Maine's Safety Net



A Practical Guide to Building Wash Stations -A Valuable Tool in Helping Protect Maine's Lakes from Invasive Aquatic Plants



March 2006

FOREWORD

This handbook has been designed to assist those organizations, municipalities and citizens interested in another tool to help fight the devastating effects of Invasive Aquatic Plants - building <u>Boat Wash Stations</u>.

The steps involved (as both authors can attest!) can be daunting, especially when one is doing it for the first time without the benefit of a guide or template. Our research found that although there is no "cookie-cutter" model for <u>construction</u>, the <u>planning</u> process one goes through should be similar for most projects. Until now, there has been no manual for resources about the topic of planning for wash stations. This handbook seeks to correct that.

Maine citizens are well-known for taking innovative approaches to problemsolving, and the various programs developed in Maine to fight invasive aquatic plants have led other states to look to us for advice. This handbook for building wash stations is just the beginning. We know that as additional units are built, "best practices" will be better defined, and we encourage readers to share their ideas and experiences with us in order to capitalize on new techniques.

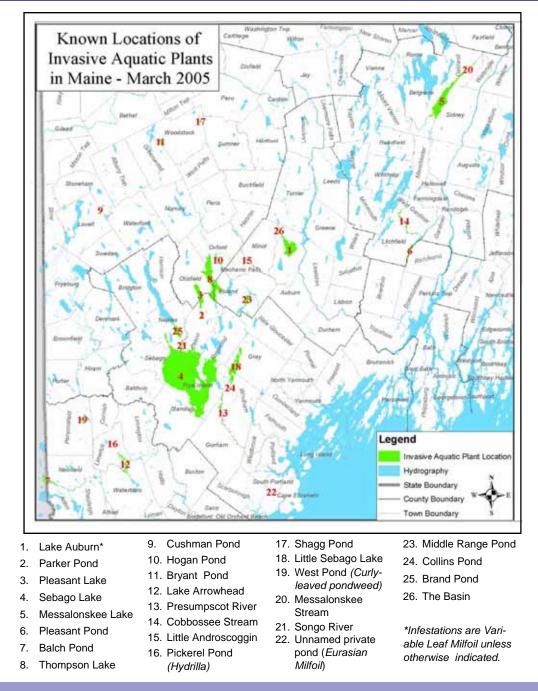
This handbook would not have been possible without the generous support of L.L. Bean, a Maine institution that is well known for their commitment to conservation and recreation. We offer our sincere thanks to the good folks at Bean's for funding this booklet and other related initiatives, including the construction of a model wash station at Norcross Point on Maranacook Lake in Winthrop, and for providing additional "seed" grants that will be made available for others to construct additional wash stations throughout Maine.

Sincerely,

Bob Moore Friends of the Cobbossee Watershed

Peter Lowell

Lakes Environmental Association



Maine's Invasive Aquatic Plant Program

Invasive Aquatic Plants (IAPs) are the latest threat to Maine's lakes.

Eutrophication, or the aging process that results from nutrient enrichment, has long been the traditional concern. It grows more serious as Maine's lakes are subjected to growing development pressures and become increasingly fragile. Those who strive to protect our lakes and streams deal with both of these threats. In our efforts to address IAPs, we should not lose sight of the traditional threats as well. The threats are related because compromised water quality also fosters IAP infestations.



Milfoil threatens Maine's lakes.

Although IAPs may have been present in a few Maine waters for decades (according to anecdotal information), the dangers they pose to our scenic and treasured waterways were only recently addressed. In 2000, the State of Maine initiated its invasive plant efforts by passing a law making transportation of these plants illegal.

This was a small step, but it set the stage for passage of significant legislation in 2001 that established a statewide outreach program with staffing in the Maine Department of Environmental Protection (DEP) and the Maine Department of Inland Fisheries and Wildlife (IF&W). Laws relating to transportation of the plants were also strengthened.

