shall indicate what match level, if any, will be provided towards the total project cost;
(2) The match may include contributions of cash or the value of donated services from individuals, organizations, or municipalities;
(3) Volunteer labor may be valued as match at a rate identified for New Hampshire in the Independent Sector's Value of Volunteer Time, http://www.independentsector.org/volunteer_time;
(4) Donated professional services may be valued as match at a documented professional rate; and
(5) Donated equipment may be valued as match using market leasing rates; and
(j) A budget breakout that lists each project task and, for each, the amount of grant funding for the task, the amount of the match for the task, and the total cost for the task.
Source. (See Revision Note #2 at chapter heading for Env-Wq 1300) #10696, eff 10-18-14

Env-Wq 1309.04 Signature Required.

(a) A responsible official of the organization or political subdivision that is applying for the grant who has been authorized to sign the application shall sign and date the application and print or type his or her name and title.

(b) The signature provided pursuant to (a), above, shall constitute certification that the individual is duly authorized to sign the application on behalf of the applicant and that the information contained in the application is true and complete to the signer's information and belief.

Source. (See Revision Note #2 at chapter heading for Env-Wq 1300) #10696, eff 10-18-14

Env-Wq 1309.05 Funding Determinations.

(a) The department shall review all grant applications received prior to the deadline established in Env-Wq 1309.02(a), rank them using the prioritization criteria specified in Env-Wq 1309.06, and assign funding amounts based on available funds.

(b) The department shall notify each applicant in writing regarding whether or not a grant was awarded. If a grant is not awarded, the written notice shall specify the reason(s) for the decision.

(c) Upon notification of grant award, the applicant shall provide the following to the department:

(1) A new or updated W-9 form, as appropriate;

(2) An original Certificate of Good Standing or a Certificate of Existence from the New Hampshire secretary of state's office, as applicable;

(3) A signed and notarized standard state grant agreement form as promulgated by the New Hampshire departments of justice and administrative services or a document that contains equivalent terms; and

(4) A signed and notarized certificate of authority.

Source. (See Revision Note #2 at chapter heading for Env-Wq 1300) #10696, eff 10-18-14

Env-Wq 1309.06 Prioritizing Exotic Aquatic Weed Research Projects. Pursuant to RSA 487:18, project priority shall be determined by totaling the points assigned under each of the following categories:

(a) Points assigned based on the project's approach shall be as follows:

(1) A project to research a new in-water approach for controlling existing infestations shall receive one point;

(2) A project to research the biology or ecology of a species on the list in Env-Wq 1303.02 that is not well understood shall receive 2 points; and

(3) A project to research a new approach to preventing new infestations shall receive 3 points;

(b) Points assigned based on the number of species and the impact of potential infestations to ecological values of the surface water shall be as follows:

(1) A project shall receive one point for each species on the list in Env-Wq 1303.02 proposed to be addressed; and

(2) A project shall receive one additional point for each species that typically spreads rapidly and threatens the life cycle of native plant and animal communities; and

(c) Points assigned based on the amount of local match shall be as follows:

(1) A project where the applicant proposes to provide less than a 50% match for the project shall receive no points;

(2) A project where the applicant proposes to provide at least 50% but less than 65% match for the project shall receive one point;

(3) A project where the applicant proposes to provide at least 65% but less than 80% match for the project shall receive 3 points; and

(4) A projects where the applicant proposes to provide 80% or more match for the project shall receive 5 points.

Source. (See Revision Note #2 at chapter heading for Env-Wq 1300) #10696, eff 10-18-14

Env-Wq 1309.07 Required Records.

(a) The grant recipient shall maintain:

(1) Accounting records to show how grant money was spent and how it was matched;

(2) A project record to document completion of each project task and whether any modifications were made to the task; and

(3) Records to document whether the goals of the project were achieved.

(b) The grant recipient shall make the records required by (a), above, available for review by the department during normal business hours at the department's request.

Source. (See Revision Note #2 at chapter heading for Env-Wq 1300) #10696, eff 10-18-14

Env-Wq 1309.08 Required Reports.

(a) The grant recipient shall submit a written report to the department at the completion of the project.

(b) The report required by (a), above, shall include:

(1) A description of any deviations or modifications to the project as described in the application were made, and if so, why;

(2) A detailed explanation of the findings of the study, formatted as either a technical report or as a scientific paper manuscript, including sections for introduction, methods, results and a discussion of findings, as well tables and figures as may be appropriate to relay data collected as part of the study;

(3) Whether the goals of the project were achieved, and if not achieved, the likely reason(s) why; and

(4) The final actual budget for the project, highlighting any amendments made during the course of the project, and including the types and amount of match contributed towards the grant.

Source. (See Revision Note #2 at chapter heading for Env-Wq 1300) #10696, eff 10-18-14

Appendix A: State Statutes Implemented

Rule	State Statute(s) Implemented
Env-Wq 1301	RSA 487:15 - 23
Env-Wq 1302	RSA 487:15 - 23
Env-Wq 1303	RSA 487:16-a
Env-Wq 1304	RSA 487:17, II(d)
Env-Wq 1305	RSA 487:17, II(c)
Env-Wq 1306	RSA 487:17, :20, :21
Env-Wq 1306.01	RSA 487:17, I(c), II, & III; RSA 487:18, :20, :21
Env-Wq 1306.04(a)	RSA 487:17, :18
Env-Wq 1307	RSA 487:17, :18, :20, :21, :22
Env-Wq 1307.01	RSA 487:17, I(c), II, & III; RSA 487:18, :20, :21
Env-Wq 1308	RSA 487:26-29
Env-Wq 1309	RSA 487:26-29

Appendix B: Statutory Definitions

271:20-a Definition of Public Access. –

I. Public access to public waters means legal passage to any of the public waters of the state by way of designated contiguous land owned or controlled by a state agency, assuring that all members of the public shall have access to and use of the public waters for recreational purposes.

II. Public access also means that no barriers or other impediments shall exist in the roads and ways leading to any of the public waters.

485-A:2 Definitions. –

IX. "Person" means any municipality, governmental subdivision, public or private corporation, individual, partnership, or other entity.

XIV. "Surface waters of the state" means perennial and seasonal streams, lakes, ponds, and tidal waters within the jurisdiction of the state, including all streams, lakes, or ponds bordering on the state, marshes, water courses, and other bodies of water, natural or artificial.

487:16 Definitions. – In this subdivision:

II. The term "exotic aquatic weeds" includes only those species of vascular aquatic plants which were not part of New Hampshire's native aquatic flora before 1950. Cabomba caroliniana and Myriophyllum heterophyllum are examples of exotic aquatic weeds.

APPENDIX TWO: CHRONOLOGY OF PROGRAM ACTIVITIES

1981

- The exotic aquatic weed control legislation (RSA 487-17 formally RSA 149-F:3) became law on August 22, 1981.
- Fifty-thousand brochures describing the exotic aquatic weed control program were distributed to boat license agents, state rest areas, marinas and lake associations.
- Waterproof posters depicting how to stop the spread of exotic weeds to other waterbodies were designed and distributed by NHDES personnel. Posters were placed at high use boat launching facilities throughout the state.
- A television commercial describing the exotic weed control program aired on Channel 9, in Manchester.
- Articles on exotic weed control were placed in several of the state's most read newspapers.
- Personnel from this department discussed the exotic weed control problem at many lake association meetings.
- Several exotic weed complaints were field investigated by NHDES personnel.

1982

- The Citizen Aquatic Weed Control Advisory Committee was formed.
- Educational material was distributed throughout the state to keep the public up to date on milfoil control. Boat license agents, state rest areas, boat marinas and lake associations received this material.
- Matching funds were awarded to Smith Cove Lake Association for mechanical harvesting of milfoil in Lake Winnipesaukee.
- Fifty lakes were surveyed for the presence of exotic weeds.
- A new infestation of milfoil was discovered in the outlet of Lake Waukewan by NHDES personnel. It was successfully eradicated with an aquatic herbicide.

1983

- The Smith Cove Lake Association in Gilford and the Wolfeboro Conservation Commission were awarded matching fund grants for the harvesting of milfoil in Lake Winnipesaukee.
- Educational material was distributed throughout the state.
- Fifty lakes were surveyed for exotic weed life by NHDES personnel.
- Several complaints or inquiries pertaining to exotic weeds were either field investigated or handled through correspondence.
- NHDES personnel presented several talks on weed control at lake association meetings during the summer.
- Correspondence to other states and countries experiencing exotic aquatic weed problems was initiated in order to obtain new or existing aquatic weed control techniques.

1984

- The Towns of Alton, Gilford, Meredith and Wolfeboro were awarded matching grants to mechanically harvest exotic milfoil in Lake Winnipesaukee.
- The West Alton Marina was awarded a matching grant to apply aquatic herbicide to their dock area to control milfoil.
- Educational material was distributed throughout the state.
- Fifty exotic weed surveys were performed throughout the state.
- A new infestation of milfoil was hand pulled at the boat launching facilities on Crescent Lake in Wolfeboro. SCUBA equipment was utilized during the operation.
- Several aquatic weed complaints were field investigated by NHDES personnel.
- Personnel from NHDES monitored a lake drawdown and dredging project that was undertaken to control exotic fanwort in Millville Lake in Salem.
- Several newspaper articles were published state wide pertaining to exotic aquatic weed control. *The Boston Sunday Globe* did an extensive feature story on exotic milfoil in Lake Winnipesaukee. "The Laker" in Wolfeboro printed an excellent article explaining the problem.
- NHDES personnel addressed the exotic plant control problems at lake association meetings during the summer.

