

Solving Human-Beaver Conflicts

Practical Solutions for
Local Health Officials and
Conservation Commissioners

Provided by
Massachusetts Society for the
Prevention of Cruelty to Animals
350 South Huntington Avenue
Boston, MA 02130
617-522-7400

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Introduction

As you are probably well aware, when beavers and humans come into contact problems can and do occur, most notably with flooding caused by beaver damming activity and tree destruction or damage from gnawing. In July 2000, changes to the law in Massachusetts about human-beaver conflicts impacted you and we want to assist you with understanding what these changes mean and what is available to you to help you do your job. The Massachusetts Society for the Prevention of Cruelty to Animals (MSPCA) has been involved in this issue for many years and this guide includes current information on the legal and practical aspects of resolving human-beaver conflicts in a long-term, cost-effective manner.

The most important piece of information for you to know is that *there are places for you to turn for help with beaver problems* and that *the problems you are facing do have long-term, effective solutions!*

The MSPCA's Commitment: Living With Wildlife

The MSPCA has been working in communities across the Commonwealth for many years, providing information to cities and towns about effective beaver problem management. We understand that local authorities have not always found it easy to secure the assistance they've needed for addressing these serious problems; we are here as a resource. The MSPCA has worked with countless cities and towns to solve beaver problems and we have experienced staff who can assist you with practical and procedural questions, not only about how to effectively resolve problems, but also about working within the law. We can steer you in the right direction and tell you where to find the right resources for solving your problem. (See "Resources"). We hope that you find this information useful and encourage you to contact us for advice about real solutions to human-beaver conflicts in your city or town.

Beavers and Public Health Officials

Changes to state law have an impact on local public health officials. Under these changes, local health officials must respond to requests from the public to determine whether or not specific beaver activity poses a threat to public health and safety. **The law makes suggestions about what may constitute such a threat, but it is up to each health official to decide whether the threat is real or not.** The Massachusetts Department of Public Health (DPH) has written guidelines to assist local boards of health with determining whether or not beaver activity poses a real threat to human health and safety; these guidelines are included in this guide under "DPH." This guide also provides some general information on Giardia (see "Giardia"), and can help steer

health officials to the appropriate resources for solving beaver problems should they find a real threat to the public's health.

If local health officials determine that there *isn't* a threat to public health or safety, this doesn't mean that the person seeking assistance is without options. They can still install water flow devices, breach dams, or trap beavers, under different conditions, which are outlined within the last three paragraphs of the law (see "The Law"). What local health officials can do is provide people with the resources, so that they have someone to turn to for assistance.

Please note that the Department of Environmental Protection (DEP) shall make any determination of a threat to a public water supply. This is not the responsibility of local health officials. The DEP's recommendations to water authorities are included in this manual under "DEP."

Beavers and Conservation Commissioners

As Massachusetts' conservation commissioners well know, beavers are important creators of wetlands. When these wetlands are in urban and suburban areas, flooding and tree damage caused by beavers can have a negative impact on people, and managing these problems with a specific concern for wetland preservation is imperative. Under old and new laws, breaching beaver dams is subject to the approval of local conservation commissioners (see "The Law"). Under the old law, both conservation commissioners and the state Division of Fisheries and Wildlife (MassWildlife) had to approve any dam breaching before it could take place and, in practice, this often meant that conservation commissioners were able to rely on the determination by MassWildlife and approve MassWildlife's recommendation. Now, in cases of threats to public health or safety as determined by local health officials, conservation commissioners alone have that authority. All other situations that do not involve a health threat still need the approval of both MassWildlife and local conservation commissioners.

I. Methods for Solving Beaver Conflicts

As public officials assigned to assist people with finding solutions to beaver problems, it is important for you to understand not only what resources are available to you and what is legally allowed, but also what people coming to you for help are experiencing and expecting. By the time someone approaches a local official for help with a problem, the flooding has often already occurred, and people are anxious for quick solutions. They are often angry about the damage, afraid that the flooding could endanger their health, and, in our experience, frustrated because they've not been able to find good assistance and advice. The MSPCA has worked with countless cities and towns and private property owners who are under the mistaken impression that statutory changes have left them without any options for dealing with beaver damage. **This is simply not true.**

Here's what can legally be done: construct water flow devices, breach beaver dams, and trap and remove beaver.

1. Construct Water Flow Devices

Called beaver deceivers, flexible pond levelers, water flow devices, and beaver bafflers, these pipe and fencing systems are designed to regulate water levels and control damming that could result in flooding. The MSPCA believes that installing water flow devices to regulate water levels in wetlands is the most cost-effective, long-term, and successful solution to beaver flooding problems. When installed properly, these devices can solve beaver problems for many years with only minimal maintenance. Unlike trapping and dam breaching, water flow devices are designed to be effective for the long-term, eliminating the need for continuous and repeated trapping or dam breaching efforts. Our experience, and the experience of those with whom we've worked both inside and outside of the state, demonstrates that water flow devices are undoubtedly the preferred option. The MSPCA likes this solution not only because it's incredibly effective, but also because it protects the wetland, provides an opportunity to share the benefits of beavers and wetlands with everyone involved in solving the problem, and allows beavers and humans to co-exist without resorting to killing the animals. There are good options available to you for using water flow devices; the most important thing is to talk with someone who is experienced with these devices (see "Resources").

Water Flow Devices and the Law

Permits for building water flow devices are needed from local conservation commissioners because they are built in water, just as permits are necessary for constructing a dock or building a structure on the edge of the water. Should the installation of a water flow device require building in a beaver dam (many devices do require this), this would constitute a breaching of the dam and permission is necessary as stated below under "Breach Beaver Dam."

2. Breach Beaver Dam

Breaching a dam is the only way to effectively relieve flooding in a timely manner because it is the only thing that will lower the water level. Breaching a dam, however, is serious business because of the risk of further flooding if a dam is too severely breached and because it could endanger all the wild species depending on the impounded water for survival if the water is

drained too low. Conservation commissioners know the importance of maintaining a dam for the purpose of protecting the wetland and its inhabitants; if a dam is breached, it should be done carefully, with a small notch in the dam to allow for the slow release of water – too large a cut in the dam can cause the entire dam to give way as the water pressure builds, causing an even more serious flooding problem and subsequent draining of the wetland. If beaver currently inhabit the site, the breach should be made in the morning and should be monitored while the water recedes during the day. Beavers are nocturnal and will quickly and easily repair the breach come nightfall, so additional breaches may be necessary.

If the flooding can be tolerated until a water control device has been installed, this is the best option because the risks of further flooding or wetland damage are then eliminated. If the flooding is really causing a serious health threat, careful breaching to lower the water level is the only immediate relief available. If you are charged with breaching a dam and are not familiar with doing it, you should seek the advice of someone with more experience, as there are very strong wetland protection laws in Massachusetts with severe penalties for unauthorized breaches (see “Resources”).

