

APPENDIX 4 *Methods/Options to Control Beaver Hazards*

When the Massachusetts' beaver population was fairly small, MassWildlife concentrated on the many beneficial aspects of this large rodent. As the beaver population increased and people built residential and commercial developments, adverse impacts from beaver damming activity increased. It is, therefore, critical that people know how to live with beaver in the environment. There are 5 main methods/options for resolving a conflict with beaver that will be employed in this plan. These are presented below.

1. **Tolerance** - People who learn to tolerate a certain amount of beaver influence on their land generally find that co-existing with beavers provides more benefits than perceived harm. In situations in which beavers are simply an inconvenience to landowners, tolerance is the easiest solution.
2. **Exclosures** - Fencing can proved a long-term solution, while preserving the beneficial aspects of beavers. The most effective way to protect specific trees and shrubs is to construct exclosures around them. These exclosures should be constructed of heavy-gauge fencing, be a minimum of 4 feet tall, and be flush with the ground. To protect larger areas, such as orchards or nurseries, standard fencing is usually sufficient since beavers are poor climbers, rarely burrow under fences, and generally don't chew fencing unless it is wrapped around trees or shrubs. Individual trees can be protected by installing hardware cloth or heavy gauge wire fencing surrounding the bottom of trees. The wire should be a minimum of 4 feet tall and flush with the ground. Do not wrap the wire tightly around the tree as beavers may try to chew through it. Instead, leave a 6-inch space between the tree and the wire.
3. **Breaching and removing the dam** - Dam breaching is an immediate, but short-term solution to flooding problems caused by beaver. Cued by the sound of escaping water, beavers will usually rebuild the damaged dam quickly, sometimes overnight.

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 normally 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

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 a prime place for occupation by other beavers that will move in, rebuild the dam, and recreate the problems. Time and time again local city and town officials have been frustrated by needing to deal 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. That is why the use of water flow devices is usually recommended.

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 commission 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 the conservation commission.

4. Water Level Control Devices - In situations in which increased water levels threaten property, crops, or public health and safety, water level control devices may be an appropriate way to control the flooding. Sometime referred to as "beaver pipes" or water flow devices, can be successful at regulating water levels at desirable levels behind dams. By successfully installing an effective water device, the life of a desirable beaver wetland, and its associated benefits, can be prolonged. An assortment of devices are available and all have advantages and disadvantages associated with their use. Two factors are key to the success of these devices: they must be designed to reduce the cues used by beavers to detect escaping water, and they must be difficult for beavers to plug. Water flow devices should be used only where appropriate conditions exist, and they will likely require regular maintenance. **Do not try to install a water level control device on your own. In Massachusetts, it is illegal to disturb beaver dams or lodges without a permit.**

Called beaver deceivers, flexible pond levelers, and beaver bafflers, these pipe and fencing devices are designed to regulate water levels and prohibit damming

that could result in flooding. 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.

Beaver Deceivers. A pipe system is used to create a permanent leak in the dam that the beavers cannot detect nor block. This is most effective in maintaining the level of a pond at least three feet deep. The intake is submerged underwater and protected by a fence. The pipe runs along the bottom of the pond, and is elevated where it goes through the dam. Both inflow and outflow are kept underwater so there is no sound of running water. This method will maintain the level of the pond under normal conditions, and heavy storm run-off will flow over the top of the dam.

Other Techniques have been developed to mitigate the beaver's natural tendency to block culverts or dam waterways. These techniques are not hard and fast solutions, but are methods that have worked in controlling many flooding problems. Here are some of the techniques used:

Culvert Protective Fences. Culverts appear to beavers as holes in dams, and since they are relatively small in size and contained, a beaver can easily plug the culvert. To make it more difficult to plug, a fence is placed in front of the culvert to extend the area that the beaver must block. Different shapes and sizes are used depending on the geometry and flow conditions. Another method is to use a cylindrical fence, which acts as an elongated extension of the culvert. This has not proven as effective and is more difficult to maintain.

Fences and Pipe Devices. This technique uses a fence in front of a culvert which prevents beavers from entering and blocking it, but which lets the beavers dam the fence. To control the water level, a flexible pipe is used at the dammed fence to provide a water bypass.

Diversion Dams. In conjunction with using culvert fences, a diversion dam is constructed upstream to encourage the beavers to build a dam away from the fence and thus maintain water flow.

Typical costs of culvert protection fences are about \$500.00 installed. Beaver Deceiver systems can cost \$1,000.00 or more. The cost of physical maintenance by a DPW crew can average 20 person hours per week.

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.

- 5. Trapping:** Beavers can be trapped during the open season (November 1-April 15) by a licensed trapper using permissible traps (i.e. box or cage-type traps). An Emergency Permit is not needed during the regulated season if permissible traps are used by a licensed trapper. By removing beaver during the regulated trapping season, they can be used as a natural resource because its pelt, meat, and castor oil are highly valued. Trapping is highly regulated in Massachusetts. An Emergency Permit is needed to trap beavers with restricted traps (i.e. body-gripping traps, "conibear" traps) and to trap beaver outside the regulated trapping season. Removal of problem beaver can be a quick way to alleviate beaver problems when done by an experienced trapper.

Trapping does not necessarily 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 that will move into the vacant territory, and the problems will begin again. Cities and towns who 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. The cost of trapping can vary from \$75.00 - \$100.00 each, with typical casts of \$200.00 to 750.00 per colony. Many times these costs need to be repeated yearly.

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. 15 – 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 Division of Fisheries and Wildlife 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.

It is against state law to capture and release beaver into another area. Often people want to capture problem animals and release them someplace else. However, moving wildlife is detrimental to both people and wildlife populations (with the potential spreading of disease), and is against the law. This law has been in effect for many years, protecting both people and wildlife.

Local Beaver Management

The essential challenge for beaver management is to find ways to co-exist with beavers that maximize their beneficial aspects yet minimize conflicts with people. The

community can use regulated trapping, exclosures, water control devices and public education promoting tolerance as means to meet that challenge.

Goals established in this plan for beaver management include: maintaining beaver populations compatible with suitable habitat, minimizing property damage caused by beavers and managing beavers for their associated wetland and other values. State wildlife biologists monitor the number and types of beaver complaints, assess habitat, and monitor the annual harvest of beavers. Biologists then make recommendations to increase or decrease beaver populations as needed. Regulated trapping is used as the most feasible and effective method for reducing or controlling beaver populations.

Beaver Solutions

The community will investigate beaver complaints and utilize flow devices to alleviate damage where it is practical. Successful management of beavers in the Montachusett Region will require a combination of all the techniques listed in this plan. Solutions to beaver damage problems are rarely simple and no one technique is a cure-all for beaver damage. For example, flow devices do not control beaver populations. At the same time, trapping of beavers at a complaint site does not change the features of the site that attracted beavers in the first place. In some cases, using both techniques (a flow device to control water levels and regulated trapping to control population levels) can provide a long-term solution to beaver problems. By following the practices described in this plan, practical long term solutions to beaver problems may be expected. Utilizing the variety of methods in this plan it has been estimated that some communities are expending, at the present time, as much as \$20,000.00 per year in labor, materials, and consultants to mitigate beaver hazards.