1985

- Funding for exotic weed control was suspended due to a previously unknown legislative footnote. No weed control projects were funded this year.
- Fifty exotic weed surveys were performed on lakes throughout the state.
- Millville Lake was inspected for Cabomba growth following a dredging operation.
- Educational material was distributed throughout the state.
- NHDES SCUBA team removed a small patch of milfoil from Crescent Lake boat landing area in Wolfeboro.
- NHDES personnel addressed aquatic weed problems at lake association meetings.

1986

- Aquatic weed control program funds became available due to legislative action. However, no projects were funded that summer due to funds not being available in time.
- Fifty exotic weed surveys were undertaken during the summer months.
- Two papers entitled "A Review of Current and Experimental Methods for the Control and Management of Aquatic Milfoil" and "Answers to Questions Concerning Aquatic Milfoil in New Hampshire Surface Waters" were written for distribution to the public.
- Educational material was distributed to lake associations, boat marinas, and the general public.
- Millville and Crescent Lakes were intensely surveyed for exotic weeds.
- Personnel from NHDES addressed aquatic weed problems at lake association meetings during the summer months.

1987

- Matching funds were awarded to the Town of Alton to undertake a milfoil dredging project in Lake Winnipesaukee.

- SCUBA divers removed small milfoil infestations at the Crescent Lake boat landing in Wolfeboro and in a section of the Winnipesaukee River in downtown Laconia.
- Two mechanical harvesting projects were planned for the summer. However, town officials could not obtain the necessary local funding to match the state's share.
- An attempt to dredge 10,000 square feet of milfoil and bottom substrate was canceled in Opechee Lake in Laconia. Heavy duty equipment became mired down in the deep mud near the milfoil infestation.
- Educational material was distributed throughout the state.
- Intensive exotic weed surveys were undertaken in seventeen lakes and ponds near Lake Winnipesaukee. These ponds were considered to be vulnerable to a milfoil infestation.
- Fifty exotic weed searches were performed on other state lakes.
- A grant of $45,000 was awarded to the University of New Hampshire in Durham for Research on how to control exotic weed growth. Research was conducted in Back Bay in Wolfeboro on Lake Winnipesaukee.
- Private citizens participating in the New Hampshire State Assisted Lay Monitoring Program were instructed to report the sighting of any new weed growths in their respective lakes and ponds. The manual used by these lay monitors has a special section on exotic weed life.
- Millville Lake in Salem was checked for any regrowth of fanwort after a dredging operation. There has been no sign of fanwort in the lake to this date.
- A news release concerning exotic weeds and their potential spread to other lakes was distributed throughout the state media system.
- NHDES personnel participated in a workshop entitled "Nuisance Aquatic Weeds in New England." This workshop was sponsored by the New England Association of Environmental Biologists.
- A 4"x6" educational handout card depicting how exotic weeds can be spread to other lakes through boating activity was distributed to boat owners during registration of their respective boats.

1988

- The state initiated a "Weed Watcher Program" for lake residents. Volunteer weed watchers were given instruction kits which taught them how to look for exotic weeds in their respective lakes. Any weeds that were suspected to be milfoil or fanwort were submitted to the NHDES Biology Bureau for verification. The program was well received by the public.
- Fifty exotic weed surveys were performed during the summer as well as many field investigations of exotic weed complaints.
- Matching funds were awarded to the Smith Cove Lake Association for the harvesting of exotic milfoil in Lake Winnipesaukee.
- Benthic barriers were installed in Lake Opechee to control a small area infested with milfoil.
- NHDES personnel assisted on a private dredging project to control milfoil in Lake Opechee.
- Hand pulling of small infestations of milfoil was undertaken in Flints Pond, Crescent Lake, Lake Opechee and the Winnipesaukee River.
- A boat inspection program to detect "stowaway" exotic plant fragments was initiated during the summer of 1988. Participating towns were given $2.00 per boat inspection. A questionnaire was also filled out by each person going through the inspection. Educational material was handed out to all boaters using these inspection launch sites. Towns participating were Meredith, Alton, Center Harbor (Winnipesaukee) and Sunapee (Lake Sunapee).
- Exotic milfoil was found in Turkey Pond, Concord and Flints Pond in Hollis during routine exotic weed surveys.

- Several boat docking facilities and launch sites were checked for the presence of exotic weeds during the summer.

1989

- A matching grant was awarded to the Locke Lake Association in Barnstead for the purpose of chemically treating 40 acres of exotic milfoil. The chemical called Diquat was used to control the milfoil.
- Lake shore residents along the northwestern section of Opechee Lake were awarded a matching grant to dredge milfoil and the bottom mud that sustain the exotic weeds. This was undertaken during a fall drawdown of the lake.
- St. Paul's School, located in Concord, was awarded a matching grant to mechanically harvest and hydrorake milfoil in Library Pond and Lower School Pond. The grant also provided for the application of lime to selected milfoil beds to determine if there was a reduction in biomass. The lime experiment was intended to supplement the work previously undertaken on Lake Winnipesaukee in 1987.
- Fifty lake surveys were performed which included intensive searches for exotic weeds.
- Several complaints were investigated relative to sightings of exotic plants.
- A matching grant was awarded to lake residents in Paugus Bay in Laconia for the purpose of controlling milfoil with a mechanical weed harvester. Boat movement through the area was impeded by the large amounts of exotic milfoil.
- Milfoil was confirmed to be growing in Contoocook Lake in Rindge. NHDES biologists spent a whole day mapping the extent of the problem in Contoocook Lake. Several meetings were scheduled between lake association residents and NHDES biologists to determine a course of action to curtail the milfoil infestation. After discussing the problem thoroughly with all concerned, it was decided that the use of an aquatic herbicide would be the most efficient milfoil management tool available. During the winter months, plans were drawn up, permits obtained, and a weed control firm was hired to complete the plan.

1990

- Exotic milfoil was found in Northwood Lake during a routine inspection. Initially it was thought to be a small localized infestation. A SCUBA team revealed later that the milfoil encompassed a larger area not seen during the boat inspection. Since this was a pioneer infestation of milfoil it was decided that the best course of action to control the problem would be through the use of the herbicide called Diquat. The entire lake was surveyed for the presence of milfoil toward the end of the summer. The survey revealed that the initial infestation had spread to about 75 acres of the lake shore. Invitation for bids to control this problem were sent out and the necessary permits were obtained with a target date set for the spring of 1991 for the application of the chemical Diquat. NHDES funded 100% of the project.
- Contoocook Lake in Rindge received a matching grant from NHDES to treat 70 acres of milfoil. Aquatic Control Technology Inc. was selected to treat the lake with liquid Diquat.
  Milfoil had entered the lake about three to four years earlier but was not brought to the state's attention until 1989.
- A small patch of milfoil (50'x10') was found at the Mast Landing boat launching site in Crescent Lake, Wolfeboro. To prevent boats from transporting the milfoil into nearby Wentworth Lake, NHDES

personnel used Aqua Screen, a bottom barrier, to smother the plants. The screen effectively killed the milfoil and is still in place to prevent further plant growth,

- Fifty lake water quality surveys were completed during the summer. During the survey, aquatic weeds were noted.

1991

- During the month of June, approximately 75 acres of exotic milfoil in Northwood Lake was treated with the herbicide called Diquat. Since the milfoil was new to the lake system, the entire cost of the weed control operation was funded by the Department of Environmental Services (NHDES).
- The Fish Cove Lake Association and Mt. View Marina, both located on Lake Winnipesaukee, had severe infestations of exotic milfoil that precluded the recreational and commercial value of the waters. They each received matching grants to fund the application of the herbicide Diquat. Crescent Lake in Wolfeboro, also received a grant to treat 35 acres of milfoil with Diquat.
- A "weed watcher" on Lake Winnisquam notified NHDES that exotic milfoil was found in the northern section of the lake. NHDES personnel confirmed the milfoil sighting and sent two SCUBA divers to cover the small milfoil infestation with Aqua Screen. Any "straggler" plants were hand pulled by the SCUBA divers.
- A "weed watcher" from Lees Pond in Moultonborough noticed that some stands of milfoil in the pond were being eaten by some unknown animal. Closer inspection by NHDES personnel revealed that an aquatic moth was responsible for the apparent decline in the milfoil biomass. The aquatic moth was subsequently identified as Paraponyx allionealis. NHDES SCUBA divers observed and monitored the progress of the insect and mapped out the areas affected by the insect.
- A new sign warning lake residents that milfoil was growing in their respective lakes was designed and placed at the milfoil infested lakes, usually at the boat launching facility.
- Fifty lakes were surveyed for the presence of milfoil or other exotic weeds.
- NHDES personnel presented several talks on exotic weed control at lake association meetings during the summer months.
- Professional divers were hired to hand pull a new infestation of milfoil in Round Cove on Lake Winnipesaukee. This was a 50-50 match with the local residents. NHDES biologists monitored the project.