It is important to understand that breaching dams is a temporary fix to flooding problems that will not solve those problems in the long run. Beavers can easily repair damage to a dam, even if the dam has been removed with a backhoe! Even if beaver are removed from the site through trapping, the wetland habitat is prime for occupation by other beavers and they will move in, rebuild the dam, and the problems will reoccur. Time and time again we have encountered the frustration of local city and town officials who have been dealing with the same problem site for many, many years. They spend countless dollars and hours repeatedly breaching dams and hiring trappers, only to find that the problems return. We recommend using water flow devices for much longer term resolutions.

Breaching Dams and the Law

Under current law, if there is an established threat to public health or safety as declared by the local health official, and that local health official has issued an emergency permit, the person receiving the permit can choose to breach a dam *and must get permission and work with the local conservation commissioners to do so.* In cases where a health or safety threat is *not* present, permission to breach must be secured from the state Division of Fisheries and Wildlife and local conservation commissioners.

Please note that because dams are so important to maintaining wetlands, unauthorized breaches can be punishable under the state Wetlands Protection Act by a fine of up to \$25,000 per day plus damages.

3. Trap Beavers

The MSPCA believes that trapping does not provide long-term solutions for human-beaver conflicts. The simple reason for this is that when beaver are removed from a wetland habitat, this habitat becomes available to other beaver who will move into the vacant territory, and the problems will begin again. It has been our experience that cities and towns that have been dealing with repeated beaver problems over many years are looking for solutions that will last, not a temporary fix such as is provided through trapping. If trapping is chosen, however, it is legal and can be done by a licensed trapper.

Many living things rely on the rich wetlands beaver create for their survival, and trapping beaver out of a wetland may cause the drainage of the wetland and the destruction of a variety of plants and animals, many of which are threatened or endangered. Removal of beaver will have a large impact on the other living things there and will radically compromise the integrity of the wetland. It is also important to consider the time of year when issuing permits to trap beaver. Beaver kits are born in mid-May and are not very active at birth; removal of adult beaver at this time may orphan the kits at an age when their survival may be tenuous because of their dependence upon the adults. For this reason, conditions may warrant that permits for particular sites need to be delayed. For more information on beaver trapping, contact the Division of Fisheries and Wildlife (see “Resources”).

Beaver Trapping and the Law*

Beaver can be trapped by a licensed trapper during the regular beaver-trapping season using box or cage traps (current trapping season runs from Nov. 1 – April 15). In cases of declared threats to public health or safety, beaver can be trapped using box, cage, or Conibear traps with an authorized emergency permit from public health officials. In cases of beaver-caused property damage where there isn't a threat to health or safety, beaver can be trapped by a licensed trapper during trapping season using box or cage traps, or with special permission from MassWildlife outside of trapping season. If box or cage traps and alternative measures like water flow devices fail to solve a flooding problem after 15 days, beaver can be trapped by a licensed trapper using a Conibear trap.

**Please note that all trappers must be licensed by the state Division of Fisheries and Wildlife and that trapping rules and regulations change periodically, so the information shown above may have been amended. For the most complete and up-to-date information on beaver trapping, contact MassWildlife (see “Resources”).*

II. Resources

Massachusetts Society for the Prevention of Cruelty to Animals (MSPCA) Advocacy Department - Living With Wildlife

Comprehensive information on resolving human-beaver conflicts

350 South Huntington Avenue
Boston, MA 02130
617-522-7400
www.livingwithwildlife.org

Linda Huebner,
Deputy Director
Phone: 617-541-5104
Fax: 617-989-1619
E-mail: lhuebner@mspca.org
Website: www.mspca.org (click on Advocacy and Wildlife)

Beaver Solutions

Water flow device installation – beaver removal

Mike Callahan, Owner
14 Mountain Road
Southampton, MA 01073
Phone: 413-527-6472
Fax: 413-527-6472
E-mail: info@beaversolutions.com
Website: www.beaversolutions.com

Beaver Deceivers, International

Water flow device installation – inventor of the “Beaver Deceiver”

Skip Lisle, Wildlife Biologist
1187 Cabell Road
Grafton, VT 05146
Phone: 802-843-1017
Email: skiplisle@vermontel.net
Website: www.beaverdeceivers.com

Integrated Wildlife Control

Water flow device installation – beaver removal

Don LaFountain and Ruth Callahan
P.O. Box 690169
Florence, MA 01062-0169
Phone: 413-586-0890
Fax: 413-584-3898
E-mail: info@integratedwildlifecontrol.com

Critter Control® of Central Massachusetts: “Urban Wildlife Management Specialists”
Water flow device installation – beaver removal

Charlie Boulmetis
20 Envelope Terrace
Worcester, MA 01604-3652
Phone: 508-757-4751
1-800-564-9600
Fax: 508-756-3309
Email: centralma@crittercontrol.com
Website: <http://www.crittercontrol.com/>

The Humane Society of the United States

Water flow device installation – serving Southwestern Massachusetts and Connecticut

Skip Hilliker, Beaver Consultant
Contact: Laura Simon
Phone: 203-393-1050
Fax: 203-393-2770
E-mail: lsimon@hsus.org
Website: www.wildneighbors.org

Massachusetts Division of Fisheries and Wildlife Regional Offices

Beaver removal, dam breaching, permits for trapping and dam breaching

Website: <http://www.mass.gov/dfwele/dfw/>

Field Headquarters
One Rabbit Hill Road
Westborough, MA 01581
Phone: 508-792-7270

Central Wildlife District
211 Temple Street
West Boylston, MA 01583
Phone: 508-835-3607

Western Wildlife District
400 Hubbard Avenue
Pittsfield, MA 01201
Phone: 413-447-9789

Northeast Wildlife District
Harris Street, Box 2086
Acton, MA 01720
Phone: 978-263-4347

Connecticut Valley Wildlife District
341 East Street
Belchertown, MA 01007
Phone: 413-323-7632

Southeast Wildlife District
195 Bournedale Road
Buzzards Bay, MA 02532
Phone: 508-759-3406

**Massachusetts Department of Public Health
Bureau of Environmental Health Assessment**

Information on beaver or muskrat related threats to human health and safety

250 Washington Street

Boston, MA 02108

Phone: 617-624-5757

Website: http://www.mass.gov/dph/environmental_health

Massachusetts Department of Environmental Protection

Guidance for conservation commissions and about public water supplies

1 Winter Street

Boston, MA 02108

Phone: 617-292-5602

Website: <http://www.mass.gov/dep/>

III. Beaver Solutions Information

Beaver Solutions Comprehensive Beaver Management in Massachusetts

Who We Are

At Beaver Solutions we specialize in resolving human / beaver conflicts. Our guaranteed flow devices are cost-effective, long-term solutions to beaver problems. We also provide year round trapping services.

Experience

Since 1998 we have solved over 650 beaver problems in Massachusetts, as well as surrounding states. We are proud of the excellent reputation we have earned working for highway departments, conservation groups, towns, federal and state agencies, major railroads, public utilities, businesses, and private landowners.

What We Do

Combining an understanding of beaver behavior and abilities, with the latest advances in design, enables “Beaver Solutions” to create effective, low maintenance flow devices that prevent damaging flooding. Flow devices are either culvert protective fences, or pipe systems installed through beaver dams to limit the size of ponds.

How Do Flow-Devices Work?