Maine's new program established several important initiatives aimed at preventing, identifying, containing and attacking IAP infestations:

- Rapid Response protocol and resources to quickly evaluate and address newly-found infestations
- Courtesy Boat Inspections to prevent IAP transport by the boating public

- Plant Patrol training to develop a cadre of volunteers to monitor uninfested water bodies and to track existing infestations
- Educational materials of all types
- IF&W Warden patrols to assist with public education and enforcement of IAP laws
- Research and coordination with other state and federal programs

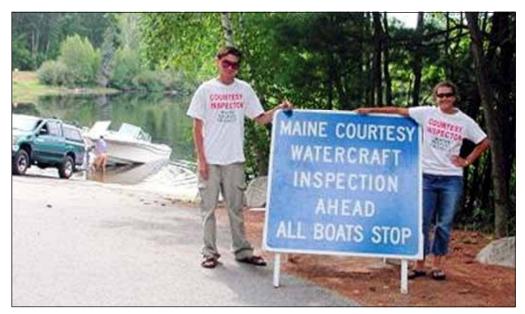
In 2000, Maine was looking to other states for program models. By 2005, Maine had the flagship program and had itself become the model. This is not to say that Maine has adequate resources and solutions, but our citizens and legislators took the problem seriously. Maine took advantage of its low infestation count to get ahead of a problem that has overwhelmed other states where programs were started too late.

PLANT CONTROL METHODS

Wash stations should be viewed as <u>one tool</u> in the array of IAP prevention methods available. Some individuals may be concerned that building a wash station could send the message that "the problem is now solved." In proper context, **a wash station is merely one of many prevention techniques that should be combined in a control plan.** The more options we make available in a particular area, the better the odds are of preventing an infestation or containing one. Each option has its strengths and weaknesses. Here are some specific options - from the basic to the complex - that many have already put in place to help Maine become a leader in the field of fighting IAPs:

Non-Infested Water Bodies:

- Education Maine Milfoil Summit, brochures, videos, workshops
- Courtesy Boat Inspections and self inspection
- Signage
- Wash Stations
- Centralizing launch sites
- Plant surveys



Courtesy Boat Inspections — a proven technique in the fight against IAPs.

Infested water bodies:

The same options available for protecting non-infested lakes and streams are also relevant for infested water bodies; plant surveys, wash stations and self-inspections can all help to contain an infestation.

In Maine, aggressive programs have been developed and are underway on infested waters to help control, and in some cases eradicate invasive aquatic plants. Methods currently being used that are helping the fight include:

- Hand-pulling using trained divers, sometimes with the aid of a suction harvester that transports the plants from the diver to a barge for disposal.
- Placing bottom barriers over the plants to kill them. A variety of materials are being used with DEP guidance including erosion control fabric, burlap and tarps.

• Herbicide use has been limited. At Pickerel Pond in Limerick, a hydrilla infestation was deemed to be a significant threat to all waters in Maine. In this case, DEP reluctantly chose to use chemicals. The state's only Eurasian Milfoil infestation known at this time (confined to a gravel pit in Scarborough) also warranted this approach.

To date, Maine has been fortunate to avoid the enormous and expensive fate of full-blown infestation management that has plagued our New England neighbors. None of our infested waters have surrendered to mowing programs (like those found in Lake Champlain, VT among others), which indicates that an infestation is out of control.

We have had the benefit of using this small window of opportunity to be vigilant in our efforts, and we are learning a great deal about how to conduct extensive eradication efforts so that we can hopefully address our most serious problem areas.

WASH STATION HISTORY

The first wash station in Maine was built in 2003 on Woods Pond in Bridgton (**photo below left**) by the Lakes Environmental Association (LEA) in partnership with the Woods Pond Association. In 2004, LEA constructed two more stations in partnership with lakeshore landowners on Trickey Pond in Naples and Highland Lake in Bridgton (**photo below right**). Two additional sta-





Unlike those found in the Great Lakes (photo above), wash stations in Maine are voluntary, self-serve and user-friendly with low pressure hoses and no hard hats.

tions on Moose Pond in Bridgton and Denmark were constructed by LEA in 2005.

