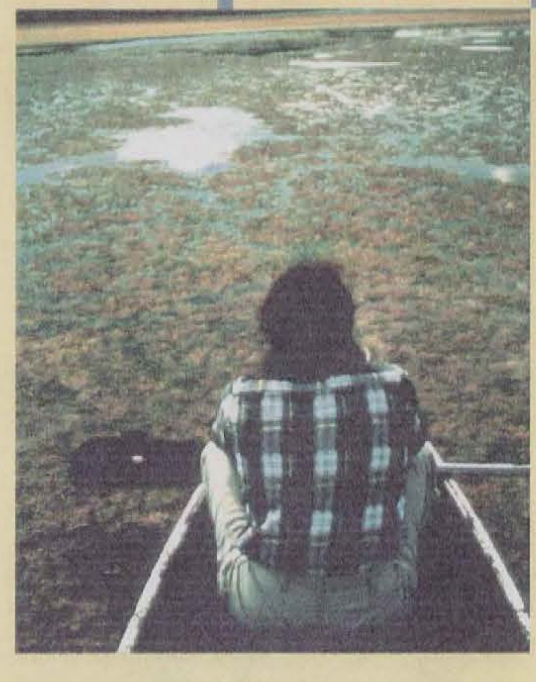
Invasive Aquatic Species



Report to the Natural Resources and Fish and Wildlife Committees of the 120th Legislature

STATE OF MAINE
ANGUS S. KING, JR.
GOVERNOR

January 12, 2001

Senator John L. Martin, Chair
Representative Scott W. Cowger, Chair
Joint Standing Committee on Natural Resources
State House Room 437
Augusta, Maine 04333

Senator David L. Carpenter, Chair
Representative Mathew Dunlap, Chair
Joint Standing Committee on Inland Fisheries and Wildlife
Cross State Office Building Room 206
Augusta, Maine 04333

Re: Report on Invasive Aquatic Species

Dear Senators Martin and Carpenter, Representatives Cowger and Dunlap and Members of the Committees,

Pursuant to Public Law 1999 Chapter 722, we are pleased to submit the attached report on Invasive Aquatic Species. While it is restricted to answering the specific charge of the law, the report offers some insight into the growing threat that invasive species pose to our aquatic environment.

We would also like to acknowledge the efforts of the workgroup that produced this report. It included not only state agency staff, but also representatives of several non-governmental groups.

The potential for invasive aquatic species to alter the environment and impair people's use and enjoyment has been largely unrecognized in Maine until the last few years. This report outlines an approach that will allow the State to begin dealing with the problem before it becomes widespread. You will notice that the recommendations include specific references to staffing and funding. Unfortunately, at this time, there are no General Fund provisions for either. If possibilities emerge, however, we would certainly wish to explore them with you.

Should the committees care to do so, we would happy to conduct a briefing on the contents of the report.

Sincerely,

Martha G. Kirkpatrick, Commissioner
Department of Environmental Protection

Lee E. Perry, Commissioner
Department of Inland Fisheries
and Wildlife

MAINE INVASIVE AQUATIC SPECIES WORK GROUP

INVASIVE AQUATIC SPECIES REPORT

REPORT TO THE JOINT LEGISLATIVE COMMITTEES ON NATURAL RESOURCES AND FISH & WILDLIFE

REQUIRED BY:
PUBLIC CHAPTER 722 H.P. 1843- L.D. 2581 AN ACT TO PREVENT THE SPREAD OF INVASIVE AQUATIC PLANTS.

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ACRONYMS

IAS	invasive aquatic species
DAFRR	Maine Department of Agriculture, Food, and Rural Resources
DEP	Maine Department of Environmental Protection
DHS	Maine Department of Human Services
DIF&W	Maine Department of Inland Fisheries and Wildlife
DOC	Maine Department of Conservation
DOT	Maine Department of Transportation
ISC	Invasive Species Committee
MTA	Maine Turnpike Authority
NGO	Non-government organization
VLMP	Volunteer Lake Monitoring Program
MOHF	Maine Outdoor Heritage Fund

GLOSSARY OF TERMS

Within the context of this document, the following terms have the attached meaning.

"**Aquatic plant**" means a vascular plant species that requires a permantly flooded freshwater habitat.

"**Invasive aquatic species**" means fish, animal, and plant species that have been introduced into a new ecosystem and are having harmful impacts on the natural resources in the native ecosystem and/or the human use of the resource. IAS may also include microscopic organisms, insects, invertebrates, and/or fungi.

"**Invasive aquatic plant**" means a species identified by the department through rulemaking as an invasive aquatic plant or one of the following species: Eurasian water milfoil, *Myriophyllum spicatum*; Variable-leaf water milfoil, *Myriophyllum heterophyllum*; Parrot feather, *Myriophyllum aquaticum*; Water chestnut, *Trapa natans*; Hydrilla, *Hydrilla verticillata*; Fanwort, *Cabomba caroliniana*; Curly pondweed, *Potamogeton crispus*; European naiad, *Najas minor*; Brazilian elodea, *Egeria densa*; Frogbit, *Hydrocharis morsus-ranae*; and Yellow floating heart, *Nymphoides peltata.*

SUMMARY

The introduction of non-indigenous invasive plant and animal species to the United States has been escalating with widespread destructive consequences. Until now Maine has been spared the worst introductions, but this will not last. Significant habitat disruption, loss of native plant and animal communities, loss of property values, reduced fishing and water recreation opportunities and large public/private expenditures have accompanied invasive plant introductions in all of the lower 48 states except Maine. Other New England states have spent millions of dollars to control aquatic invasive species and lost millions of dollars in property values as they became established. There is a lack of coordinated efforts by State agencies and other organizations that will be affected by the introduction of invasive aquatic species (IAS). The Maine Invasive Aquatic Species work group recommends attention to this issue at a level commensurate with its threat to Maine's environmental and economic health

This report focuses on invasive aquatic species, which is part of a broader invasive species problem threatening Maine's environment. The following is a summary of the findings and recommendations the interagency work group developed to further address the six items and concerns listed in LD 2851 (Sec.2 38 MRSA§419-C, "An Act to Prevent the Spread of Invasive Aquatic Plants. Section 3. Report; invasive aquatic species control.")

I. "Identification of other biological threats to the State's waters including invasive animal species that may become a nuisance."

Future biological threats exist from a number of non-native invasive plant and animal species (from both in state and out of state sources) that are not addressed by MRSA 38§419-C. In order to effectively address the real threat of invasive aquatic species (IAS), the work group recommends creating a permanent Invasive Species Committee (ISC). The responsibility of the Invasive Species Committee would be to guide development of a comprehensive "Invasive Aquatic Species Management Plan" that would identify and prioritize aquatic nuisance species threats, coordinate prevention efforts, public education programs, and IAS abatement measures statewide, and recommend policy and legal changes as needed to combat this problem. The work group recommends that the ISC report at least bi-annually to the Maine Land & Water Resources Council.

II. "Further education, awareness and prevention efforts needed to stop the introduction and spread of invasive species;"

The work group recommends IAS education initially focus on the following areas:

- Establish an effective, consistent message to raise public IAS awareness.
- Continue to develop a public awareness campaign designed to reach a wide range of target audiences.
- Train a volunteer network of 'Weed Watchers' to monitor lakes and provide continuing education at the community level.
- Provide operating funds and human resources to meet the list of educational needs.

III. "Methods to control the spread of invasive species should any become established in the State, including quarantine authority;"

The work group recommends IAS control measures be initially focused in the following areas:

- Develop a comprehensive "Invasive Aquatic Species Management Plan" and thereby qualify for Federal funds that target invasive aquatic species issues.
- Identify the means to document the extent of IAS through strategic surveys in high-risk areas.
- Establish a Rapid Response Program that would be available quickly to cover the costs of control for newly identified containable infestations.
- Develop a set of standards and guidelines that state government, conservation groups and local governments may use to control established infestations.
- Establish a new formal process to manage access in infested waters.

IV. "Enforcement of the prohibitions in the Maine Revised Statutes, Title 38, section 419-C;"

The work group recommends modifying current IAS enforcement provisions as follows:

- Remove the requirement to prove intent to transport aquatic weeds in the current law.
- Remove the warnings provision, have warnings issued for two years and then enforce violations.
- Increase the fine levels to an upper limit of $1,500.00, more commensurate with the risk to lake resources.

