2021

Lake Host Inspector

Training Manual

Celebrating 20 Years
of Aquatic Invasive Species
Education and Prevention

Brought to New Hampshire lakes and ponds by local groups and:

NH LAKES
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NH LAKES
Working for clean and healthy lakes

TABLE OF CONTENTS

Letter from the NH LAKES Coordinator Page 1
COVID-19 Prevention Measures Flyer Page 2
Official Inspector Position Description Page 3
Behavior Expectations Page 5
General Safety Page 6
Lake Host Program Summary Infographic Page 7
Lake Host Program Summary Page 8
Lake Host Program Summary Tables Page 9
Lake Host Program "Saves" by Waterbody Page 10
Infestation Distribution Map (NHDES) Page 12
Infested Waterbodies Key Page 13
Clean, Drain, & Dry Procedure Page 16
Aquatic Invasive Species Laws Page 17
Invasive Species Fact Sheets Page 19
How to Conduct a Successful Inspection Page 31
Boater Survey Quick Reference Page 36
Boater Survey Field App Page 37
Boater Survey Paper Sheet Page 38
Suspicious Specimen Photo Submission Page 39
Lake Host Employee Timesheet Page 40
Required Forms for Lake Host Program Volunteers
- Volunteer Information Form Page 41
- Youth Parental Permission Form Page 42
- Volunteer Timesheet Page 43

April 1, 2021

Hi Lake Host Team,

Last summer brought dramatic changes to all aspects of life. People striving to social distance and stay safe and sane sought respite in the fresh air and the clean water of New Hampshire's 1,000 lakes. During 2020, Lake Hosts like you, at lakes both big and small, were busier than ever as statewide courtesy boat inspections increased by 30%. Some Lake Host groups doubled their inspections from previous seasons.

It only takes one boat that hasn't been properly clean, drained, and dried to introduce an invasive species and cause big ecological and economic problems for a lake community. Last summer, Lake Hosts removed 117 plants and animals from boats, trailers, and recreational gear. Twenty-three of these were verified "saves" of invasive species that had just hitchhiked out of a lake or were about to be launched into a lake!

This summer, the Lake Host Program celebrates its 20th year of preventing the spread. Things may still be a little different this year in light of COVID-19, but our lakes have been protected by dedicated Lake Hosts, just like you, for 20 years and that is something to celebrate! Thank you for being an invaluable asset to the Lake Host Program. We may not be able to celebrate in person, but we are planning something special—stay tuned!

The staff at NH LAKES will do all that they can to prepare you for working or volunteering at the ramp this summer. If you ever have any questions or problems, I can be reached at kcosta@nhlakes.org and 603.226.0299. It brightens my inbox to see your photos at the ramp in the quiet early morning light (or the madness of the afternoon rush) or when you reach out with questions about lake ecology, so please keep sending them!

With sincere appreciation,

Conservation Program Coordinator, NH LAKES

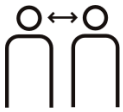
What Is New This Year?

- COVID-19 prevention measures will remain in place during 2021.
- Your wish is our command! A new training on aquatic invasive species identification will be available.

COVID-19 Basic Infection Prevention Measures

Updated: April 19, 2021

COVID-19, caused by a new coronavirus, is a respiratory illness that can spread from person to person. Lake Hosts, even those who have been vaccinated, should follow all CDC and state guidelines. By taking the following infection prevention measures, Lake Hosts conducting courtesy boat inspections will help prevent the spread of the virus while helping boaters prevent the spread of invasive species.

	**Submit the self-screening form for COVID-19 symptoms before each shift**. Seek medical advice and do not work or volunteer at the boat ramp if you answer "yes" to any of the screening questions.
	Practice physical distancing — maintain at least 6 feet between other Lake Hosts, boaters, and the public at all times.
	Do not pass out any materials (brochures or decals) to boaters or the public as this violates physical distancing measures.
	Avoid congested situations that may make keeping at least 6 feet physical distancing difficult.
	Sit in your vehicle, or temporarily leave the launch, if it becomes too crowded or if you notice someone who could be sick.
	Before sharing clipboards, pens, or other tools with other Lake Hosts, disinfect them first.
	Wash hands frequently with soap and water or use an alcohol-based hand sanitizer containing at least 60% alcohol.
	Clean and disinfect frequently used tools, equipment, and frequently touched surfaces (cell phones, tablets, pens, etc.) on a regular basis.
	**Keep a mask with you at all times.** Follow all CDC, state, and local guidelines. Wear a mask when physical distancing isn't possible or as dictated by a local ordinance.

2021 Lake Host Program Position Description

Lake Host Inspector (Employee or Volunteer)

Updated: February 9, 2021

Position Summary:

Lake Host Program Inspectors staff local boat access sites to teach the public about aquatic invasive species prevention methods and to help boaters remove potentially-invasive plants and animals from boats, trailers, and gear. Inspectors are not enforcers of local or state ordinances, rules, or laws. An inspector represents NH LAKES and the local organization participating in the Lake Host Program. An inspector may be an individual hired as an NH LAKES seasonal employee or an individual serving as a volunteer from the local community.

Essential Responsibilities:

- Appear in uniform and greet all arriving and departing boaters and visitors.
- Conduct boat and trailer inspections with boaters' permission. Follow protocols for removing aquatic plants and animals from boats and trailers.
- Collect and enter boater survey data neatly complete all paper and digital documentation.
- Encourage boaters to practice the "Clean, Drain, and Dry" method for preventing the spread of aquatic invasive plants and animals.

Knowledge, Skills, and Abilities: The ideal inspector is:

- able to conduct a visual and tactile examination of all exterior surfaces of boats and trailers;
- comfortable interacting with strangers; professional, friendly, polite, and has a sense of humor;
- task-oriented, self-motivated, and able to deal productively with 'down time';
- equipped to work outside safely in a variety of weather conditions; and,
- is committed to providing fact-based information about aquatic invasive species prevention.
- Minimum age: 18. Exceptionally mature and independent 16- and 17-year-olds may be considered for work in pairs or with experienced inspectors.

Working Relationships/Accountability:

- A paid inspector is an NH LAKES employee working at a host site of a local organization participating in the Lake Host Program.

- Inspectors collect data, neatly complete all paperwork, and collect suspicious plant or animal specimens in bags provided by NH LAKES, and forward all information to their Local Coordinator.
- Inspectors are responsible for accurately completing, signing, and forwarding their timesheet to their Local Coordinator by the last Sunday in each pay period.
- The Local Coordinator of the local organization participating in the Lake Host Program will set the weekly staffing schedule and provide daily oversight and management, submit specimen bags and paperwork, and will provide Inspector with performance feedback. Employee and volunteer inspectors should contact NH LAKES directly with questions, comments, or concerns, if not addressed by or appropriate for the Local Coordinator.
- Inspector should seek medical attention immediately and notify the Local Coordinator(s) and NH LAKES as soon as possible if injured while on duty. Inspectors are required to follow all COVID-19 prevention measures to ensure the safety of themselves and others while working in the position. This includes filling out all required forms and adhering to all measures outlined in the COVID-19 Prevention Measures Flyer.

Salary and Benefits/Work Hours and Location:

- This position is temporary/seasonal and the individual determines their lakeside site location preference.
- This position pays between $10 to $15/hour depending on experience. Start and end dates, hourly pay rates, and hours worked per week vary by site location. This is a strictly outdoor position.
- This position is not eligible for overtime pay or NH LAKES health insurance benefits. Employees projected to earn more than $5,000 in 2021 may elect to participate in the NH LAKES retirement plan through which NH LAKES will match the employee's payroll contributions up to 3%.
- No individual can serve as a paid Lake Host Inspector and volunteer Lake Host Inspector within one calendar year.

Organization Information:

Founded in 1992, NH LAKES is a nationwide, member-supported 501(c)(3) nonprofit organization with the mission to keep New Hampshire's lakes clean and healthy, now and in the future. NH LAKES works with partners to promote clean water policies, responsible use, and inspires the public to care for lakes. The Lake Host Program is a collaborative effort between NH LAKES, the New Hampshire Department of Environmental Services, and local partners for the prevention of aquatic invasive species spread in New Hampshire's waterbodies.

Lake Host Inspector Behavior Expectations

Be comfortable: Make sure you dress in layers and bring rain gear, a chair, **water**, bug spray, sunscreen, and an umbrella for the sun if your ramp doesn't have shade—and don't forget snacks!

Be alert: Pay attention to the weather, boat traffic, and people. Napping, sleeping, sunbathing, or swimming when you are working or volunteering is not acceptable. Waiting in an automobile is not appropriate, unless the weather is rainy, or if an extenuating circumstance has been discussed with and approved by NH LAKES.

Be observant: Check all arriving and departing boats thoroughly for plants, animals, and debris. Other states may not have aquatic invasive species prevention programs or may have more severe invasive problems than we do—pay extra attention to out-of-state boats.

Be safe: Follow all recommended safety and emergency procedures. Lake Hosts, even those who have been vaccinated, are required to follow COVID-19 basic prevention measures.

Be encouraging: Urge boaters to inspect their own boats, trailers, and gear every time before they enter and after they leave a waterbody. Listen to a boater's concerns.

Be professional: Lake Host shirts are mandatory and must remain on you and visible while on duty. While interacting with the boater, take off headphones, sunglasses (unless they are prescription), and do not answer/talk on the phone. If a boater does not wish to speak with you, then you should wish them a 'good day.'

Be independent: Discourage social visits and don't let friends and family distract you from giving your shift your full attention. Complete your paperwork and your duties without needing to be reminded by your local coordinator.

Be prepared: Make sure you have a supply of survey sheets, a pen, and if you are using a mobile device for data recording, a fully-charged battery for your shift.

Be understood: Speak clearly and slowly when talking with the public so understand the importance of protecting the lake!

Be in touch: Have a cell phone/know where the nearest phone is. Have the phone numbers of your local coordinator and police on hand.

Be organized: Fill in your timesheet, make sure your boater survey sheet is clean and easy to read, or your Survey123 information is submitted once you have access to Wi-Fi. Turn in all paperwork in the manner specified by your Local Coordinator.

Be inspired: Serving as a Lake Host Inspector is important work! You are saving lakes!

General Safety Precautions

- ✔ Make sure you stay hydrated and protect yourself from the sun, weather, and insects.
- ✔ Keep your cell phone with you with a full battery. Make sure your family or friends know where you are and when to expect to hear from you after your shift if cell reception is limited. Local police should regularly check in on the ramp—if this is not happening at your worksite, please speak with your Local Coordinator.
- ✔ If you feel that a boat launch site is unsafe in any way, notify your Local Coordinator, Local Program Assistant, or NH LAKES immediately. NH LAKES recommends Lake Host Inspectors work in pairs.
- ✔ Never confront an angry or uncooperative boater. Your safety is more important. Always back away from an uncomfortable or potentially dangerous situation. Lake Host Inspectors are not enforcement officers.
- ✔ Contact the police to report harassment or hostile interactions. If you are ever suspicious of someone or feel threatened by someone, **leave** the launch!
- ✔ Do not help boaters launch or take their boats out of the water. Do not direct traffic at the ramp and do not instruct boaters where to park their vehicles.

Emergency Contact Information

If you are injured while serving as a Lake Host, seek appropriate medical care and if needed, go to the nearest emergency room. Inform your Local Coordinator as soon as possible within 24 hours of the accident.

Your Local Coordinator should report the following to NH LAKES:
-Date and time of injury
-Cause of accident & nature of injury
-Contact information for witnesses
-Details of first aid (if provided)
-Treatment details & doctor seen

Call the NH LAKES Office
Mon – Fri from 8:00 a.m. – 4:00 p.m.
603-226-0299

Outside of normal operating hours, please contact:

Andrea LaMoreaux 603-731-0521
Martha Lovejoy 603-746-3481

Safety First.

- ✔ Lake Hosts, even those who have been vaccinated, should follow all CDC, state, and local guidelines to help slow the spread of COVID-19. Practice social distancing and keep a mask mask with you at all times. Wear a mask when physical distancing isn't possible or as dictated by a local ordinance.
- ✔ **Seek immediate medical attention if you become injured while serving as a Lake Host Inspector.** Notify your Local Coordinator and NH LAKES as soon as possible.
- ✔ If you are hurt at work, workers' compensation (or "workers' comp") pays your medical bills. It also pays 60% of your lost wages after you miss more than three days of work. Workers' compensation is a type of insurance that all employers MUST provide.

