

## Replacement of Road Culverts

### **Problem Statement**

The recent deluge of rain has created an unfortunate emergency from damage to roadway infrastructure. However, it has also created a potential opportunity to enhance fish passage and flood worthiness when replacement culverts are installed. A modest investment in properly sizing and setting culverts to meet current guidelines for fish passage can deliver a lifetime return in increased high water flow capacity and reduced risk of future washouts.

Many old culverts were undersized and thus couldn't pass floodwaters and caused scouring damage to roads and banks. Undersized culverts also create high water speeds that prevent fish from passing through them upstream.

Also, many old culverts were "perched" above the streambed which can increase scouring and prevent fish passage. Since there are many resident and migratory fish species (e.g., native sea-run fish that move between salt and fresh water) that need to navigate through culverts, undersized and perched culverts represent a serious obstacle to their survival and to stream continuity.

### **What can be done?**

Correcting culvert sizing or elevation problems can be as simple as installing a larger diameter culvert with a lower invert elevation so the bottom of the pipe is below the natural grade of the stream or river.

MDOT has developed guidelines that provide information for sizing culverts as well as how to determine the invert elevation to optimize fish passage and stream continuity (see Resources below).

Under current law, municipalities are granted a "public works exemption" from usual Maine Dept. of Environmental Protection (DEP) permitting requirements for emergency replacement or repair of culverts that are destroyed or damaged. This exemption is exercised by the local public works director

Culverts can also be replaced in non-emergency situations under DEP's permit-by-rule process (PBR). Once a PBR is submitted to the DEP, the DEP has 14 days to respond or it is assumed that permit is granted. The PBR process allows replacement of the original culvert and associated infrastructure provided the overall length of the culvert is 75ft. or less and the length is not increased more than 25% of the old culvert.

Both of these replacement processes allow for replacement with a larger diameter culvert AND installation of the culvert at a lower elevation if this is done to improve fish passage.

DEP would most likely encourage wider and deeper culverts that would result in improved fish passage.

### **Who to Contact**

For more information or assistance (including potential funding) with improving aquatic species passage at culvert road crossings please contact the following individuals:

- Jon Kachmar, Maine Coastal Program, 207-287-1913, [jon.kachmar@maine.rr.com](mailto:jon.kachmar@maine.rr.com)
- Erno Bonebakker, Wells Estuarine Research Reserve, 207-646-1555, [ebonebak@maine.rr.com](mailto:ebonebak@maine.rr.com)
- David Ramsay, South Berwick, 207-384-8154, [dramsay24@verizon.net](mailto:dramsay24@verizon.net)

## **Resources**

ME DOT Fish Passage Policy: [http://mainegov-images.informe.org/mdot/interagency-meetings/iameet/april2004/documents/Fish\\_Passage\\_Policy\\_2004\\_Draft.pdf](http://mainegov-images.informe.org/mdot/interagency-meetings/iameet/april2004/documents/Fish_Passage_Policy_2004_Draft.pdf)

Gulf of Maine Times article on culverts: <http://www.gulfofmaine.org/times/fall2005/scienceinsights.html>

MA Riverways Stream Crossing booklet and poster:

[http://www.mass.gov/dfwele/river/pdf/stream\\_crossings\\_handbook.pdf](http://www.mass.gov/dfwele/river/pdf/stream_crossings_handbook.pdf)

[http://www.mass.gov/dfwele/river/pdf/stream\\_crossings\\_poster.pdf](http://www.mass.gov/dfwele/river/pdf/stream_crossings_poster.pdf)

Gulf of Maine Council / NOAA Habitat Restoration Partnership:

<http://www.gulfofmaine.org/habitatrestoration/>