In addition, IAS efforts need to focus on educating state and municipal law enforcement personnel about the impact of invasive aquatic plants and the enforceable provisions of the law.

V. "The status of cooperation from other state agencies in educating the public about invasive aquatic species; and"

Few agencies have programs and resources that target IAS, although several state agencies have been cooperating in limited efforts to date. The work group recommends IAS interagency cooperation focus on the following areas:

- Maintain established communication network to ensure continued willingness of all relevant state agencies to cooperate on public education and prevention.
- Continue support at the cabinet level to ensure inter-agency cooperation on prevention projects and maintain participation in an ongoing Invasive Species Committee.
- Maximize opportunities in existing state programs to promote the prevention message.

VI. "Recommendations for necessary funding to support the prevention and control of invasive aquatic species."

The work group recommends IAS funding be initially focused in the following areas:

- Establish an ongoing comprehensive program to implement recommendations at a first year cost of $185,000.00.
- Establish a coordinator position with those funds to:
  1. Develop a comprehensive statewide "Invasive Aquatic Species Management Plan."
  2. Implement abatement and eradication activities.
  3. Establish and implement plant-monitoring protocols for local cooperators, volunteers and state staff.
  4. Oversee local grants and contracting for services.
  5. Maximize the effectiveness of local prevention programs.

INVASIVE AQUATICS SPECIES REPORT

LEGISLATIVE REPORT FOR LD 2581

Maine's 119th Legislature passed 38 MRSA§419-C, "An Act to Prevent the Spread of Invasive Aquatic Plants," in April 2000 (attached as Addendum 1). As a result, the Department of Environmental Protection (DEP) and the Department of Inland Fisheries and Wildlife (DIF&W) were required to develop this report on invasive aquatic species control. The report covers implementation of the existing legislation and includes recommendations on the following six items: identification of other biological threats, further awareness and prevention efforts, methods of control, enforcement of the law, cooperation from other state agencies, and funding recommendations. DEP and DIF&W developed an Invasive Aquatic Species work group composed of state agency staff and personnel from several conservation organizations. Additional information was obtained from other state, regional, federal, and independent invasive aquatic species (IAS) programs. DEP and DIF&W would like to thank all participants for their collaborative efforts in producing this Invasive Aquatic Species Report to the first session of the 120th Legislature.

The introduction of non-indigenous invasive aquatic plant and animal species to Maine's coastal and inland waters is a source of biological pollution that threatens the ecology of the region and the State's water resources. The threat extends to recreational activities and local economies dependent on activities such as fishing and water sports. If an introduced species becomes established through reproduction, it can disrupt the natural ecosystem's balance by altering the native species' composition, density and interactions.

A recent report by the Ecological Society of America notes that invasive species can cause extinction's of native species and completely alter nutrient cycling, hydrology, and energy budgets in native ecosystems. For example, conservation experts who track invasive plant infestations estimate that invasive plants cover 100 million acres in the United States and are spreading every year across three million additional acres –an area twice the size of Delaware (National Invasive Species Council 2000).

Since 1800, at least 139 nonindigenous aquatic organisms have colonized habitats of the Great Lakes ecosystem. The bulk of these species include: plants (59), fish (25), algae (24), mollusks (14),

and oligochaetes (7). About 55 percent of these are species native to Eurasia; 13 percent are native to the Atlantic Coast of North America (such as sea lamprey, zebra mussels, round gobey). Although impacts of some of the most abundant species are obvious, many of the IAS and their direct and indirect impacts are still unknown (Great Lakes Commission 1996).

Intensified use of Maine's public waters (marine and freshwater) for interstate and international commerce, recreational boating, fishing, aquaculture, tourism, and waterfront development exposes our fragile waters to IAS introductions. The principal human activities contributing to the transport and dispersal of IAS in State waters include:

- transport and release of IAS from the bottom of boats, and boat trailers,
- improper disposal or containment of aquarium plants and animals.
- movement or intentional release of aquaculture and fishery species along with their associated pathogens, attached free-living organisms and parasites,
- recreational boating within and between waters,
- bait handling and movement throughout the state's inland waters,
- ornamental gardening and waterfront landscape practices
- release of organisms from the ballast water of ships and from hull surfaces,

A recent federal report indicated that 45 IAS have been reported in Maine (Federal Aquatic Nuisance Task Force 2000). Moreover, the opportunity for spread of the 45 current IAS is significant.

The terms "invasive" and "nuisance" require definition when applied to biological organisms. Invasive species, which are most often non-native, when introduced inadvertently or purposely by man in a water where it did not previously occur, readily becomes self-sustaining, successfully reproduces, adversely impacts desirable aquatic resources, and demonstrates a tendency to readily spread. Some species may also be considered invasive if they occurred in Maine but have been transported between watersheds and their introduction has caused detrimental effects to existing populations (e.g. introduction of white perch to brook trout waters has severely curtailed the beneficial values of brook trout in the affected waters). "Nuisance" refers to the magnitude of the effect and relative balance of public benefits and adverse impacts. Adverse or beneficial effects can be weighed by the consequences on the existing populations and the human value of the aquatic resources and this varies between waterbodies.

Every year DIFW fishery biologists discover introductions of new fish species where they had not previously occurred. Although it is illegal for the public to stock waters of the state without DIFW review and approval, unauthorized introductions are common and widespread. Native species including cusk, white perch, golden shiners, and rainbow smelt are commonly introduced species, where as smallmouth bass, largemouth bass, and black crappies are commonly introduced non-native species. Illegal introductions of both native and non-native species can adversely impact existing fishery management programs, due to competition for limited forage and habitat, as well as increased mortality from predation. Furthermore, illegal introductions (those involving aggressive "warmwater" species) often preclude DIFW from effectively managing for more traditional fisheries. It is for this very reason that subsequent introductions of non-native species like brown trout and smallmouth bass, or species like splake (hybrid) are sometimes undertaken by DIFW biologists, in an effort to restore angling opportunities for more desirable sportfish that can better tolerate the effects of illegal introductions. However, most illegal introductions occur in the absence of an understanding of the potential impacts (e.g., forage, habitat, disease, water quality, etc.) to the water and the associated drainage. Invasive species, and those considered to be nuisance, may be either native or non-native.

FINDINGS

The following addresses the six (6) items and concerns listed in Sec.2 38 MRSA§419-C, "An Act to Prevent the Spread of Invasive Aquatic Plants. Section 3. Report; invasive aquatic species control."

I. "Identification of other biological threats to the State's waters, including invasive animal species that may become a nuisance."

Maine's water-based resources are potentially jeopardized and at risk of severe impact by the introduction of IAS. The intentional or unintentional introduction of some new species of fish, wildlife, and plants, as well as other organisms, including pathogens, parasites, and diseases can upset the existing fragile ecological stability in Maine waters. New IAS introductions may depress or all together displace desirable native fish, wildlife, and vegetation. This is already happening in southern Maine, for example, in places where the Mute swans' destructive feeding habits threaten native waterfowl and other wildlife in wetland habitats. Below is a list of some of the 45 IAS currently in Maine and the harmful biological impact of their introduction.

Table 1. Examples of potentially invasive aquatic species currently found in Maine.

Species	Biological Impact in Maine
Aquatic Plants	
Variable Watermilfoil	Alters lake habitats with massive plant growth*
Purple Loosestrife	Prolific seed production overwhelms native wetland plants
Phragmities	Displaces native wetland vegetation in southern maine
Crustaceans	
Rusty Crayfish	Displaces native smaller crayfish species.
Green Crab	Feeds on soft shell clams
Fish	
Common Carp	Destroys aquatic habitat, consumes fish eggs, disrupts lake bottom.
Rudd	Introduced as illegal bait importation.
Northern Pike	Voracious predator of salmonids in belgrade lakes.
Walleye Pike	Voracious predator of smelt in long pond (belgrade)
Smallmouth Bass [1]	This popular fish may destroy brook trout fishing in rapid river.
Animals	
Mute Swan	Wetland destruction
Other Organisms	
Bass Tapeworm	Damages internal organs of many fishes decreasing reproduction.
	* significant impact to human recreational use

Table 2. Invasive Aquatic Species not currently found in Maine. These are some of the most troublesome invasive aquatic species that have not yet been found in Maine.