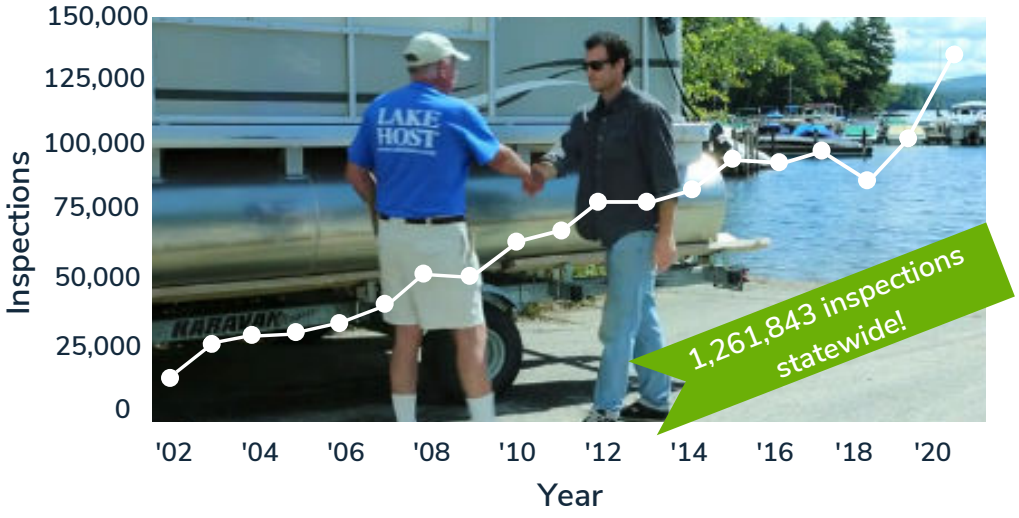
LAKE HOST PROGRAM

2002 - 2020

Summary & Accomplishments

NH LAKES

COURTESY BOAT INSPECTIONS



PARTICIPATION

Boat Ramps Covered

2002 — 45

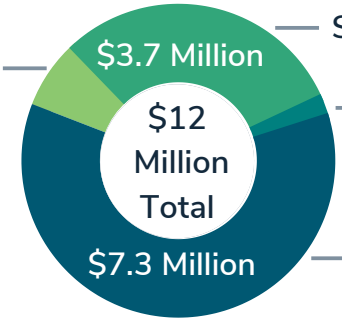
2020 — 94

Lake Host Inspectors

2002 — 161

2020 — 598

PROGRAM FUNDING OVERALL (2002 - 2020)



Federal Funds $831K

State Grants

Foundations & NH LAKES $248K

Local Groups, Municipalities & Individuals

Donations and in-kind volunteer labor and expenses

INVASIVE SPECIES REMOVED

1,635 'saves' at 55 waterbodies over 19 years

Fanwort	813
Variable Milfoil	651
Eurasian Milfoil	96
European Naiad	20
Chinese Mystery Snail	22
Water Chestnut	16
Curly Leaf Pondweed	15
Zebra Mussel	1
Common Reed	1

Preventing the spread of aquatic invasive species in New Hampshire for 19 years - one boat and boater at a time!

Aquatic Invasive Species Spread Prevention Program Annual Summary 2002-2020

The goal of the NH LAKES AIS Spread Prevention Program is to prevent the introduction and spread of invasive aquatic plants and animals in New Hampshire's lakes and ponds through public outreach.

Trained Lake Hosts are placed at boat launch sites to:

- Educate all visitors about aquatic invasive species and distribute education materials, and complete a brief survey on boating habits.
- Offer courtesy boat and trailer inspections of all vessels, arriving and departing from the ramp, and show boaters where to look for hitchhiking aquatic invasive plants and animals.
- Encourage boaters to self-inspect and use the "Clean, Drain & Dry" method each time they use their boat, trailer, and gear.
- Safely remove and dispose of all plant, animals, and other debris
- Collect samples of "hitchhiking" plants or animals removed from vessels, and send to the exotic species lab at the New Hampshire Department of Environmental Services (NHDES) for identification.

NH LAKES works with boat access site owners and local partners to upgrade sites with a variety of approaches, tools, and technologies to help boaters to take action to prevent the spread of invasive species.

Program Need: Aquatic invasive species infestations make recreation in and on lakes, ponds, and rivers dangerous and unpleasant. Invasive aquatic plants and animals spread by hitchhiking on boats, trailers, and recreational gear that has not been properly cleaned, drained, and dried. **Impacts of infestations are far reaching;** they disrupt the ecological balance, reduce shoreline property values, impact aesthetic and recreational uses, and are difficult and expensive to control once they infest a waterbody.

Funding Background: In 2002, NH LAKES received a two-year federal grant to design a comprehensive aquatic invasive plant education and prevention program to staff public boat ramps with trained educators. In 2003, a portion of New Hampshire boat registration fees went into a grant program to fund exotic plant prevention and research activities and a grant program administered by NHDES. Three-quarters of the NHDES grant is available to support annual education and prevention activities, such as the Lake Host program. In 2019, NH LAKES worked closely with Marine Patrol to advocate for a boat decal bill for visiting out-of-state boaters, to help increase the prevention and education fund, and increase the management of existing infestations. NH LAKES has deployed the first waterless watercraft cleaning unit in the Northeast, visiting public boat ramps throughout the state helping boaters prevent the spread of invasive species.

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NH LAKES Aquatic Invasive Species Spread Prevent Program Summary 2002-2020 (as of 12/18/20)

Year	Groups	Paid Hosts	Volunteer Hosts	Lakes with Lake Hosts	Ramps Staffed	Inspections Conducted	Invasive Species Removed	Federal Funds	State Funds	Foundation & NH LAKES Funds	Local Funds	TOTAL
2002	38	102	59	37	45	15,878	9	$260,100			$37,155	$297,255
2003	46	149	167	45	59	26,583	7	$10,000	$165,000		$112,382	$287,382
2004	51	190	216	50	61	31,629	17	$85,300	$150,000		$151,238	$386,538
2005	56	175	318	56	61	34,878	54	$35,000	$185,000		$200,756	$420,756
2006	57	204	353	56	66	34,860	54	$117,000	$185,000		$183,179	$485,179
2007	68	221	429	64	83	44,183	157	$117,000	$185,000		$292,017	$594,017
2008	70	240	470	70	88	55,924	224	$89,206	$161,000		$334,061	$584,267
2009	71	236	420	71	86	53,796	297	$89,206	$123,333	$4,000	$341,535	$558,074
2010	74	230	517	74	90	64,661	268	$0	$133,367	$22,000	$393,273	$548,640
2011	73	219	475	74	92	68,429	39	$0	$169,000	$23,000	$404,751	$596,751
2012	77	238	500	78	100	77,261	137	$0	$200,000	$14,500	$486,455	$700,955
2013	81	247	500	82	103	77,806	153	$0	$210,000	$18,259	$494,248	$722,507
2014	80	258	500	82	102	83,663	58	$0	$230,000	$22,500	$503,170	$755,670
2015	80	285	507	82	103	92,184	48	$0	$226,500	$24,000	$517,227	$767,727
2016	82	264	545	83	104	89,960	28	$0	$252,000	$24,000	$526,251	$802,251
2017	80	271	400	81	101	94,222	22	$20,177	$261,000	$27,000	$546,193	$854,370
2018	80	301	431	80	97	86,813	26	$5,845	$254,000	$13,913	$594,440	$868,198
2019	80	278	330	80	104	96,914	14	$2,543	$280,000	$39,757	$609,987	$932,286
2020	75	283	315	75	94	132,199	23	$0	$280,000	$18,043	$643,162	$941,205
					Total	**1,261,843**	**1,635**	**831,377**	**3,650,200**	**250,972**	**7,371,480**	**12,104,028**

Lake Hosts (paid and volunteer) successfully find and remove aquatic invasive species

Year	Chinese Mystery Snail	Common Reed	Curly Leaf Pondweed	Eurasian Milfoil	European Naiad	Fanwort	Variable Milfoil	Water Chestnut	Zebra Mussels	TOTAL
2002				2			7			9
2003				2		3	2			7
2004			1	5		1	10			17
2005				7		1	43	3		54
2006				7		7	40			54
2007		1	1	4		65	86			157
2008				5		168	50	1		224
2009			4	4		240	48	1		297
2010			1	6	18	170	72	1		268
2011			1	9		12	17			39
2012			1	10		73	52	1		137
2013	3		2	6		51	90	1		153
2014	1		1	12	1	3	37	3		58
2015	6		3	3		5	31			48
2016	1			1		10	15	1		28
2017	1			1			18	1	1	22
2018	1			3		2	19	1		26
2019	1			6			5	2		14
2020	8			3	1	2	9			23
Total	**22**	**1**	**15**	**96**	**20**	**813**	**651**	**16**	**1**	**1635**

Invasive Species 'SAVES' by Waterbody

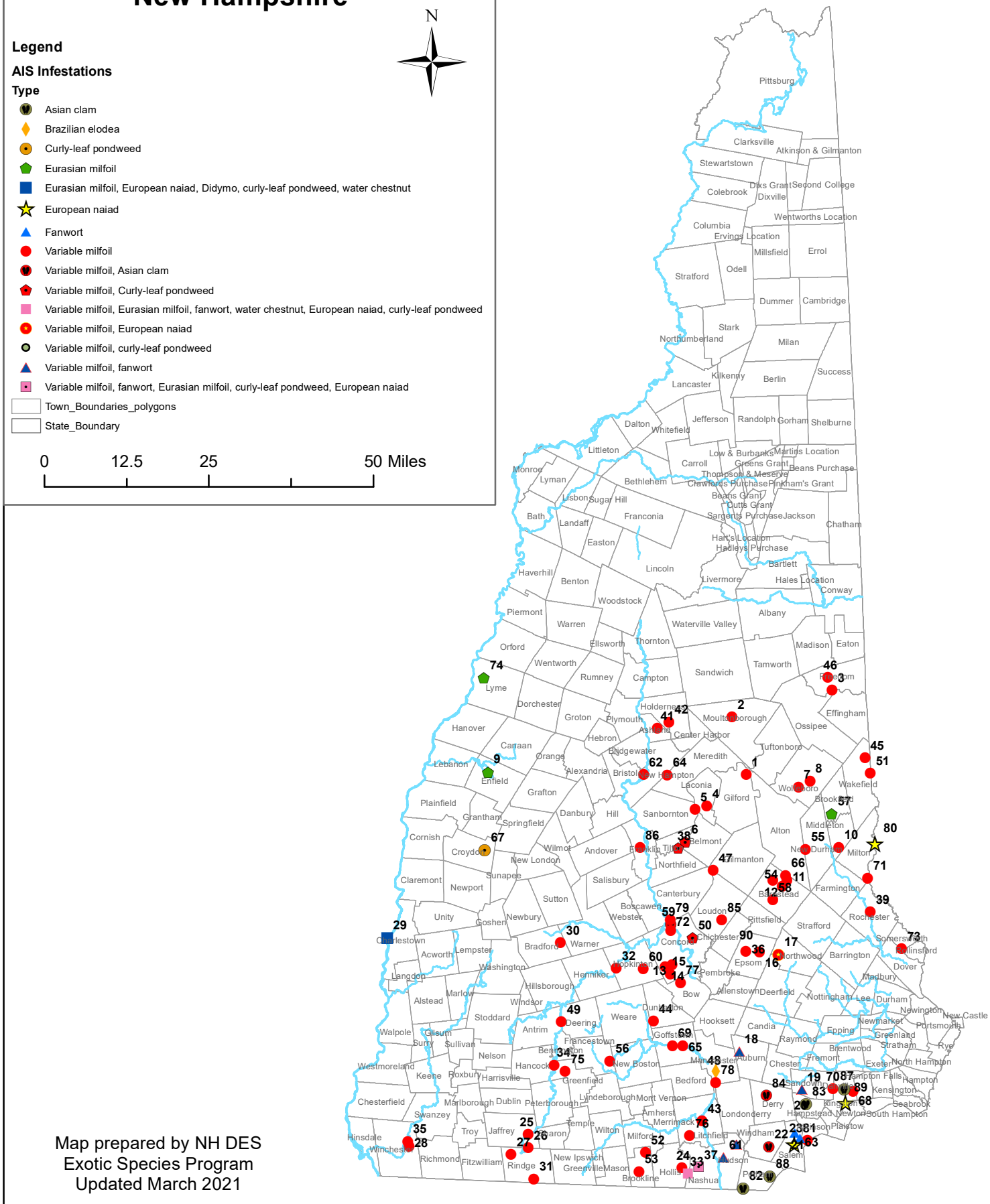
'Saves' – The following aquatic invasive species were removed before entering or leaving a waterbody as a result of the Lake Host Program during the year(s) indicated:

