

Lake Outlet Dams



PERMIT REQUIREMENTS TO CHANGE RUNOUT ELEVATIONS

The following steps are not all-inclusive but do list *essential* permit application requirements, under Minnesota Statutes 103G, for changing the runout elevation of a dam.

Permit Application. A permit application must be signed by a majority of riparian owners requesting a permanent change in runout elevation.

Flowage Easements. Purchase or donation of flowage easements and consent from *all* owners of riparian land abutting the lake, as well as any connected waters that would also be affected, are required.

Environmental Assessment. An environmental assessment must be prepared that documents impacts on wetland habitat, fish spawning areas, waterfowl and songbird nesting areas, as well as strategies to address shore erosion due to wave action and winter ice push.

Engineering. Engineering plans must be prepared that show the proposed physical changes to the dam.

Hydrology/Hydraulics. A hydrologic/hydraulic analysis must identify anticipated changes in lake levels and stream flows.

Surveys. Surveys must be prepared that show all shoreland and existing development that would be affected by the proposed change. These surveys must identify compliance with shoreland ordinance standards for both the existing and proposed runout in terms of lot size, structure and sewer system setback, and structure and sewer system elevations above the highest proposed water elevation.

Outlet Dam Maintenance

DNR Waters owns and maintains more than 300 lake outlet dams in Minnesota. The primary goals for dam maintenance are to protect existing shoreland owners' rights and downstream owners' rights to water available within natural precipitation variations.

Maintenance involves ensuring that each dam is safe and functional, operates at the authorized runout elevation, and provides free-flowing conditions. Inspections of dams are conducted to ensure that the stop logs are at the authorized setting, to repair or replace damaged or worn equipment, and to remove obstructions as necessary.

Historical Operation of Outlet Dams

Most lake outlet dams, which were built in the 1930s to conserve water, *generally* feature several 5-foot-wide openings, called bays, with provisions to add and remove wooden stop logs. The runout level of a dam depended on the number of stop logs placed in each bay. Stop logs were managed by local observer/operators at each lake for 10-12 years after the dams were built. When precipitation suddenly (and unpredictably) returned to normal and above normal, flooding occurred around many lakes resulting in claims for damages by lakeshore property owners. It became apparent that stop log operation by local observers could not maintain uniform lake levels.

Thereafter, department engineers inspected each dam, examined the shore of the affected lake, and analyzed all water level records and other available information about each lake. A decision was then made to set an authorized stop log level for each dam. The goal was to set the stop logs at an elevation that would retain as much water as possible yet eliminate complaints of high water and the associated claims of damage from flooding. The authorized stop log setting is maintained by DNR Waters as the legal runout elevation.



Outlet dam.

Lake Outlet Dams



DNR maintenance specialist replacing wooden stop logs with steel channels at the Island Lake outlet dam in Crow Wing County (photograph by Ron and Judy Rolfe).

Changing a Runout Elevation

It is the goal of DNR Waters to maintain existing flows and water level conditions at lakes with outlet dams to the maximum feasible extent. However, shoreland owners on a lake may have varied and differing opinions about “desirable” lake water levels. Proposals to change water levels are difficult to accomplish due to legal, environmental, and financial realities (see details in sidebar on page 1).

Potentially serious consequences may result from changing a runout elevation, such as navigation problems, shore erosion, water quality degradation, ice damage, and flooding. Changing a runout to solve a problem may create new problems that are unacceptable to other owners or to future owners. Regardless of the runout elevation of a lake, water levels will fluctuate because of variations in precipitation, which cannot be controlled.

Legal Considerations

Unauthorized tampering with set runouts is an ongoing problem at dams in Minnesota. According to Minnesota Statutes Chapter 103G, it is unlawful to change the runout elevation of a dam without prior permit authorization from the DNR. Persons found to be responsible for unauthorized changes to a dam are subject to criminal enforcement action. Along with the criminal action is the potential of lawsuits brought by aggrieved shoreland owners for flooding, lack of access, or downstream damages due to flow changes resulting from the illegal tampering.

The state cannot legally alter a stop log elevation in response to individual requests because of high or low water level conditions. To raise a runout would cause water to cover land it did not previously cover, which may be a “taking” of land without compensation. It is unconstitutional for government to take private property without due process. DNR Waters’ position and legal obligation is to maintain the authorized stop log setting and allow water levels to fluctuate in response to precipitation that falls within a lake’s watershed.

A formal permit process exists for those shoreland owners who may wish to pursue a permanent change in runout elevation (see sidebar, page 1). It must be clearly understood that no permit decision by the DNR is required until complete information is provided by the applicant(s). Costs associated with design, engineering, flowage easements, and structural improvements are the responsibility of the applicant(s), or a local governmental unit acting on behalf of the applicant(s).

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DNR Contact Information



DNR Waters website lists Area Hydrologists:
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DNR Information Center

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