Species	Biological Impact (closest state to Maine[2])
Plants	
Eurasian Watermilfoil	Clogs lakes, boats with massive plant growth (NH).*
Fanwort	Clogs lakes, boats with massive plant growth (New England).*
Water Chestnut	Clogs lakes, boats with massive plant growth (New England).*
Crustaceans	
Spiny Water Flea	Fish are unable to eat this spiny water creature (Great Lakes).
Mollusks	
Zebra Mussel	Biofouling of water inlets, zooplankton consumption (VT.,NY).*
Atlantic Ship Worm	Destroys wooden parts of ships and docks (Atlantic Coast). (Atlantic shipworm may be present according to recent reports)
Fish	No recreational or commercial value (IL).
Round Goby	Prolific reproducer with no recreational or commercial value (MN).
Ruffe	
Other Organisms	
Myxobolus Cerebralis	Causes Whirling Disease in young salmonids (CT).
Infectious Salmon Anemia virus	Causes morbidity and mortality in Atlantic salmon (NB)
West Nile Virus	Causes human encephalitis, horse & bird mortalities (NY).
	* severe impact to human recreational use

Every year state biologists discover IAS where they had not previously occurred and these

[1] DIF&W has management plans in place for this ANS species.

[2] Two letter United State Postal codes

species are spreading to new locations in the state. The risk of some of these biological threats is increased by the vast number of tourists that visit our state and the nonresident vessels that dock in Maine coastal and inland waters, providing an opportunity for additional introductions. In order to effectively coordinate a statewide effort and move forward with other state, regional and federal IAS regulations, a comprehensive state management plan for the prevention and control of non-indigenous aquatic nuisance species needs to be developed for Maine. An Invasive Species Committee composed of state agencies, federal agencies, sporting organizations, boating interests and environmental organizations would oversee the development an effective IAS plan. IAS plans are based on the following three goals:

- Preventing new introductions of non-indigenous invasive aquatic species into the waters of the state.
- Limiting the spread of established populations of non-indigenous IAS into uninfested waters of the state.
- Abating harmful ecological, economic, social, and public health impacts resulting from infestation of non-indigenous IAS.

Development of a federally approved IAS plan offers increased opportunity for federal funding of prevention and control efforts. Such a plan has recently been approved for Lake Champlain to abate the effects of Eurasian Milfoil and Zebra Mussels.

II. "Further education, awareness and prevention efforts needed to stop the introduction and spread of invasive species;"

Raising public awareness and understanding about the nature of the IAS threat can significantly reduce the risk of invasive aquatic species infestations in Maine waters. Additionally, information developed to prevent or abate the spread of IAS should highlight the value of native aquatic species. Shorefront property owners for example, may consider all aquatic plants as IAS. Native aquatic plants are a vital part of the watershed ecosystem; IAS literature should clearly delineate both the harmful effects of IAS and the beneficial effects of native species. Future awareness and education efforts should also emphasize:

- The potential economic, recreational and ecological impacts from IAS infestations
- The difficulty of eradication, once a water body has become infested

- The high and repetitive costs of the marginally effective control measures available
- Conflicts amongst resource users concerning IAS control efforts
- Environmental damage (collateral damage) associated with control

The following section contains three (3) objectives and potential strategies for consideration in future efforts to increase IAS awareness and prevention efforts in Maine.

Objective 1. Identify and target groups that pose a high risk for spreading invasive aquatic species.

- Link a clear and strong preventative message to boat registrations and fishing and hunting license sales through town offices, agency licensers (non-resident sales) and on-line registrations.
- Increase warning/prevention signs at public and private boat landings.
- Create special signs for infested water bodies. Provide detailed information about inspection and removal of invasive species at these sites.
- Encourage establishing inspection stations, especially at infested lakes (i.e., local initiative).
- Develop information concerning the potential threat to fishing from invasive species. Fishing organizations (e.g., Bass Masters, Trout Unlimited, etc.) support educational programs and many have websites for members to share information. These organizations have great potential to assist in the dissemination of information to members and the public.
- Alert commercial marinas to this issue. Plant infestations at or near marinas could result reduced patronage, or add to facility maintenance costs.
- Develop information and education kits for boaters, including materials with utility value to boaters (e.g., cup warmers, key chains, etc).
- Encourage fishing groups to require an inspection or cleaning of equipment (e.g., boat, trailer, anchor system, fishing gear, etc.) before and after fishing tournaments.
- Educate retailers and suppliers of horticultural, ornamental or aquarium plants about the listed species and develop a list of suitable alternatives.
- Educate bait dealers on how IAS may interfere with the capture of their target species.
- Develop internet resources by taking advantage of links to the large number of existing invasive plant websites to reach a variety of target audiences.

Objective 2. Identify and target additional audiences that are likely to support and sustain education and awareness efforts to prevent the spread of invasive aquatics.

- Distribute educational information to individuals, organizations and businesses that receive

direct benefits from freshwater resources: Maine Congress of Lake Associations, individual lake associations, shorefront property owners, marinas, retail stores in lake communities, water utilities, volunteer lake monitors, realtors, and others.

- Encourage middle school, high school and college level studies aimed at conducting aquatic plant community surveys throughout Maine.
- Encourage a curriculum for K – 6 school children that promotes an awareness of aquatic plants and invasives in Maine's lake ecosystems.
- Encourage local public service organizations (e.g., scouts, Kiwanis, etc.) to participate in awareness-raising events including the distribution of warning flyers at public access points to lakes and rivers.
- Train and certify volunteers in the Volunteer Lake Management Program (VLMP) to screen lakes for invasive species.
- Work with the Maine Department of Conservation (DOC) Waterways Marking Division, local water districts, and lake associations to develop and use buoys denoting areas of heavy growth in infested lakes, (this will require additional staffing and legislation to accomplish).
- Encourage local interest groups to contact the media concerning prevention efforts. Prepare press packets and guidance for lake associations to use for local press contacts.
- Work with the Maine Municipal Association to develop an awareness-training program for public officials and help institute municipal based programs.
- Inform water utilities of the threat. Develop information on prevention strategies for distribution by utilities.
- Maintain IAS warning signs on border roads and on the Maine turnpike.
- Maintain IAS leaflet handouts at turnpike tollbooths and other public venues.
- Place information at relevant state tourism information facilities.
- Encourage NGO's to place information and IAS signs in town offices and popular local businesses, information kiosks, etc.

Objective 3. Establish guidelines for groups and activities that pose an increased risk for infestation, and for key state personnel.

- Promote understanding of the IAS threat and of the value of preventive measures through the professional licensing and re-certification processes for realtors, bait dealers, water landscapers, nurseries/plant dealers, etc.
- Educate and maintain awareness of state personnel (e.g., wardens, biologists, park staff, waterway program staff, etc.) through staff training and development programs.
- Require that organizers of state permitted fishing contests (e.g., bass tournaments) provide before and after boat inspections for IAS.

III. "Methods to control the spread of invasive species should any become established in the State, including quarantine authority;"

The most effective control of IAS is preventing their introduction. Once an IAS has become established, the track record for restoration (e.g., eradication) is poor. Controlling the spread of an IAS in a water body and preventing its movement to other water bodies is the state's primary concern after an introduction has occurred. Effective applications of restoration and abatement approaches need to be researched and established in an Invasive Aquatic Species Management Plan.

A. Control Approaches: Eradication/Restoration, or Abatement/Maintenance.

Beyond prevention, approaches to controlling the spread of IAS within a water body are contingent on the extent, type, effect, and degree of the infestation. Eradication of invasive aquatic plants, a form of lake restoration, aims to restore the aquatic plant community to a naturally occurring assemblage through selective elimination of the invading species. Maintenance/abatement activities are ongoing efforts to control an established invasive population to levels that maintain recreational uses and allows for some maintenance of native species.

New infestations that occur in small patches may possibly be eradicated. The goal of eradication is total removal of the species followed by restoration of the native aquatic community. Eradication and restoration is not yet possible for well-established IAS infestations or infestations that cover large areas. In these situations, it may be necessary to implement abatement activities to keep IAS populations in check. The success of maintenance or abatement programs depends on many factors including costs, technical feasibility, the degree to which functions and values are disrupted, and the potential ecological problems associated with control measures.