- **Beaver Lake** (Derry): Fanwort (2008, 2009), Variable milfoil (2008, 2011), Eurasian milfoil (2012)
- **Bow Lake** (Northwood): Variable milfoil (2003, 2005), Eurasianmilfoil (2005, 2009), Fanwort (2015), Milfoil species (2014)
- **Canaan Lake** (Canaan)**:** Chinese mystery snail (2020)
- **Clough Pond** (Loudon): Variable milfoil (2005)
- **Connecticut River** (Hinsdale): Eurasian milfoil (2010), European naiad (2010)
- **Conway Lake** (Conway): Variable milfoil (2011, 2020), Eurasian milfoil (2014, 2019)
- **Crescent Lake** (Acworth): Eurasian milfoil (2003, 2012), Fanwort (2003), Variable milfoil (2020)
- **Crystal Lake** (Enfield): Water chestnut (2005), Eurasian milfoil (2010, 2019)
- **Deering Reservoir** (Deering): Eurasian milfoil (2013), Variable milfoil (2014, 2019)
- **Dublin Lake** (Dublin): Eurasian milfoil (2016)
- **Eastman Lake** (Grantham): Eurasian milfoil (2010, 2018)
- **First Connecticut Lake** (Pittsburg): Variable milfoil (2014)
- **Gilmore Pond** (Jaffrey): Water chestnut (2005), Fanwort (2016)
- **Goose Pond** (Canaan): Eurasian milfoil (2007), Variable milfoil (2009)
- **Granite Lake** (Nelson/Stoddard): Curly-leaf pondweed (2009, 2011), Eurasian milfoil (2011, 2013), Variable milfoil (2011
- **Grafton Pond** (Grafton): Eurasian milfoil (2019)
- **Great East Lake** (Wakefield): Eurasian milfoil (2006, 2008),Fanwort (2010, 2020), Variable milfoil (2007, 2008, 2009, 2010, 2013, 2018, 2020)
- **Harrisville Pond (Harrisville):** Chinese Mystery Snail (2019)
- **Highland Lake** (Stoddard): Eurasian milfoil (2005), Variable milfoil (2015)
- **Island Pond** (Stoddard): Variable milfoil (2013)
- **Jenness Pond** (Northwood): Variable milfoil (2005)
- **Lake Francis** (Pittsburg): Variable milfoil (2014)
- **Lake Massabesic** (Auburn): Fanwort (2013), Variable milfoil (2012, 2014)
- **Lake Monomonac** (Rindge): Eurasian milfoil (2004, 2017), Curly-leaf pondweed (2004), Variable milfoil (2004, 2005, 2006, 2007, 2008, 2014)
- **Lake Opechee** (Laconia): Water chestnut (2016, 2017)
- **Lake Ossipee** (Ossipee): Eurasian milfoil (2010), Variable milfoil (2009, 2011, 2012, 2016, 2020)
- **Lake Potanipo** (Brookline): Fanwort (2010), Variable milfoil (2010, 2011, 2012, 2017, 2018)
- **Lake Sunapee** (Sunapee): Eurasian milfoil (2005, 2006, 2007, 2008, 2009, 2015, 2020), Variable milfoil (2007), Fanwort (2016, 2020), Zebra mussel (2017)
- **Lake Waukewan** (Meredith): Eurasian milfoil (2003), Variable milfoil (2007, 2008), Water chestnut (2018)
- **Lake Wentworth** (Wolfeboro): Variable milfoil (2008)
- **Lake Wicwas** (Meredith): Variable milfoil (2010)
- **Lake Winnipesaukee**: Fanwort (2003, 2007), Variable milfoil (2004, 2007, 2008, 2009, 2010, 2011, 2012, 2014, 2015, 2016, 2017, 2018, 2019), Eurasian milfoil (2012)

Invasive Species 'SAVES' by Waterbody

- **Lake Winnisquam** (Laconia): Variable milfoil (2008, 2015, 2016, 2017)
- **Little Lake Sunapee** (New London): Variable milfoil (2011), Curly-leaf pondweed (2015), Eurasian Milfoil (2020)
- **Lovell Lake** (Wakefield): Variable milfoil (2006, 2007, 2013, 2018)
- **Merrymeeting Lake** (New Durham): Variable milfoil (2007, 2010, 2012, 2013, 2014,2015, 2018),Water Chestnut (2012)
- **Mirror Lake** (Tuftonboro): Chinese mystery snail (2014)
- **Newfound Lake** (Bristol): Curly-leaf pondweed (2015), Eurasian milfoil (2006, 2009, 2010, 2011, 2014, 2015), Fanwort (2003, 2006, 2013), Variable milfoil (2002, 2006, 2007, 2008, 2009, 2014, 2015), Water Chestnut (2009, 2010), Water naiad (2014)
- **Northwood Lake** (Northwood): Curly-leaf pondweed (2007), Eurasian milfoil (2007), Variable milfoil (2008, 2010, 2011, 2013, 2014, 2016, 2017)
- **Nubanusit Lake** (Nelson/Hancock): Curly-leaf pondweed (2009), Eurasian milfoil (2002, 2004), Variable milfoil (2007, 2008)
- **Ottarnic Pond** (Hudson): Chinese mystery snail (2015), Curly-leaf pondweed (2013), Fanwort (2005, 2006, 2007, 2008, 2012, 2013, 2014, 2015, 2016), Variable milfoil (2006, 2007, 2010, 2011, 2012, 2013, 2014, 2015, 2016)
- **Pawtuckaway Lake** (Nottingham): Common reed (2007),Curly leaf pondweed (2010, 2013, 2014), Eurasian milfoil (2009, 2010, 2011, 2012, 2014, 2015, 2018, 2019), Fanwort (2009, 2011), Variable milfoil (2007, 2008. 2009, 2010, 2012, 2013, 2014, 2015, 2016, 2017, 2018), Water chestnut (2008, 2014, 2019)
- **Pleasant Lake** (Deerfield): Eurasian milfoil (2011), Variable milfoil (2004, 2007, 2013, 2016)
- **Pleasant Pond** (Francestown): Curly-leaf pondweed (2009), Eurasian milfoil (2006), Variable milfoil (2011, 2013, 2014)
- **Pow Wow Pond** (Kingston): Chinese mystery snail (2013), Variable milfoil (2013, 2015)
- **Robinson Pond** (Hudson): Chinese mystery snail (2013, 2017, 2020), European naiad (2020), Fanwort (2004, 2006, 2007,2008, 2009, 2010, 2011, 2012, 2013, 2014, 2016, 2018), Variable milfoil (2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2016, 2017, 2018), Eurasian milfoil (2012)
- **Silver Lake** (Madison): Variable milfoil (2002, 2004, 2006, 2018), Water chestnut (2019)
- **Silver Lake** (Harrisville): Variable milfoil (2018, 2020)
- **Lake Skatutakee** (Harrisville): Eurasian milfoil (2005)
- **Spofford Lake** (Chesterfield): Eurasian milfoil (2002, 2005, 2008, 2011, 2013), Variable milfoil (2011)
- **Squam Lake** (Holderness): Chinese mystery snail (2015), Curly-leaf pondweed (2009), Eurasian milfoil (2007), Fanwort (2013)
- **Suncook Lake** (Barnstead): Variable milfoil (2009, 2013)
- **Swanzey Lake** (Swanzey): Variable milfoil (2011), Eurasian milfoil (2012), Water chestnut (2014)
- **Thorndike Pond** (Jaffrey): Variable milfoil (2015)
- **Webster Lake** (Franklin): Eurasian milfoil (2011, 2012, 2014), Fanwort (2010), Variable milfoil (2009), Curly-leaf pondweed (2012), Chinese mystery snail (2018)

Aquatic Invasive Species (AIS) Infestation in New Hampshire



Map prepared by NH DES
Exotic Species Program
Updated March 2021

Numbers correspond to separate key which lists waterbody name and town.

New Hampshire Waterbodies Infested with Aquatic Invasive Species (Updated March 2021)

(Note: This listing does not include the Chinese Mystery Snail, which is documented in several waterbodies statewide.)

Map #	Waterbody (TOWN)	AC	BE	BN	CLP	EM	EN	FW	VM	WC
1	Winnipesaukee Lake (ALL TOWNS)								x	
2	Lees Pond (MOULTONBOROUGH)								x	
3	Ossipee Lake (Broad Bay) (FREEDOM)								x	
4	Opechee Lake (LACONIA)								x	
5	Winnisquam Lake (MEREDITH/BELMONT)								x	
6	Silver Lake (TILTON)				x				x	
7	Crescent Lake (WOLFEBORO)								x	
8	Wentworth Lake (WOLFEBORO)								x	
9	Mascoma Lake (ENFIELD)					x				
10	Sunrise Lake (MIDDLETON)								x	
11	Locke Lake (BARNSTEAD)								x	
12	Suncook Lakes (BARNSTEAD)								x	
13	St Paul's School Pond (CONCORD)								x	
14	Little Turkey Pond (CONCORD)								x	
15	Big Turkey Pond (CONCORD)								x	
16	Bixby Pond (EPSOM)								x	
17	Northwood Lake (NORTHWOOD)						x		x	
18	Massabesic Lake (AUBURN)							x	x	
19	Phillips Pond (SANDOWN)							x	x	
20	Big Island Pond (DERRY)							x	x	
21	Arlington Mill Reservoir (SALEM)							x		
22	Cobbetts Pond (WINDHAM)	x							x	
23	Captain Pond (SALEM)								x	
24	Flints Pond (HOLLIS)								x	
25	Cheshire Pond (JAFFREY)								x	
26	Contoocook Lake (JAFFREY)								x	
27	Pearly Pond (RINDGE)								x	
28	Forest Lake (WINCHESTER)								x	
29	Connecticut River (CHARLESTOWN)				x	x	x			x
30	Massasecum Lake (BRADFORD)								x	
31	Monomonac Lake (RINDGE)								x	
32	Hopkinton Lake/Dam (HOPKINTON)								x	
33	Nashua River (NASHUA)				x	x	x	x	x	x
34	Powder Mill Pond (HANCOCK)								x	
35	Ashuelot River (WINCHESTER)								x	
36	Little Suncook River (EPSOM/NORTHWOOD)								x	
37	Mine Falls Pond (NASHUA)				x	x	x	x	x	
38	Winnipesaukee River (TILTON)				x				x	
39	Cocheco River (ROCHESTER)								x	
40	Robinson Pond (HUDSON)							x	x	
41	Squam River (ASHLAND)								x	
42	Squam Lakes (HOLDERNESS/ASHLAND)								x	

New Hampshire Waterbodies Infested with Aquatic Invasive Species (Updated March 2021)

(Note: This listing does not include the Chinese Mystery Snail, which is documented in several waterbodies statewide.)

Map #	Waterbody (TOWN)	AC	BE	BN	CLP	EM	EN	FW	VM	WC
43	Horseshoe Pond (MERRIMACK)								x	
44	Gorham Pond (DUNBARTON)								x	
45	Belleau Lake (WAKEFIELD)								x	
46	Danforth Pond (FREEDOM)								x	
47	Rocky Pond (GILMANTON)								x	
48	Nutts Pond (MANCHESTER)		x							
49	Contoocook River (VARIOUS LOCATIONS)								x	
50	Turtle Pond (CONCORD)								x	
51	Balch Lake (WAKEFIELD)								x	
52	Melendy Pond (BROOKLINE)								x	
53	Potanipo Lake (BROOKLINE)								x	
54	Brindle Pond (BARNSTEAD)								x	
55	Jones Pond (Stumpfield Pond) (NEW DURHAM)								x	
56	Scobie Pond/Haunted Lake (FRANCESTOWN)								x	
57	Mountain Pond (BROOKFIELD)					x				
58	Barnstead Parade Pond/Suncook (BARNSTEAD/ PITTSFIELD)								x	
59	Merrimack River (MULTIPLE TOWNS)	x							x	
60	Kimball Pond (HOPKINTON)								x	
61	Ottarnic Pond (HUDSON)							x	x	
62	Pemigewasset River (SANBORNTON)								x	
63	Wilson Lake (SALEM)							x		
64	Lake Pemigewasset (MEREDITH)								x	
65	Piscataquog River (GOFFSTOWN)								x	
66	Halfmoon Pond (BARNSTEAD)								x	
67	Rockybound Pond (CROYDON)				x					
68	Powwow Pond (KINGSTON)								x	
69	Glen Lake (GOFFSTOWN)								x	
70	Long Pond (DANVILLE)								x	
71	Spaulding Pond (MILTON)								x	
72	Upper Goodwin Pond (CONCORD)								x	
73	Willand Pond (DOVER)								x	
74	Post Pond (LYME)					x				
75	Otter Pond (GREENFIELD)								x	
76	Naticook Lake (MERRIMACK)								x	
77	Turee Pond (BOW)								x	
78	Pine Island Pond (MANCHESTER)								x	
79	Oxbow Lake (CANTERBURY)								x	
80	Northeast Pond (MILTON)			x						
81	Milville Lake (SALEM)						x			
82	Long Pond (PELHAM)	x								
83	Wash Pond (SANDOWN)	x								
84	Beaver Lake (DERRY)	x							x	

New Hampshire Waterbodies Infested with Aquatic Invasive Species (Updated March 2021)

(Note: This listing does not include the Chinese Mystery Snail, which is documented in several waterbodies statewide.)

Map #	Waterbody (TOWN)	AC	BE	BN	CLP	EM	EN	FW	VM	WC
85	Crooked Pond (LOUDON)								x	
86	Chance Pond Brook (FRANKLIN)								x	
87	Great Pond (KINGSTON)	x								
88	Little Island Pond (PELHAM)	x								
89	Country Pond (NEWTON)						x			
90	Deer Meadow Pond (CHICHESTER/EPSOM)								1	
	TOTAL =	7	1	1	6	6	6	9	75	2

Code	Species Name
AC	Asian Clam
BE	Brazilian Elodea
BN	Brittle Naiad
CLP	Curly-leaf Pondweed
EM	Eurasian Milfoil
EN	European Naiad
FW	Fanwort
VM	Variable Milfoil
WC	Water Chestnut

“Clean, Drain, & Dry” Method

The three steps of the “Clean, Drain, & Dry” method can prevent the spread of aquatic invasive species!