Highway and railroad culverts are often damming sites because, to a beaver, a culvert in a roadbed looks like a hole in a dam. Properly designed culvert fencing will decrease the stimulus for beaver damming and make it more difficult to dam. This will cause beavers to leave the culvert alone. Our culvert fences have a 98% success rate. The size of a beaver pond can usually be controlled with well-designed and installed beaver dam pipes. Beavers are stimulated to build their dams by the sound or feel of running water. Well-designed dam pipes create a permanent leak in the beaver dam and prevent beavers from detecting the flow of water into the pipe.

What Does It Cost?

The average culvert protective fence costs \$950 installed. Most beaver dam pipe systems cost \$1200 to \$1500 installed. Trapping an entire beaver colony typically costs \$800, but may need to be repeated annually. Flow devices save money by protecting property for many years with minimal maintenance. Beaver Solutions is fully insured.

Are Permits Needed?

In Massachusetts, a local Board of Health permit is required to alter a beaver dam or trap beaver out of season. Also, any work on a beaver dam must be reviewed by the local Conservation Commission. Beaver Solutions is able to assist with permitting questions.

Brief Synopses of Four Massachusetts Towns

Billerica

Due to nearly a decade of beaver problems, beginning in 1999 the Town of Billerica experimented with flow devices. The Pond Leveling Pipes or Culvert Protective Fences have proven such a success that there are now about 40 sites managed with these devices in town. There are only 3 areas in town where trapping is still needed. Since 2001 Billerica has had a Comprehensive Beaver Management Plan in place, so that following many years of severe beaver problems, this town now enjoys the benefits of long-term, cost-effective beaver management.

Chesterfield

In Chesterfield the Highway Department still had problems with road flooding despite years of repeated trapping. Since 1999 thirteen conflict sites have been managed effectively with flow devices (Pond Leveling Pipes or Culvert Protective Fences). In recent years trapping has only been needed at one of these sites, and all the roads in town remain protected from beavers.

Hubbardston

Culvert damming by beavers over a decade had repeatedly caused flooding of Route 62 in Hubbardston. In October, 2003 this state highway was under water and had to be closed. The culverts were opened by the town, and a large culvert protective fence system was installed by Beaver Solutions. Two other problematic culverts were subsequently protected from beavers with culvert fences. All three devices have eliminated beaver damming of the culverts without needing to remove any beavers.

Westford

Throughout Westford, nine beaver colonies caused eighteen conflicts which were resolved by Beaver Solutions with Pond Leveling Pipes or Culvert Protective Fences. One additional site is monitored and trapped to prevent contamination of the town's well field. The Westford customers included: private landowners, businesses, and the Westford Water, Fire, Highway, or Conservation Departments.

Case Studies on Solving Beaver Conflicts from Beaver Solutions

CASE STUDY #1 - Installation of Pond Leveling System

Root Road, Westfield, Massachusetts

In April of 2000 we were contacted by the City of Westfield to evaluate a beaver pond along Root Road. A semicircular beaver dam, approximately 100 feet long, had been built in front of a culvert. The dam had been there for a number of years and the wetland that it created compromised very valuable habitat. Unfortunately the rising height of the dam was threatening the road and members of the highway department had to repeatedly breach the dam in order to keep the water down.

After obtaining a breach permit from the state Division of Fisheries and Wildlife and approval from the Westfield Conservation Commission, we installed two 12" Pond Levelers through the dam. The inlets of these two pipes are surrounded by five-foot protective cages which are sunk into a deep channel in the beaver pond. The flexible 12" pipes then run along the bottom of the pond, up and through the beaver dam, and down into the middle of culvert. A straight piece of fence was placed across the front of the culvert to prevent any damming inside the culvert.

The height at which the pipes go through the beaver dam becomes the "leveling point". When the pond level drops below the peak in the pipes it will cease to flow. When the pond rises above the pipes they will begin to drain. If the eventual height of the pond is higher or lower than necessary, it is a simple matter to readjust the height of the pipes in the beaver dam.

There is relatively little maintenance with this system. The pond level will need to be monitored for a couple of weeks in case adjustments are necessary. The fence in front of culvert should be cleaned of debris 2 to 4 times per year.

CASE STUDY #2 - Culvert Protective Fences

New England Central Railroad, Amherst, Massachusetts

In May of 1999 we installed two trapezoidal culvert fences on two different culverts in South Amherst for the New England Central Railroad. These culverts are in prime beaver habitat and the track crews have been having problems with them being blocked with beaver dams for many years. The two sites had been trapped out repeatedly but due to the good habitat, new beavers would always reoccupy the area.

A roadbed or railbed with a culvert probably appears to a beaver as a wonderful dam with a small hole in it. This is why beavers are so attracted to road culverts. The trapezoidal fence makes the culvert much less attractive for damming. It has a minimum of a sixty foot perimeter and it goes out from the culvert in an unnatural angle for damming so beavers leave it alone.

The railroad track crews had been cleaning the culverts every other day. According to the track supervisor the cost of the two protective fences was less than what the railroad was spending in one week to keep the culverts clear. They have not had to clear them since the installation.

CASE STUDY #3 - Trapping and Exclusion

Amtrak Commuter Rail, Leominster, Massachusetts

The railroad tracks in this area go through prime beaver habitat. There are several culverts which have been blocked with beaver dams repeatedly for years. The very low railbed and beaver-chewed trees near signal wires made this a “no tolerance” zone for beavers and ponding. As it was open trapping season (November 1 - April 15), no special permits were required as long as live traps were used. All the beavers in the area were trapped with Hancock traps and subsequently euthanized in a carbon dioxide chamber.

Once the beavers were removed, the culverts were protected from future damming. *It is important when removing beaver from an area to modify the habitat whenever possible, to prevent reoccurrence of the problem.*

CASE STUDY #4 - Pond Leveling System and Selective Removal

Western Massachusetts Electric Company, Montague, Massachusetts

The rising height of two beaver dams made access to transmission towers increasingly difficult, especially in the event of an emergency. With approval of the local conservation commission and with breach permits from the Division of Fisheries and Wildlife, the dams were breached a small amount every morning for several mornings. This slow breaching allowed for a gentle lowering of the ponds and prevented downstream flooding and siltation. Once the ponds were lowered by two feet, we installed a 12” pond leveler through each of the two beaver dams.

The pond was very old and the beaver colony quite large. Aggressive secondary damming downstream of one of the pipe systems necessitated selective removal of the most aggressive dam building beavers. As the trapping occurred during open trapping season and Hancock traps were used, no special permits were necessary. We placed the traps at the new problematic dam far from the beaver lodge. Several very large adult beavers were removed with this technique. The smaller beavers will remain in place to maintain the dams and the wetlands at the lowered level. No new damming has reoccurred.

IV. The Law

The 1996 Wildlife Protection Act (Question 1) was passed by a 64% majority of Massachusetts' voters and consisted of three sections:

1. It **restricts** the use, setting, manufacturing or possession of body gripping traps (such as leghold and Conibear traps) to capture fur-bearing mammals;
2. It prohibits the pursuit or hunting of bear or bobcat with dogs;
3. It eliminates the requirements that 5 of the 7 board members of the MassWildlife – the agency responsible for managing wildlife – must have held sporting licenses for 5 consecutive years and that 4 members must represent trapping, hunting and fishing interests.