Early identification of an IAS infestation is key to an effective response. The State needs to establish a set of consistent lake survey techniques that can be used by biologists and trained NGO monitors (e.g., Weed Watchers) to identify and monitor IAS infestations.

1. Rapid Response to Restore the Lake Ecosystem.

Total eradication of even low-density populations of IAS has rarely been accomplished in other states, thus the emphasis on prevention remains critical. Despite that difficulty, the public may demand the State attempt to eradicate an IAS to preserve recreational, economic and aesthetic lake values. The only effective approach to eradication is a well-coordinated rapid response program.

Early identification of a new infestation with small patches or low-density populations followed by a rapid eradication effort will increase the potential for successful lake restoration. The rapid response approach must include readiness to intensively survey the lake, communicate and educate the community and then apply an integrated plan. The best management plans will typically employ a variety of methods (e.g., hand pulling, underwater suction devices, herbicides, etc.) and follow-up monitoring. These activities can be conducted within the existing state pesticide resource protection and water discharge laws, with the following exception.

Section 410 of Title 38 currently exempts DEP from obtaining a Section 413 waste discharge license for chemicals used for restoration projects aimed at short-term eradication of invasive plants. This was intended to allow rapid response to a documented infestation without the necessary time usually associated with obtaining a case-specific discharge license. However, DEP has concluded that this might pose a conflict with existing federal requirements for such permitting under the Clean Water Act. DEP will submit language in separate legislation that would remove the Section 413 exemption. The DEP will consider the issuance of a general permit that will specify the types of herbicides and conditions for application in the event of a documented infestation. In addition, only registered aquatic pesticides can be applied and the applicator must possess a Commercial Pesticide Applicator License in the Aquatic Category from the Maine Board of Pesticides Control. This would allow the same response as envisioned by the current law but remove potential conflicts with federal statutes and regulations.

The key to a rapid response is readiness, which means acting within a short time frame with trained personnel, appropriate treatment materials and necessary permits. Rapid response may include contracting commercial IAS specialists. A minimum of $25,000.00 should be available for a rapid response program. Development and implementation of this rapid response program would be conducted by DEP staff and selected contractors.

2. Management of Established Invasive Aquatic Populations.

An invasive aquatic management program should be developed for infestations where eradication is not feasible. Such a program would develop a set of protocols and provide partial funding to communities and lake associations in order to abate IAS effects and thereby potentially maintain recreation use of a water body without further habitat deterioration. For example, a community organization could receive technical assistance to develop an Aquatic Plant Management Plan, which could include education, monitoring and control strategies. Local Aquatic Plant Management Plans could then be used to qualify for other state or federal sponsored grants and funds. The program coordinator recommended in this report would work with municipalities to develop the local project, provide technical assistance and disburse community grants. We recommend establishing a fund for community grants at an initial annual cost of $25,000.00 for FY 2002. This figure is intended to cover the anticipated demand from municipalities and lake associations for assistance in prevention of invasive plant introductions and management of a few existing small infestations. It is not intended to fund ongoing, in-lake management of large areas of plant growth (such as annual harvesting) to reduce the density of plant growth in a specific lake. Such interventions are very expensive, often more than $1000/acre each year, and the current proposed program and personnel will not be sufficient to provide such services should the demand develop. In future years, the need for prevention and control projects at the local level is anticipated to result in increased requests for assistance. The state may choose to pattern such projects after other programs, in which federal or state pass-through funds require local match to increase project effectiveness and feasibility.

Management options are continuously being developed to combat the many different IAS threats. As new technologies are developed to combat IAS, the State must keep abreast of current developments, foster innovations, and be ready to apply the best techniques in Maine. The options available today (physical bottom barriers, pulling weeds, mechanical weed harvesters) may be vastly different from tomorrow's physical, biological, or chemical techniques. The DEP has not allowed the use of herbicides in state waters because of the broad reaching effects of the available products and the conflicts of use that they cause. Emphasis will be placed on methods that promote an integrated management approach and have the least environmental intrusion.

B. Containment (Quarantine Authority) and Boat Ramp Management.

The ability to contain IAS by restricting boat access to a lake with an invasive population offers one approach to preventing the spread to nearby water bodies. Restricting boat ramp access poses problems for the DOC and DIF&W whose mission includes increased recreational opportunities and motorboat access for the public. On the other hand, public access points on infested lakes are vectors for spreading the problem to other lakes. This issue requires careful consideration to balance the interests of public access with the need to prevent the further spread of the IAS. Addendum #2 contains additional analysis of this topic and proposed options.

Investigation of policies within DEP, DOC and DIF&W revealed that no adequate legal mechanism exists to restrict access to public or private boat ramps. The work group recommends that the legislature revise Title 38, Section 419 to allow for limited duration closures of state, public, private and commercial boat ramps, and controls over in-lake watercraft use. Closure of state-controlled ramps would be subject to review and agreement by the Commissioners of DEP, DOC and DIF&W. This gives state agencies the time to implement control options that would minimize the potential for transport of IAS, while alleviating public concerns that an infestation would spread to nearby waters. The standards would require the development of a site-specific Aquatic Plant Management Plan incorporating public input and specifying the conditions for reopening access and resumption of watercraft uses. Such a plan would need to consider the nature and degree of infestation, the likelihood of spread from the affected lake, degree of disruption of public use, and the feasibility of control measures in the specific case.

C. Implementation.

To implement the restoration and maintenance program described above would require a significant investment of professional staff time along with funds for both grants and to carry out activities. These funding recommendations will be addressed in item VI (See Table 3).

IV. "Enforcement of the prohibitions in the Maine Revised Statutes, Title 38,section 419-C;"

The prohibitions in MRSA 38:419-C, will play an important role in the overall objective of the law, which is to prevent the introduction of destructive, invasive plants to Maine's lakes and rivers. While enforcement is an important component of the law, it will never substitute for an effective educational campaign and ongoing public vigilance on this issue. The work group sought to clarify and enhance provisions of the law in a way that will enlist cooperation of the law enforcement community.

A. Enforcement Authority.

Individuals authorized to initiate actions on behalf of the State in Maine Courts may enforce the prohibitions on invasive aquatic plants. These individuals include uniformed officers of the State as well as 80K certified DEP staff and municipal code enforcement officers. This means that state police, DIF&W Wardens, county and municipal police officers have the discretionary authority to enforce this law. The intent and warning provisions in the law put the law at a competitive disadvantage when officers weigh the many competing statutes for enforcement. Specifically :

- Proof of intent to violate this law is almost impossible, so law enforcement officers and prosecutors are less likely to enforce laws that rely on proof of intent. Proof of intent is not necessary for civil violations.
- The mandatory warnings further weaken the law because there is no statewide warning tracking system. An officer will not know whether a person had received a previous warning unless that officer had issued the previous warning.
- Prosecutors are less likely to prosecute laws with very low penalties and fines. The level of fines equates to a de facto priority rating for prosecutors with limited time and budgets.
- The penalty structure needs to be commensurate with the potential damage caused to lakes and rivers by invasive aquatic plants. Once established, IAS can reduce shorefront property values, limit recreational use, degrade fish habitat, and be costly to eradicate or contain. Their presence may require management activities with an ongoing cost to residents.

To strengthen the likelihood that this law will be enforced the work group recommends MRSA 38:419-C be altered:

1) Remove the intent portions of the law.
2) Replace the current warning system with a provision that warnings will be issued for violations during the first two years of the law. This warning period should be adequate for

an intensive education campaign to alert people to the existence of the law and the threat posed by these plants. Law enforcement officers will still have the discretionary power to continue to issue warnings after this 2 year period.

3) Increase the penalties to an upper limit of at least $1,500.00, a level more commensurate with the risk to lake resources and one that may attract the time and attention of prosecutors working for the local District Attorney or Maine's Attorney General.

Effective enforcement requires the leaders in the law enforcement community to understand the need to prevent the transport of IAS, so they will encourage their officers to enforce this law and promote public awareness.