1992

- Round Cove located on Lake Winnipesaukee was given a matching grant to control a small encroachment of milfoil. A weed control firm was hired to apply liquid Diquat to the 5-acre cove. Mt. View Marina in Gilford was also given a grant to chemically control the obnoxious milfoil that interfered with boating activities.
- NHDES and the Town of Wolfeboro provided money for Brewster Academy to study the aquatic moth currently eating milfoil in Lees Pond in Moultonborough. The study examined the fundamental characteristics of the aquatic moth, such as food preferences, biomass consumption, and the life cycle. These studies were performed in Back Bay in Wolfeboro and Lees Pond. Initial tests performed in "live cages" showed that the insects will decrease milfoil if in sufficient numbers. NHDES personnel assisted the researchers at Brewster Academy during the summer.
- A new exotic weed Myriophyllum spicatum was discovered growing in Mountain Pond in the Town of Brookfield. Otherwise known a Eurasian milfoil, this plant can spread very quickly to other ponds. A decision was made to drain the small shallow pond in an attempt to freeze and dry out the hardy

plants. The beaver dam holding back the lake was breached during the fall. The plan is to let the pond stay down for at least two years. Several trips were made to the pond to insure that local beaver were not plugging the opening in the dam. As a last resort the pond may need a spot treatment of herbicides to insure that it does not spread to other nearby waterbodies.

- Exotic milfoil was found growing in Lake Winnisquam in the Towns of Tilton and Belmont. The combined total affected area was 7.81 acres. Since this was a new infestation of exotic weeds, the state was mandated to fund 100% of the weed control process. The decision was made to treat the two small areas with the herbicide 2,4-D. A request for bids to treat the two areas was sent out during the fall of 1992. A contractor was hired to obtain all the necessary permits from the Division of Pesticide Control and to apply the granular 2,4-D to the sites in Lake Winnisquam. Unfortunately, the project ran into difficulties over the issue of a nearby business using the lake as a drinking water source. The treatment area was too close to the drinking water source. The project was denied by the Division of Pesticide Control.
- The Wentworth Lake association applied for a matching grant from the state to chemically treat 35 acres of milfoil in nearby Crescent Lake, Wolfeboro. This project also was denied due to a drinking water issue and the use of the aquatic herbicide 2,4-D.
- As in previous years, educational material was distributed to the public, exotic weed signs were placed at boat launching sites, and talks relating to the exotic weed problem were given by NHDES personnel. Also, many weed specimens were submitted to NHDES for identification. Fifty weed surveys were performed on selected lakes in conjunction with a survey of the current water quality status of each waterbody.

1993

- The following were awarded matching grants from the state for the purpose of controlling exotic milfoil:

a. Mt. View Marina - Gilford; herbicide; 2,4-D
b. Lake Shore Park - Gilford; herbicide; 2,4-D
c. West Alton Marina - Alton; herbicide; 2,4-D
d. Contoocook Lake Association - Rindge/Jaffrey; herbicide; Diquat

Each site was severely infested with exotic milfoil to the point that recreational and commercial activities were impaired.

- "Weed Watchers" found three more lakes that harbored suspected stands of milfoil. Lower Suncook Lake, Lake Wentworth and Broad Bay were the latest victims of the milfoil encroachment. NHDES personnel covered the small stand of milfoil in Lake Wentworth with a benthic bottom barrier. The barrier physically constrains the weeds and ultimately smothers the plants within a month. Suncook Lake in Barnstead had scattered stands of milfoil near the outlet section of the lake. NHDES SCUBA divers placed bottom barriers on the milfoil. Each of the 5 stands of milfoil took about 300 square feet of bottom barrier. Any separately growing plants were hand pulled by the divers. During the fall drawdown of Lower Suncook Lake, NHDES personnel patrolled the affected area searching for new milfoil growths missed during the summer. Any patches larger than 25 square feet were covered with barrier while "straggler" plants were individually hand pulled. The milfoil in Broad Bay (Bay Marina) seems to be confined to an area not larger than two acres. Local residents concerned about the problem are hand raking and pulling the milfoil plants. This area will be looked at more

extensively next spring in order to decide what type of management approach will be undertaken to control the problem.

- In 1991, Northwood Lake was chemically treated to control exotic milfoil. The plants came back during the summer of 1992 and 1993. After a meeting with the lake association and NHDES personnel, it was decided to draw down the water in Northwood below the normal winter drawdown level. It is hoped that a cold winter will kill the newly exposed plant life.
- Officials from the Lake Wentworth Lake Association found milfoil growing in a small cove near Albee Beach in Wolfeboro. They notified NHDES officials of its presence and location on the lake. The plants did not have all the necessary taxonomic features needed to correctly identify the milfoil to species. However, since the milfoil was suspected to be an exotic species, it was decided that something should be done to ensure that it does not spread to the rest of the lake. NHDES personnel decided to cover the small area with bottom barrier. Approximately 1,500 square feet of bottom barrier (Aqua Screen) were installed over the milfoil plants.
- Each year a Volunteer Lake Monitoring Workshop is held at NHDES headquarters in Concord. This year an aquatic weed workshop was given as well as an overview of the exotic weed program. These two programs were well attended by lake volunteers.
- Lake association members from New York state concerned about the current milfoil spread in their state asked a representative of NHDES to give a talk on the New Hampshire exotic weed program. They are trying to get a similar program started in New York.
- A representative from NHDES gave a major exotic weed presentation at the annual "Bass Master" state chapter meeting held in Concord. Major emphasis was given to cleaning weeds from boats during the "Bass Master" competitions held at many lakes during the summer months.
- An exotic weed control talk was given at the annual "Lakes Congress" held at St. Paul's School in Concord. About one hundred representatives from the many lakes of New Hampshire attended the conference.
- A grant was given to Brewster Academy in Wolfeboro to do follow up studies on the insects that eat milfoil. NHDES personnel assisted on this project by supplying a dive team to perform some of the experiments. Local lake association people also got involved on this project.
- Approximately 300 weed watcher kits were given out to various lake associations throughout the state. Requests for the "kits" were received from other states.
- NHDES personnel periodically checked on the status of the Mountain Pond drawdown in Brookfield. Occasionally, beaver would attempt to plug up the breach in the dam. The mini drought experienced this summer took its toll on the exposed Eurasian milfoil plants. Once the plants dried up, land plants took their place.
- NH Fish & Game became the lead agency for the "Statewide Public Access Program." They have agreed to place NHDES exotic weed warning signs at all their new and existing public access points.
- Currently, a new exotic weed sign is being developed for distribution during the summer of 1994.
- Several routine exotic weed complaints were field investigated by NHDES personnel. Many suspect weeds were sent to the NHDES Limnology Center for identification.
- Fifty lake surveys to determine current water quality status were performed by NHDES biologists during the summer. A weed survey was undertaken during the survey. A search for exotic weed species was also performed on each lake or pond.
- Problems associated with milfoil and other exotic plants in NH generated several newspaper articles during the summer. This "free publicity" helped get the word out to the public informing them to be careful not to spread exotic weeds to other lakes and ponds through boating activities.

- A weed watcher from the northern section of Lake Winnisquam notified NHDES biologists that a small patch of milfoil had appeared in one of the coves. SCUBA divers successfully hand-pulled the plants before they spread to other sections of the lake.

1994

- Pioneer infestations of exotic milfoil were found in Lake Waukewan, Meredith; Cheshire Pond, Jaffrey; Broad Bay, Freedom; and Silver Lake in Tilton.
- Lake Waukewan, Meredith – NHDES biologists found approximately 1.5 acres of the
- exotic milfoil in the outlet/canal section of Lake Waukewan during a routine water quality inspection. This same general area had milfoil in 1981 and was successfully treated and controlled with a chemical herbicide in 1982.
- Cheshire Pond, Jaffrey – A resident on Cheshire Pond in Jaffrey reported sighting
- milfoil in a beach area. A NHDES biologist confirmed the milfoil to be exotic. The milfoil probably floated downstream from nearby Contoocook Lake ultimately taking hold in the pond. A temporary drawdown of the pond was initiated during the month of December in an attempt to freeze the milfoil plants.
- Silver Lake, Tilton – Exotic milfoil was found in Silver Lake in Tilton by the University of New
- Hampshire lay monitoring officials. NHDES responded to the problem quickly by hand pulling the plants and digging up the remaining plants during a fall drawdown of the lake. This site will be inspected in the spring of 1995 for signs of regrowth.
- Broad Bay, Freedom – NHDES biologists had trouble identifying the milfoil at this site in 1993 because the plant did not exhibit flowers which are critical to a positive identification. However, in 1994 flowers did appear and the plant was identified as exotic milfoil. This site will be chemically treated in 1995.
- Three matching grants were awarded to lake associations in 1994 for the purpose of exotic weed control.
- NHDES biologists performed several underwater exotic weed surveys with the aid of SCUBA equipment. These surveys were done to get an accurate assessment of the milfoil infestations.
- A new sign designed to educate boaters was made and placed at many boat launches throughout the state.
- Northwood Lake in Northwood was lowered in November so that the state could replace the old dam. The lake was drawn down all winter and did slow down the milfoil growth along the shoreline.
- Several informational talks were presented at lake association meetings by NHDES biologists. A radio talk show on exotic weeds was aired in Lebanon, while a local TV station did a major news segment on the exotic weed control program.
- NHDES personnel went to a meeting in Vermont to discuss new methods of controlling exotic weeds.
- Several hundred “weed watcher kits” were requested by the public. This volunteer program has been very successful over the past few years.
- Several suspected exotic weed sightings by weed watchers or other concerned lake residents were investigated by NHDES biologists. Many samples were sent to the Limnology Lab for identification.
- Fifty more exotic weed surveys were performed during the summer. These surveys supplement the weed watcher efforts performed by volunteers.
- Five milfoil contracts were put out to bid in 1994. These weed control projects will occur during the spring of 1995.