In the spring of 2006, the Friends of the Cobbossee Watershed, working with the Town of Winthrop, will complete a "model" station at Norcross Point on Maranacook Lake. It is this project that launched the L.L. Bean initiative that will provide a template for constructing future stations.

WHAT IS A WASH STATION?

In simplest terms, a boat wash station is merely a designated area large enough to accommodate a boat and trailer. A hose and nozzle allow boaters to rinse the boat, motor, trailer, anchor lines and fishing gear to remove plant fragments. Along with descriptive signage, clear entrance and exit routes are a must. How to handle water (and plant fragments) generated by the washing process itself is also an important consideration.

BUILDING A WASH STATION

Establishing a wash station involves five essential steps:

- 1. Selecting a Location
- 2. Funding
- 3. Permits & Approvals
- 4. Construction
- 5. Operation & Maintenance

LOCATION

Selecting a proper location is important since success in this step will ensure that the station is well used and functions smoothly. A good location will also minimize construction and maintenance costs.

<u>Convenience for boaters</u> is the initial challenge faced in selecting an available site. Convenience is the key to usage. Boaters are usually anxious to get to the lake. The less effort they have to make to get through a wash station, the more likely they are to use one.

A station incorporated into launch site property is ideal if space requirements and drainage are adequate. This may even turn out to be at a commercial marina. If locating at a launch is not possible, a location on the way to a launch can also be effective. Another scenario would be a central station that is convenient to more than one launch site. Local traffic patterns and launch dispersal will usually dictate one or more obvious choices. Remember, always use convenience as the primary criteria in choosing a location.

<u>Permission from landowners</u> Once a list of possible location sites has been developed, getting ownership or "permission" is next. Lands under public ownership are by far the easiest since the only potential snag is another proposed use. Land trusts, lake associations, road associations, state agencies and private landowners are all possible owners who could be approached for an easement or a donation of land. Some solid legal right to use a site should be obtained before any funds are expended. If an easement is the only op-



Convenience and high boat traffic make Norcross Point an ideal location.

tion, it should be perpetual or at least for a long enough period of time to be reasonable in light of the financial outlay for construction.

Locals know local conditions, landowner characteristics and use patterns. Local politics may also figure into the equation. All of the these variables are too unique to describe in detail. Anyone working on a wash station project needs to be savvy and cognizant of local circumstances.

<u>Availability of water and power</u> are two important site considerations that should be taken into account as they will have a huge impact on the overall cost of a wash station. In the worst case scenario, power would need to be run for a long distance and a well would have to be dug or drilled. The best case (e.g. cheapest) scenario is one where a pressurized public water supply is located nearby, which eliminates the need for power. Somewhere in between these extremes are more common situations where a stream,



Availability of water and power sources can greatly impact costs.

river or lake is available for water supply, and an electrical supply is located within close proximity as well.

The cost of drilling or digging a well can cost thousands of dollars. If a well is needed, commercial contractors can provide estimates or bids for a project. The power company should also be contacted to provide an estimate to supply power to a specific location. It is sometimes cheaper to hire a private electrical contractor do this work, but the power company will still have to determine the pole that the power will originate from.

Never underestimate the benefits of asking for discounts or donations. Mainers love to boat, fish, water ski and swim. Most people will value a wash station project and will be generous without feeling pressured. Seasonal residents have the same motivation and generosity. Again, knowledge of local conditions is valuable.