B. Commercial Enterprises.

A number of commercial enterprises have the opportunity and potential to import some of the listed aquatic plant species from out of state distributors. Because IAS species are not nationally restricted, commercial landscape nurseries and garden centers may unwittingly stock water garden plants, of the listed MRSA 38:419-C species. Likewise, pet stores may stock some of the listed IAS fish and animal species and are known to often sell invasive plants. Listed plants for both water gardens and aquariums may also be unwittingly purchased through mail order, online, or through advertisements in trade publications. The DAFRR has inspection programs for nurseries and pet stores statewide and is willing to look for IAS plants while doing routine inspections. When a listed plant species is identified, the inspectors will inform the business to properly dispose of the species, if the business will not comply, then a game warden or DEP Enforcement Staff may initiate the civil penalties process.

Bait dealers are prohibited from importing bait fish species, but do move capture nets between state waters and may inadvertently transfer IAS populations amongst lakes. One recent colonization of a listed plant may have occurred through bait fishing activity. Although a very small risk, aquatic weeds may be distributed to customers via bait tanks. DIF&W annually issues bait fishing retail and wholesale licenses and these operations are sometimes inspected by game wardens and fishery biologists.

To prevent these potential sources of invasive species from reaching state waters the following items should be implemented:

- Negotiate a "Memorandum of Understanding" between DEP, DAFRR and DIF&W to formalize inspection agreements and responsibilities.
- Train inspectors, game wardens, and DEP enforcement staff to recognize listed species and

alert commercial enterprises if they possess them. Inform the business to properly dispose of the listed species or face civil penalties.

- Send out literature describing the prohibitions in MRSA 38:419-C when annual licenses are issued. Send direct mail to enterprises that are not licensed for operation.
- Inform major out of state distributors of aquatic plants of Maine's prohibitions in MRSA 38:419-C.
- Consider closure or limitation of bait fishing activities in infested waters.

V. "The status of cooperation from other state agencies in educating the public about invasive aquatic species."

While all state agencies are willing to cooperate with public education on IAS, few have programs or resources that at this time target public education on invasives. Those that are engaging in public education at this time have done so without specific programs or resources. In order for agencies to devote more resources to public education on invasives, agency leadership will need to communicate the importance of advancing the issue. Most agencies have existing avenues that could be appropriately utilized for the task of educating the public, and for educating relevant trades and professions.

Maine Department of Environmental Protection.

DEP has been actively involved in IAS work for many years. Beginning in the 1980's, DEP published articles that raised concerns over invasive and exotic aquatic plants. Since 1997 the DEP has collaborated with the VLMP to develop a number of educational materials (boat ramp signs, brochures, road signs, educational packets and a slide presentation) designed to prevent the introduction of IAS. The funding for these projects came from a variety of sources, including a Maine Outdoor Heritage Fund grant and whatever state resources could be used for matching funds. The MOHF grant was a short-term source and will not repeatedly fund these projects in the future. Given current resources, DEP is not able to meet the new demands for educational and technical assistance from the public and other state agencies that is generated by MRSA 38:419-C.

The DEP's involvement in public education includes:

- Collaborated with other organizations in the design of the uniform informative brochure "Warning Boaters." These brochures are intended to inform boaters and the public about the preventive measures they need to take to avoid the spread of invasive aquatic species.
- Printed 120,000 of these brochures and distributed them to various agencies and organizations including, the Volunteer Lake Monitoring Program, the Lakes Environmental

Association, the Congress of Lakes Associations, Maine Turnpike Authority, etc.

- Collaborated with the VLMP and DOT to develop road signs to be placed on the major highway entrances to Maine.
- Developed a website that disseminates information regarding IAS plants in Maine.
- Produced a 30-second television Public Service Announcement featuring "Cliff" from Cheers. This PSA was distributed to twelve TV stations, including every commercial channel and the major cable channels. The exact amount of airtime this PSA received is not known and it will be redistributed in the spring of 2001.
- Staffed information booths at the Maine Sportsmen Show, Bangor Home Show and the annual Congress of Lakes Associations meeting.

Maine Department of Inland Fisheries and Wildlife.

The Department of Inland Fisheries and Wildlife has placed about 20 informative metal signs at their boat launches. Currently, DIF&W maintains a web page that provides information about IAS species and has developed a presentation on the threats from Whirling Disease, a potentially damaging and invasive trout disease. In addition, the natural science educator at DIF&W has been introducing the subject of invasive aquatic plants when conducting training sessions for K-12 teachers involved in the "Aquatic Project Wild" program. The program has introduced the subject to approximately 400 teachers. In the future, the DIF&W would be able to accomplish the following measures with regards to public education:

- Include information on invasives in their fishing regulation booklet
- Give presentation on invasives at annual bass tournament functions
- Distribute "Warning Boaters" brochure with bass tournament permits, with boat registrations distributed at DIF&W offices, and to Wardens and Regional staff
- Encourage town offices to include brochures when they distribute boat registrations

Since 1990 DIF&W has spent $13,000 to reclaim public waters or remove illegally introduced non-native invasive fish species. Last year DIF&W conducted 10 reclamations, 7 of those were to remove goldfish populations, which will dominate all available fishery habitat in a pond.

DIF&W's wildlife division has a Habitat Group with training and skills that could be utilized for IAS prevention efforts. In addition, DIF&W currently has a number of ongoing activities designed to control the spread of non-plant related IAS. DIF&W has a management plan for smallmouth bass, *Micropterus dolomieui*, especially in waters managed for native salmonids. DIF& W also

maintains a fish health laboratory that routinely screens all state fish hatcheries for serious fish pathogens, screens feral fish populations for exotic diseases, oversees importations of fishes for culture, and identifies exotic fish and aquatic organisms captured. DIF&W issues permits for all intrastate fish movements public and private if the fish are to be released into the waters of Maine. DIF&W also controls the importation and movement of all wildlife species.

Maine Department of Transportation and Maine Turnpike Authority.

The Department of Transportation and the Maine Turnpike Authority have, over the summer of 2000, started a public education effort which included:

- A public service announcement on MTA's radio station, 1610 AM. This PSA ran around the clock for several weeks in mid-summer and now often runs intermittently as airtime permits.
- All turnpike troopers have received education on the subject, are aware of the new legislation, and been given copies of the standardized "Warning Boaters" brochure to pass out to drivers trailing boats.
- The tollbooths on the Maine Turnpike have distributed approximately 20,000 of the "Warning Boaters" brochures to motorists trailing boats.

Maine Department of Conservation.

The Department of Conservation has placed informative metal signs at all of their 53 freshwater boat launches. They have back-up signs should any of these signs be removed, and are, as a department, considering other ways in which they could become involved.

Maine Department of Agriculture, Food and Rural Resources.

The DAFRR Board of Pesticides Control has continuing education programs for all licensed commercial pesticide applicators in the aquatic pesticide application category and will include a section on invasive aquatic plants in the training curriculum. Prospective licensees must successfully complete an aquatic pesticide specific "category" exam, which includes questions based on self-study available through the University of Maine Cooperative Extension, Pest Management Office. The study materials will include information on invasive aquatic species and their management. DAFRR has begun the process of educating all licensed applicators of aquatic herbicides and has conducted a seminar that covered the issue of invasive aquatic plants. The Board of Pesticides Control works with master gardeners and will be educating them on the IAS issue. Finally, the Board of Pesticides

Control monitors the sales of aquatic herbicides and will be able to determine if private citizens begin purchasing them in greater quantities. This would indicate an increase in problems with aquatic plant species and also a corresponding increase in illegal application.

DAFRR has no formal public education programs dealing solely with invasive plants in place at this time. The future role of DAFRR will include the education about invasive aquatic plants to the garden, nursery and pet industries. Brochures about illegal invasive aquatic plants were recently sent out with pet store licenses.

Maine Department of Human Services.

The DHS has no public education programs that include information on IAS at this time. They do consider it important to assess threats to Maine's drinking water supplies and educate the public about these threats. The DHS predicts that they will include the topic of invasive aquatics in future structured outreach programs. These outreach programs currently target the 45-50 lakes in Maine that serve as drinking water supplies, but will be broadened to include drinking water source watershed residents, local governments and other drinking water stakeholders. In the interim, DEP can provide educational materials for inclusion in the DHS program.

University of Maine.