- Mountain Pond in Brookfield, which originally had Eurasian milfoil, is still empty. There is no sign of any milfoil in the small stream that flows through the empty pond.

1995

- The outlet section of Lake Waukewan in Meredith was treated with the herbicide called Aqua Kleen. Aquatic Control Technology, Inc. of Northborough was hired by NHDES to undertake the project. If the milfoil had not been controlled there was a good chance it may have spread through the rest of the lake. It would have been impossible to treat the main lake since the Town of Meredith uses the lake for drinking water. An inspection of the treatment area with SCUBA gear did not reveal any milfoil plants. The treatment was a success.
- Lower Suncook Lake in Barnstead had six acres of milfoil treated with the herbicide called Reward. Lycott Environmental Research, Inc. of Southbridge Massachusetts was hired by NHDES to perform the treatment.
- Crescent Lake in Wolfeboro was also treated with the herbicide called Reward. An inspection of the treated area in the fall revealed no milfoil. To date, treatment efforts have kept milfoil from invading the main section of nearby Lake Wentworth.
- Mountain Pond in Brookfield is still drained. Still no signs of Eurasian milfoil.
- Eurasian milfoil was found growing in the Connecticut River in Charlestown. A large boat launching facility on the Vermont side of the river is used by fishermen from both states. Vermont officials were notified of the milfoil. They posted warning signs near the launch site. Leaflets informing the public about the milfoil were handed out to the boating public at a toll booth as they crossed from New Hampshire into Vermont.
- A “weed watchers wheel” was developed to distribute to the public to aid them in their search for exotic weeds. The wheel accompanied the standard “weed watcher kit” used by lake monitors.
- The proposal to treat Broad Bay in Freedom with herbicides was terminated due to time constraints and permitting problems.
- Several milfoil talks were given to lake associations during the summer.
- Benthic barriers were installed in a small cove on Wentworth Lake to control a small stand of milfoil.
- Milfoil was hand pulled in Lower Suncook Lake by SCUBA divers from NHDES.
- Eight proposed herbicide applications for the purpose of milfoil control were submitted to the Governor and Council for approval.
- Exotic milfoil was found at Claire’s Boat Landing on Lake Massabesic
- in Auburn. This lake is Manchester’s water supply. Benthic barriers were placed on a large portion of the milfoil. The use of herbicides was not allowed due to the drinking water status of the lake. Manchester Water Works personnel moved the benthic barriers to other milfoil sites as needed.

1996

- Eight herbicide applications to control milfoil occurred during the month of June. They are as follows:
- Two new infestations of milfoil were confirmed by the NHDES staff. Captain Pond in Salem and Lake Massasecum in Bradford now possess the nuisance weed.
- SCUBA divers checked Lake Waukewan for any signs of milfoil regrowth one year after it was treated. No milfoil plants were observed during the dive.
- Milfoil was discovered growing in the northern end of Lake Winnisquam.
- A milfoil education display was presented at NHFG’s “Discover Wild New Hampshire Day.”

- A similar display was also presented at “Celebrate Your Lakes Day” held this summer in Meredith.
- Milfoil informational talks were given throughout the summer at many lake association meetings.
- A talk was given to NHFG volunteer fishing instructors on how to look for exotic weeds throughout the state.
- Staff attended a National Weed Control Conference held in Burlington Vermont in July. Several papers on new promising control techniques were presented.
- Benthic barriers were placed on a small infestation in Lake Winnisquam.
- Mountain Pond in Brookfield was checked for any regrowth of Eurasian milfoil. No plants were found during the inspection.

1997

- Six herbicide applications were performed in the spring to control nuisance growths of exotic aquatic plants.
- Benthic barriers were placed in Heath Bog of Lake Wentworth, Wolfeboro, Lake Massabesic in Auburn, Lake Massasecum in Bradford, as well as in small localized areas in other lakes.
- A new infestation of milfoil was documented at Claire’s Boat Landing on Lake Massabesic in Auburn, and Powder Mill Pond in Hancock.
- SCUBA divers inspected several small infestations of milfoil and hand-pulled plants where they were encountered in low densities.
- Several displays were presented at summer events and festivals including “Celebrate Your Lakes Day” and “Discover Wild New Hampshire Day.”
- Informative presentations were given at a number of lake association meetings throughout the summer.
- HB 181 was passed prohibiting a number of activities associated with exotic aquatic plants.

1998

- RSA 487:16-a went into effect on January 1, 1998. This new law prohibits the sale, distribution, importation, purchase, propagation, transportation, or introduction of 14 listed exotic aquatic plants in New Hampshire. The new statute also allows for the designation of restricted use areas on waterbodies.
- On September 5, 1998 new rules were enacted pursuant to RSA 487:16-a.
- Benthic Barriers were placed in Lake Winnipesaukee in Meredith, Lake Wentworth in Wolfeboro, Contoocook Lake in Jaffrey, Hopkinton Lake in Hopkinton, Lake Massabesic in Auburn, and Lake Massasecum in Bradford, as well as in small places in an additional 2 to 3 lakes.
- Maintenance hand-pulling activities took place at a number of lakes with new and existing milfoil infestations.
- A number of summer lake festivals were attended by the Exotic Species Coordinator, including “Celebrate Your Lakes Day,” “Naturally Newfound,” “Discover Wild New Hampshire Days,” and Keene State College “Solarfest.”
- Several presentations were given to towns and lake associations throughout the state on exotic aquatic plants.
- Exotic species signs, which are posted at boat launches throughout the state, were revised to include the changes in legislation associated with exotic plants.
- A number of milfoil control activities were conducted this summer at Lake Massasecum in Bradford. Benthic barriers were installed, a restricted use area was established in the north cove, and a net

was placed across the surface of the water (vertically in water column) to trap floating fragments of milfoil.

- 500 specimens of variable milfoil (*Myriophyllum heterophyllum*) were sent to the Army Corps of Engineers, Waterways Experimental Station in Vicksburg, MS for research on control methods. Garlon 3-A, a new herbicide that is thought to be more effective and environmentally sound than 2,4-D, was used to treat the plants. More extensive research will be conducted this spring.

1999

- Eurasian milfoil found in Lake Mascoma in Enfield. Numerous diving operations were conducted to hand remove the milfoil.
- 'Suspicious patches of milfoil found in Horseshoe Pond in Merrimack and in
- Belleau Lake, Wakefield. Plants did not flower so positive identifications were not made. Plan to investigate again in 2000.
- Nine herbicide applications were conducted this year.
- Numerous presentations were given to lake associations about exotic plants.

2000

- New Variable milfoil infestations documented in Little Squam Lake and Squam River, Holderness/Ashland, Danforth Pond, Ossipee, and Rocky Pond, Gilmanton.
- Re-investigations of the two suspect infestations of milfoil from summer of 1999 confirmed that the species of milfoil in Belleau Lake, Wakefield, and Horseshoe Pond, Merrimack were indeed the variable milfoil.
- Innovative milfoil management activities took place on Lake Massasecum, Bradford. Lake Association, through funding from NHDES, have constructed harvester to repeatedly harvest milfoil in northern cove of lake.
- RUA installed in Little Squam Lake to contain milfoil.
- Hand-pulling conducted on milfoil in channel connecting Big and Little Squam Lakes.
- Research on milfoil impacts to property values initiated at UNH.
- RSA 487:16-b went into effect making it unlawful to knowingly, recklessly, or purposely offer for sale, distribute, sell, import, purchase, propagate, or introduce exotic aquatic weeds into New Hampshire waterbodies. The new law makes it a violation to conduct any of the above listed activities.

2001

- New Variable milfoil infestations documented in Lake Sunapee, Sunapee at Georges Mill, and Dublin Lake in Dublin.
- A new invasive plant was first documented in New Hampshire. *Egeria densa*, also known as Brazilian elodea, was found in Nutts Pond in Manchester.
- Herbicide applications conducted in 20 waterbodies, the most waterbodies ever treated in one summer in New Hampshire.
- Innovative milfoil management activities taking place on Lake Massasecum, Bradford. Lake Associations, through funding from NHDES, have continued harvesting activities and installing bottom barriers.

