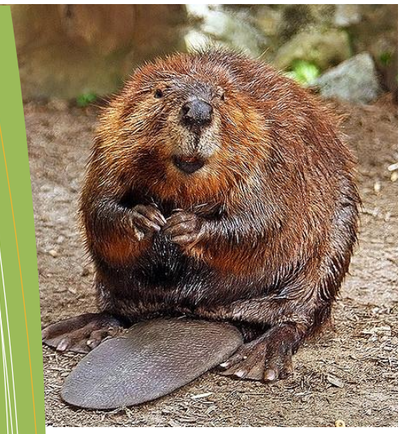
Beaver dams

Beavers live in riparian zones and keep these watery systems healthy and in good repair. North America's largest rodent creates wetland areas used by many other species. They also build dams and lodges that obstruct waterways. Consult the Minnesota Department of Natural Resources (DNR) about methods to resolve a beaver versus landowner conflict. Find a good overview, "Beaver Damage Control," on the Wisconsin DNR website.

Photo: ©Steve Hershey



In 2002, Dakota and Scott Counties signed a joint powers agreement that created the Vermillion River Watershed Joint Powers Organization (VRWJPO). The VRWJPO is governed by a three-member Joint Powers Board, composed of two Dakota County Commissioners and one Scott County Commissioner.

The joint powers agreement also established a nine-member citizen advisory Watershed Planning Commission (WPC), which makes recommendations to the Vermillion River Watershed Joint Powers Board.

Vermillion River Watershed Joint Powers Organization
14955 Galaxie Avenue
Apple Valley, MN 55124
www.vermillionriverwatershed.org
952-891-7000

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(continued from inside)

- The material removed from the channel or floodway should be placed sufficiently upland outside of the floodplain to prevent runoff from carrying materials to streams or wetlands;
- Disposal of material into wetlands, stream tributaries, side ditches, or other surface water is not allowed;
- The stumps and roots of trees and/or shrubs should be left undisturbed to protect against erosion;
- Access routes for equipment should be selected to minimize disturbance to the floodplain and riparian areas;
- Disturbed areas outside of the stream channel should be restored, reseeded, or replanted with native riparian species and mulched to prevent erosion and sedimentation;
- Activities should take place during low-flow or no flow conditions (generally during late summer, fall, or winter, where unrestricted);
- Removal of materials should not be conducted during the fish-spawning season; and
- Precautions should be taken to prevent petroleum products (lubricating, engine, transmission oils and greases, fuels, or hydraulic fluids) from entering surface waters.

Preventing stream obstructions

Routine stream maintenance can prevent damage to land and water. Taking a stream walk to identify obstructions can save the need for expensive channel or streambank restoration later on. Several guidance documents recommend an informal inspection twice a year and following large storm events. Contact the VRWJPO if you have questions about specific situations.

Counties regulate shoreland, floodplains

Shoreland and floodplain regulations in the Vermillion River Watershed are implemented by Dakota County (through Ordinance No. 50: Shoreland and Floodplain Management) and Scott County (through Zoning Ordinance No. 3). For more detailed information about limits to activities that can take place in shoreland and floodplain areas, contact Dakota County or Scott County.

For more information:

- Visit the Vermillion River Watershed website: www.vermillionriverwatershed.org.
- Email the VRWJPO if you'd like to receive our newsletter or have a specific concern or question: environ@co.dakota.mn.us.
- Call the VRWJPO staff at 952-891-7000.

Vermillion River watershed reflecting life

FAQ: Stream Obstructions

Stream obstruction removal guidelines

Log jams, fallen trees, sediment (silt, sand, or gravel), debris, garbage, and other materials can build up and obstruct flow in ditches and streams. Storm events with heavy rainfall and high winds often leave a trail of downed trees that obstruct waterways.

Problems caused by stream obstructions

Stream obstructions can affect public infrastructure, individual properties, fish and wildlife, crops and livestock, and recreation. Obstructions can:

- Disrupt existing drainage patterns by creating new channels, eroding banks, and undercutting riparian vegetation;
- Contribute to flooding by slowing water, creating backwaters, increasing sediment deposits, and creating natural dams;
- Lodge around bridge and culvert openings;
- Interfere with passage of canoes or small watercraft;
- Reduce amount of natural storage available for high-water events;
- Lengthen time that fields and floodplain properties are underwater;
- Create fish passage barriers;
- Inflict damage to property and public infrastructure; and
- Degrade riparian habitat.

Stream obstructions are natural, can be beneficial

Stream obstructions occur routinely in nature, shaping rivers and landscapes. Some beneficial results of stream obstructions include:

(continued inside)

Obstruction – any dam, wall, wharf, embankment, levee, dike, pile, abutment, projection, excavation, channel modification, culvert, building, wire, fence, stockpile, refuse, fill, structure, or matter in, along, across, or projecting into any channel, water-course, or regulatory floodplain which may impede, retard, or change the direction of the flow of water, either in itself or by catching or collecting debris carried by such water.

From *Dakota County Ordinance No. 50: Shoreland and Floodplain Management*

References:

Minnesota Department of Natural Resources, "Water Laws in Minnesota," December 2012, pp. 1-4.

Cuyahoga Soil and Water Conservation District, Ohio, "Watershed Friendly Stream Maintenance, Obstruction Removal BMP Guidelines," 2015, p. 10.

Indiana Department of Natural Resources, "Regulatory Guide for Removal of a Logjam or a Mass of Wood Debris from a Floodway," January 2014, pp. 1-2.

Kentucky Division of Waters, "Guidelines for One-Step Removal of Stream Flow Obstructions," May 2016, pp 1-2.

Ohio Department of Natural Resources, "Stream Debris and Obstruction Removal," November 2005, pp.1-3.