The George Mitchell Center (formerly Water Resources Institute) has no formal public education program for invasive aquatics at this time. Their Web-based lakes database "PEARL" (Public Access to Educational Resources on Lakes, http://pearl.spatial.maine.edu) , which will soon include the location of lakes with invasive aquatics, and Project WET (Water Education for Teachers) would provide opportunities for environmental education on exotics and IAS. The Center is willing to become more involved in the future in ways that will complement the roles of the DEP, VLMP and other cooperators. Using the PEARL website (http://pearl.spatial.maine.edu), the Mitchell Center could be a data repository for the tracking of invasive aquatic species and the watersheds most at risk.

VI. "Recommendations for necessary funding to support the prevention and control of invasive aquatic species."

The challenge to develop an effective, statewide, comprehensive, approach to prevent the introduction and spread of IAS is beyond the scope of existing DEP and DIF&W staffing levels and funding. Since 1997, the DEP, VLMP and local cooperators have expended approximately $150,000 to begin modest efforts on this problem. Some of this funding has been from local sources, but much of it has been from one-time grants. While the State should continue to make the most of opportunities for federal grants and local participation, there needs to be at least a minimal level of ongoing funding to deal with the issue effectively and to leverage outside funding sources. The estimated annual costs to operate a program amount to $185,000.

If these additional funds were available , the workgroup recommends implementing the following priority recommendations:

- Coordination: Experience over the last three years has shown that a full time professional is needed to adequately focus on the broad array of required tasks, maximize opportunities for tie-in to other programs, and pursue federal and other grants. The work group recommends there be a coordinator to achieve the objectives outlined in this report. The person would: develop a statewide Aquatic Nuisance Species Management Plan, develop and implement lake survey techniques, develop protocols for rapid response and maintenance programs, oversee the distribution of education and outreach funds, administer community grant funds, stimulate ongoing inter-agency activities and coordinate a permanent Invasive Species Committee.

- Seasonal Help: Maintaining signage at launch ramps, performing needed monitoring activities including reconnaissance of new invasive reports and training of volunteer weed watchers, and distributing educational materials.

- Community Grants: Several communities have already begun pilot projects such as placing staff at boat ramps encouraging voluntary inspections of boats. In other instances, towns and lake associations have attempted prevention and control projects and have pursued private funding and grants. Providing for cooperatively- funded local projects offers opportunities to multiply resources targeted for projects.

- Contracted Services: Education and outreach requires extensive time and expertise in the effective use of the media and reaching specialized audiences. Also required is the development of refined educational tools such as brochures, website postings, better signage, and communicating with local groups, service organizations and schools. The need for contracted services will be particularly great in the first two years of the project, especially during the time the federal and private grant funds are being pursued.

- Education and Outreach: Funding primarily for targeted media work and development of videos for volunteer monitor training, community action projects, training aquatic pesticide applicators and general education.
- Printing: Continued support for printing of brochures, inserts/flyers for inclusion with fishing licenses etc, and training materials for volunteers. For example, the Maine Turnpike Authority will hand out more than 25,000 brochures each summer season to out-of–state boaters entering Maine.
- Signs and Kiosks: Maintenance of signage and improved, high visibility kiosks at lakes most likely to be infested will continue to put the message where it is needed most.
- Strategic Surveys: Waters most at risk for infestations need to be identified and surveyed for the presence of invasive species or habitats most likely to be disrupted. New reports of invasive species must be quickly verified if early response will remain an option.
- Weed Watchers: Other states have had good results multiplying state efforts by training and equipping volunteers to perform routine inspections for IAS in their regions. Funds here are primarily for materials and equipment.
- Rapid Response Fund: Eradication projects will require prompt action, particularly in the first season an infestation is discovered. These funds would underwrite costs of contracted services such as Licensed Pesticide Applicators or contractors with bottom barriers or weed removal equipment. The Program Coordinator would be responsible for development of contingency plans for attempted eradication efforts, including pre-qualifying contractors and locating sources of equipment and services.

This is an ambitious program and the work group acknowledges it presents a fiscal as well as an ecological challenge to the State of Maine. Fully funding this program will raise Maine's prospects of avoiding the conflicts; decreased property values and recreational degradation associated with established IAS populations. The plants are at our border; New Hampshire, Vermont, Massachusetts, and Connecticut have hundreds of infested lakes already. These states have multiple staff positions in their environmental agencies dedicated solely to addressing this issue and annually spend several hundred thousand dollars in state and local funds. The demand for a program in Maine will likely exceed demand for water quality protection if invasive aquatic plants become a large-scale problem here and at a cost that will greatly exceed the investment in prevention and containment outlined in this report.

We have a unique opportunity in Maine to prevent the degradation of our aquatic ecosystems by preventing the introduction of invasive and exotic species. The challenge is whether or not Maine will invest in the future by pursuing the path of aggressive prevention when faced with a potentially huge problem, rather than an existing crisis.

TIMELINE OF REPORT

April 2000	38 MRSA§419-C passed into law.
July 14, 2000	1st meeting of Invasive Aquatic Species work group.
August 8, 2000	Work group meeting
September 21, 2000	Work group meeting
November 15, 2000	1st draft of Invasive Aquatic Species Report
November 22, 2000	2nd draft of Invasive Aquatic Species Report
December 6, 2000	3rd draft of Invasive Aquatic Species Report
December 20, 2000	Beginning of public comment period.
January 8, 2001	End public comment period.
January 10, 2001	Work group meeting
January 15, 2001	Report due to 120th Legislature.

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Glassner-Shwayder, K. 1996. A model comprehensive state management plan for the prevention and control of nonindigenous aquatic nuisance species. Environmental Quality and Resource Management Program, Great Lakes Commission Ann Arbor, Michigan.

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Addendum # 1

CHAPTER 722
H.P. 1843 - L.D. 2581

An Act to Prevent the Spread of Invasive Aquatic Plants

Emergency preamble. Whereas, Acts of the Legislature do not become effective until 90 days after adjournment unless enacted as emergencies; and

Whereas, invasive aquatic plants present an imminent threat to state waters; and

Whereas, it is important to prevent the transport of invasive aquatic plants into the State on boats and trailers because eradication is nearly impossible once an infestation occurs; and

Whereas, the summer boating season will begin prior to 90 days after adjournment; and

Whereas, in the judgment of the Legislature, these facts create an emergency within the meaning of the Constitution of Maine and require the following legislation as immediately necessary for the preservation of the public peace, health and safety; now, therefore,

Be it enacted by the People of the State of Maine as follows:

Sec. 1. 38 MRSA §410-N is enacted to read:

§410-N. Aquatic nuisance species control

1. Definitions. As used in this section and section 419-C, unless the context otherwise indicates, the following terms have the following meanings.

A. "Aquatic plant" means a vascular plant species that requires a permanently flooded freshwater habitat.

B. "Invasive aquatic plant" means a species identified by the department through rulemaking as an invasive aquatic plant or one of the following species:

(1) Eurasian water milfoil, Myriophyllum spicatum;

(2) Variable-leaf water milfoil, Myriophyllum heterophyllum;

(3) Parrot feather, Myriophyllum aquaticum;

(4) Water chestnut, Trapa natans;

(5) Hydrilla, Hydrilla verticillata;

(6) Fanwort, Cabomba caroliniana;

(7) Curly pondweed, Potamogeton crispus;

(8) European naiad, Najas minor;

(9) Brazilian elodea, Egeria densa;

(10) Frogbit, Hydrocharis morsus-ranae; and

(11) Yellow floating heart, Nymphoides peltata.

Rules adopted pursuant to this paragraph are routine technical rules as defined in Title 5, chapter 375, subchapter II-A.

2. Education. The department shall prepare educational materials that inform the public about problems associated with invasive aquatic plants, how to identify invasive aquatic plants, why it is important to prevent the transportation of aquatic plants and the prohibitions relating to aquatic plants contained in section 419-C. The department shall make the materials available to municipalities, lake associations, water quality monitors, law enforcement agents, businesses that sell aquatic plants in the State and other interested individuals.

A. The department shall provide signs for installation at all state boat launch facilities on fresh waters informing
the public about the prohibition of aquatic plant transportation on boats and trailers and may provide these signs, as available funds allow, for installation at other boat launch sites including municipal boat launch facilities, campground boat launch facilities and other commonly used launch sites.