- RUA installed in Little Squam Lake and Lake Sunapee to contain milfoil.
- Hand-pulling conducted on milfoil in channel connecting Big and Little Squam Lakes, Dublin Lake, and Lake Sunapee.
- Research on milfoil impacts to property values by UNH suggests a 16+% decline in lakefront property values.

2002

- New Variable milfoil infestations documented in Turtletown Pond in Concord, Balch Lake in Wakefield (plants found in 2001, but not in flower), Melendy Pond and Lake Potanipo in Brookline and in Brindle Pond in Barnstead.
- NHDES conducted 25 herbicide applications on various waterbodies throughout the state. This is the most number of treatments that have been conducted in any one year since the program began.
- Innovative harvesting activities continued on Lake Massasecum in Bradford.
- New Hampshire Lakes Associated established a pilot Lake Host Program on several waterbodies.
- NHDES began working with Dartmouth College to sequence milfoil genetics and determine if hybridization is occurring.

2003

- RSA 487:25 goes into effect establishing the Milfoil and Other Exotic Aquatic Plant Prevention and Research Grant Program.
- First round of Milfoil and Other Exotic Aquatic Plant Prevention Grants awarded to three recipients. New Hampshire Lakes Association, Department of Safety, and Androscoggin River Watershed Council.
- Two new infestations of Variable milfoil documented in Jones Pond in New Durham and in Scobie Pond/Haunted Lake in Francestown.
- Eurasian milfoil found growing again in Mountain Pond in Brookfield. It was assumed that this infestation was eradicated due to a 3-year drawdown of the pond. Five foot tall plants were found growing in August.

2004

- Four new infestations were documented this year. Variable milfoil was found in the Merrimack River at the confluence with the Contoocook River in Penacook; in Kimball Pond in Hopkinton, and in the Pemigewasset River in Sanbornton. Fanwort was found in Otternic Pond in Hudson.
- Three Prevention Grants were given out this year. The New Hampshire Lakes Association, Ossipee Lake Alliance, and the Department of Safety, Division of Safety Services received grants.
- One Research Grant was given in 2004. Suncook Lake Association, in participation with the University of New Hampshire, was given a grant to evaluate the effectiveness of a detailed 2,4-D treatment, and to determine if 2,4-D migrates through the substrate and into nearshore wells under normal, and rigorous, pumping regimes.

2005

- One new infestation was found in 2005. Fanwort was found growing in Wilson Lake in North Salem. This infestation was most likely caused by the downstream migration of fragments out of Arlington Mill Reservoir.
- Three Prevention Grants were awarded in 2005. The New Hampshire Lakes Association, the Department of Safety, Division of Safety Services, and the Connecticut River Conservation District Coalition received funds for various projects.
- One Research Grant was awarded during this year. The Suncook Lake Association received a grant to optimize the function of a SCUBA diving device which will aid in efficient milfoil mapping.
- The NHDES worked closely with a Milfoil Study Committee that was established in 2004. The group met several times throughout the year, and NHDES was present to provide updates of the program, status of exotics, and to provide input on future directions that the legislative committee could assist with.

2006

- MOA with Fish and Game signed regarding development of Long-Term Management Plans for exotic aquatic plants, for all infested waterbodies seeking to perform control activities.
- Three new infestations of exotic plants: 2 variable milfoil infestations and 1 curly-leaf pondweed infestation.

2007

- Initiated rulemaking process to add new species to prohibited aquatic plant list, essentially doubling the list of species.
- Increased outreach activities with aquarium and water garden dealers in New Hampshire pursuant to newly amended exotic aquatic plant rules, including extended list of prohibited aquatic plants.
- Two new infestations of variable milfoil: Lake Pemigewasset (New Hampton) and Glen Lake (Goffstown).
- Commissioned the construction of a prototype diver-assisted suction harvester (DASH) for use by NHDES.
- Initiated the Weed Control Diver Program and Certification Course.
- Tracked four pieces of legislation relative to increasing program funding and removing sunset from milfoil funding.
- Rock snot (Didymo) first identified in Connecticut River in June. Conducted field sampling and monitoring on Didymo.

2008

- Field trials and retrofitting the DASH unit.
- Two new infestations of variable milfoil documented: Long Pond (Danville) and Spaulding Pond (Milton).
- Contracted work on developing an Underwater Surveillance Vessel (USV) to enhance mapping techniques of NHDES biologists.
- No bills were introduced to the legislature this year for milfoil or exotic plant related topics.
- Received final written reports from federally funded milfoil study and posted to NHDES website.

- Initiated a project with the US Army Corps of Engineers Environmental Research and Development Center. The research focuses on the viability of milfoil seeds in lake sediments. The report from this study should be completed sometime in 2009.
- NHDES did a number of field demonstrations on the DASH device, including sites in Derry, Rindge, Alton and Gilford.

2009

- In March, a mailing was done to all plant nurseries in New Hampshire to provide them with an updated list of prohibited exotic aquatic plants in New Hampshire.
- A total of 30 groups requested matching funds for exotic species projects in 2009. Only 13 of these groups were awarded matching funds due to inadequate funds for projects. The grants were awarded for only 30% of the total project cost, to maximize the total number of waterbodies that received funding.
- Upper Goodwin Pond was found to have growths of variable milfoil during a National Lake Assessment Survey done on the pond.
- A research project was conducted to compare single (100 lbs/acre) versus double (200 lbs/acre) doses of 2,4-D for the control of variable milfoil. A full technical report is available in electronic format through NHDES.
- A decontamination protocol for Didymo was developed and distributed to field staff in the various state agencies in New Hampshire.
- Legislation passed to increase boat registration fee for more funding to control and prevention grant programs.

2010

- A Milfoil Summit was organized and convened by the Exotic Weeds and Species Committee to share and gather information on milfoil and other invasive species from interested stakeholders.
- Post Pond, Lyme – Eurasian Milfoil infestation documented.
- Willand Pond, Dover – variable milfoil infestation documented.
- Nashua River – Eurasian milfoil documented.
- A research project on 2,4-D formulations was conducted in Lake Winnisquam to compare the efficacy of the different formulations for controlling variable milfoil. A full technical report is available in electronic format through NHDES.

2011

- A research project on the aquatic herbicide MaxG was conducted in Flints Pond (and also using data from SunRay Shores on Lake Winnisquam from 2010) to determine the impact to non-target species and efficacy on variable milfoil. A full technical report is available in electronic format through NHDES.
- Inter-agency communications increased on the topic of invasive species. Several meetings held to review each agency's perspective on invasive species threats and management efforts. As a result of these meetings: 1) a Memorandum of Agreement was drafted to outline agency roles in exotic species related activities, 2) a streamlining process was initiated for permit processes related to herbicide use, 3) agency communications were enhanced.
- Developed a fact sheet on the Asian clam in partnership with NHFG. The Asian clam is a fast moving species within the northeast region.

- Developed a table that shows the distribution of Asian clam, zebra mussel and quagga mussel in New England (with input from other program counterparts from other states), and distributed it to various New Hampshire and regional entities for education and outreach purposes.

2012

- Eradication of variable milfoil growth in Rocky Pond, Hollis (first documented in 2011) confirmed. No carryover growth into 2012, no new growth in waterbody found.
- New infestation of variable milfoil reported in Otter Lake in Greenfield. Field survey confirmed widespread growth around pond, infestation likely 3 years old.
- New infestation of variable milfoil reported in Naticook Lake in Merrimack. Field survey confirmed widespread growth in half of pond, infestation likely 2 to 3 years old.
- Field research project on Mine Falls Pond in Nashua to evaluate a new aquatic herbicide (Clipper) to control multiple species of invasive aquatic plants in this system.
- Began working with Trout Unlimited on an education and outreach project for trout water users.

2013

- Initiated an Asian clam volunteer monitoring program.
- Asian clam documented in Wash Pond in Sandown.
- Update and revision of Exotic Species Program Administrative Rules.
- HB 292.
- Asian clam monitoring study with EPA.
- Audubon presentation.
- HB 527.
- Didymo conference (international).
- Exotic Species Program QAPP written.
- Hippo news article.
- NHPR The Exchange- Invasive Aquatic Animals.
- Mount Washington Cruise Invasives Talk.

2014

- Variable milfoil infestations were identified in Baboosic Lake in Amherst and in Beaver Lake in Derry. Both infestations were minor and manageable by hand removal.
- Increase to the boat registration fee from $7.50 to $9.50 with additional $2 earmarked for control activities.
- Bill to increase the membership of EAWSC as follows: one person from the NH Rivers Council, the Executive Director of Fish and Game, or designee, one person from the Connecticut River Watershed Council, one person from the NH Marine Trades Association, the Commissioner of NHDES, or designee, the Commissioner of Agriculture, Markets, and Food, or designee, and one person from the Northeast Aquatic Plant Management Society.
- Northern Forest Canoe Trail Video.
- NH LAKES Video Filming.
- NHPR Invasives.
- Study w/Applied Biochemists.
- Env-Wq 1300 rule revisions.