- **Topography and soils** are other key considerations for cost and water quality protection. Terrain that will require a lot of work to level for the wash pad or access way can add significant cost. The same is true if soils are poor or contain large rocks. A wash station is essentially an infiltration area with a water supply and an entry and exit road. If a water body is nearby (or even if one is not), the **rinse water needs to be contained in the infiltration area where the washing is conducted and not be allowed to enter a lake or stream**. Any anticipated runoff or "overflow" needs to be dealt with by collecting it in a perimeter drain and sending it into a vegetated area for absorption. Thus, the permeability of the native soils will determine if overflow controls are needed and how extensive they will need to be.
- **<u>Traffic flow and parking</u>** needs are crucial and have the potential to kill a site. Additional parking should not be required due to the addition of a



Topography and soils are key considerations for cost and water quality.

wash station to a site, but existing space requirements for parking may not leave enough room for a wash station.

For un-infested lakes, traffic flow should be designed so that <u>entering</u> boats travel through the wash station area. For infested lakes, ideally the wash station would accommodate traffic flow for both <u>entering</u> and <u>exiting</u> boats. Many launch site areas have looked to expand existing parking for additional road safety. If so, space limitations may be even more severe and add further to costs. Traffic flow and traffic patterns



must be safe and convenient for a site to work.

Conflicting uses can pose unexpected issues as well. Though wash stations are not utilized during winter months, care must be taken to ensure that the proposed wash pad, pump buildings or signs do not interfere with locations that are traditionally used for transporting ice fishing houses or snowmobile access. The Bridgton wash station is a good example - the original wash station location had to be moved to avoid an area plowed for winter carnival.

All of this detail is not meant to discourage a project, but rather to emphasize that a full array of considerations must be weighed before the next steps are taken. Especially important are a supportive local sentiment and the expectation of unanticipated problems.

FUNDING

Funding a wash station can appear overwhelming for some organizers, but the experiences so far indicate that these projects have appealed to many different interest groups. Fundraising should not be a severe burden or hardship unless the site selected is problematic.

- **Soliciting landowners** on the lake(s) being served is one of the best mechanisms for fundraising. This approach has been successful for the Bridgton, Denmark and Naples stations. Either a lake association or an interested person should be designated to lead the fundraising effort. It seems to work best when a specific amount is requested \$50 or \$100 depending on the estimated cost and additional funding sources.
- <u>**Grants</u>** are another method, especially since L.L. Bean has taken a lead in providing additional funds for this specific purpose. Other local, state or national foundations are also potential sources of help. Check out <u>www.fundnetservices.com</u> for a listing of environmental foundations.</u>
- **Municipal Funding** is an option that will vary significantly depending on local support, sense of need, number of other competing projects and the municipal budget "climate" at project time. An additional potential source of funding is a <u>business sponsorship</u>.

It is always advantageous to seek a <u>mix of funding</u>, an approach that generally has the most appeal to funders. It spreads the cost out over a bigger support base and generates awareness and a feeling of involvement with the project. If, for example, municipal funds are tight, try going for a very modest amount to get the municipality on board as a partner.

<u>Cost estimation</u> is an interesting element of fundraising. It's difficult to ask for money unless you know how much you will need, but actual costs are never really known until after the project is completed. We recommend

slightly over-estimating costs. It's easier to redistribute surplus funds than to have to go around asking again. Make sure you communicate to donors and supporters what will happen if excess funds remain. A maintenance or power bill escrow account can be a good use of surplus funds. At Highland Lake in Bridgton, public water supply and nearby power availability resulted in lower than anticipated costs. Excess funds here were used for buffer plantings at the public beach and boat launch site.

PERMITS AND APPROVALS

In Maine, several permits and approvals may be required for the wash station. Following are some possibilities and a brief explanation of each:

- Shoreland Zoning Permits may be required from your municipal planning board or code enforcement officer (CEO). Shoreland Zoning regulates structures, earth moving, signage and vegetative cutting within 250 feet of lakes and rivers and generally within 75 feet of zoned streams. Wash station components are structures, and some cutting of vegetation, digging and signage will always be involved. Generally the first 100 feet from the normal high water mark of lakes and rivers and 75 feet from streams would be severely restricted. Local ordinances vary widely - a talk with your CEO is essential to get a handle on how this local law affects your project.
- **Local Zoning Standards** All Maine towns have Shoreland Zoning, while others have town-wide zoning. Usually, town-wide zoning incorporates shoreland standards, so there would be an additional layer of standards to adhere to if the wash station is to be located beyond the shoreland zone. This can get complicated if, for instance, a wash station is considered as commercial use and the proposed location was in a residential zone. There are numerous possibilities again the best advice is to talk to the CEO.
- <u>Site Plan Review Ordinances</u> Many towns have a site plan review ordinance. These tend to regulate how a land use is conducted or constructed rather than where it is located since there are no zones established. It is

reasonable to assume that if the construction adheres to shoreland zoning and is well executed, there should be no problem with meeting site plan standards. But there may be phosphorus and storm water requirements or miscellaneous other requirements that are even more rigorous than shoreland zoning - once again, the CEO is the one to see.

- **Natural Resources Protection Act** The NRPA is administered by the DEP. It regulates many of the same features as shoreland zoning. Oddly enough, earth moving within the shoreland buffer areas is not generally allowed under shoreland zoning, but is allowed under NRPA if standards are met. Make sure you comply with the most stringent standards that apply. Under NRPA, projects such as installing waterlines to a water body require a permit, as does any shoreline alteration. If you are proposing to dig a water line, you will need NRPA approval and the consent of the code enforcement officer as well. Under shoreland zoning, you may be required to follow an existing footpath or access way in order to avoid disturbing a new portion of the buffer. DEP regional offices can give additional information on NRPA standards and should be consulted if there is to be any disturbance within 75 feet of the normal high water mark of lakes, rivers and streams.
- **Entryways** If the project requires a new entryway or exit onto a state road, Maine Department of Transportation approval may be needed. They would also regulate the crossing of a state road with a pipe trench. The local Department of Public Works or Highway Department probably has parallel requirements as well and is a good source of information as to which entity regulates a particular road.
- **Legislative Bodies** There may be other local hurdles that need to be cleared. Town Managers are great sources of knowledge. It is likely that if local funds or local land is involved, approval of the municipality's legislative body will be needed. In municipalities with a town or city council, the council holds that power. In other towns, the town meeting rules and the

select board is the avenue to the town meeting. In both instances, the Town Manager should be the second stop after you have worn out the CEO!

CONSTRUCTION

Depending on the complexities of the site and permit requirements, engineering may or may not be needed. For example, if soils are clearly permeable, a simple percolation test may suffice to estimate the amount of infiltration and the need for a perimeter drain. If soils don't seem to drain well, a soil analysis



by a site evaluator or engineer is advisable.

Sometimes permitting requirements are satisfied by a layman's sketch, but in other instances, blueprints and even surveys might be required. The model wash station at Norcross Point is an example of a site that required both survey and engineering (page 24). Though

none of the projects in the Bridgton area required detailed engineering plans, design help was obtained from local contractors. As the world continues to become more and more complicated, try to avoid these expenses if possible. Again, the local CEO should be able to assist.

- <u>Station size</u> The recommended dimensions of a wash station rinse pad are 18 feet wide by 36 feet long.
- <u>Materials to construct the pad</u> An area 18 feet wide by 36 feet long by one foot deep is excavated and existing fill is removed. If soils are permeable, the center of the area which constitutes the pad may be filled with road grade gravel. If soils are not very permeable, the whole excavated area

should be filled with a mixture of crushed stone $\frac{3}{4}$ inch to $1\frac{1}{2}$ inch in size. Travel across this surface may be a bit strange until the stones have had a chance to "knit" together.

In very permeable soils such as sand or coarse gravels, it may not be neces-



sary to remove the center of the pad area.

Instead, a perimeter drainage ditch at least 18" in depth and 3' in width should be excavated around all four sides of the pad. The center of the pad would then measure 12' by 30'. The ditch should then be filled with a mixture of crushed stone - $\frac{3}{4}$ inch to 1 $\frac{1}{2}$ inch in size. Be sure to employ proper erosion control throughout the project.