B. The department shall work with the Department of Transportation and the Maine Turnpike Authority to provide signs and educational materials on all major roads at the State's borders advising incoming boat owners that state law requires all boats and trailers to be free of aquatic plant material.

3. Control. The department shall investigate and document the occurrence of invasive aquatic plants in state waters and may undertake activities to control invasive aquatic plant populations as follows.

A. The department or a person designated by the department may attempt eradication of an invasive aquatic plant from a water body if determined feasible by the department. If the commissioner determines that eradication activities must be undertaken immediately, a license is not required under section 413 or section 480-C for the use of a physical, chemical or biological control material by the department or a person designated by the department if the use of the control material is specifically related to the immediate eradication of invasive aquatic plant populations in the water body. Prior to undertaking an eradication activity and to the extent practical, the department shall notify landowners whose property is adjacent to the area where the activity will be undertaken.

B. The department may conduct research to test new control methods for the eradication of invasive aquatic plants pursuant to section 362-A.

Sec. 2. 38 MRSA §419-C is enacted to read:

§419-C. Prevention of the spread of invasive aquatic plants

1. Prohibition. A person may not:

A. Transport any aquatic plant or parts of any aquatic plant, including roots, rhizomes, stems, leaves or seeds, on the outside of a vehicle, boat, personal watercraft, boat trailer or other equipment on a public road;

B. Possess, import, cultivate, transport or distribute any invasive aquatic plant or parts of any invasive aquatic plant, including roots, rhizomes, stems, leaves or seeds, in a manner that could cause the plant to get into any state waters; or

C. After September 1, 2000, sell or offer for sale in this State any invasive aquatic plant.

2. Penalty. A person who intentionally violates this section commits a civil violation for which a warning may be issued for the first violation, a forfeiture not to exceed $50 may be adjudged for the 2nd violation and a forfeiture not to exceed $500 may be adjudged for a subsequent violation.

Sec. 3. Report; invasive aquatic species control. The Department of Environmental Protection and the Department of Inland Fisheries and Wildlife shall jointly submit a report on invasive aquatic species control, including recommendations and implementing legislation, to the joint standing committees of the Legislature having jurisdiction over natural resources matters and inland fisheries matters by January 15, 2001. The report must address at least the following:

1. Identification of other biological threats to the State's waters including invasive animal species that may become a nuisance;

2. Further education, awareness and prevention efforts needed to stop the introduction and spread of invasive species;

3. Methods to control the spread of invasive species should any become established in the State, including quarantine authority;

4. Enforcement of the prohibitions in the Maine Revised Statutes, Title 38, section 419-C;

5. The status of cooperation from other state agencies in educating the public about invasive aquatic species; and

6. Recommendations for necessary funding to support the prevention and control of invasive aquatic species.

In preparing the report, the departments shall consult with interested parties, including representatives of the following: the Maine Volunteer Lake Monitoring Program, lake associations, lakeshore owners, boat owners, sporting interests, business interests, marina owners, campground owners, environmental organizations, other state or federal agencies and interested agencies in neighboring states and provinces. The joint standing committee of the Legislature having jurisdiction over natural resources matters is authorized to report out a bill concerning invasive aquatic species control to the First Regular Session of the 120th Legislature.

Emergency clause. In view of the emergency cited in the preamble, this Act takes effect when approved.

Addendum # 2
Access Management Authority ("Quarantine")

BACKGROUND:

LD 2581 requires the Departments of Environmental Protection and Inland Fisheries and Wildlife to report to the joint standing committees of the Legislature having jurisdiction over natural resources matters and inland fisheries matters. The report is to deal with invasive aquatic species control, including methods to control the spread of invasive species should any become established in the State, including the use of "quarantine authority". This Addendum provides some background on the use of quarantine authority in Maine and elsewhere. It also contains a recommended option for limited state actions in this area as developed by the Workgroup.

The concept of "quarantine" can include options ranging from complete exclusion of surface use on a waterbody to access management designed to deal with infestations in a manner balancing both the demand for recreational access and protecting the environment on which recreation depends. How could this work in Maine? Should quarantine authority apply to access points, entire water bodies, or limited areas? How long would these measures last? What authority, if any, does/should a municipality have? Can or should an infected area be buoyed off? Who should do this? What standards apply? What are other states doing?

The concept here is that if a water body becomes infested with an invasive aquatic species, the infestation may spread to other parts of the infested water body or to other water bodies unless some action is taken to control the spread. One possible method of control is to have an agency prohibit certain activities on certain water bodies or parts thereof (quarantining) to minimize disturbance of an infestation and the risk of its being spread by attachment to water craft, fishing tackle, in bait buckets, etc.

There are several approaches that have been used to restrict use of water bodies in other states. One approach is to isolate a defined portion of an infested water body and prohibit activity in that area which might spread the infestation. A second approach is to close off the entire water body. A third approach is to close water bodies, found to be clear of infestation, to access by users who, for example, do not keep their boats on this water body on a permanent basis, or who have not cleaned their boats in a prescribed manner.

WHAT OTHER STATES ARE DOING

Minnesota, Iowa and New Hampshire have laws that vary significantly in this matter. The Iowa law (RSA TITLE XI, 456A.37, enacted 1996) is specific to Eurasian water milfoil. It requires the Department of Natural Resources to identify and post infested water bodies and allows the DNR to prohibit boating, fishing, swimming, and trapping in such water bodies.

The Minnesota law (Section 84, various, enacted 1998) allows the Commissioner of the Department of Natural Resources to establish a list of harmful exotic species, to designate water bodies with infestations of harmful exotic species, and to regulate certain activities (e.g., taking bait, sport gill netting certain fish, commercial fishing and transportation and appropriation of water from infested water bodies). Until 1999, Minnesota allowed the DNR to designate "limited area Eurasian milfoil" infestations and to prohibit entry into these areas. This provision was eliminated because the regulations proved difficult to enforce, confusing to boaters and lake residents, and of questionable value in preventing the spread of Eurasian milfoil. The State still allows entire water bodies to be designated as infested.

The New Hampshire law (RSA 487:17, enacted September 1998) requires the Department of Environmental Services, in consultation with the Department of Fish & Game and the Division of Safety Services, Department of Safety to designate "restricted use of exotic aquatic weed control areas". The NH DES administrative rules implementing this law (Chapter Env-Ws 1300) has the commissioner of DES, in consultation, designating as "restricted use areas" any areas that contain new limited infestations of exotic aquatic weeds, and to post these areas with signs and buoys. These areas shall remain in place until the areas are no longer infested or three years. After three years, the areas will either be de-listed or the listing period extended. The rules also allow municipalities to mark "restricted use areas" on municipal water supplies with Department approval. The rules also prohibit the entering of "restricted use areas" by people or equipment. If an infestation occurs at an access point, a bottom barrier (a fabric that is anchored to the bottom and which kills existing, and prevents additional plant growth by blocking sunlight) shall be used to prevent spread of the infestation, but the access point shall be left open.

A Department of Natural Resources staff person reports that some lakes in Maryland that are clear of invasives have been closed to outside access; a sort of reverse quarantine. However, most lakes in Maryland are small, man-made, and privately owned. A search of the state's web page revealed no such legislative law, however, it may be a matter of case law. Supposedly, to gain access to one of these quarantined lakes, a person must keep his/her boat at that lake or clean it and let it sit for a number of days before being allowed to launch it into the lake.

The Great Lakes Panel on Aquatic Nuisance Species (a panel working under the aegis of the Great Lakes Commission, Ann Arbor, Michigan) has prepared, "A Model Comprehensive State Management Plan for the Prevention and Control of Nonindigenous Aquatic Nuisance Species, January 1996" and "Legislation, Regulation and Policy for the Prevention and Control of Nonindigenous Aquatic Nuisance Species, June 1999" for use by Great Lakes states and others. The model plan was designed to give Great Lakes states guidance in preparing comprehensive state management plans under Section 1204 of the federal *Nonindigenous Aquatic Nuisance Prevention and Control Act* (PL 101-646). The panel's proposed legislation was prepared to advance interjurisdictional consistency for the prevention and control of nonindigenous aquatic nuisance species. It would give the Commissioner of the appropriate agency the authority to designate infested waters and the authority to prohibit and regulate activities on these lakes, including the authority to close them to access and related recreational and commercial activities for an indefinite period of time.