2015

- A research project on the aquatic herbicide MaxG was conducted in Flints Pond (and also using data from SunRay Shores on Lake Winnisquam from 2010) to determine the impact to non-target species and efficacy on variable milfoil. A full technical report is available in electronic format through NHDES.
- Added to statute a definition of "exotic aquatic species of wildlife" and specifically placed such wildlife within the overall charge of Exotic Aquatic Weeds and Species Committee. The committee was given the added responsibilities to "study the best management practices used in other states to prevent the introduction of, and to research, monitor, control, and eradicate exotic aquatic weeds and wildlife," and to "recommend to the department of fish and game a program for research, monitoring, control, or eradication if an invasive exotic aquatic species of wildlife is discovered in the state."
- HB 281.
- HB 667.
- Study w/Applied Biochemists to evaluate copper and adjuvant additions to 2,4-D to evaluate efficacy in control between sites.
- Didymo presentation – Max Bothwell.

2016

- A research project on the new active ingredient aquatic herbicide ProcellaCOR was conducted in partnership with SePRO Corporation and Army Corps of Engineers in July. A one-acre plot in a portion of Hopkinton Flood Control was selected for treatment, and extensive monitoring of aquatic plants, dissolved oxygen and herbicide residue.
- Removed the requirement that a person must "knowingly, recklessly, or purposely" offer for sale, distribute, sell, import, purchase, propagate, or introduce exotic aquatic weeds into NH waterbodies in order to be guilty of a violation. Made it a violation to negligently transport aquatic plants or exotic aquatic weeds on the outside of vehicles, boats, ski craft, trailers, or other equipment. Requires all boats and related equipment to be drained of all water prior to leaving a water body and that all drain plugs and other similar devices be removed or open while in transport. Establishes fines from $50 to $250, depending on number of offenses, for violating the transport prohibition and the drainage requirement.
- HB1589 introduced.
- NHDES participated in the NH Envirothon, which included developing a topic for students around the theme of Invasives Species.
- Spiny water flea sampling commenced in Lake Winnipesaukee.
- Variable milfoil confirmed in Crooked Pond, Loudon.
- Chronicle episode filmed with a focus on prevention, early detection, monitoring and management of exotic aquatic plants in New Hampshire.

2017

- Marine Trades Association Training.
- One-year post treatment monitoring of the above reference 2016 treatment site for ProcellaCOR was conducted.
- New legislation goes into effect Removed the requirement that a person must "knowingly, recklessly, or purposely" offer for sale, distribute, sell, import, purchase, propagate, or introduce exotic aquatic weeds into NH waterbodies in order to be guilty of a violation. Made it a violation to

negligently transport aquatic plants or exotic aquatic weeds on the outside of vehicles, boats, ski craft, trailers, or other equipment. Requires all boats and related equipment to be drained of all water prior to leaving a water body and that all drain plugs and other similar devices be removed or open while in transport. Establishes fines from $50 to $250, depending on number of offenses, for violating the law.

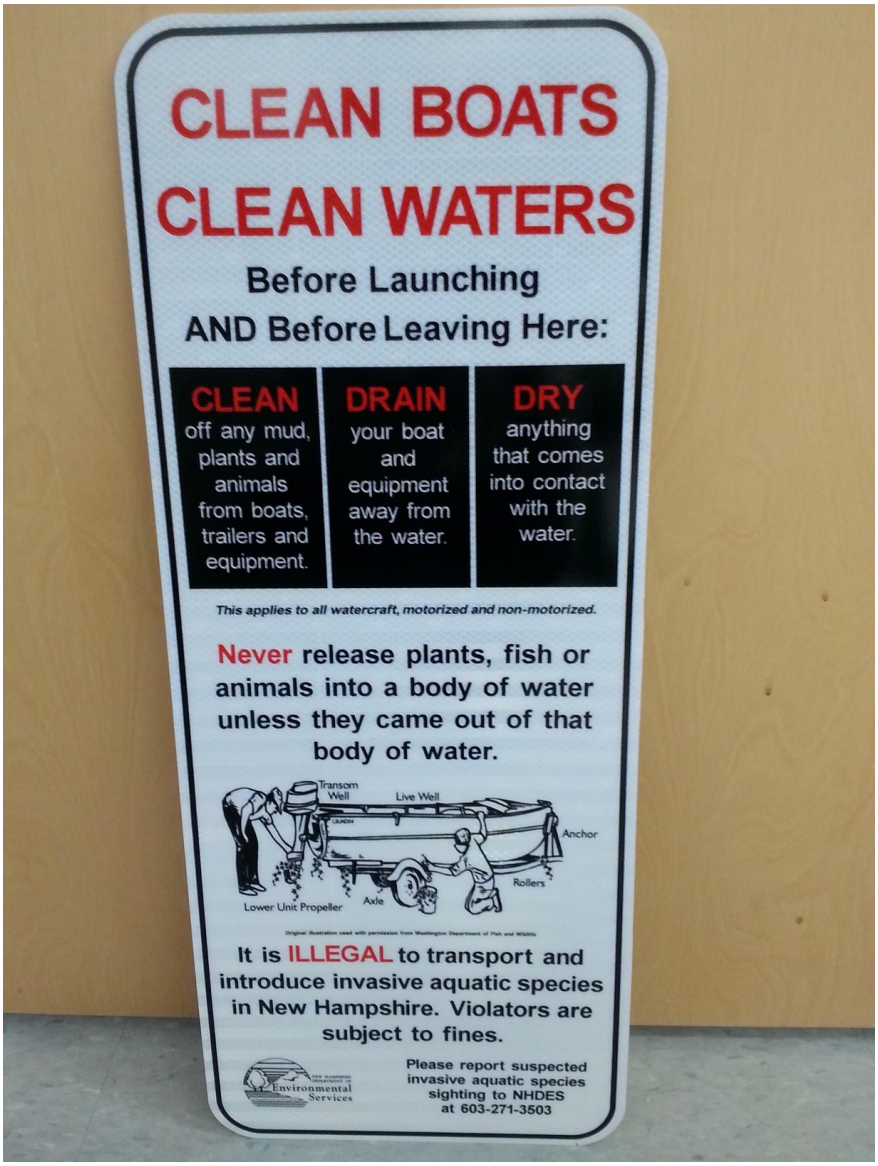
- Lakes Region Managers Presentation.
- 2nd year of Spiny water flea sampling.
- ANS Management Plan drafted, sent for courtesy review to USFWS.
- Presentation by Dr. Terry Richardson (hired by Eversource) on Asian clam populations in NH.
- Variable milfoil documented in Chance Pond Brook in Franklin (downstream of Webster Lake, no milfoil found in Webster Lake).
- Asian clam verified in Beaver Lake in Derry and Great Pond in Kingston.

APPENDIX THREE: FACT SHEETS AND EDUCATIONAL MATERIALS

Item	Link to Item on NHDES Website
Pamphlets	
Attention Boater Pamphlet	http://des.nh.gov/organization/commissioner/pip/publications/wd/documents/boater.pdf
Aquarium and Water Garden Enthusiast Pamphlet	http://des.nh.gov/organization/divisions/water/wmb/exoticspecies/documents/aquarium_water_garden.pdf
Frightful Fourteen Pamphlet	http://des.nh.gov/organization/commissioner/pip/publications/wd/documents/frightful_fourteen.pdf
Newsletter	
Weed Watchin' Newsletter	http://des.nh.gov/organization/commissioner/pip/newsletters/weed_watchin/index.htm
Fact Sheets	
Weed Watcher Fact Sheet	http://des.nh.gov/organization/commissioner/pip/factsheets/bb/documents/bb-4.pdf
Zebra Mussel Fact Sheet	http://des.nh.gov/organization/commissioner/pip/factsheets/bb/documents/bb-4.pdf
Variable Milfoil Fact Sheet	http://des.nh.gov/organization/commissioner/pip/factsheets/bb/documents/bb-23.pdf
Eurasian Water Milfoil Fact Sheet	http://des.nh.gov/organization/commissioner/pip/factsheets/bb/documents/bb-24.pdf
Fanwort Fact Sheet	http://des.nh.gov/organization/commissioner/pip/factsheets/bb/documents/bb-25.pdf
Law Prohibits Aquatic Plants Fact Sheet	http://des.nh.gov/organization/commissioner/pip/factsheets/bb/documents/bb-40.pdf
Water Chestnut Fact Sheet	http://des.nh.gov/organization/commissioner/pip/factsheets/bb/documents/bb-43.pdf
Purple Loosestrife Fact Sheet	http://des.nh.gov/organization/commissioner/pip/factsheets/bb/documents/bb-45.pdf
Didymo (Rock Snot) Fact Sheet	http://des.nh.gov/organization/commissioner/pip/

	factsheets/bb/documents/bb-61.pdf
Books	
Aquatic Plants and Algae of New Hampshire's Lakes and Ponds	http://des.nh.gov/organization/commissioner/pip/publications/wd/documents/wd-05-30.pdf