Section one of this law is the portion that impacts how beaver problems are solved; this section was changed in July 2000. The entire section, M.G.L. Ch. 131 § 80A, is shown below. Please note that regulations written by the Division of Fisheries and Wildlife to accompany the law are important for you to have and are included in this manual under "Regulations."

If you have any questions about the law, please contact the MSPCA's Department of Advocacy at 617-522-7400.

GENERAL LAWS OF MASSACHUSETTS

Chapter 131: Section 80A. Leghold traps and certain other devices restricted; punishment.

Section 80A. Notwithstanding any other provision of this chapter, a person shall not use, set, place, maintain, manufacture or possess any trap for the purpose of capturing furbearing mammals, except for common type mouse and rat traps, nets, and box or cage type traps, as otherwise permitted by law. A box or cage type trap is one that confines the whole animal without grasping any part of the animal, including Hancock or Bailey's type live trap for beavers. Other than nets and common type mouse or rat traps, traps designed to capture and hold a furbearing mammal by gripping the mammal's body, or body part are prohibited, including steel jaw leghold traps, padded leghold traps, and snares.

The above provision shall not apply to the use of prohibited devices by federal and state departments of health or municipal boards of health as defined in section 1 of chapter 111, for the purpose of protection from threats to human health and safety. A threat to human health and safety may include, but shall not be limited to:

- (a) beaver or muskrat occupancy of a public water supply;
- (b) beaver or muskrat-caused flooding of drinking water wells, wellfields or water pumping stations;
- (c) beaver or muskrat-caused flooding of sewage beds, septic systems or sewage pumping stations;
- (d) beaver or muskrat-caused flooding of a public or private way, driveway, railway or airport runway or taxi-way;
- (e) beaver or muskrat -caused flooding of electrical or gas generation plants or transmission or distribution structures or facilities, telephone or other communications facilities or other public utilities;
- (f) beaver or muskrat -caused flooding affecting the public use of hospitals, emergency clinics, nursing homes, homes for the elderly or fire stations;

(g) beaver or muskrat-caused flooding affecting hazardous waste sites or facilities, incineration or resource recovery plants or other structures or facilities whereby flooding may result in the release or escape of hazardous or noxious materials or substances;

(h) the gnawing, chewing, entering, or damage to electrical or gas generation, transmission or distribution equipment, cables, alarm systems or facilities by any beaver or muskrat;

(i) beaver or muskrat-caused flooding or structural instability on property owned by the applicant if such animal problem poses an imminent threat of substantial property damage or income loss, which shall be limited to: (1) flooding of residential, commercial, industrial or commercial buildings or facilities; (2) flooding of or access to commercial agricultural lands which prevents normal agricultural practices from being conducted on such lands; (3) reduction in the production of an agricultural crop caused by flooding or compromised structural stability of commercial agricultural lands; (4) flooding of residential lands in which the municipal board of health, its chair or agent or the state or federal department of health has determined a threat to human health and safety exists. The department of environmental protection shall make any determination of a threat to a public water supply.

An applicant or his duly authorized agent may apply to the municipal board of health for an emergency permit to immediately alleviate a threat to human health and safety, as defined in the previous paragraph. If the municipal board of health determines that such a threat exists, it shall immediately issue said emergency permit to alleviate the existing threat to human health and safety, for a period not exceeding 10 days. If denied, the applicant or his duly authorized agency may appeal said emergency permit application to the state department of public health or director. If the state department of public health or director determines that such a threat exists, it shall immediately issue said emergency permit to alleviate the existing threat to human health and safety, for a period not exceeding 10 days.

The aforementioned emergency permit authorizes the applicant or his duly authorized agent to immediately remedy the threat to human health and safety by one or more of the following options: (a) the use of Conibear or box or cage-type traps, subject to the regulations promulgated by the division; (b) the breaching of dams, dikes, bogs or berms, so-called, subject to determinations and conditions of municipal conservation commissions under section 40; and (c) employing any non-lethal management or water-flow devices, subject to determinations and conditions of municipal conservation commissions under section 40.

If said threat to human health and safety has not been alleviated within said 10 days, the applicant or his duly authorized agent in conjunction with the municipal board of health, shall apply to the director for an extension permit to continue the use of alleviation techniques, specified in this section, for a period not exceeding 30 days. If the director determines that such a threat to human health or safety exists, as defined in this section, the director shall immediately issue an extension permit.

If director determines that said extension permit should be continued for 30 days, the director shall within 30 days of such decision develop, with the assistance of the applicant or his duly authorized agent, municipal board of health and municipal conservation commission, a plan to abate the beaver or muskrat problem using alternative, non-lethal management techniques in combination with water-flow devices, where possible, subject to the determinations and conditions of municipal conservation commissions under section 40, and if necessary, box and cage type-traps in order to provide a long-term solution . The director shall take reasonable steps to implement the plan within this 30-day period.

Compliance with the provisions of any or all of the previous four paragraphs shall not preclude the applicant from applying to the municipal board of health for an additional emergency permit, provided the applicant (a) states in writing that there exists on the property an animal problem which poses a threat to human health and safety, as defined in this section, which cannot reasonably be abated by the use of alternative, non-lethal management techniques or box or cage traps, and that the applicant has attempted to abate the animal problem using alternative, non-lethal management techniques or box or cage traps, or (b) is awaiting the director's approval for an extension permit.

An applicant or his duly authorized agent under clause (b) shall be eligible for only two additional emergency permits, the first of which shall entitle the applicant or his duly authorized agent the use of all or any of the alleviation techniques previously allowed under the initial emergency permit. Said first additional emergency permit shall expire in 10 days. If the director still has not acted within this ten day period, the applicant or his duly authorized agent shall be eligible for a second additional emergency permit. Said second additional emergency permit shall entitle the applicant or his duly authorized agent the use of all alleviation techniques previously allowed in this section, except for the use of Conibear traps. The second additional emergency permit shall expire on the rendering of a decision by the director regarding the extension permit.

The division shall provide a report annually to the joint committee on natural resources and agriculture on the creation, implementation and efficiency of such animal problem plans.

A person or his duly authorized agent may apply to the director for a special permit to use otherwise prohibited traps on property owned by such person. Issuance of such special permits shall be governed by rules and regulations adopted by the director pursuant to chapter 30A. Such rules and regulations shall include, but not be limited to, provisions relative to the following:

The applicant shall apply to the director in writing and shall state that there exists on the property an animal problem which cannot be reasonably abated by the use of traps other than those prohibited by this section, and that the applicant has attempted to abate the problem using traps permitted under this section. If the director determines that the applicant has complied with sections 37 and 80, if required to do so, and any other laws regarding trapping, and that such an animal problem exists which cannot reasonably be abated by the use of alternative, non-lethal management techniques or traps other than those prohibited by this section, the director may authorize the use, setting, placing or maintenance of such traps, not including leghold traps, for a period not exceeding 30 days during which time the applicant shall remain in compliance with the procedures for obtaining a special permit as set forth in regulations adopted pursuant to this section.