HAVE THESE LAWS BEEN EFFECTIVE?

These laws, rules, and models have only been around for one to four years. Little history exists therefore to measure their efficacy in controlling the spread of invasives.

As mentioned above, the effectiveness of the limited Eurasian watermilfoil area restrictions in Minnesota was questionable enough to have the one-year-old regulation changed to eliminate that provision. Literature seems to support the belief that, at least for Eurasian watermilfoil, keeping traffic out of an infested area may not be sufficient to keep the infestation from spreading. According to technical information published on the State of Washington's web site, "...vegetative spread (of Eurasian watermilfoil) is considered the major method of reproduction. During the growing season, the plant undergoes autofragmentation. Fragments are also produced by wind and wave action and boating activities, with each fragment having the potential to develop into a new plant."

Quarantining invasive-free water bodies to prohibit access by boaters who have launched on other, potentially infested, water bodies may work in a state with few, mostly small, mostly privately owned lakes, like Maryland. It is doubtful this approach would be effective in a state like Maine with thousands of publicly-accessible water bodies, many of which are quite large. In addition to monitoring and controlling high use access points such as public and private boat ramps, it would also be necessary to control all individual access points at numerous cabin sites around each lake to ensure that water craft from foreign water bodies did not enter the quarantined water body.

MAINE LAW

The Maine Department of Conservation has no authority to close a water body or any part of a water body. Since the DOC manages State-owned access points on certain water bodies, it is conceivable that the DOC could, with necessary authority and with good cause, close such points to the public[1]. There is concern that permanent closure of boat ramps financed in whole or in part with federal funds might trigger a requirement that those fund be reimbursed to the federal government if the facilities will no longer serve the intended function.

The Maine Department of Inland Fisheries and Wildlife does have the authority to regulate public use of department owned or maintained sites that provide public access to public waters under Title 12, 7653. This authority was intended to regulate camping, fires, swimming, loitering, etc. and probably not intended to prohibit use or close a facility. DIF&W does not regulate the use of personal watercraft upon the request of municipalities. DIF&W receives these requests and forwards them to the legislature with recommendations and then the municipal proposals are considered by the legislature for enactment. As in the case of DOC, DIF&W manages some State-owned access points and could possibly close them to the public, if clear

1. The workgroup recommends that the legislature revise Title 12, Section 1895 to allow for limited duration closures for state-owned, public boat ramps.

authority was granted by the legislature. This might also require establishing authority by regulation to define the process by which the Department can close facilities. Likewise, there is concern that closure of boat ramps financed in whole or in part with federal funds might trigger a requirement that those fund be reimbursed to the federal government if the facilities will no longer serve the intended function.

The Maine Department of Environmental Protection has no authority to close a water body or any part of a water body.

The Maine Department of Human Services has no authority to close any water body or part thereof except for limited authority to close public beaches for health and sanitation reasons. They may encourage municipalities and water utilities, which they regulate, to take action as described below.

Municipalities, after notice and public hearing, may adopt regulations governing the surface uses of sources of public water supply, portions thereof or land overlying ground water aquifers and their recharge areas used as sources of public water supply that are located within that municipality in order to protect the quality of such sources of public water supply and the health, safety and welfare of persons dependent upon such supplies. (Title 22, § 2642) It is questionable whether a municipality could use this authority to close part or all of a water body to boating, fishing, or other activity, due simply to concern that the water body might become infested with invasive plant species. It would seem that the municipality would have to demonstrate that the risk of infestation might reasonably adversely affect the quality of the water supply. It is likely the municipality would need to ban all such activity (e.g., all boating), or demonstrate that adequate management of the risk to the water quality could be managed by restricting some activity (e.g., access by nonresident boats). Also, any water utility or municipality is authorized, after consultation with the Commissioner of Inland Fisheries and Wildlife, the department (of Human Services) and the Department of Conservation and after conducting a public hearing in the affected town, to designate by buoys in water or markers on the ice in an area on a lake or pond from which water is taken, with a radius commencing at its point of intake. The radius may not exceed 400 feet and within that area a person may not anchor or moor a boat or carry on ice fishing or carry on any other activity designated by the water utility or municipality when such restriction is necessary to comply with primary or secondary drinking water regulations applicable to public water systems. (Title 22, § 2648) This authority would obviously be of little help to a community trying to prevent the spread of an invasive plant species.

The State Attorney General's Office reviewed this report and advised that they knew of no existing law that would allow this problem to be effectively dealt with by way of quarantine or reverse quarantine (as described above). If the Legislature wishes to set up such a program, he suggests it should consider special legislation rather than trying to do something under existing legal authorities. He does not recommend doing this through municipalities because, among other reasons, many lakes span municipal boundaries.

PROPOSED OPTION FOR ACCESS MANAGEMENT

The Workgroup on invasive aquatic species has reviewed the following proposal as an option for limited state intervention in the event of an invasive plant being established in a lake. It primarily focuses on management of state- controlled facilities, although any action taken will also need to consider the degree to which other public access points can affect the usefulness of restricting a state boating facility. Where access points are controlled by municipalities, commercial, or private entities, the State would have to elicit cooperation from that entity. It is envisioned that the coordinator's position recommended in this report would be responsible for coordinating much of the process outlined here. While the current proposal deals with access management, the integrated response plan needs to evaluate potential for early eradication of an invasive population. If that is not feasible, other management techniques, such as bottom barriers near access points, marked passage lanes, selected harvesting and suppression, or inspection of boats at launch facilities may be alternatives or long-term closures.

When an infestation is suspected, the DEP would:

a) confirm that one or more of the species defined as invasive under Section 410 has established a population in a specific lake
b) determine the species, location, and extent of the established populations
c) determine if there are feasible control measures appropriate to the situation

I) Temporary Closures:

After consultation among the Commissioners of DEP, DOC and IFW, the department (DOC or IFW) which controls a ramp could temporarily close the facility for a period of up to 120 days for the purposes of developing an integrated response plan to deal with the infestation. In imposing the closure, the Commissioner of the Department controlling the facility must consider:

a) the potential for the boats to come into contact with specific plant population(s)
b) the risk that plant fragments will be transported from the lake by boats.
c) the number and nature of other access points on the lake which will affect the benefits derived from a closure.
d) alternative measures which would lessen the potential for export of plant material from the ramp site

The Department must inform affected municipalities and local residents of the potential for closure and allow at least 14 days after public notice before ordering a closure.

The response plan may include recommended measures for eradication of the invasive population(s) or other management activities to reduce the potential for transport of the invasive species out of the lake via boats launched from the access point. Measures should also include efforts to minimize spread via private launch ramps, including marina and other commercial ramps. The plan should include estimated costs and responsibilities of various agencies and local participants as well as a time line for implementation.

II) Indefinite/Provisional Closure or Relocation:

As part of an integrated response plan, the Commissioner of the appropriate agency may order the indefinite closure, or provisional closure (e.g. limited as to time period or conditions) of a state owned boat ramp after considering factors identified above and:

a) the degree to which ongoing management efforts could reduce the potential for spread,
b) the availability of alternatives for public access both in the specific lake and to alternative lakes in the nearby region
c) the degree of threat posed to regional waters by the infestation, including the potential for regional lakes to support nuisance levels populations of invasive species (e.g. degree and use of developed access point on those lakes, habitat availability..).
d) the potential for loss of recreational and fishery opportunities with and without the closure
e) establishing a mechanism for requesting the reopening of a boat ramp upon demonstrating the elimination of the invasive species from the water body or the acceptable restoration of the water body.

III) Public Notice and Participation for Permanent/Provisional Closures

Proposals for closures or re-location of ramps would allow for at least 30 days public notice and comment period before a decision is made. Provision would also be made for discussion, including at least one public meeting in the locality of the facility in question.

IV) Non-State Boat Ramps

The Commissioner of DEP may request the cooperation of municipalities, operators of commercial launch ramps, lake associations, or similar entities to participate in an integrated response plan.

V) New Launch Facilities on Infested Waters

The Department may deny permits for new public or private facilities on lakes it has determined to be infested with invasive plants. Before issuing a permit on such a water, the Department, in consultation with IFW and DOC, will consider the nature and location of the proposed facility, its proposed use, and the likelihood of spread of the invasive plant(s) either within the lake and to other waterbodies.