APPENDIX FOUR- EXOTIC PLANT SIGNAGE



APPENDIX FIVE: EXOTIC AQUATIC PLANT CONTROL TECHNIQUES

Method	Effectiveness	Specificity to Target	Advantages	Disadvantages	Cost*
Hand Pulling (Physical)	Effective in removing a few individual plants at a time.	Very specific	Good for localized areas/few plants. Plants physically removed from water body.	Labor-intensive Good for small infestations only. Not practical when plant growth is dense.	$25-$150+/diver/hour
Diver Assisted Suction Harvesting (DASH)	Effective in controlling exotic plants distributed in low to moderate density over a large area, or larger more dense patches in a small area	Very specific	Plants and roots physically removed from system, speeds up hand removal (but is only as good as diver)	Moderately expensive, hard to do in cobble/rocky bottom area.	$900-$2,000 for a team of two divers and one or two topside support staff (includes equipment use and disposal)
Mechanical Harvesting (Physical)	Effective in removing large amounts of vegetation at a time.	Not specific	Rapidly removes vegetation from area. Plants physically removed from water body.	Fragments plants which could cause regrowth. Removes native vegetation. Could increase turbidity, ultimately affecting other aquatic life. Does not remove rooting system.	Ranges widely depending on plant density, location, disposal, etc. Generally $350-$1500 per acre.
Hydro-Raking (Physical)	Effective in removing large amounts of vegetation at a time.	Not specific	Rapidly removes vegetation. Removes rooting systems to prevent rapid regrowth. Plants removed from water body.	Fragments plants which could cause regrowth. Removes native vegetation. Could increase turbidity.	Ranges widely depending on plant density, location, disposal, etc. Generally $350-$2500 per acre.
Benthic Barrier: Permeable or Non-Permeable (Physical)	Effective for very small areas.	Specific to areas where barrier is located Impacts all plants under barrier	Compresses plants to sediments and prevents likelihood of fragmentation by wind, wave, or anthropogenic means.	Labor intensive. Must be frequently cleaned/re-staked. Plants not physically removed from water body. May cause sediment/water anoxia. May impact non-target species such as fish, invertebrates, and others.	$0.60-$1.22 per sq. foot ($25,000-$50,000 per acre).
Chemical Treatment	Systemic herbicides more effective than contact herbicides.	Most chemicals have target species for which they are most effective Varying application rates can increase target specificity	Chemical has potential to eliminate exotic plant infestation if done at correct time and correct concentration is used. Relatively rapid effect. Longer time span of control than other types of control techniques.	Addition of chemical to water body. May impact non-target species if not applied according to label restrictions. Could be environmentally damaging if not applied to label restrictions.	Varies with chemical and size of treatment area. Could range from $200-$1300 per acre.
Drawdown (Habitat manipulation)	Somewhat effective if repeated frequently. More effective if drawdown maintained for a long time period.	Not specific	Could control density of vegetation due to plant die-off from desiccation or freezing. Winter drawdowns favorable.	Impacts non-target species (plants, fish, amphibians, etc.). Devastating to entire water body ecology.	Low cost if dam or other means of drawing down water is available.
Dredging (Habitat manipulation)	Effective in removing plants from a localized area where dredge takes place.	Not specific	Completely removes plant material. Removes nutrient laden sediments. Removes seed bank.	Devastating to entire system; impacts non-target plants and animals. Could cause excessive turbidity. Must wait for water body to be filled again.	$16,000-$32,000 per acre. Previously used and successful in Milville Lake, New Hampshire.
Biological Controls	Effective against target plants.	Specific	Insects, bacteria, or viruses used in this method are typically specific to target plant. Their life cycles revolve around particular plant species. Does not affect non-target species.	May cause decline in oxygen as plant material decays. Many biological controls are themselves exotic. Still experimental.	Cost of insects. High monitoring cost.

APPENDIX SIX: CRITERIA FOR CONTROL TECHNIQUE SELECTION

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 exotic aquatic 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 threat to downstream waterbodies from the exotic aquatic plant based on limnological characteristics (water chemistry, quantity, quality as they relate to movement or support of exotic plant growth).

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 NHDES Limnologists and other key resource managers who have conducted the field work and who are preparing or contributing to 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, NHDES, 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

- 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'). For larger areas, Diver-Assisted Suction Harvesting (DASH) may be more appropriate.
- Can be used if plant density is low, or if target plant is scattered and not dense.
- Can be used if the plant could effectively be managed or eradicated by hand-pulling or DASH.
- Use must be in compliance with the Wetlands Bureau rules.

B. Mechanically Harvest or Hydro-Rake

- Cannot 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 SEVEN: SFY 2013-2017 BUDGET SUMMARY

Summary of SFY 2013 Revenues and Expenditures for 1430 by Class and Program July 1, 2012 through June 30, 2013				
	Clean Lakes (L)	**Exotics Control (M)**	**Exotics Prevention (P)**	**Totals**
Revenue from Boat Registrations				
Fee ($/boat)	$0.00	$1,004.75	$0.00	$1,004.75
Income	$45,512.02	$271,983.60	$362,068.38	$679,564.00
Total Income	**$45,512.02**	**$272,988.35**	**$362,068.38**	**$680,568.75**
EXPENSES 1. Personnel & related costs				
010 - Full-Time Salary	$36,029.96	$0.00	$62,373.00	$98,402.96
018 - Overtime	$212.50	$1,000.00	$6,244.41	$7,456.91
022 - Rent - Other than State	$0.00	$14,498.76	$0.00	$14,498.76
024 - Maintenance - Other	$0.00	$300.00	$0.00	$300.00
026 - Membership Fees	$0.00	$185.00	$0.00	$185.00
027 - Transfers to OIT	$0.00	$6,124.62	$0.00	$6,124.62
028 - Rent	$0.00	$5,949.76	$0.00	$5,949.76
030 - Equipment	$0.00	$12,756.95	$0.00	$12,756.95
040 - Indirect Costs	$1,469.43	$10,849.78	$6,996.32	$19,315.53
042 - Additional Fringe Benefits	$359.72	$2,055.55	$4,624.41	$7,039.68
049 - DAS, EAP	$0.00	$56.00	$0.00	$56.00
050 - Intern Salary	$777.80	$17,476.38	$0.00	$18,254.18
060 - Staff/Intern Benefits	$23,095.05	$21,606.50	$19,603.33	$64,304.88
066 - Employee Training	$0.00	$850.00	$0.00	$850.00
070 - In-State Travel	$0.00	$1,800.00	$0.00	$1,800.00
080 - Out-of-State Travel	$0.00	$2,464.64	$0.00	$2,464.64
Total	**$61,944.46**	**$97,973.94**	**$99,841.47**	**$259,759.87**
2. Lab/Field Outreach Materials				
020 - Supplies	$548.42	$25,721.91	$0.00	$26,270.33
030 - Equipment	$0.00	$0.00	$0.00	$0.00
Total	**$548.42**	**$25,721.91**	**$0.00**	**$26,270.33**
3. Pass Through Contracts				
073 - Contracts	$0.00	$278,256.05	$129,871.25	$408,127.30
Total Expenses	**$62,492.88**	**$401,951.90**	**$229,712.72**	**$694,157.50**
Ratios Program Category:Total Expenses (%)				
Personnel	99%	24%	43%	37%
Lab/Field/Outreach	1%	6%	0%	4%

Summary of SFY 2014 Revenues and Expenditures for 1430 by Class and Program
July 1, 2013 through June 30, 2014

	Clean Lakes (L)	Exotics Control (M)	Exotics Prevention (P)	Totals
Revenue from Boat Registrations				
Fee ($/boat)		$924.41		$924.41
Income	$46,243.76	$275,162.96	$367,887.28	$689,294.00
Total Income	**$46,243.76**	**$276,087.37**	**$367,887.28**	**$690,218.41**
EXPENSES 1. Personnel & related costs				
010 - Full-Time Salary	$22,894.50	$12,150.00	$52,445.20	$87,489.70
018 - Overtime	$337.50	$2,938.59	$1,196.10	$4,472.19
020 - Current Expense	$293.15	$35,079.96		
022 - Rent - Other than State		$14,498.76		$14,498.76
024 - Maintenance - Other	$25.27	$114.76		$140.03
026 - Membership Fees		$185.00		$185.00
027 - Transfers to OIT		$16,160.19		$16,160.19
028 - Rent		$6,438.18		$6,438.18
030 - Equipment		$815.00		$815.00
039 - Telecommunications		$1,269.60		$1,269.60
040 - Indirect Costs	$1,182.05	$10,437.49	$6,340.14	$17,959.68
042 - Additional Fringe Benefits	$436.31		$3,186.85	$3,623.16
049 - DAS, EAP		$62.00		$62.00
050 - Intern Salary	$3,530.10	$14,168.40		$17,698.50
060 - Staff/Intern Benefits	$15,248.59	$11,175.71	$33,118.35	$59,542.65
066 - Employee Training		$625.00		$625.00
070 - In-State Travel		$460.23		$460.23
080 - Out-of-State Travel		$2,275.72		$2,275.72
Total	**$43,947.47**	**$128,854.59**	**$96,286.64**	**$233,715.59**
2. Lab/Field Outreach Materials				
020 - Supplies		$7,979.31		$7,979.31
030 - Equipment				$0.00
Total	**$0.00**	**$7,979.31**	**$0.00**	**$7,979.31**
3. Pass Through Contracts				
073 - Contracts	$0.00	$393,541.95	$75,000.00	$468,541.95
Total Expenses	**$43,947.47**	**$530,375.85**	**$171,286.64**	**$710,236.85**
Ratios Program Category:Total Expenses (%)				
Personnel	100%	24%	56%	33%
Lab/Field/Outreach	0%	2%	0%	1%