Whoever violates any provisions of this section, or any rule or regulation made under the authority thereof, shall be punished by a fine of not less than \$300 nor more than \$1,000, or by imprisonment for not more than six months, or by both such fine and imprisonment for each trap possessed, used, set, placed, maintained, or manufactured. Each day of violation shall constitute a separate offense. A person found guilty of, or convicted of, or assessed in any manner after a plea of nolo contendere, or penalized for, a second violation of this section shall surrender to an officer authorized to enforce this chapter any trapping license and problem animal control permit issued to such person and shall be barred forever from obtaining a trapping license and a problem animal control permit.

V. Regulations, 321 CMR 2.08

2.08: Use of Certain Traps for the Taking of Fur-bearing Mammals.

(1) Definitions: for the purposes of 321 CMR 2.08, the following words and phrases have the following meanings:

Agriculture or Agricultural Use means farming or agriculture as defined in M.G.L. c. 111, § 1.

Cage or Box Type Trap means a trap that confines the whole animal without grasping any part of the animal.

Conibear Type Trap means "Conibear" model traps and similar body-gripping traps and devices, whether or not enclosed in or comprising part of a box, tube, or other enclosing device.

Department of Environmental Protection means the Department of Environmental Protection within the Executive Office of Environmental Affairs, as provided for in M.G.L. c. 21A, § 7.

Department of Public Health means the Department of Public Health within the Executive Office of Health and Human Services, as provided for in M.G.L. c. 6A, § 7G.

Director means the Director of the Division of Fisheries and Wildlife, as provided for in M.G.L. c. 21, § 7G.

Division means the Division of Fisheries and Wildlife within the Department of Fisheries, Wildlife and Environmental Law Enforcement, as provided for in M.G.L. c. 21A, § 8.

Federal Department of Public Health means the United States Public Health Service.

Fur-bearing Mammals means all mammals in the Class Mammalia, as defined in M.G.L. c. 131, § 1.

Municipal Board of Health means a board of health as defined in M.G.L. c. 111, § 1.

Municipal Conservation Commission means a conservation commission as provided for in M.G.L. c. 40, § 8C, provided that, if a town or city does not have a conservation commission, the authority thereof shall be exercised by the board of selectmen in a town or the mayor in a city.

Permissible Traps means cage or box type traps, common type mouse and rat traps, and net traps.

Prohibited Traps means all traps used for the capture of fur-bearing mammals except cage or box type traps, common type mouse and rat traps, and net traps.

Restricted Traps means conibear type traps.

(2) Use of Certain Traps Prohibited. Except as provided in M.G.L. c. 131, § 80A, and 321 CMR 2.08, a person shall not use, set, place, maintain, or possess for the purpose of capturing fur-

bearing mammals, any prohibited trap in any wood, field, or waters of Massachusetts or in any other place where fur-bearing mammals may be found.

(3) Health and Safety Exceptions. Notwithstanding the provisions of 321 CMR 2.08(2), the Department of Public Health, the federal department of public health, or a municipal board of health may use prohibited traps for the purpose of protection from threats to human health and safety.

(4) Criteria for Determining Threats to Human Health and Safety. A threat to human health and safety may include, but not be limited to, one or more of the following situations:

(a) beaver or muskrat occupancy of a public water supply;

(b) beaver or muskrat-caused flooding of drinking water wells, wellfields, or water pumping stations;

(c) beaver or muskrat-caused flooding of sewage beds, septic systems, or sewage pumping stations;

(d) beaver or muskrat-caused flooding of a public or private way, driveway, railway, or airport runway or taxiway;

(e) beaver or muskrat-caused flooding of electrical or gas generation plants or transmission or distribution structures or facilities, telephone or other communications facilities, or other public utilities;

(f) beaver or muskrat-caused flooding affecting the public use of hospitals, emergency clinics, nursing homes, homes for the elderly, or fire stations;

(g) beaver or muskrat-caused flooding affecting hazardous waste sites or facilities, incineration or resource recovery plants, or other structures or facilities whereby flooding may result in the release or escape of hazardous or noxious materials or substances;

(h) the gnawing, chewing, entering, or damage to electrical or gas generating or transmission equipment, cables, alarm systems, or facilities by any beaver or muskrat;

(i) beaver or muskrat-caused flooding or structural instability on property owned by the applicant if such animal problem poses an imminent threat of substantial property damage or income loss, which shall be limited to:

1. flooding of residential, commercial, industrial or commercial buildings or facilities;
2. flooding of or access to commercial agricultural lands which prevents normal agricultural practices from being conducted on such lands;
3. reduction in the production of an agricultural crop caused by flooding or compromised structural stability of commercial agricultural lands;
4. flooding of residential lands in which the municipal board of health, its chair or agent or the state or federal department of health has determined a threat to human health and safety exists.

(5) Special Permits to Use Restricted Traps or Other Means of Relief. A person or his duly authorized agent may apply for a permit to use restricted traps or other means of relief, as follows:

(a) to the municipal board of health, in situations involving a threat to human health and safety, in accordance with 321 CMR 2.08(6) through (14);

(b) to the director, in situations not involving a threat to human health and safety, in accordance with 321 CMR 2.08(16) through (18).

(6) Emergency Permit to Use Restricted Traps, Breaching of Water Impedance Structures, or Water Flow Control Devices. An applicant or his duly authorized agent may apply to the municipal board of health for an emergency permit to immediately alleviate a threat to human health and safety pursuant to 321 CMR 2.08(4), on property owned, leased, or lawfully occupied by the applicant, provided, that in the case of a tenant or lessee, such applicant shall secure the authorization of the property owner prior to making such application.

(7) Authorizations Under an Emergency Permit. Such emergency permit shall authorize the applicant or his duly authorized agent, as named in the permit, to immediately remedy the threat to human health and safety, by one or more of the following options, for a period not to exceed ten consecutive days:

(a) the use of restricted traps or permissible traps, subject to the provisions of 321 CMR 2.08(21);

(b) the breaching of dams, dikes, bogs or berms, so-called, subject to the determinations and conditions of municipal conservation commissions pursuant to provisions of M.G.L. c. 131, § 40;

(c) the employment of any non-lethal management control devices or water flow control devices, subject to the determinations and conditions of municipal conservation commissions pursuant to provisions of M.G.L. c. 131, § 40.

(8) Determination of Threat to Human Health and Safety and Issuance of Emergency Permit. The municipal board of health shall, after receipt of an application for an emergency permit pursuant to 321 CMR 2.08(6), and after making a determination that such threat exists, and subject to the provisions of 321 CMR 2.08(7)(b) and (c), immediately issue said emergency permit for a period not to exceed ten consecutive days.

(9) Exception to Determination of Threat to Human Health and Safety. Notwithstanding the provisions of 321 CMR 2.08(8), the department of environmental protection shall make any determination of a threat to a public water supply, pursuant to 321 CMR 2.08(4)(a). The municipal board of health and the department of public health shall receive such determination from the department of environmental protection prior to issuing an emergency permit for such public water supply.