U.S. Army Corps of Engineers, "A Guide to the George Palmiter River Restoration Techniques," Section 5.4, October 1996, pp. 1-6.

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- Providing stream structure and stabilizing banks,
- Giving cover to fish and wildlife,
- Depositing nutrient-rich sediments on the floodplain,
- Creating backwater pools that offer critical aquatic habitat during low flows, and
- Mixing water moving through obstacles, thereby increasing dissolved oxygen.

Each stream obstruction is unique and should be evaluated independently. The following guidelines may assist landowners and public officials to know when a stream obstruction should be removed. These guidelines were developed using several sources, listed in the references in the sidebar.

Evaluate the stream obstruction

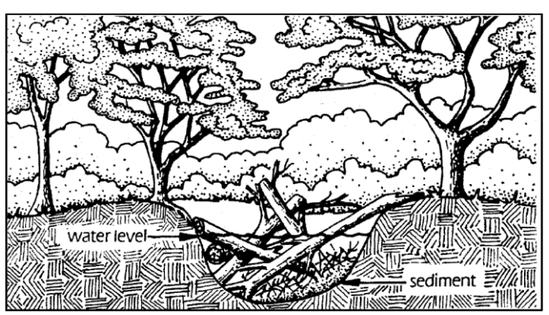
The stream obstruction can fall into one of the following categories. How the obstruction is managed is different for each category.

- **Minor stream obstruction**: The obstruction contains various amounts of debris, sediment, or weed growth, but does not pose a risk of flooding. These materials are a natural part of stream systems and are usually washed downstream or relocated during high-flow events. Channels with minor flow obstructions should be left alone.

Minor stream obstruction

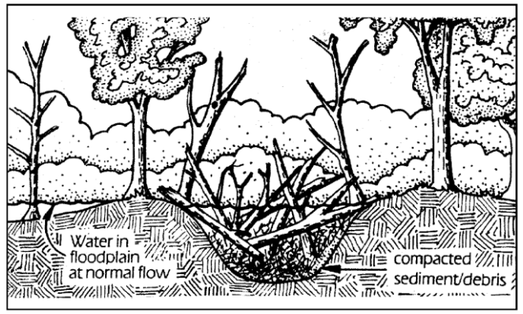
(line illustrations taken from "American Fisheries Society Stream Obstruction Removal Guidelines")

- **Moderate stream obstruction**: The obstruction consists of large accumulations of material that span the entire width of the stream and create backwater effects. Pull or lift these materials out of the stream using axes, chain saws, cables, portable winches or floats. Sediment removal may require a permit. To remove sediment, small machinery could be operated from one side of the bank or other temporary access point (i.e. bridge or road). A Minnesota Department of Natural Resources (DNR) Public Waters Work Permit may not be required as long as: The original alignment, slope or cross-section of the streambed is not altered; and the removed debris is placed outside of public waters and wetlands (which may require local approval).



Moderate stream obstruction

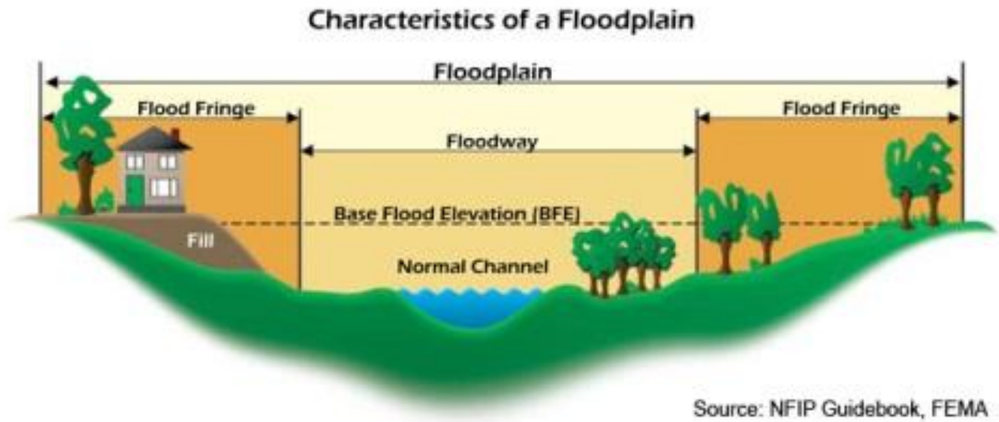
- **Major stream obstruction**: The obstruction restricts stream flow conditions and causes erosion and/or flooding. Contact the DNR to decide whether a Public Waters Work Permit is required to remove the obstruction. Small machinery may be the only effective way to remove major obstructions. Access should occur from one side of the bank or other temporary access point (i.e., bridge or road).



Major stream obstruction

- **Special streams**: The obstruction occurs in streams that possess unique, sensitive, or especially valuable biotic resources. The VRWJPO considers DNR-designated trout streams in the Vermillion River Watershed as special streams. The DNR should be consulted about obstructions in these streams and a Public Waters Work Permit may be required.

The stream and floodplain diagram below shows important features that affect stream obstruction management. The stream is in a floodway, where floodwaters would likely be the deepest and fastest. The flood fringe is an area that can be inundated during a 100-year (very large) flooding event. Obstructions in the flood fringe should be assessed on a case-by-case basis, depending upon whether materials or debris could cause damage if they move downstream during higher or faster flow events.



Landowners usually manage stream obstructions

Landowners, whose property is most affected by the backwaters, sediment losses, and flooding that occur with stream obstructions, are responsible for managing the obstructions in most cases.

While there are no specific regulations about how to remove stream obstructions (except in those cases where a DNR Public Waters Work Permit is required), some states suggest a range of best practices.

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