Summary of SFY 2015 Revenues and Expenditures for 1430 by Class and Program July 1, 2014 through June 30, 2015				
	Clean Lakes (L)	**Exotics Control (M)**	**Exotics Prevention (P)**	**Totals**
Revenue from Boat Registrations				
Fee ($/boat)		$1,038.80		$1,038.80
Income	$57,141.18	$341,147.68	$454,574.52	$852,863.38
Total Income	**$57,141.18**	**$342,186.48**	**$454,574.52**	**$853,902.18**
EXPENSES 1. Personnel & related costs				
010 - Full-Time Salary	$27,161.00	$45,247.20	$51,678.99	$124,087.19
018 - Overtime	$562.50	$1,700.13	$859.76	$3,122.39
020 - Current Expense	$709.28	$13,812.16	$5.86	$14,527.30
022 - Rent - Other than State		$14,498.76		$14,498.76
024 - Maintenance - Other				$0.00
026 - Membership Fees		$265.00		$265.00
027 - Transfers to OIT		$13,448.30		$13,448.30
028 - Rent		$6,305.01		$6,305.01
030 - Equipment		$1,439.00		$1,439.00
038 - Technology - Software		$5,000.00		$5,000.00
039 - Telecommunications		$1,187.85		$1,187.85
040 - Indirect Costs	$2,172.34	$13,156.45	$3,883.28	$19,212.07
042 - Additional Fringe Benefits	$2,425.81	$4,107.89	$5,725.58	$12,259.28
049 - DAS, EAP		$62.00		$62.00
050 - Intern Salary	$4,505.67	$10,077.70		$14,583.37
060 - Staff/Intern Benefits	$16,338.98	$28,929.66	$33,410.97	$78,679.61
066 - Employee Training		$1,401.00		$1,401.00
070 - In-State Travel		$458.00		$458.00
080 - Out-of-State Travel		$1,458.55		$1,458.55
Total	**$53,875.58**	**$162,554.66**	**$95,564.44**	**$311,994.68**
2. Lab/Field Outreach Materials				
020 - Supplies		$8,308.22		$8,308.22
030 - Equipment				$0.00
Total	**$0.00**	**$8,308.22**	**$0.00**	**$8,308.22**
3. Pass Through Contracts				
073 - Contracts	$0.00	$338,443.08	$171,992.00	$510,435.08
Total Expenses	**$53,875.58**	**$509,305.96**	**$267,556.44**	**$830,737.98**
Ratios Program Category:Total Expenses (%)				
Personnel	100%	32%	36%	38%
Lab/Field/Outreach	0%	2%	0%	1%

Summary of SFY 2016 Revenues and Expenditures for 1430 by Class and Program
July 1, 2015 through June 30, 2016

	Clean Lakes (L)	Exotics Control (M)	Exotics Prevention (P)	Totals
Revenue from Boat Registrations				
Fee ($/boat)				$0.00
Income	$ 61,247.40	$365,654.39	$ 487,234.11	$914,135.90
Total Income	**$61,247.40**	**$365,654.39**	**$487,234.11**	**$914,135.90**
EXPENSES 1. Personnel & related costs				
010 - Full-Time Salary	$34,185.30	$37,537.00	$56,733.75	$128,456.05
018 - Overtime	$875.00	$1,490.18	$1,343.63	$3,708.81
020 - Current Expense	$1,372.41	$34,232.23	$0.00	$35,604.64
022 - Rent - Other than State	$0.00	$14,498.76	$0.00	$14,498.76
024 - Maintenance - Other	$0.00	$70.00	$0.00	$70.00
026 - Membership Fees	$0.00	$265.00	$0.00	$265.00
027 - Transfers to OIT	$0.00	$10,613.69	$0.00	$10,613.69
028 - Rent	$0.00	$6,181.07	$0.00	$6,181.07
030 - Equipment	$0.00	$2,500.00	$0.00	$2,500.00
038 - Technology - Software	$0.00	$0.00	$0.00	$0.00
039 - Telecommunications	$0.00	$1,329.09	$0.00	$1,329.09
040 - Indirect Costs	$2,708.79	$16,523.40	$4,126.80	$23,358.99
042 - Additional Fringe Benefits	$2,895.98	$3,223.65	$4,797.19	$10,916.82
049 - DAS, EAP	$0.00	$64.00	$0.00	$64.00
050 - Intern Salary	$4,624.48	$11,640.56	$0.00	$16,265.04
060 - Staff/Intern Benefits	$22,068.25	$24,527.71	$36,115.14	$82,711.10
066 - Employee Training	$0.00	$1,507.24	$0.00	$1,507.24
070 - In-State Travel	$0.00	$1,060.16	$0.00	$1,060.16
080 - Out-of-State Travel	$0.00	$865.32	$0.00	$865.32
Total	**$68,730.21**	**$168,129.06**	**$103,116.51**	**$339,975.78**
2. Lab/Field Outreach Materials				
020 - Supplies	$0.00	$0.00	$0.00	$0.00
030 - Equipment	$0.00	$0.00	$0.00	$0.00
Total	**$0.00**	**$0.00**	**$0.00**	**$0.00**
3. Pass Through Contracts				
073 - Contracts	$0.00	$165,149.68	$240,500.00	$405,649.68
Total Expenses	**$68,730.21**	**$333,278.74**	**$343,616.51**	**$745,625.46**
Ratios Program Category:Total Expenses (%)				
Personnel	100%	50%	30%	46%
Lab/Field/Outreach	0%	0%	0%	0%

Summary of SFY 2017 Revenues and Expenditures for 1430 by Class and Program July 1, 2016 through June 30, 2017				
	Clean Lakes (L)	**Exotics Control (M)**	**Exotics Prevention (P)**	**Totals**
Revenue from Boat Registrations				
Fee ($/boat)				$0.00
Income	$ 60,268.50	$359,960.83	$ 479,447.74	$899,677.07
Total Income	**$60,268.50**	**$359,960.83**	**$479,447.74**	**$899,677.07**
EXPENSES 1. Personnel & related costs				
010 - Full-Time Salary	$35,819.00	$40,017.70	$58,935.30	$134,772.00
018 - Overtime	$0.00	$2,236.78	$949.39	$3,186.17
020 - Current Expense	$1,016.95	$37,474.46	$0.00	$38,491.41
022 - Rent - Other than State	$0.00	$14,498.76	$0.00	$14,498.76
024 - Maintenance - Other	$0.00	$300.00	$0.00	$300.00
026 - Membership Fees	$0.00	$205.00	$0.00	$205.00
027 - Transfers to OIT	$0.00	$11,058.05	$0.00	$11,058.05
028 - Rent	$0.00	$7,305.50	$0.00	$7,305.50
030 - Equipment	$335.75	$3,164.25	$0.00	$3,500.00
038 - Technology - Software	$0.00	$0.00	$0.00	$0.00
039 - Telecommunications	$0.00	$1,238.77	$0.00	$1,238.77
040 - Indirect Costs	$2,853.96	$18,856.53	$3,875.72	$25,586.21
042 - Additional Fringe Benefits	$1,865.78	$1,614.85	$2,023.33	$5,503.96
049 - DAS, EAP	$0.00	$64.00	$0.00	$64.00
050 - Intern Salary	$0.00	$16,594.75	$0.00	$16,594.75
060 - Staff/Intern Benefits	$10,081.03	$39,587.42	$37,592.80	$87,261.25
066 - Employee Training	$0.00	$635.00	$0.00	$635.00
070 - In-State Travel	$0.00	$543.02	$0.00	$543.02
080 - Out-of-State Travel	$0.00	$2,630.87	$0.00	$2,630.87
Total	**$51,972.47**	**$198,025.71**	**$103,376.54**	**$353,374.72**
2. Lab/Field Outreach Materials				
020 - Supplies	$0.00	$0.00	$0.00	$0.00
030 - Equipment	$0.00	$0.00	$0.00	$0.00
Total	**$0.00**	**$0.00**	**$0.00**	**$0.00**
3. Pass Through Contracts				
073 - Contracts	$0.00	$413,418.56	$180,000.00	$593,418.56
Total Expenses	**$51,972.47**	**$611,444.27**	**$283,376.54**	**$946,793.28**
Ratios Program Category:Total Expenses (%)				
Personnel	100%	32%	36%	37%
Lab/Field/Outreach	0%	0%	0%	0%