

# Lake Outlet Dams

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## History

DNR Waters owns and maintains 300+ dams in Minnesota. Most were built in the 1930's for two reasons: to conserve water during the drought years and to provide work for the unemployed during the Great Depression. Dams generally featured several 5 foot wide openings called bays with provisions to add and remove wooden stop logs (see diagram on page 2). The level of the water maintained by a dam was dependent on the number of stop logs placed in each bay.

Stop logs were adjusted by local observers/operators at each lake for 10-12 years after these dams were built. However, 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 operation of these small dams could not maintain uniform lake levels, which fluctuate due to variable water supply (rain and snow) and other natural conditions (drought). Complaints of damages continued until a decision was made to stop dam manipulation, either by leaving them open (without stop logs) or permanently setting stop logs at a specific runout elevation.

The decision to set an authorized stop log elevation for each dam was preceded by an inspection of the dam, an examination of the shore of the affected lake and an analysis of all water level records and other

information about the lake. 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 associated claims of damage from flooding. The authorized stop log setting for each dam has been maintained by DNR Waters for over 40 years and is the legal runout elevation.

## Legal Considerations

DNR Waters is obliged to maintain each of its 300+ dams in a safe and functional condition. Since 1946-1947, DNR Waters has attempted to maintain a set runout elevation with free flowing conditions at each dam. The primary goals of this management plan are to protect existing shoreland owners' rights as well as downstream owners' rights to water available within natural precipitation variations. Regular inspections of dams are conducted in order to restore the authorized stop log setting, repair/replace damaged or worn out appurtenances and remove obstructions as necessary.

It is the goal of the DNR to maintain natural flow and natural water level conditions to the maximum feasible extent. When a dam with a set runout has changed the natural level of a lake for a long period of time (more than 15 years), then the runout elevation maintained by the dam becomes the legal runout for the lake. 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.

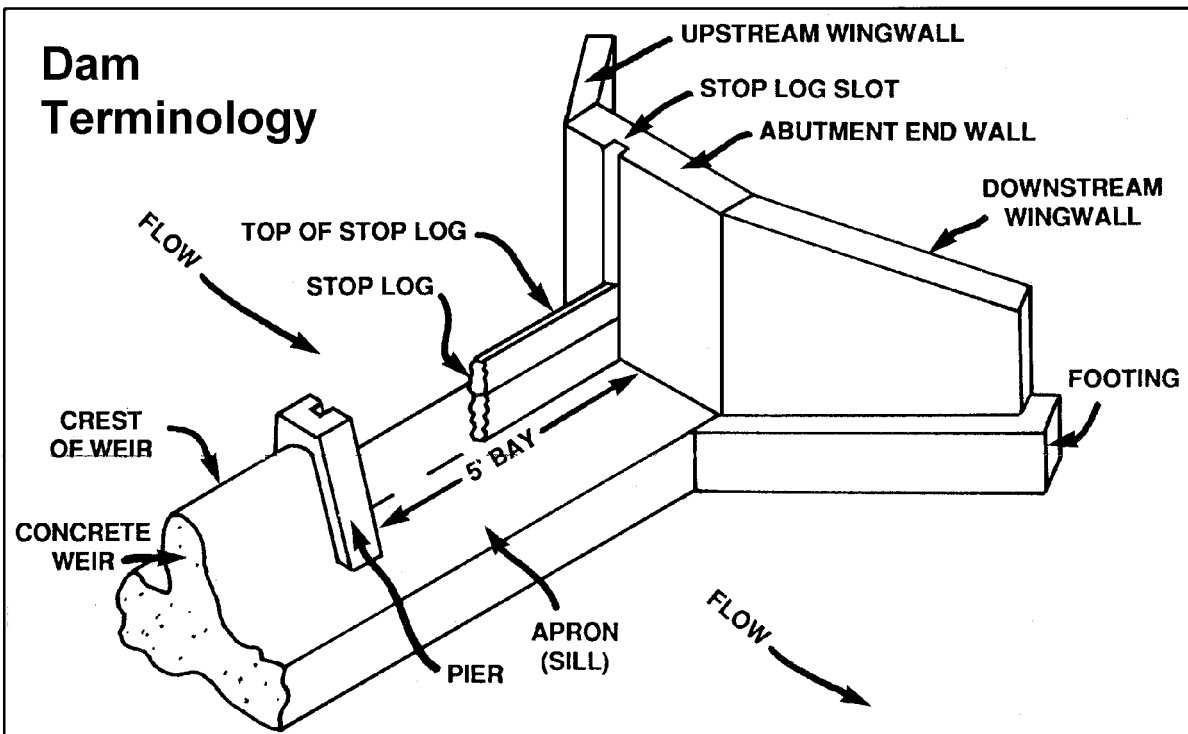
### Permit Requirements

The state cannot legally alter a stop log elevation in response to individual requests due to high or low water level conditions. To raise a runout would cause water to cover land it did not previously cover which may be taking a land without compensation. It is unconstitutional for government to take private property without due

process. DNR Water's 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 a runout elevation. It must be clearly understood that no permit decision by DNR is required until complete information is provided by the applicants. The following steps are not all inclusive, but do set forth essential permit application requirements:

- 1) A permit application signed by a majority of riparian owners requesting a permanent change in runout elevation.
- 2) Engineering plans that show the proposed changes to the dam.
- 3) A hydrologic/hydraulic analysis to document anticipated changes in lake



levels and stream flows.

- 4) Surveys showing all shoreland and existing development that would be impacted by the proposed change.
- 5) Purchase or donation of flowage easements and consents from owners of **ALL** land riparian to the lake and any connected waters that would also be impacted.
- 6) An environmental assessment documenting impacts to 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.

Costs associated with design, engineering, flowage easements and structure improvements are the responsibility of the applicants, or a local governmental unit acting on behalf of the applicants.

## Summary

Proposals to change water levels are difficult to accomplish due to the legal, environmental and financial realities. Shoreland owners have varied opinions about “desirable” lake levels and each tends to favor a specific range of acceptable levels. There are potentially serious consequences in changing a dam’s runout elevation such as navigation problems, shore erosion, ice damage and flooding. Changing a runout to solve a problem generally creates new problems which may be unacceptable to other owners or future owners. Regardless of the runout elevation, lake levels will continue to fluctuate due to variations in precipitation which cannot be controlled.

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This information is available in an alternate format upon request.

DNR Information Center Phone Numbers:  
Twin Cities: (651)296-6157  
MN Toll Free: 1-888-646-6367 (or 888-MINNDNR)  
Telecommunication Device for the Deaf:  
(651)296-5484, 1-800-657-3929 MN Toll Free

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