CLEAN: Visually inspect boats and trailers before entering *and* after leaving the water. Remove and dispose of all plants, animals, mud, and other debris. Encourage boaters to inspect all live wells, recreational gear, fishing gear, and anchor. Encourage boaters to dispose of unused bait and unwanted fish parts in a trash can. *Cleaning is the law!*

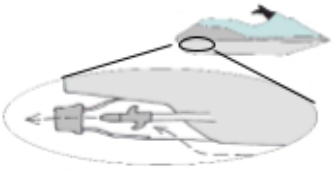
- **If the hull of a boat feels sandpapery, there may be zebra mussel growth on the vessel.** Encourage the boater to visit the nearest boat-friendly car wash to clean their boat, trailer, and gear with high-pressure hot water.
- **Inspecting jet-powered craft:** Personal watercraft have a jet drive system which requires some extra precautions. Invasive species can become stuck in the jet drive system and get transported from one waterbody to another.
    - Ask the boat owner to start and run the engine for a second or two to blow out any excess water and debris. *(Make sure no one is standing directly behind the watercraft and that the expelled water won’t flow directly into the lake.)* After the engine has stopped, pull out any plants or other debris that are still in the steering nozzle and inspect the water intake for plant fragments.

DRAIN: Instruct boaters to open all drain plugs and drain water from the motor, bilge, live wells, ballast tanks and bags, fishing gear, bait buckets, and other locations where water collects. Remind them that they should keep all drain plugs open/out while trailering between waterbodies. Draining should occur away from the lake and not on the ramp to prevent the drain water from flowing back into the lake. Remind boaters to put drain plugs back in before launching again. *Draining is the law!*

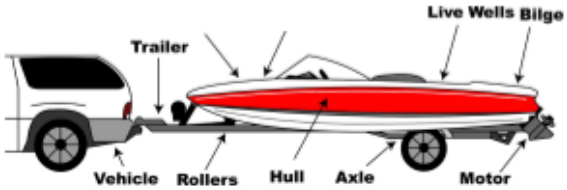
DRY: Encourage boaters to allow their boat, trailer, and recreational gear to dry for at least 5 days before using again. Encourage the boater to visit a boat-friendly car wash before launching into another waterbody.

Inspection Check Points by Watercraft Type

For paddle craft: Check the hull, inside cockpit and storage areas, all paddles and the trailer it came in on.



For Jet ski/boat: Ask the owner to stop and start the engine to remove trapped water. ***This will NOT damage motor!***



Anchor and rope

For boats on trailers: Check *all* of these “SNAG AREAS” areas. You should walk around the entire boat, and get down to check under the trailer and behind the wheel wells. Check the anchor and rope, too!

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What Are New Hampshire's Aquatic Invasive Species Laws?

The purpose of the Lake Host Program is to educate boaters and offer courtesy boat inspections. Lake Host Inspectors are not enforcers and do not "report" boaters who refuse an inspection or do not comply with the law.

All recreational boaters are required to:

- Clean off all mud, plants, animals, and debris from their boat, trailer, and equipment.
- Drain motors, bilges, live wells, ballast tanks, storage compartments, and gear.
- Open/remove all drain plugs and drain all compartments and gear (where runoff won't flow back into the water) before leaving the ramp and leave open while trailering (i.e while driving down the road).
- Use available tools at access sites on boats, trailers, and gear to prevent the spread of invasive species.
- Out-of-State motorized boaters are required to purchase and display the annual $20 Aquatic Invasive Species Decal.

NH RSA 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.

NH RSA 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. Any person engaging in such an activity shall be guilty of a violation.

NH RSA 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.

NH RSA 487:16-d Draining of Water Conveyances

- 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.
- 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.

What Are New Hampshire's Aquatic Invasive Species Laws?

NH RSA 487:16-e Use of Best Available Technology at Public Boat Access Sites

- Public boat access facility owners such as state agencies and municipalities, may provide various technologies including, but not limited to, garden hoses, cleaning tools or units, and decontamination units at their access sites for the purposes of cleaning, draining, drying, or decontaminating boats, trailers, and aquatic gear in order to prevent the spread of aquatic exotic invasive species.
- Prior to entering and after exiting the waterbody through a boat access facility, boaters using public boat access facilities shall use the clean, drain, dry, or decontamination technology made available at that site when such technology is available, without cost, and not otherwise restricting access to the public waterbody.

NH RSA 487:16-f Penalties

Any person who violates RSA 487:16-c through 487:16-e 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.

NH RSA 487:43 Aquatic Invasive Species Decal

- No person shall operate a powerboat registered in another state on New Hampshire public waters without displaying a New Hampshire aquatic invasive species decal from the department of environmental services.
- A decal shall be purchased from the department for $20. The revenue from each decal shall be distributed to the lake restoration and preservation fund established in RSA 487:25 in the same proportions as the addition to the boat fee under RSA 487:25, I.

RSA 207:14 Prohibited Species – Importation, Possession, and Release

No person shall import, possess, sell, exhibit, or release any live marine species or wildlife, or the eggs or progeny thereof, without first obtaining a permit from the New Hampshire Fish and Game DepartmentExecutive Director. No person shall be issued a permit to import *(Fis 803.03 & Fis 803.04(b))*, possess *(Fis 804.03,) or release (Fis 805.01)* designated prohibited wildlife.

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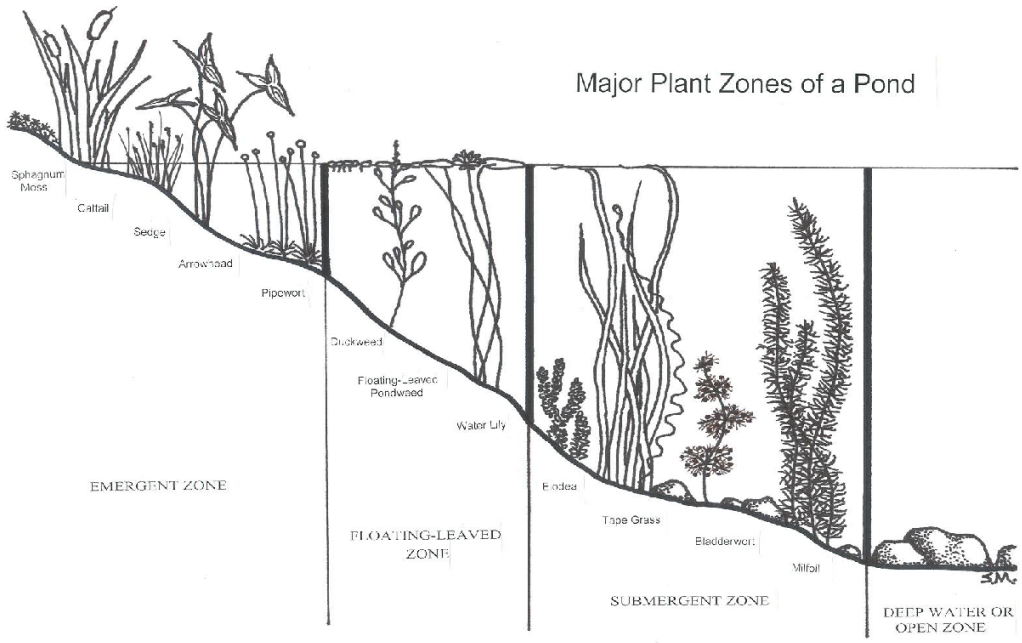
29 Hazen Drive, Concord, New Hampshire 03301 • (603) 271-3503 • www.des.nh.gov

Aquatic Plants and Their Role in Lake Ecology

Aquatic plants are a common sight in New Hampshire's waterbodies, and many lake residents, as well as visitors to New Hampshire's numerous waterbodies, may question the importance and role of aquatic vegetation. One may ask whether these plants are beneficial or detrimental to the health of a lake ecosystem. This fact sheet will seek to address the most commonly asked questions and concerns regarding aquatic vegetation and its role in lake ecology.



What types of aquatic plants live in my lake? There are three common categories of aquatic vegetation; emergent, submergent, and floating. The first category is often the first one encountered as you approach a lake or pond, and is called the 'emergent' vegetation. Emergent vegetation is one of the most common types of aquatic vegetation and it grows with its roots down in the sediment and the majority of the shoots stick up out of the water. Submergent plants are those that are wholly underwater and may be rooted or unrooted. Floating leaved plants are those that have leaves that float on the surface of the water and can be rooted or unrooted. Smaller plants called phytoplankton, commonly known as algae, are also present in our waterbodies and though present in the shallows near shore, are the primary plants found in deeper water of lakes where it is too deep for other vegetation to grow or root.

In most cases all of these vegetative forms are present in a waterbody, creating a diverse aquatic habitat for a wide range of organisms. All types of aquatic vegetation are beneficial to a lake ecosystem provided that they are native to New Hampshire waters.

What are the benefits of aquatic plants? Aquatic plants provide many of the same functions as terrestrial plants. Aquatic plants provide a food source, habitat, removal of carbon dioxide, and production of oxygen through photosynthesis. Plants act as the producers in an ecosystem since they produce their own food as well as food for the consumers or animals of that ecosystem. Aquatic vegetation provides food for tiny microscopic animals called zooplankton, fish, waterfowl, moose and other mammals, and in some cases humans.

Aquatic vegetation also acts as a habitat. Submerged vegetation provides a habitat for small fish which may seek refuge from predators. They may also use this vegetation as spawning beds to lay their eggs. Emergent vegetation provides a habitat for certain songbirds, or wading birds that may nest at these sites or use them as feeding areas.

Not all aquatic plants are nuisances which require removal. Native plants provide many benefits to the lake including spawning and habitat areas for organisms in the lake, as well as fishing and wildlife viewing areas for the residents around the lake.

The wildlife that resides on a lake, as a result of healthy habitats, adds to its serenity. Melodies sung by songbirds, the cry of the common loon, the chirping of frogs, dazzling dragonflies, the painted turtle sunning itself on a rock, and even the majestic herons would be threatened if it weren't for the food and habitat which aquatic vegetation provide.

Aquatic plants also provide several items which humans use. Some of these include rice, cranberries, blueberries, fiber for rope, reeds for caning, herbs, medicinal compounds, and aesthetic items such as flowers and colorful fruits and berries for decoration.

What can be done to limit nuisance amounts of plant growth? As a lake resident or concerned citizen, be aware of the activities that take place within the watershed. Nonpoint source pollution is the most common means of nutrient transport into a waterbody. Runoff from roads, septic systems, lawns, and agriculture may bring with it much nitrogen and phosphorus and even silt and sediment. In freshwater, phosphorus is a nutrient that limits plant growth. The lower the phosphorus levels, the fewer the plants. The best way to protect a waterbody is by protecting its shoreland by maintaining a healthy, well-distributed stand of trees, saplings, shrubs, and groundcover, which act as a filter for nutrients and sediments.

Aquatic plants are a natural and beneficial part of your lake. Aquatic plants are found in most lakes and ponds in New Hampshire. They are a natural component and vital link to a healthy and diverse aquatic ecosystem. When aquatic plants interfere with human activities, the plants may be quickly viewed as "weeds," or nuisances that must be removed. However, complete removal of native plants is not recommended. Not only is it costly and impractical, and may need a permit, it is detrimental to a healthy lake ecosystem. In addition, if the lake is cleared of its native aquatic vegetation, invasive exotic aquatic vegetation may start to colonize the lake, or the lake may shift to an algal dominated system in which clarity is low and the water is murky. This occurrence has been proven in a number of New Hampshire waterbodies where disturbances to native plant communities have take place. Maintaining a healthy and diverse population of native plant life in a waterbody is the ultimate goal.

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Aquatic Invasive Plant Main Points

What are aquatic invasive plants? Aquatic invasive plants are exotic aquatic plants that are not native to New Hampshire and that have certain invasive characteristics that allow them to grow more rapidly than native vegetation, thereby taking over a waterbody. Native aquatic plants, on the other hand, are vital to a healthy lake or pond; they are kept in check through natural controls (predators and other environmental factors).

Why are invasive aquatic plants a problem? Invasive aquatic plants are problematic as they can clog waterbodies, impede recreational activities like swimming, fishing and boating, and they can be economically and ecologically harmful as well. In some states, milfoil and other invasive aquatic plants have been implicated in people drowning.

What is the extent of the problem? Invasive aquatic plants are now found in approximately 90 waterbodies in New Hampshire. Some waterbodies have multiple infestations of plants (as many as six).

What is the law that pertains to exotic aquatic plants in New Hampshire? RSA 487:16-a prohibits the sale, introduction, propagation, purchase, importation and transportation of 27 listed prohibited species in New Hampshire. Chapter Env-Wq 1300 is where Administrative Rules on the program are found.

How are aquatic invasive species spread? New exotic species are brought into the country and state via the pet and nursery industry. Occasionally these species escape into the wild and become invasive. Once in our lakes and ponds, the transient boater is the prime mechanism of spread from waterbody to waterbody. While birds are often thought to be a vector, it is unlikely that they are the cause of very many infestations.