The <u>access driveway</u> to and from the wash station should be constructed of road grade gravel material that will be stable throughout the year. A grass surface driveway is discouraged except in areas that receive minimal use.

If water discharge onto the pad exceeds the capacity of the perimeter drain to store and infiltrate it, <u>drainage</u> will have to be provided for overflow. This situation is unlikely unless soils are poor and/or usage is significant. If these conditions exist, you might want to re-evaluate the site. Sometimes additional drainage is needed as a safety measure to assure that under extreme conditions plant fragments are not carried to the water body. Drainage can also protect the water body from any erosion that might occur if heavy rains overflow the station pad.

A typical method is to insert PVC drainage pipe in the center of the perimeter ditch with elbows at all corners to form an internal rectangle. This drain pipe can then be discharged to woods or a vegetated area away from the water body. Dispersal is easily accomplished by including several "T's" along the side(s) that the discharge is directed to. These can connect to several short lengths of pipe directed to the buffer area, thereby breaking up the flow into small portions.

Power, water and structures are a package deal. Power needs to be brought to a service box near or at the pump house. Sometimes the best pump arrangement is to "pull" the water from the water source. In the case of the Norcross Point site, water is pumped directly from the lake. It may be best to use a submersible pump to "push" the water from the source to the point of use. A plumber should be consulted to recommend which method is best, considering rise in elevation, length of line and the location of the water source. If a submersible pump is used, a water line and a power line will need to be run to the pump as well. Under some circumstances the water line can be run on the surface of the ground, subject to seasonal removal. The power line should be buried according to code for safety. An electrician should also be consulted to develop the specifics for electrical service requirements.

A small utility shed is a valuable asset to host electrical service, a pump and pressure tank, or just the tank when a remote submersible pump is used. The shed can also be used as a surface on which to mount signage and to store supplies and equipment during all seasons. A hose rack and hose with a nozzle can be mounted on the shed or can stand alone. Early on, LEA decided against using high pressure water due to the potential danger to users. Just the exercise of washing off the boat, trailer, motor, prop and fishing gear with average water pressure should constitute a <u>comprehensive inspection</u> that makes the boater think about where the boat has been and what the potential risks are.



The water supply will determine the variables involving type of pump and the power supply configuration. <u>The least expensive reliable supply</u> <u>is the goal.</u> If a stream is used, it should have a history of not going dry in drought conditions. If a well is to be dug or drilled, cost and reliability of supply will need to be considered in making a choice.

Contractor selection is another major decision. If the municipality has a public works or highway department and the station is on public land, they might be the logical first choice for pad and drive construction.

<u>Capability, cost and completion</u> are the three points to concentrate on. At least three bids should be sought if commercial contractors are to be used. This is true also for the plumbing and electrical work.

The selection process should produce competent contractors who have presented the most suitable bid. This is not necessarily the lowest bid because some contractors may insist on upgrading some of the specifications for a compelling reason such as a larger pump for better durability.

Even the brand of components recommended will have implications for price and quality.

One thought is to provide general specifications and ask the bidders to put together a package that makes the most sense to them in balancing cost and reliability. Or, with research, you might want to present uniform and highly specific requirements.

The use of public funds may dictate the process. Consult the Town Manager if this is the case. Frustration can also be avoided by specifying a fixed time frame for completion and a percentage penalty for missing the deadline. Some contractors "stack up" jobs to give them the security of a work load. This provision might help avoid that problem.

It is also essential to have a person or two authorized to act as the "owner's representative" to see that the schedule is met, inspect the work, answer questions and solve problems when irregularities arise. What if you hit



shallow granite or unexpected groundwater is encountered?

Signage for the LEA sites has evolved with each of their wash stations. Using the photo on the left as a "base", the Norcross Point site will display the recommended **<u>standard</u>** (page 21) for others to follow.