(10) Denial of Application for an Emergency Permit to Use Restricted Traps. If an application for such emergency permit is denied, an applicant may:

(a) appeal to the department of public health, if the denial involves a determination as to the existence of a bona-fide threat to human health and safety. If such alleged threat involves a public water supply, the department of public health shall consult with the department of

environmental protection prior to rendering a decision on the appeal.

(b) if the department of public health determines that a bona-fide threat to public health and safety exists, it shall render such decision to the municipal board of health, which shall, subject to the provisions of 321 CMR 2.08(7)(b) and (c), immediately issue said emergency permit for a period not to exceed ten consecutive days.

(c) appeal to the director, if the municipal board of health determines that a bona-fide threat to human health and safety exists, but the board's denial involves a question as to whether the threat is caused by the activities of beaver or muskrat.

(d) if the director determines that such threat to human health and safety is caused by the activities of beaver or muskrat, he shall render such decision to the municipal board of health, which shall, subject to the provisions of 321 CMR 2.08(7)(b) and (c), immediately issue said emergency permit for a period not to exceed ten consecutive days.

(11) Extension of Existing Emergency Permit. In the event that a threat to human health and safety, as specified in an emergency permit issued pursuant to 321 CMR 2.08(8), has not been abated or alleviated within the authorized ten day period, the applicant or his duly authorized agent, with the concurrence of the municipal board of health, shall apply to the director for an extension to such permit for a period not to exceed 30 consecutive days. If the director determines that a bona-fide threat to human health and safety exists, as advised by the municipal board of health, the department of public health, or the department of environmental protection, as the case may be, he shall immediately issue such extension permit for a period not to exceed 30 calendar days.

(12) Development of Abatement Plans. If the director determines that an extension to an emergency permit should be issued, he shall, within 30 days of such decision, develop a plan using alternative, non-lethal management techniques to address the beaver or muskrat problem which instigated the issuance of the permit. Such plan shall:

(a) be developed with the participation and assistance of the applicant or his duly authorized agent, the municipal board of health, and the municipal conservation commission as required pursuant to M.G.L. c. 131, § 40; and

(b) describe measures which may be employed to address said beaver or muskrat problem, using barriers, fencing, or other alternative non-lethal management techniques, water flow control devices, if appropriate to the situation, subject to the determinations and conditions of municipal conservation commissions pursuant to M.G.L. c. 131, § 40, and, if necessary, continued use of permissible traps to provide a long-term solution.

(c) The director shall, after development of such a plan, provide such reasonable technical advice, assistance, and support as shall be necessary for the applicant or his agent to implement the abatement plan.

(13) Additional Emergency Permits. Notwithstanding the provisions of 321 CMR 2.08(6) through (12), an applicant or his duly authorized agent may apply to the municipal board of health for additional emergency permits, provided:

(a) the applicant states in writing that there exists on property owned, leased or lawfully occupied by him a beaver or muskrat problem which the applicant or his authorized agent has:

1. attempted to address using alternative, non-lethal management techniques or permissible traps, and the problem cannot reasonably be abated by the continued use of such alternative, non-lethal management techniques or permissible traps; or

2. the applicant has applied for and is awaiting an extension emergency permit pursuant to 321 CMR 2.08(11).

(b) an applicant or his duly authorized agent, in the case of application for an additional emergency permit pursuant to 321 CMR 2.08(13)(a), shall be eligible for only two such additional emergency permits, in accordance with 321 CMR 2.08(14).

(14) Authorizations Under an Additional Emergency Permit. An additional emergency permit shall be authorized and valid as follows:

(a) application shall be made in the same manner as provided for in 321 CMR 2.08(6),(8) and (9);

(b) the first such permit shall authorize the applicant or his duly authorized agent, as named in the permit, to use any or all of the measures specified in 321 CMR 2.08(7). Said additional emergency permit shall be valid for a period of ten consecutive days;

(c) if the director has not approved an extension emergency permit within the ten day period provided in 321 CMR 2.08(14)(b), the applicant or his duly authorized agent may apply for a second additional emergency permit. Such second additional emergency permit shall authorize the applicant or his duly authorized agent, as named in the permit, to use only those measures proved for in 321 CMR 2.08(7)(b) and (c). Such additional emergency permit shall be valid for a period not to exceed ten consecutive days, or until the date on which the director renders his decision regarding the applicant's extension emergency permit, whichever period is shorter.

(15) Recommended Subregulatory Guidelines and Standards. For the purposes of 321 CMR 2.08(5) through (14), the director, in consultation with the departments of environmental protection and public health, may recommend guidelines and standards for permits, applications, reports, site inspections, dam or dike breaching periods, and water flow control structure installation. Such guidelines and standards may be set forth or distributed to boards of health, municipal conservation commissions, applicants or their agents, by postal mail or agency websites, or otherwise, and may include reference to published or unpublished agency documents, brochures, or handouts relevant to such activities. Such standards and guidelines may be issued jointly with the departments of environmental protection and public health. Such standards and guidelines, where not repugnant to law, shall be construed consistently with the provisions of 321 CMR 2.08 and M.G.L. c. 131, § 80A. Nothing in 321 CMR 2.08(15) shall be construed to limit the powers and authorities of the departments of environmental protection and public health.

(16) Non-emergency Special Permit to Use Restricted Traps in Situations not Involving Threats to Human Health and Safety. The director may authorize an applicant or his duly authorized agent, as named in the permit, to use restricted traps to abate animal problems on property owned by the applicant, in accordance with 321 CMR 2.08(16) through (18).

(17) Application Procedure for Obtaining Non-emergency Special Permit to Use Restricted Traps. The applicant shall apply to the director in writing and the application shall contain the following information:

(a) name, address, and telephone number of the applicant where the applicant may be reached between the hours of 9:00 A.M. and 5:00 P.M. and name of corporation or business represented by the applicant, if any;

(b) name, address, and telephone number of the property owner or lessee, if different;

(c) a statement by the applicant that there exists on property owned or leased by him, or on which the applicant intends to act as agent for the owner or lessee, a problem caused by fur-bearing mammals which cannot reasonably be abated by the use of permissible traps;

(d) a statement by the applicant that he, or the owner or lessee, has attempted to abate the problem using permissible traps and has failed to make such abatement;

(e) description of the type of damage caused by fur-bearing mammals, and the kind of mammal;

(f) street address or geographical location where the mammal damage is occurring;

(g) trap registration number of the applicant, if required pursuant to M.G.L. c. 131, § 80;

(h) the date the application was executed;

(i) the applicant's signature, executed under the pains and penalties of perjury; and

(j) the signature of the property owner or lessee, if different, executed under the pains and penalties of perjury.