What control measures are being used in NH? Various management practices are being used (in an approach termed Integrated Plant Management), including hand-pulling, benthic barriers, and herbicide applications. Once entrenched, invasive plants are very difficult to manage, and likely cannot be eradicated. Management practices cost hundreds of thousands of dollars annually.

What education activities are being used? Numerous education strategies are used to spread the word about invasive species. The use of volunteer Weed Watchers, Lake Hosts, and other interested parties helps to spread the word. The Department of Environmental Services' (DES) staff, along with NH LAKES and other organizations, include the topic of aquatic invasive species in various public presentations throughout the state. Additionally, fact sheets, pamphlets, and other educational materials are distributed on a wide basis throughout the state. Signs are also posted at access sites to inform the lake user whether or not a particular waterbody is infested with an aquatic invasive plant, and what they should do to protect the lake.

What about research to solve the problem of controlling and/or eventually eradicating aquatic invasive species? DES continues to coordinate and fund projects associated with aquatic invasive plant research. Recent projects include an evaluation of seed viability of variable milfoil to determine if regrowth is common from milfoil seeds in bottom sediments. DES is also conducting research to try to limit the dosing and number of treatments when herbicide treatments are required to reduce an infestation.

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Variable milfoil

Myriophyllum heterophyllum (Michx)

Species Description: Milfoil is a submerged aquatic plant with fine densely packed, featherlike leaves whorled around a main stem. It can grow up to 15 feet and may exhibit a three-to-six inch green spike like flower above the waterline in late June or in July. A cross-section of the stem will reveal pie-shaped air chambers.

This invasive exotic species of milfoil has been in the state since the late 1960s, and can currently be found in several waterbodies in New Hampshire. There are six native milfoil species present in the state that do not cause problems, as they are low growing and do not form monocultures, unlike variable milfoil. Eurasian milfoil is another non-native milfoil found in New Hampshire, but it is less of a threat than variable milfoil due to our water chemistry (Eurasian milfoil tends to be found in waters with higher pH ranges than those found in New Hampshire).

Why is variable milfoil considered an invasive species? This species is not native to our state and is very difficult to control once it becomes fully established. Variable milfoil reproduces through fragmentation whereby plant fragments break off from the parent plant through wind or boat action, grow roots, and settle in a new location. Seeds are also a means of spread within an infested waterbody. Variable milfoil spreads rapidly and displaces beneficial native plant life, often forming monoculture of growth around the shallows of a waterbody. It makes swimming difficult and can devalue waterfront property. Where this species grows in its native environment, insects and fish may feed on this plant at such a rate as to control its growth. In New Hampshire, variable milfoil has no abundance of natural predators to keep its population in check. Under optimum temperature, light and nutrient conditions, milfoil may grow up to an inch per day.

How did exotic milfoil become established in this state? It was most likely a stowaway fragment attached to a boat or trailer that came to this region. Milfoil can live out of water for many hours if it remains moist, like when it's wound around a wet carpeted bunk on a boat trailer or in a live well. Milfoil is usually first found near boat launch sites when it infests a new waterbody, a sure sign that transient boaters are the leading means of spread. Another theory is that milfoil was introduced to a New Hampshire waterbody through the dumping of a home aquarium. This plant is sometimes used as an ornamental plant in fish aquariums.

Once established, how does milfoil infest other areas of a waterbody? Boat propellers chop milfoil plants into small fragments. These fragments float on the surface and are at the mercy of the wind and lake currents. In a short time, roots form on these fragments. If washed into shallow areas, these plants eventually take hold creating a new colony of milfoil. The cycle goes on until every suitable area is filled in with these weeds. An alternative form of the plants develops during low water. This vegetation type is more succulent than the submersed form and can persist for moderate periods of low water.

DES has recently collaborated in a study to evaluate the viability of milfoil seeds and the research showed that milfoil seeds are very viable and have a high regeneration rate, though survival of the seedlings is thought to be relatively low. Regardless, seed production in a dense milfoil bed is high, and seeds are thought to be a probable source of new plants, even following extensive control measures (seeds are resistant to herbicides). Data suggest that long term monitoring and appropriate follow up activities are

needed to truly reduce or potentially eradicate infestations. Regular surveys by DES biologists or volunteer Weed Watchers are needed to find new growth early, so that small scale control measures can address the problem before it spreads. It is unlikely that seeds are responsible for lake to lake spread, though, and fragments are still the big cause of that problem.

What methods are currently being used to control milfoil? DES implements an integrated plant management (IPM) approach for control. Each infestation is assessed and a long term management plan is prepared to guide control activities for a number of years. Waterbody specific goals range from reduction of the infestation, to control, to possible eradication depending on the status of the infestation and characteristics of the waterbody. All available control options are considered, and actions are chosen that best suit the size, density, and character of the infestation. Hand pulling, diver-assisted suction harvesting, benthic barrier placement, herbicide treatment, and other strategies are evaluated for each infestation, including a review of a 'no control' option, and often a combination of approaches are recommended.

Have chemicals been used to effectively control invasive exotic milfoil? Yes. DES has collaborated on a number of research projects focusing on chemical control of milfoil. Through that research we evaluated aquatic herbicides on the market and have learned that 2,4D is the best herbicide available for control of this plant. Used at lower concentrations to target milfoil, native aquatic plants and other aquatic life are not impacted by the herbicide.

Herbicide treatment is a science, and therefore should be conducted by trained professionals. It is illegal to apply chemical herbicides to any New Hampshire waters unless you contract with a licensed applicator. The use of chemicals by an untrained person could jeopardize the health and welfare of the lake and its ecology. Inappropriate or inaccurate use of chemicals is life threatening to people, mainly due to overdosing as a result of the unwise 'more is better' approach. It should be noted that the state has been conducting herbicide applications under permit and through licensed applicators for several years, and no negative impacts to non-target plants, animals, or humans have been observed.

EURASIAN MILFOIL
(*Myriophyllum spicatum*)

Species Description:

Eurasian milfoil is a submerged aquatic plant with whorled feather like leaves that appear to have been clipped on the end. Eurasian milfoil can grow 12 to 15 feet tall, and exhibits a reddish shoot near the surface. It forms dense mats of tangled plants in lakes and ponds. Leaves have 12 or more pairs of leaflets which is an identifying factor to aid in species level identification.

General Information: Eurasian milfoil, which originally came to this country from Europe and Asia, is a serious nuisance to many lake residents. Once introduced to a lake (usually by transient boats) it grows and spreads very quickly, ultimately impairing the ecology of the system, and value of shorefront property.

There are five waterbodies with Eurasian milfoil in New Hampshire today: Mountain Pond in Brookfield; the Connecticut River south of Hanover; Mascoma Lake in Enfield; Post Pond in Lyme; and the Nashua River. This species can also be found in nearby Vermont and Massachusetts, and is considered a problem in lakes and other freshwater systems nationwide.

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FANWORT

(Cabomba caroliniana)

Species Description:

Fanwort is a submerged bright green aquatic plant with narrow leaves arranged in a fan shape manner oppositely located on a long a narrow stem. Floating, lily-like leaves are found on the water's surface during flower production in August or September. Flowers are small, white, and emergent. This plant stands approximately two to 12 feet tall. Leaf segments are approximately 1 mm wide.

General Information: Fanwort is a native plant of the southern United States, and Latin and South America. It is currently found in Arlington Mill Reservoir in North Salem, Big Island Pond in Derry, Lake Massabesic in Auburn, Mine Falls Pond in Nashua, Nashua River in Nashua, Otternic Pond and Robinson Pond in Hudson, Phillips Pond in Sandown, and Wilson Lake in Salem. This exotic plant was discovered in New Hampshire in the late 1960s and entered the state via the back of a transient boat trailer or was dumped from a tropical fish aquarium. This plant has been prohibited in New Hampshire since 1999.

Characteristic of many invasive exotic plants introduced to a new environment, fanwort quickly invades shoreline areas of waterbodies, ultimately impairing recreational activities and other designated uses of the waterbodies.

WATER CHESTNUT

(Trapa natans)

In July 1998, the NH Department of Environmental Services confirmed reports that the invasive exotic aquatic plant water chestnut has infested the Nashua River in Nashua. Since then, it has also been found in the Connecticut River. They get stuck in the carpeting on trailer bunks, so it is expected that more water chestnut infestations will be found in the near future.

Water chestnut can completely cover the surface of a waterbody and cause ecological hardship to native plants and animals. Fishing and boating can become extremely difficult as well.

This plant is not the same species as the edible water chestnut used in Asian cooking. Water chestnut is a member of the Trapaceae family and derives its name from the single seeded horned fruits, the chestnut. Each of the four horns on the nut is sharp and has a spine with several barbs. Each plant has two types of leaves: submerged leaves that are featherlike and oppositely paired along the stem, and waxy floating leaves that are triangular and form a rosette on the water's surface. The petiole (leaf stalk) of the floating leaves has a bladder-like swelling filled with air and spongy tissue which provides buoyancy. Cordlike plant stems can attain lengths of up to 16 feet.

The water chestnut is an annual plant which exhibits great reproductive capacity. The seeds

germinate in early spring. An individual seed can give rise to 10 to 15 rosettes, each of which can produce 15 to 20 seeds. Thus, one seed can produce 300 new seeds in a single year.

Water chestnuts begin to flower in mid to late July, with their nuts ripening approximately one month later. Flowering and seed production continue into the fall when frost kills the floating rosettes. The mature nuts sink to the bottom when dropped and may be able to produce new plants for up to 12 years. The plant spreads either by the rosettes detaching from their stems and floating to another area, or more often by the nuts being swept by currents or waves to other parts of the lake or river. The plant overwinters entirely by seed.

Water chestnut is an aquatic invasive plant that limits boating and fishing in infested areas. It has the potential to infest wetlands and critical environmental habitats in other areas of the state.

CURLY LEAF PONDWEED

(*Potamogeton crispus*)

Species Description: Curly-leaf pondweed is a submerged plant with strap-shaped leaves, similar to many of New Hampshire native pondweeds. However, unlike our native pondweeds, Curly-leaf pondweed leaves are distinctly ruffled with finely serrated edges. It grows in large dense beds.

General Information: Curly-leaf pondweed, a native plant of Europe and Asia, is a threat to lakes and ponds throughout the United States. This species is found in New Hampshire in the Connecticut River, Mine Falls Pond, Nashua River, Rockybound Pond, and Scobie Pond. It is also present in nearby Massachusetts, Southwesten Maine, Vermont, Connecticut, New York, and Rhode Island.

Curly-leaf pondweed is adapted to growing in cool conditions. Plants sprout from rhizomes and turions (a hard vegetative bud) in the fall and grow through the winter, reaching maturity early in the season (late spring through early summer). Plants generally die back by mid-July after releasing seeds and more importantly the turions. Once released, the turions scatter, floating through the water and sinking to the bottom where they lie dormant until the water begins to cool again in the fall.

Why is it a problem? In spring, curly-leaf pondweed can interfere with recreational and other uses of lakes and rivers by producing dense mats at the water's surface. Matted curly-leaf pondweed can displace native aquatic plants. In mid-summer, curly-leaf plants usually die, and dying plants accumulate on shorelines.

European Naiad

(Najas minor)

General Information: During summer 2015, European naiad (*Najas minor*) was found in Glen Lake in Goffstown, Island Pond in Pelham, Millville Lake in Salem, Northeast Pond in Milton and the Salmon River. It was also recently found in Norwood Lake. European naiad is a submersed aquatic plant that is found in slow-moving streams, ponds and lakes. It is tolerant of turbidity and eutrophic conditions. European naiad also may be referred to as slender, brittle, European or bushy naiad. The

heavily-branched stems of the plant may reach up to 4 feet in length. Leaves are opposite, alternate or whorled around the stem and form tufts at the growing tip, giving the plant a bushy appearance. European naiad leaves are thin, strap-shaped, 1 - 1.5-inch long, serrated and arch backwards. Leaves are stiff and maintain their shape out of the water. European naiad may be confused with native slender naiad. However, the serrations (spines) on European naiad are visible to the naked eye, whereas spines on slender naiad are only visible under significant magnification. Flowers, which emerge from leaf axils leaves during spring and summer, along with one-seeded fruits that appear in the fall, are very inconspicuous. European naiad is an annual but can spread by fragmentation during the growing season.

Why is European Naiad Considered a Nuisance Species? Once introduced, European naiad spreads rapidly and may completely cover the lake bottom, out-competing native plant species for space. It may grow along with other invasive plants, or form dense monotypic (single species) stands. If this plant becomes dominant, it may create conditions that are detrimental to native fish and waterfowl. European naiad may also interfere with recreational activities such as boating, swimming and fishing.

How Did European Naiad Become Established in New Hampshire? European naiad is native to Europe, and was first introduced to the United States in the 1930s. It has since spread rapidly throughout the Midwest and east coast. Movement to new water bodies has been attributed to natural flow throughout watersheds, migrating waterfowl, boating and fishing activities. The brittleness of this plant allows it to break easily into fragments that may become attached to boats, trailers or equipment. The small seeds can easily become attached to waterfowl or taken up in the bilge water of boats. As a result, European naiad infestations can spread very quickly.

