

Background

NorthWestern Energy operates nine dams on the Missouri and Madison Rivers in Montana. These include Hebgen and Madison Dams on the Madison River and Hauser, Holter, Black Eagle, Rainbow, Cochrane, Ryan, and Morony Dams on the Missouri River. A new 40-year license to operate these dams was issued by the Federal Energy Regulatory Commission (FERC) in 2000, following more than a decade of consultation with state and federal agencies, public groups, and citizens. Numerous studies were conducted during FERC relicensing to develop hydro operations (river flows and reservoir levels) that are included in the new license to maintain water quality in the Madison and Missouri Rivers.



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Madison & Missouri
Water Quality Program

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Water Quality Program

In 2001, a water quality and biological monitoring program was developed for the Madison and Missouri Rivers to identify long-term trends and spatial variation of water quality and biological parameters throughout the system, as well as to evaluate the effects of operation and maintenance of the hydroelectric facilities on these rivers. As a part of this program, a monitoring plan was developed to outline the water quality and biological monitoring activities. The water quality monitoring plan was updated in 2012 and provides guidance for water quality monitoring activities through 2021.

Water Chemistry Monitoring

Water chemistry is the primary indicator of water quality and can be easily measured for comparison to a water quality standard. Ten locations from the Madison River upstream of Hebgen Lake to the Missouri River downstream of Morony Dam near Great Falls, are monitored on a quarterly basis for water chemistry. Field parameters (temperature, dissolved oxygen, specific conductance, pH, and turbidity) and laboratory analyzed parameters (nutrients, metals, total suspended solids, and total dissolved solids) are collected at these monitoring sites to give an indication of the overall water quality of the Madison and Missouri Rivers in relation to Montana water quality standards.

Biological Monitoring

The biological community found in a river can be a good indicator of the overall river health, and changes to the biological community over time can indicate changes in water quality. NorthWestern Energy monitors eleven locations annually along the Madison and Missouri Rivers from Yellowstone National Park to Morony Dam near Great Falls. Aquatic insects (macroinvertebrates), chlorophyll-a, and periphyton are collected at each site to monitor the biological health of the river system.

Madison River Flushing Flow and Pulse Flow Programs

NorthWestern Energy operates a spring flushing flow program and a summer pulse flow program on the Madison River to promote a healthy aquatic environment for the fish

and insect communities that live in the river. Spring flushing flows are designed to mimic the high flows experienced in a natural river system due to spring runoff. These flows can help re-distribute and flush excess streambed sediments to improve fish spawning areas and aquatic insect communities in the Madison River. The Madison River Pulse Flow Program was designed to provide timely pulses of water from our reservoirs to the Madison River to prevent high water temperatures from occurring in the summertime months. This program adds additional water, when it is needed, to the Madison River to reduce the rate at which the river temperatures increase during the hottest days of the year.

Contact

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