(18) Review and Approval Procedure for Obtaining Non-emergency Special Permit. When the director receives an application for a non-emergency special permit to use a restricted trap, as provided for in 321 CMR 2.08(17), he shall:

(a) review the application and the type and circumstances of the mammal problem described therein and may, at his discretion, additionally cause a field inspection to be made of the situation; and shall further, if he determines that the circumstances warrant issuance of such permit,

(b) cause the applicant to demonstrate that he has used permissible traps for a period of at least 15 consecutive days, and that usage of such traps has failed to abate the mammal problem, and a signed statement by the applicant, signed under the pains and penalties of perjury, shall be accepted by the director as sufficient evidence of such permissible trap usage; and shall further, if he determines that the circumstances warrant issuance of such permit,

(c) cause the applicant to demonstrate that he has attempted to resolve the mammal problem with alternative, non-lethal management techniques, including, where appropriate, flow devices, enclosures, barriers, or harassment, and that usage of such alternative, non-lethal techniques has failed to abate the problem, and a signed statement by the applicant, signed under the pains and penalties of perjury, shall be accepted by the director as sufficient evidence of such usage of

alternative, non-lethal techniques; and

(d) when the applicant has complied with 321 CMR 2.08(18)(a) through (c), to the satisfaction of the director, the director may authorize in writing the use, setting, placing, tending, and maintenance of restricted traps, of such number and type as he shall determine, and subject to the provisions of 321 CMR 2.08(21), for a period not to exceed 30 consecutive days at the address or location specified in the application by the named applicant.

(e) At the conclusion of the 30 day period, the applicant shall make a report in writing to the director, and shall state the number of days and/or trap-nights during which restricted traps were used, the success or failure of trap usage, and the number and kind of fur-bearing mammals trapped, if any, their disposition, and any other information as shall have been required by the director in the permit.

(f) If the applicant was unsuccessful in abating the mammal problem in accordance with such non-emergency special permit, the applicant may reapply and shall again comply with provisions of 321 CMR 2.08(18)(a) through (c).

(19) Procedure for Reviewing Complaints of Damage by Fur-bearing Mammals. If a report is received by the division of damage by or problems with beaver, muskrat, or other fur-bearing mammals:

(a) the circumstances of the complaint shall be ascertained; and

(b) if the complaint or problem is alleged to pose a threat to human health and safety as provided for in 321 CMR 2.08(4), the complainant shall be referred to the municipal board of health in the city or town in which the problem occurs, or, if on federal property, to the federal department of public health; or

(c) if the complaint or problem is alleged not to pose a threat to human health and safety, as provided for in 321 CMR 2.08(4), the division may record the complaint data and may thereafter provide technical information, conduct a site visit, issue a dam-breaching permit pursuant to 321 CMR 2.02(6) subject to the determinations and conditions of municipal conservation commissions pursuant to provisions of M.G.L. c. 131, § 40, refer the complainant to a licensed hunter or trapper for harvest using firearms or permissible traps during the lawful open season, refer the complainant to a licensed problem animal control agent for taking with firearms or permissible traps, issue a permit to the applicant or a duly authorized agent to control the animal out of season using firearms, advise the complainant of the process for obtaining a non-emergency special permit to use restricted traps as provided for in 321 CMR 2.08(17) and (18), or take such other actions or provide such advice as is deemed appropriate to the situation.

(20) Denial of Non-emergency Special Permit to Use Restricted Traps. Where not repugnant to provisions of M.G.L. c. 30A, the procedure for appealing the denial of a non-emergency special permit to use restricted traps shall be as provided in 321 CMR 2.02(11).

(21) Use of Traps and Firearms. Traps and firearms may be used, set, placed, maintained, tended, or possessed for the capture of fur-bearing mammals in accordance with M.G.L. c. 131, §§ 4, 5, and 37, and 321 CMR 2.14 and 3.02(5), provided that a person lawfully using traps pursuant to permits issued under provisions of 321 CMR 2.08 shall:

(a) register all traps used, placed, set, maintained, possessed or tended on land of another, in accordance with provisions of M.G.L. c. 131, § 80.

(b) use restricted traps with a jaw spread not less than four inches and not greater than seven inches, provided such traps are used only when completely submerged in water or when set inside a dwelling or other building with the permission of the owner or occupant thereof. When set inside a building, such traps must have two functioning springs. Notwithstanding the foregoing, restricted traps with a maximum jaw spread not greater than ten inches may be used for the trapping of beaver only, provided that such traps are used only when completely submerged in water.

(c) use permissible traps only when in conformance with the provisions of 321 CMR 2.14(24) and 3.02(5)(c), unless otherwise allowed by law.

(d) for the purposes of 321 CMR 2.08, determine the jaw spread of a trap by measuring midway across the open jaws at right angles to the hinges between the extreme outside edges; and all persons subject to M.G.L. c. 131 shall

(e) use firearms only when in conformance with the provisions of 321 CMR 2.14(24)(f) and 321 CMR 3.00, and M.G.L. c. 140, unless otherwise allowed by law.

(22) Use of Certain Alternative Management Techniques. Notwithstanding the provisions of M.G.L. c. 131, § 80A and 321 CMR 2.08, a person not wishing to obtain an emergency permit or non-emergency special permit to use restricted traps pursuant to 321 CMR 2.08 shall not otherwise be required to obtain a permit to use certain alternative, non-lethal management techniques for the abatement or alleviation of problems caused by fur-bearing mammals, including, but not restricted to, barriers, exclosures, repellents registered and applied consistent with provisions of M.G.L. c. 131, § 43, and c. 132B, harassment, and similar techniques not otherwise repugnant to law, and subject to the determinations and conditions of municipal conservation commissions pursuant to provisions of M.G.L. c. 131, § 40, and the determinations and conditions of the division pursuant to 321 CMR 2.02(6).

(23) Agents. Licensed trappers, including licensed problem animal control agents, may act as agent for an applicant pursuant to 321 CMR 2.08, provided that such agent shall comply with the trapper training provisions of 321 CMR 2.14(24)(b) and (26), and 321 CMR 3.02(5)(c) and (f), and such other provisions of 321 CMR as shall be applicable.

(24) Incidental Capture. Any person taking a fur-bearing mammal or any other vertebrate animal under provisions of a permit issued pursuant to 321 CMR 2.08 shall, if the animal is killed in the trap, surrender the entire carcass of such animal within 48 hours to the Division, provided that if the animal is a beaver or a muskrat, or such other fur-bearing mammal as shall be specifically named in the permit as causing a threat to human health and safety, the permittee may retain the animal subject to relevant provisions of 321 CMR and M.G.L. c. 131. If an animal other than a beaver, a muskrat, or other fur-bearing mammal as shall be specifically named in the permit is taken alive in a trap, such animal shall immediately be released at the site of capture.

(25) Validity of Permits. Except where a shorter time period is specified in M.G.L. c. 131, § 80A and 321 CMR 2.08, all permits issued pursuant to 321 CMR 2.08 shall be issued and may be reapplied for consistent with provisions of M.G.L. c. 131, § 32.

Regulatory Authority: M.G.L. c. 131, § 80A.