Zebra Mussels

(Dreissena polymorpha)

What are Zebra Mussels and where do they come from? Zebra mussels are small shellfish marked by alternating light and dark bands. They are typically two inches or less (roughly the size of a pistachio nut) in size and have a life span of four to eight years. Zebra mussels have an extremely high reproductive rate of 30,000-1,000,000 new mussels per year and are able to reproduce at one year of age.

Zebra mussels are native to the drainage basins of the Black, Caspian and Aral Seas of Eastern Europe. It is believed that ships originating from European ports carried the mussel in freshwater ballast that was discharged into Great Lake ports.

The first North American zebra mussel discovery was in Lake St. Clair, Michigan, in June 1988. By September 1991, the mussel was found in all five of the Great Lakes, the St. Lawrence River, the Finger Lakes Region of New York, and throughout the Mississippi River basin. The mussel is expected to infest most areas of North America within the next few years. During the summer of 1993 the zebra mussel was discovered in Lake Champlain, Vermont. In 1998, the mussel was found in East Twin Lake, Connecticut. During the summer of 2009 the zebra mussel was identified in a pond in the Berkshire Region of Massachusetts. With infestations to the south and west, it is anticipated that their arrival in New Hampshire is just a matter of time.

Adult and juvenile mussels (referred to as veligers) are transported by waterfowl and by attachment to boat hulls, crayfish and turtles. Larval stage

mussels (veligers) can be transported in anglers bait bucket water and boat engine cooling water. Similar to other introduced non-native species such as milfoil, these exotic mussels can reproduce rapidly because natural predators are not present to keep the population in check.

Why are Zebra Mussels a concern in North America? Zebra mussels are not native to the U.S. They disrupt aquatic ecology via the food web and cause problems to humans wherever they have appeared. Zebra mussels are the only freshwater mussel that can secrete durable elastic strands, called byssal fibers, by which they can use to securely attach to nearly any surface, forming barnacle-like crusts several feet thick. Through this mechanism zebra mussels can attach to stone, wood, concrete, iron, steel, aluminum, plastic, fiberglass, PVC, crayfish and other mussels. They have also recently been found growing on softer substrates like plants and mud.

What problems do Zebra Mussels cause? The zebra mussel's ability to rapidly propagate and physically attach to objects creates several problems:

- Zebra mussels filter small particles such as phytoplankton (microscopic plants), small zooplankton (microscopic animals), and detritus (pieces of organic debris) from water. Mussels are capable of filtering up to 1 liter of water within a 24-hour period. Large populations can severely alter the lake or riverine food web by competing with existing species such as salmon and walleye.
- Raw water intakes such as those at drinking water, electric generation, and industrial facilities can become infested with zebra mussels. A water supply system serving 50,000 people in a Michigan city had to shut down due to pump failure by zebra mussels in its intake system.
- Beaches in infested areas may be impacted by the washing up of sharp shells in shallow areas, which can cut bathers and litter beaches. Decomposition of mussels can also create obnoxious odors.
- Impacts on boating and navigation include:
- Organisms attached to hulls increase drag, reduce speed, thus increasing fuel consumption.
- Growth of larval mussels drawn into a boat engine cooling water intakes may occlude the cooling system, leading to overheating and possible damage to the engine.
- If shells are drawn into the engine, abrasion of cooling system parts could result.
- Marker buoys can sink under the weight of mussel encrustation.
- Docks can be destabilized or sunk by mussel colonization.

What kind of habitat do Zebra Mussels prefer? Zebra mussels can tolerate fairly wide ranges of environmental conditions. They prefer water temperatures between 68°F and 77°F and water currents 0.15 to 0.5 meters per second for proper growth. The mussels prefer spawning in water temperatures in the mid 50°F range. While normally a freshwater species, the zebra mussel can adapt to and inhabit brackish waters ranging from 0.2 to 2.5 parts per-thousand total salinity in estuarine locations. Zebra mussels are found in lakes that are not overly enriched but which have a higher calcium content. Only a few of New Hampshire's waterbodies are at a risk for infestation, especially waterbodies with calcium levels greater than 12 parts per million, like the Connecticut and Merrimack Rivers, and lakes and ponds along the western border of New Hampshire.

How can Zebra Mussels be controlled? An effective way to permanently eliminate infestations has not been found, therefore, emphasis must be placed on controlling impacts on ecosystems and water users. For drinking water, electrical generation and industrial facilities, screen mesh can exclude adult and juvenile mussels from water intake systems. This method is only effective in

excluding those mussels which originate upstream of the screens or filters. Veligers can pass through the screens and infest downstream areas. Other controls for water intakes include increasing intake and distribution flows to rates exceeding those at which zebra mussels can attach, and physically scraping the mussels where access for personnel and equipment is available. Oxygen deprivation, thermal controls (exposing mussels to water temperatures greater than 140°F), and chemical controls can be used to kill the mussels. However, these methods will likely affect other aquatic organisms.

What can boaters do to help? When boating in infested waters, be sure to clean and de-mussel your boat before you leave the area. De-musseling includes performing the following activities

AWAY FROM ANY SURFACE WATER:

- Always drain the bilge, live wells, and engine cooling system after use.
- Dispose of un-used bait in the trash.
- Inspect the boat by checking the hull, trim plates, anchors, and the trailer.
- Wash down the boat with hot water if mussels are found and always allow the boat and trailer to sit for 2-5 days to dry.

ASIAN CLAM
(*Corbicula fluminea*)

What are Asian clams and where do they come from? Asian clams, also called "golden clams," are round, yellow-green to dark brown colored shellfish with thick, concentric rings on their shells. The clams are typically small, averaging less than 1.5 inches in size, and have a life span of one to seven years. A single clam can release 2,000-8,000 offspring in a year, depending on conditions, and some can self-fertilize.

Asian clams are native to the freshwater of southern and eastern Asia. It is believed that immigrants to North America brought the clams as a food source and subsequently released them into the wild. The first documented discovery of Asian clams in the United States was sometime between 1924 (Indiana report) and 1938 (Washington State report). Today, the Asian clam is found in over 40 states and is expected to continue spreading. An infestation was recorded in the Northeast in Marlborough, Massachusetts, at Fort Meadow Reservoir in 2005, and in Lake George, New York in 2010. Populations of the Asian clam have been documented in six New Hampshire waterbodies: Merrimack River, from Bow, south; Canobie Lake in Windham; Long Pond in Pelham; Wash Pond (Sunset Lake) in Hampstead; Great Pond in Kingston and Cobbetts Pond in Windham. There are likely more populations that have yet to be documented.

Why are Asian clams a concern in North America? Asian clams are not native to the United States. Larval and juvenile clams are easily transported by water currents, or when humans move water from one waterbody to another. They can form dense clusters of over 5,000 clams per square meter, dominating the benthic community and altering the benthic substrate. Native birds, mammals, fish and other animals feed on Asian clams. However, these invasive clams reproduce rapidly, making it difficult for native predators to keep Asian clam populations in check.

What problems do Asian clams cause? The Asian clam's ability to rapidly propagate and physically attach to objects as juveniles creates several problems, including:

- Large populations of Asian clams may severely alter lake or riverine food webs by directly competing with existing native fish and shellfish species for food and space.

- Raw water intakes such as those at drinking water, electric generation, and industrial facilities become impaired or clogged by clam shells or by juveniles that are sucked into the intake and that grow in the system.

The clams release phosphorus into the water through burrowing, feeding from the sediment and their excreta. Phosphorus feeds plant and algal growth, and makes potentially hazardous cyanobacteria blooms more likely to occur. Impacts on boating and navigation include:

- Larval clams drawn into boat engine cooling water intakes may occlude the cooling system, leading to overheating and damaging the engine.
- If shells are drawn into the engine, abrasion of cooling system parts, especially impellers, could result.

What kind of habitat do Asian clams prefer? Asian clams can tolerate a fairly wide range of environmental conditions. Asian clams live in lakes, ponds, rivers, and streams with sand or gravel bottoms, in sun-lit, warm, shallow water. They live just below the surface of the sediment or with a third of their shell just above the sediment's surface. Generally, it was thought that these clams only tolerated water temperatures of 2°C to 36°C; however, in Lake George these clams successfully overwinter, surviving temperatures below 1°C for months. These clams are found in clear water with good water quality and are intolerant of high nutrient levels.

How can Asian clams be controlled? An effective way to permanently eliminate infestations has not been found, therefore, emphasis must be placed on controlling impacts on ecosystems and water users. Methods that have been tested for removing adult Asian clams include: removal of infested sediment, water level drawdown, and asphyxiating with plastic mats. Controls for water intakes include: increasing flows, removing clams by hand and using chemicals or high temperatures to kill the clams. However, many of these methods will likely affect other aquatic organisms and may require state and/or federal permits/approvals.

Asian clams are regulated in New Hampshire, and it is illegal to import, possess or release Asian clams in this state. (Administrative Rules NHFG FIS 803.04, NHFG FIS 804.03 and NHFG FIS 805.01 respectively.)

What can citizens do to help? Tell your local watershed association, marina, municipal officials, or anyone interested in protecting New Hampshire's waters about the Asian clam. If you are in the power generation industry, plan now for the clam's invasion of your facility. Do not purchase Asian clams for use in aquariums, in ponds or as bait. When boating in infested waters, perform the following activities AWAY FROM ANY SURFACE WATER:

- **Clean:** Inspect for and remove mud, plants, and organisms from your boat hull, trim plates, anchors and trailer.
- **Drain:** Remove all water from your boat and equipment: drain your boat's bilge, live wells, and engine cooling system; dump bait buckets.
- **Dry:** Dry anything that comes into contact with the water for five to seven days in the sun before traveling to another waterbody
- If you find clams, wash down the boat with hot water (140° F) and allow the boat and trailer to sit for two to seven days to dry.
- The best defense against Asian clams is to prevent them from entering New Hampshire's waters. However, when they arrive, we all need to take part in ensuring that this invasive species does not continue to spread. DES and the Fish and Game Department are collaborating to identify occurrences of this species in New Hampshire.

ENVIRONMENTAL Fact Sheet
NEW HAMPSHIRE DEPARTMENT OF Environmental Services
29 Hazen Drive, Concord, New Hampshire 03301 • (603) 271-3503 • www.des.nh.gov

Spiny Water Flea

(*Bythotrephes longimanus*)

What is Spiny Water Flea? Spiny water flea (*Bythotrephes longimanus*) is a tiny crustacean related to native forms of zooplankton, such as Daphnia, but ranges up to about one half-inch in size, over ten times larger than native water fleas! The elongated, barbed tail of this non-native organism protects against predation by small juvenile fish that have difficulty ingesting the tail spine.

Where did it come from? Spiny water flea is native to Eurasia and was introduced into the Great Lakes via freighter ballast in the mid-1980s. It was discovered in Great Sacandaga Lake, New York, in September 2008, in Lake George, New York, in 2012, and in Lake Champlain, New York/Vermont in 2014.

Why is Spiny Water Flea a threat? This non-native organism threatens fishing in two ways:

1. Spiny water fleas compete with juvenile sport fish for food. Both the spiny water flea and young fish prey almost entirely on native water fleas and other zooplankton. Research has shown that spiny water flea predation is capable of reducing the diversity and density of native zooplankton, thus impoverishing the food chain that sustains adult fish.
2. The barbed tail of this organism catches on fishing gear, especially fishing lines and downrigger cables. Masses of the organism can accumulate as gelatinous, cotton-like clumps, fouling gear, and interfering with fishing.

How does Spiny Water Flea spread from one water body to another? Research has shown that human recreation involving boats is the principle mechanism of transfer of non-native species between water bodies. Boating is an activity that is extremely vulnerable to "hitch-hiking" by non-native organisms because so many surfaces, nooks, and crannies of nautical gear are immersed in water. This is especially true of the spiny water flea because it produces thick-walled "resting" eggs that can remain dormant for long periods of time and are resistant to environmental extremes. These eggs even survive passage through the digestive tracts of fish. Adult spiny water fleas snagged during boating or fishing may contain resting eggs. These eggs can survive for extended periods after being tangled with downriggers, anchor line, trailer parts, and fishing gear. Consequently, resting eggs are insidious "stowaways" and contribute greatly to the rapid dispersal of this non-native organism from infested lakes to clean ones. There is no way to eradicate spiny water flea once it is introduced into a waterbody.

For more information on aquatic invasive species visit:

www.des.nh.gov/home-and-recreation/boating-and-fishing/invasive-species

How to Conduct a Successful Inspection

Lake Hosts are the first friendly face a visitor sees when arriving at a boat launch area. The visitor recognizes you as someone 'official' because you are wearing your Lake Host shirt/sweatshirt and holding your boater survey clipboard or mobile entry device. Approach everyone that visits the ramp confidently and with a positive attitude.

Inspect ALL boats arriving from the road and departing from the water following the instructions provided in this section. Inform or remind everyone you see about aquatic invasive species (AIS) and what they can do to protect the lake. Everyone loves the lake, and that is the greatest thing we all have in common!