Standardized signage helps reduce costs while also helping reinforce the message in a more recognizable way. Sources for signs vary - the handbook authors can help provide some options if needed.



MAINE STATE LAW Up to a \$5000 fine for launching a watercraft with plants.

<u>or</u>

Vinyl

Same

Same

Same Same

Same

Cardinal Red

21

SIGN SPECS

SIZE:

•

36" wide x 48" high 3/4" overlay plywood or equivalent

Reflex Blue

Peacock Blue

Paint

White

COLORS:

MATERIAL:

- Background: •
- Copy:
- Stripes:

TYPESTYLE:

- Logo Background:
- Circle/Slash:
- White **Bright Red** Dark Green
- Plant:

Optima Semi Bold

Note: Sponsor recognition may be accomplished by using the back of the sign; if front is desired, increase the sign length at top or bottom.

MAINTENANCE AND OPERATION

A well designed wash station requires minimal maintenance. In the spring, it will need to be set up; in the fall it will need to be drained and winterized. Hoses that are damaged will need to be replaced, and any vandalism will need to be addressed. Wash Stations on less-than-ideal sites may require additional attention, but this handbook helps address potential drawbacks that can be recognized in advance.

Quite often a town is willing to pick up the minimal utility costs involved, but if need be, a lake association can designate a portion of their revenues to cover the spring and fall plumbing bill, the electric bills and any repairs and supplies. Most wash stations will not be staffed, but will rely on boater cooperation. **It is highly recommended that the installation of any wash station be integrated into a comprehensive education and prevention program.** Courtesy Boat Inspectors can direct boaters to the nearest station, and wash stations should be publicized in various forms of public communications. It is also recommended that a person or persons be designated to oversee the overall "operation" of the wash station.

SUMMARY

This handbook is a work in progress, and will hopefully help others determine if constructing a wash station is a viable option in an overall IAP prevention program. The effort to provide Maine with an increasing number of wash stations is in the early stages, but thanks to the foresight of the LEA, the initiative of the Friends of the Cobbossee Watershed and the philanthropy of L.L. Bean, Maine is off to a promising start. Over the next few years, we will all learn how to accomplish this task more effectively and economically. The partners in this this project are determined to find additional solutions to eradicating infestations and preventing new ones. The biggest challenge may very well be to sustain the energy needed to remain vigilant and limit and eradicate existing infestations. Past experience has taught us that we are in this for the long haul.

PARTNERS

L.L. Bean Casco Street Freeport, ME 04032 Web: <u>www.llbean.com</u>

Boat U.S. Foundation 147 Old Solomans Island Road Suite 513 Annapolis, MD 21401 Web: <u>www.boatus.com</u>

Friends of the Cobbossee Watershed Bob Moore, Executive Director P.O. Box 5003, Augusta, ME 04332-5003 Phone: 207-621-4100 Web: www.watershedfriends.com

Lakes Environmental Association Peter Lowell, Executive Director 230 Main Street Bridgton ME 04009 Phone: 207-647-8580 Web: www.mainelakes.org

Maine Congress of Lake Associations Maggie Shannon, Executive Director P.O. Box 426 Belgrade ME 04917 Phone: 877-254-2511 Web: www.mainecola.org

USEFUL CONTACTS

Maine Center for Invasive Aquatic Plants Roberta Hill, IAP Manager 24 Maple Hill Road Auburn, ME 04219 Phone: 207-783-7733 Web: www.mciap.orrg

Maine Department of Environmental Protection John McPhedran, IAP Program 17 State House Station Augusta ME 04333-0017 Phone: 207-287-6110 Web: <u>www.state.me.us/dep/blwq/</u> topic/invasives/index.htm

Maine Department of Inland Fisheries & Wildlife Colonel Thomas A. Santaguida Chief, Maine Warden Service 284 State Street 41 State House Station Augusta, ME 04333-0041 207-287-8000 Web: <u>www.state.me.us/ifw/</u> wildlife/milfoil.htm