VI. Citizens' Guide for the Trapping Law – MassWildlife

Download document online:

http://www.mass.gov/dfwele/dfw/wildlife/facts/mammals/beaver/pdf/beaver_citizens_guide.pdf

or contact MSPCA at advocacy@mspca.org to have a copy sent via email

VII. Massachusetts Department of Public Health Guidelines and Flow Chart

Download documents online:

DPH flow chart, illustrating the procedure of the trapping law

http://www.mspca.org/site/DocServer/B15_DPHbeaverguidelines.pdf?docID=6601

DPH guidelines regarding the trapping law

http://www.mass.gov/Eeohhs2/docs/dph/environmental/exposure/beaver_procedure.pdf

or contact MSPCA at advocacy@mspca.org to have copies sent via email

VIII. Massachusetts Department of Environmental Protection Guidelines

Download document online:

<http://www.mass.gov/dep/water/laws/beaverww.doc>

or contact MSPCA at advocacy@mspca.org to have a copy sent via email

IX. Dam Breaching and Wetland Ecology

Wetlands are among the most biologically productive natural ecosystems in the world. Beavers play an integral role in establishing and maintaining the wetlands that provide critical environmental functions. Beaver ponds, or impoundments, provide habitat for fish, amphibians, turtles, otters, mink, moose, and many other animals. Trees that are killed by beaver-induced flooding of wooded swamps provide nesting sites for great blue herons, wood ducks, osprey, and other birds. Beaver dams hold water within the landscape, maintaining local groundwater levels, and providing flow to streams during even the driest portion of the summer season.

The wetlands that beavers create support not only an abundance of animal and plant life, but they also serve many vital functions that benefit humans as well. Beaver habitat improves water quality by acting as a settling basin, controls flooding and reduces erosion by slowing water movement, processes organic wastes, removes toxins like pesticides and fertilizers, filters runoff, and protects against droughts. Beaver created wetlands are dynamic, rich environments that go through regular cycles with different ecological values at each stage. For example, after wetlands age and beavers abandon them, they are transformed into fertile meadows supporting a myriad of plant and animal life.

Partially or completely breaching beaver dams can have negative impacts on all of the species inhabiting the impoundment. Conservation commissions should allow only the minimum amount of beaver dam removal necessary to abate an immediate public health, safety, or property damage threat. Usually, this means allowing the removal of a small section of the top of the dam, down to a specific elevation (typically no more than two feet below the top of the dam, but it depends on the depth of the impounded water, which should remain deep enough that it will not freeze all the way through in the winter).

Seasonal issues should be addressed in conservation commission's conditions. For example, in the fall turtles and amphibians enter a resting state for the winter season. Many of these animals will be present in shallow muddy areas around the edges of the beaver pond. If the water level is drawn down during the fall or winter, these animals can be killed due to exposure to freezing conditions. Similarly, if water levels drop below the entrances to the beaver's lodge, they too will be exposed to freezing air. Beavers also may lose access to their food caches, either because the cache is exposed and freezes, or because the lodge entrances are now above frozen, lower water levels. This is an inhumane way to address the beaver problem, leaving them to a slow death from cold and starvation. Whenever possible, fall and winter drawdowns should be strictly conditioned and limited to prevent these kinds of impacts.

X. GIARDIA

Giardia lamblia is a common, single-celled parasite, which can cause an illness of the intestines known as Giardiasis. The disease can be found throughout the world and is widespread among mammalian, avian, and reptile species; including humans, companion animals, wildlife, wading birds, and sheep and cattle.

TRANSMISSION

Giardia goes through two stages: during the trophozoite stage, or “active” stage, it is in the intestine of the host and cannot survive on its own. It becomes infectious when it enters the tough, protected cyst stage, and is shed in the feces of the host. In the cyst form, *Giardia* can be killed between 54-56° C (dies instantaneously at boiling point, 100° C), but it can last 2-3 months in cold water (<10° C).

When humans become sick with *Giardia*, the *Giardia* parasite is predominantly spread via person-to-person contact. Due to poor hygiene practices, it can often result in transmission in developing nations, day-care facilities, and institutional settings. Contamination of food and water sources from human or animal infected fecal material is also a means of transmission.

SYMPTOMS

Symptoms of the disease usually appear from nine to twelve days after exposure; however, they can appear within five to twenty-five days. Some people don't show any signs of illness at all although they may still shed the parasite. The disease is characterized by numerous intestinal symptoms that can last from one week to a few months, and may include diarrhea, flatulence, abdominal cramping and discomfort, fatigue, and weight loss.

TREATMENT

Treatment is available through prescribed antibiotics. Some individuals recover without the need for medication.

GIARDIA AND BEAVER

Research has shown that *Giardia* of human origin can be transmitted to several wildlife species. More research is needed, however, to determine the role that wildlife plays in transmitting *Giardia* to humans. Being a highly visible species in watersheds, the beaver has often been unfairly implicated as the source of *Giardia* contamination of fresh water resources. The term “beaver fever” is often used to describe waterborne outbreaks. However, current research shows that contamination from humans is regarded as a more probable source. In fact, humans are now considered to be the most common reservoir, as they shed 900 million cysts per day. There has never been a proven, documented case of a human contracting *Giardia* from beaver. Many studies claiming to have done so lack any scientific evidence in support of the claims.

Giardia from human sources can enter waterways by many different methods, such as washed-out septic systems, untreated human sewage discharged into waterways, cabin toilets, and backpackers and campers who inadvertently deposit contaminated feces in the environment that is washed away

by rain and ends up in rivers and streams. Near highly used human recreational areas, studies are showing that there are increased Giardia cysts in surface water and wildlife.

PREVENTION

You can protect yourself and your family from Giardiasis using preventative measures, such as good personal hygiene, including frequent hand washing and wearing gloves when handling possible contaminated materials. Careful disposal of sewage wastes and protecting water supplies from human, companion animal, livestock, and wildlife contamination is also important. Avoid drinking water that has not been treated or filtered, and carry treated water (boiling water is most effective) or equipment for purifying water with you when you are hiking or camping.

For more information contact the MSPCA's Advocacy Department at 617.522.7400.

ADDITIONAL RESOURCES:

Erlandsen, S.L., Macechko, P.T., vanKeulen, H., Jarroll E.L. "Beaver and Giardia in the Environment: A Current Perspective on the Existence of 'Beaver Fever'." University of Minnesota School of Medicine and Cleveland State University. 17 pp.

"Giardiasis." 1997. Hadidian, J, Hodge, G., and Grandy, J. (eds.), *Wild Neighbors*. Colorado: Fulcrum Publishing. 16-17.

Hilton, H. 1990. "Giardiasis: A Bum Rap For Beaver?" *Maine Fish and Wildlife*. Spring, 1990. 13-15.

Connaughton, D. 1989. "Giardiasis – zoonosis or not?" *Journal of the American Veterinary Medical Association*. Vol. 194, No. 4, February 15. 447-449, 451.

Miya, E. and Tuthill, B. (eds.) 1995. "Water filters & Giardia Distilled Wisdom."

"Giardiasis (beaver fever)." 2006. *New York State Department of Health Communicable Disease Fact Sheet*.
http://www.health.state.ny.us/diseases/communicable/giardiasis/fact_sheet.htm

"Giardiasis." 1998. *General Health Encyclopedia*. 3pp.
<http://www.healthcentral.com/mhc/top/000288.cfm>.

Mass. DPH Fact Sheet
<http://www.mass.gov/Eeohhs2/docs/dph/cdc/factsheets/giardia.pdf>