Collecting high-quality survey data is an important aspect of the Lake Host Program. All boater survey information collected is compiled and stored in a digital database. The Local Coordinator may elect to have inspectors enter survey data directly into a mobile device using the field app created by NH LAKES or have inspectors fill out paper survey sheets to be cataloged digitally at a later time.

Always introduce yourself to visitors and explain why you are at the ramp:

"Good Morning! I am [your name] from [local lake association] and we are working with NH LAKES to prevent the spread of aquatic invasive species—like milfoil and Asian clam—that grow uncontrollably and can make boating, fishing, and swimming difficult and dangerous. We teach boaters how to prevent the spread of invasive species by always taking the time to clean, drain, and dry their boats, trailers, and gear after boating."

Simples Steps for Conducting Successful Inspections

Before starting your inspection make sure to have the following fields filled out on your paper survey or in the field app:

Group: This is the local lake association you are working with.

Date: Date and time that the survey/inspection was conducted.

Lake Name: The body of water where you are stationed.

Ramp Name: The name of the boat access site where you are stationed.

Lake Host Name: BE CONSISTENT. Abbreviate if needed.

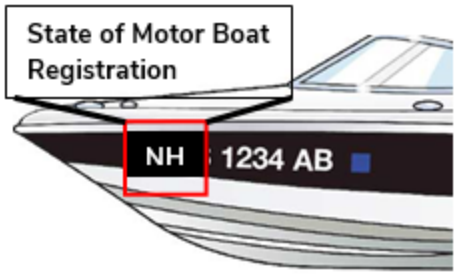
Launching or Leaving: If you are inspecting a boat as it ARRIVES to launch write an "A," if you inspect a boat as it is DEPARTING or leaving the launch write a "D."

Greet people with a smile!

- **For boats ARRIVING from the road:** "Welcome to the lake!" Approach the boater before they begin backing down the ramp.

- **For boats DEPARTING from the water:** "How was it out there?" Allow the boater time to pull their boat out of the water and pull off of the ramp before approaching them.

- Ask the boater for permission to inspect the boat in a non-threatening manner. You can always reassuringly say, "I know you are in a hurry—it will only take a couple of minutes and you'll be out on the lake (or on the road) in no time!"



- Observe the type of boat:

  - **For boats that are MOTORIZED**:

    - Observe and record the **state** of motorboat registration. When a boater is arriving to launch their boat, ask them the last lake they were in. Be sure to note which state the waterbody was in! When using the field app, the STATE of the last waterbody visited must be entered first.

      Example: NH, ME, etc. If you don't see the state in the drop-down in the field app, choose "OTHER" and free type the name of the state.

    - Ask if the boat has a ballast tank/bag. A ballast tank (or bag) is filled with water to make the boat heavier. Commonly used in wake boats for making bigger waves. Record their answer.

  - **For boats that are NON-MOTORIZED:** Do not record the state of registration.

  - **Unsure**: Politely ask the boater if the boat has a motor. Small trolling motors are common in sailboats and canoes.

- **Perform a thorough inspection by using the following checklists for boaters either ARRIVING from the road or DEPARTING off the lake:**

When a boater tells you the name of the last New Hampshire waterbody (or next potential waterbody) their boat was in...

Check the INFESTED WATERBODIES list in this manual to see if that lake has an aquatic invasive species!

Let the boater know what the status is so that they can be extra diligent when they "Clean, Drain and Dry" to prevent spreading invasive species from that waterbody.

For boats ARRIVING from the road:

"I'm just here to help you prevent the spread of invasive species, do you mind if I quickly check your boat, trailer, and recreational gear for hitchhikers before you launch?"

- ✔ Run your hand along the hull while you walk a complete circle around the boat. If the hull of a boat feels sandpapery, there may be zebra mussel growth on the vessel. Encourage the boater to visit the nearest boat-friendly car wash to decontaminate with high-pressure hot water. **Do not prevent them from launching**.

- ✔ Get down and check underneath the trailer, on the carpet, and any snag points for plants or animals. Check the license plate area, trailer lights, wheel wells, motor, propeller, and anchor line. DO NOT REACH INTO A BOAT WITHOUT THE OWNER'S PERMISSION.

- ✔ Ask the boater what lake or waterbody the boat visited last and record this information on your boater survey sheet or in the field app.

  STATE/TOWN of the Last Waterbody this Boat Visited: When a boater is arriving to launch their boat, ask them the last lake they were in. Be sure to note which state/town the waterbody was in for accuracy! When using the Field App the STATE of the last waterbody visited must be entered first. **Example**: NH, ME, etc. If you do not see the state in the drop-down, choose "OTHER" and free type.

  NAME of the Last Waterbody this Boat Visited: Once you have noted the state/town of the last waterbody, carefully record the NAME of the waterbody. When using the field app, you should start typing the most specific part of the waterbody name first and then select from the drop-down list. **Example:** Start typing "Winnipesaukee" instead of "Lake Winnipesaukee" for better results. If you don't see the waterbody in the drop-down, choose "OTHER" and free type.

- ✔ Use friendly conversation to collect answers to the "Clean" "Drain" and "Dry" sections of the boater survey.

  Cleaned: Ask the boater "Have you cleaned your boat since leaving ____?" This includes using a hose or visiting a car wash. Cleaning is the law in New Hampshire. Some boaters may not know that!

You Found Something Suspicious On The Boat!

...NOW WHAT?

Nice job! Let the boater know that there is something on the boat and **ask for their permission to remove it.**

Always speak carefully and without blame when removing specimens.

Does it look suspicious up close?

YES! Inform your local coordinator—they will decide whether or not to submit it for identification. Or, use the field app to submit a photo!

Gently remind the boater that, by law, boats must arrive to a launch free of plants, animals, and debris by law. **Check the boat again with the boater to make sure nothing was overlooked.**

NOPE! If it is obviously a maple leaf, lily pad, etc., dispose of it in an area where it will not wash back into the lake.

Drained: Ask the boater "Have you drained all of the water out of your boat and recreational gear since then?" This includes pulling the drain plug (and leaving it out while in transit) and emptying all compartments that hold water in motorboats, flushing water out of personal watercraft, and sponging out paddle craft. Draining is the law in New Hampshire and relatively new (passed in 2017) so be sure to help boaters out by sharing this important information!

Dry: Ask the boater "Has your boat been dry or out of water for five days since the last time you used it?" Studies show that it usually takes this long to dry out and kill any hitchhiking plants or animals that could be hiding in hard-to-reach places. Sometimes boaters don't like to wait that long, be sure to let them know about the nearest boat-friendly car wash location where they can access a high-pressure hot water wash. They can also use a hose and towel at home if there are no other options.

✔ When you have completed your survey and finished performing the inspection, always thank boaters for their time. Don't forget to wish them well out on the lake!

Example: "Have you had a chance to drain your boat—livewells, motor, bilge, storage compartments, ballast tanks/bags— before coming to this ramp?"

Boater says "YES" - "Thank you! That's great that your boat has been drained and that the drain plug has been open/out since the last waterbody. The law requires boats to be drained before leaving the ramp and that all drain plugs are open or out trailering. Before launching, please don't forget to put the drain plug back in and make sure it is closed."

Boater says "NO" or "I DON'T KNOW: "Thanks for letting me know. Please open all the drain plugs and tilt your motor up to avoid spreading invasive animals into the lake. A new law went into effect in 2017 requiring boaters to drain their boats after boating and to keep the drain plugs out/open when trailering. Boaters can be fined for not doing so. But, don't worry, as a Lake Host Inspector, I'm just here to help you."

****If a boater answers "NO" and has been in a waterbody with an AIS**,** let them know that their boat could be potentially harboring invasive species and politely suggest that they visit a boat-friendly car wash before launching. **Lake Hosts are not enforcement officers and MAY NOT stop a boat from launching.**

For Boats DEPARTING from the water:

"I hope you had a great time on the lake! I'm just here to help you prevent the spread of invasive species, do you mind if I quickly check your boat and trailer for hitchhikers once you get situated?"

✔ Run your hand along the hull to check for the sandpapery feel of zebra mussel growth. If a boat ever feels sandpapery, it could be zebra mussel growth, encourage the boater to visit the nearest boat-friendly car wash to decontaminate with high-pressure hot water.

✔ Get down and check underneath the trailer, on the carpet, and any snag points for plants or animals. Check the license plate area, trailer lights, wheel wells, motor, propeller, and anchor line. DO NOT REACH INTO A BOAT WITHOUT THE OWNER'S PERMISSION.

✔ Remove all vegetation and debris with boaters consent and dispose of it in the trash, or forward for identification as appropriate.

✔ Ask the boater what lake or waterbody this boat ***may visit next*** and record this information:

STATE/TOWN of the Next Waterbody this Boat May: After a boater has pulled their boat from the water ask them what STATE or TOWN they might visit next.

NAME of the Next Waterbody this Boat Visited: Once you have noted the STATE/TOWN of the next possible waterbody, carefully write the NAME of the waterbody.

Why is this (next waterbody) question important? Not every lake has a Lake Host Program to protect it from aquatic invasive species. This "soft" data helps us to see relationships between waterbodies that we would otherwise miss and allows us to identify if those lakes and ponds are potentially at risk! It also helps us better understand how traffic travels across state lines so we can better communicate with our partners in neighboring states!

✔ Remind the boater, in a friendly manner, that cleaning and draining after leaving is the law and that all drain plugs should be left open while in transit to avoid being fined by enforcement officers. If they can't dry their boat for 5 days they should visit a car wash, use the hose, or as a last resort at least towel dry.

✔ Thank a boater for their time and wish them a happy day!

If the boater does not allow you to inspect their boat:

It is their right to refuse an inspection. Do not get angry with a person who denies inspection, if you leave a good impression this time, they may warm up to an inspection in the future.

✔ ***Smile!*** Be compassionate and understanding. "I'm only an educator, I don't enforce anything, and I'm not here to report you. We provide courtesy inspections to help keep the lakes clean and to help boaters know and understand the "Clean and Drain" law to avoid fines. Thanks for your time. Have a great day!"

DO NOT:

- Raise your voice, or be condescending, disrespectful or threatening to the boater.
- Try to prevent the boater from launching or say that you are going to 'report' them.
- Hold Marine Patrol, Fish & Game, or DES staff to a higher or lower standard.
- All Boaters should be reminded to "Clean, Drain, and Dry" to prevent the spread of aquatic invasive species and everyone should be treated the same way—**with respect.**

Boater Survey Quick Reference

Required Fields for Every Inspection:

- **Group:** This is the local lake association, municipality, or group you are working with.
- **Date:** Date and time that the survey/inspection was conducted.
- **Lake Name:** The body of water where you conducted the survey and inspection.
- **Ramp Name:** The name of the boat launch or access site. Ask your Local Coordinator if unsure.
- **Lake Host Name:** First initial and last name. BE CONSISTENT **(Example: jdoe)**
- **Launching or Leaving:** If you are inspecting a boat as they ARRIVE to launch write an "A," if you inspect a boat as they are DEPARTING or leaving the launch write a "D."
- **Type of Boat:** Does it have a motor? It is motorized. What about a canoe with a trolling motor? Motorized. Sailboat? Ask the boater if you are not sure!

Questions for Motor Boats ONLY:

- **Ballast Tank:** A ballast tank *(or bag)* is filled with water to make the boat heavier. Commonly used in wake boats for making bigger waves.
- **State of Registration:** By observation.

Questions for Arriving Boats ONLY:

- **STATE/TOWN of the Last Waterbody this Boat Visited:** When a boater is arriving to launch their boat, ask them the last lake they were in. Be sure to note which state/town the waterbody was in for accuracy!
- **NAME of the Last Waterbody this Boat Visited:** Once you have noted the STATE of the last waterbody, carefully record the NAME of the waterbody.
- **Cleaned:** Ask the boater **"**Have you cleaned your boat since leaving ____?". This includes using a hose, soap, and a sponge or visiting a car wash. Cleaning is the law in New Hampshire. Some boaters may not know that all plants and debris need to be removed whether it is invasive or not!
- **Drained:** Ask the boater "Have you drained all of the water out of your boat and recreational gear since the last time you used your boat?"
- **Dry:** Ask the boater "Has your boat been dry or out of water for five days since the last time you used it?"

Questions for Departing Boaters ONLY:

- **STATE/TOWN of the Next Waterbody this Boat May:** After a boater has pulled their boat from the water, ask them what STATE/TOWN they might visit next.
- **NAME of the Next Waterbody this Boat Visited:** Once you have noted the STATE/TOWN of the next possible waterbody, carefully record the NAME of the waterbody.

Required Fields for Every Inspection

- **Specimen Sent to DES:** Check this box on the paper survey (if using) when you submit a photograph through the field app. It is important to take a CLEAR photo that shows scale and detail on a properly filled out photo submission form.

Survey123 Instructions

Using Survey123 to collect data in the field:

Step 1: On your mobile device, go to arcg.is/1SD9HX and click the green "Download" button to download the FREE Survey123 app. If you downloaded the app last season skip to Step 2.

Step2: Once you have downloaded the app, navigate back to arcg.is/1SD9HX and click "Open in the Survey123 field app" to download the NH LAKES Boater Survey onto your mobile device.

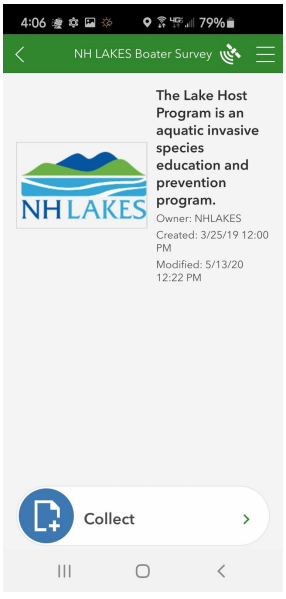
Step 3: Open the Survey123 App (green icon with a white checkmark) and open the NH LAKES Boater Survey.

Step 4: Once you have opened the NH LAKES Boater Survey click the blue circle "Collect" button to open up a fresh survey!

Step 5: Enter your survey information! Take your time and double-check to make sure that your fields were selected.

Step 6: Hit the checkmark (lower right-hand corner) to submit your survey.

- If the local boat launch has limited cellular service, or, to save on data charges, save your survey locally on your mobile device in your "Outbox" to be submitted later when Wi-Fi is available. **Please Note:** You can keep your mobile device on airplane mode to conserve battery and cellular data.
- **Surveys saved in your outbox MUST be submitted in order to be counted.** Once Wi-Fi access is available, turn off airplane mode and click the green circle "outbox" button.
- Once in the outbox, look for the light green oval "Send" button and hit send!



Step 7: Clean up the storage on your mobile device periodically.

- Open the Survey123 App (green icon with a white checkmark) and open the Survey123 App settings by clicking on the button in the top right-hand corner (seen as three white dashes).
- Click the "Settings" button that resembles a white gear.
- Click the "Storage" button that says "Manage local data."
- Click "Delete Submitted Surveys."
- **Note:** DO NOT select "Delete Survey" within the NH LAKES Boater Survey or you will need to re-download the boater survey following Steps 1-5 above.

If you have problems email: lakehost@nhlakes.org.

2021 Lake Host Program – Boater Survey

Read the boater survey instructions in the 2021 training manual. Complete one row for each boat inspection. A boat that was inspected when launched and retrieved should take up two rows.

Group: Small Dog Pond Association **Date:** 7/4/2021

Lake Name: Small Dog Pond **Ramp Name:** Blueberry Cove

Lake Host Name(s): Kcosta

	Time (am or pm)	Launching or Leaving (Circle one)	Type of Boat (Circle one)	Motor boats only			Arriving boats					Departing Boats		Specimen submitted
				Ballast Tank/ Bag X =Yes	State of Registration	Out-of-State Decal? X =Yes	Last Waterbody		Clean	Drain	Dry	Next Waterbody		
							State/Town	Waterbody	X =Yes	X =Yes	X =Yes	State/Town	Waterbody	X =Yes
1	7am	☐ Arriving ☐ Departing	☒ Motorized ☐ Non-motorized	X	NH		NH	Northwood Lake		X	X			X
2	10am	☐ Arriving ☐ Departing	☒ Motorized ☐ Non-motorized	X	VT	X						NH	Pawtucaway Lake	
3		☐ Arriving ☐ Departing	☐ Motorized ☐ Non-motorized											
4		☐ Arriving ☐ Departing	☐ Motorized ☐ Non-motorized											
5		☐ Arriving ☐ Departing	☐ Motorized ☐ Non-motorized											
6		☐ Arriving ☐ Departing	☐ Motorized ☐ Non-motorized											
7		☐ Arriving ☐ Departing	☐ Motorized ☐ Non-motorized											
8		☐ Arriving ☐ Departing	☐ Motorized ☐ Non-motorized											
9		☐ Arriving ☐ Departing	☐ Motorized ☐ Non-motorized											
10		☐ Arriving ☐ Departing	☐ Motorized ☐ Non-motorized											


NH LAKES
Lake Host Program Suspicious Specimen Photo Submission
Group Name: Town of Hudson Conserv Commiss
Lake Host Inspector Name: Hans Heller
Date: 7/28/19
Waterbody/Town: Robinson
Arriving or Departing: Departing
Comments: Departing Trailer
1"
2"
3"
4"
6"
7"
8"
9"
10"
Working for clean and healthy lakes

2021 Lake Host Program - Employee Timesheet

Name of Local Group: Small Dog Pond Association **Pay Period #**: 5

Name: Krystal Costa **Position**: Inspector or Assistant *(circle one)*

Instruction for Employees: DO NOT EXCEED 40 HOURS A WEEK.

- Use a separate timesheet for each pay period, pay rate, and for each group you are working with.
- Use a separate line for each day worked, indicate starting time and end time of shift.
- Total hours for each day (ROUND TO NEAREST 0.25 OF AN HOUR). Total hours for the pay period.
- Indicate your hourly rate. Multiply your hourly rate by the total hours worked in the pay period.
- Turn your timesheet on your last shift during the pay period, or by the last Sunday before the pay period ends.
- Timesheets MUST be signed by YOU **and a supervisor**.

2021 PAYROLL PERIODS:

#1 May 3 – May 16
#2 May 17 – May 30
#3 May 31 – June 13
#4 June 14 – June 27
#5 June 28 – July 11
#6 July 12 – July 25
#7 July 26 – Aug. 8
#8 Aug. 9 – Aug. 22
#9 Aug 23 – Sept. 5
#10 Sept 6 – Sept. 19
#11 Sept. 20 – Oct.3
#12 Oct. 4 – Oct.17

Date (M/D/Y)	Shift Start Time	Shift End Time	Total Shift in Hours	Notes
7/3/2021	9:00	3:00	6	
7/4/2021	9:00	3:00	6	
	:	:		
	:	:		
	:	:		
	:	:		
	:	:		
	:	:		
	:	:		
	:	:		
	:	:		
	:	:		
	:	:		
	:	:		

Total Number of Hours worked in this Pay Period: 12

Hourly Rate: $10

Total Pay (Total Hours Worked) x (Hourly Rate): $120

I hereby certify that this timesheet depicts the correct hourly rate and actual hours worked:

Krystal Costa

Employee Signature

Jane Doe

Program Coordinator, Assistant, or Supervisor's Signature

Coordinators: sign off & submit timesheets to **TIMESHEETS@NHLAKES.ORG** by 4pm on "payroll Monday."

2021 Lake Host Program
Volunteer Information Form

Volunteer Name: Andrea LaMoreaux

Lake Group Name: Small Dog Pond Town: Concord

Please Indicate Your Volunteer Role in the Program (Check all that apply)

❑ Program Coordinator ❑ Program Assistant ☒ Inspector

Contact Information

Permanent Mailing Address:

17 Chenell Drive Suite One	Concord	NH	03301
(Mailbox address or P.O. Box)	(City)	(State)	(Zip)

Summer Mailing Address (if different)**:**

see above			
(Mailbox address or P.O. Box)	(City)	(State)	(Zip)

Phone Number: 603-226-0299 **Email address:** alamoreaux@nhlakes.org

Emergency Contact Information **REQUIRED**

Emergency Contact Person (if under 18 please provide guardian):

Krystal	Costa Balanoff	Friend
(First)	(Last)	(Relationship)

Primary Phone: 603-226-0299 Secondary Phone: 603-224-9442

Training Certification

By signing this form below, you are stating that you:

1. **Have attended or are scheduled** to attend a 2021 Lake Host Training Session**.**
2. **Have reviewed** the appropriate 2021 Lake Host Program job description.
3. **Have reviewed** the appropriate 2021 Lake Host Program Manual.

Volunteer Signature: Andrea LaMoreaux (Name) 5/1/2021 (Date)

STATE OF NEW HAMPSHIRE DEPARTMENT OF LABOR
PARENTAL PERMISSION as defined in RSA 276-A:4,VIII & LAB 1002.02
FOR THE EMPLOYMENT OF YOUTH AGE 16 OR 17

Youth's Name: **JANE DOE** (*Please print*) Date of Birth **10** / **15** / **2003** (*mm/dd/yyyy*)

Youth's Address: **123 SESAME STREET** (*Street*) **CONCORD** (*City*) **NH** (*State*) **03301** (*Zip*)

I, **JOHN DOE** (*Print name of parent or legal guardian*), grant permission for my son, daughter or legal ward

to be employed with **NH LAKES** (*Name of employer*)

Located at **17 CHENELL DRIVE, SUITE ONE** (*Street*) **CONCORD** (*City*) **NH** (*State*) **03301** (*Zip*)

Description of work **COURTESY BOAT INSPECTIONS AT BOAT RAMP:**

5/15/2021 (*Date*) JOHN DOE (*Signature of parent or legal guardian*)

For additional information regarding the requirements of RSA 276-A, the New Hampshire Youth Employment Law, please contact the New Hampshire Department of Labor at 271-6294 or 271-1492.

RSA 276-A:4 Youth Employment Law; Prohibitions.—
I. No youth shall be employed or permitted to work in any hazardous occupation, except in an apprenticeship, vocational rehabilitation, or training program approved by the commissioner…

VI.(a) In any employer's predetermined designated work week during which school is in session for 5 days, no youth 16 or 17 years of age who is duly enrolled in school shall work more than 6 consecutive days or more than 30 hours during that work week.
(b) In any employer's predetermined designated work week during which school is in session for 4 days, no youth 16 or 17 years of age who is duly enrolled in school shall work more than 6 consecutive days or more than 40-¼ hours in that work week.
(c) In any employer's predetermined designated work week during which school is in session for more than one but less than 4 days, no youth 16 or 17 years of age who is duly enrolled in school shall work more than 6 consecutive days or more than 48 hours in that work week.

VII. No youth 16 or 17 years of age who is duly enrolled in school shall work for more than 6 consecutive days or 48 hours in any one week during school vacations, including summer vacation. For purposes of this paragraph, "summer vacation" means June 1 through Labor Day.

VIII. No youth 16 or 17 years of age, except a youth 16 or 17 years of age who has graduated from high school or obtained a general equivalency diploma, **shall be employed by an employer unless the employer obtains and maintains on file a signed written document from the youth's parent or legal guardian permitting the youth's employment.**

RSA 276-A:11 Certain Labor. – In addition to the prohibitions listed in RSA 276-A:4, III, IV, V, VI, and VII no youth shall be employed or permitted to work at manual or mechanical labor in any manufacturing establishment more than 10 hours in any one day, or more than 48 hours in any one week. No youth shall be employed or be permitted to work at manual or mechanical labor in any other employment, except household labor and nursing, domestic, hotel and cabin including dining and restaurant service operated in connection with such service, and boarding house labor, operating in telegraph and telephone offices and farm labor, or canning of perishable vegetables and fruit, or as a laboratory technician, more than 10- 1/4 hours in any one day, or more than 54 hours in any one week.

RSA 276-A:13 Night Work. – No such youth shall be employed or permitted to work at night work more than 8 hours in any 24 hours nor more than 48 hours during the week. If any youth is employed or permitted to work more than 2 nights each week, for any time between the hours of 8 o'clock p.m. and 6 o'clock a.m. of the day following, such employment shall be considered night work.

Lab 1002.03 Hours Limitations.
(c) Pursuant to RSA 276-A: 13, any youth scheduled to work more than 2 nights in a week past 8 o'clock p.m. shall not be permitted to work more than an 8 hour shift during that particular week.

Hazardous Occupations are as defined in Federal Child Labor Bulletin Requirements in Nonagricultural Occupations, "Child Labor Bulletin No. 101" Order No. 1 through Order No. 17.

This form must be on file with this employer prior to the 16 or 17 year old youth performing any work.

2021 Lake Host Program – Volunteer Time/Match Sheet

Name of Local Organization: Small Dog Pond Association

Name of Volunteer Andrea LaMoreaux

Instructions: Record all of your time spent traveling, working at the ramp, and performing administrative duties. Include any expenses you have incurred and miles driven for the program. Please regularly turn in to your Local Coordinator per their instructions.

	Date of volunteered time M/D/Y	**Volunteer Activity** (specify ramp time, travel time, administrative time)	**Time Spent** (Round to nearest 0.25 of hour)	**Out-of-Pocket Item** (Ex: postage, photo copies at $0.10/each)	**Out-of-Pocket Expense** (Enter $ amount)	**Mileage**	
						Destination (Ramp, training, post office, etc.)	**Number of Miles Driven**
Row A	7/4/2021	Ramp	2		$	Ramp	1
Row B	7/5/2021	Ramp	2		$	Ramp	1
Row C					$		
Row D					$		
Row E					$		
Row F					$		
Row G					$		
Row H					$		
Row I					$		
Row J		**Total Volunteer Hours=** (add rows A – I)	4	**Total Out of Pocket Expenses=** (add rows A – I)	$	**Total Miles** (add rows A – I)	2
Row L		**(Total Hours) x ($27.20)**	$ 108.00			**(Total Mileage) x ($0.56)**	$ 2.00

I certify that the above is correct (Volunteer signature): Andrea LaMoreaux Date: 7/5/2021

(Coordinator signature): Jane Doe Date: 7/5/2021

17 Chenell Drive, Suite One, Concord, NH 03301 603.226.0299 www.nhlakes.org