

United States  
Environmental  
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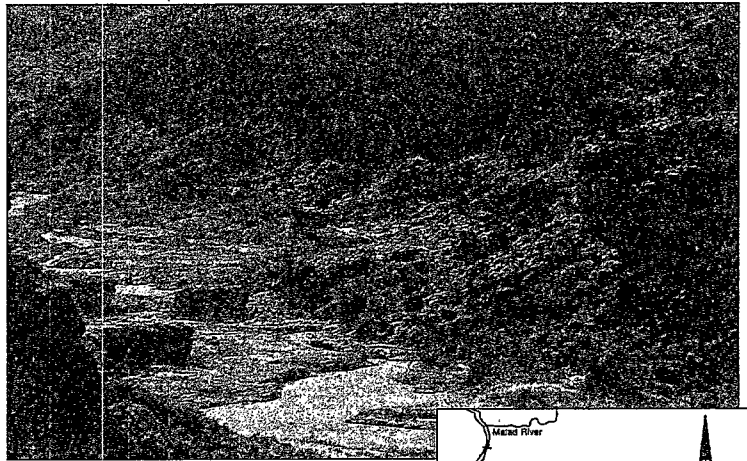
Office of  
Water

EPA/822/F-97/006 April 1997

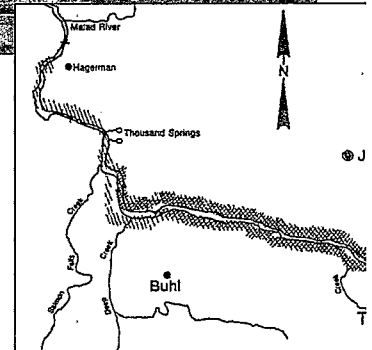


# Mid-Snake River





*Decreases in river flow have reduced the channel width of the river and formed sand bars. Elevated water temperature, excessive nutrients and low flows promote the growth of aquatic weeds and algae that reduce water quality and disrupt the habitat of cold-water fish and invertebrate species.*



### What is an ecological risk assessment?

**A**n ecological risk assessment evaluates the potential adverse effects of human activities on the plants and animals that make up ecosystems. The risk assessment process provides a way to develop, organize and present scientific information so that it is relevant to environmental decisions. When conducted for a particular place such as a watershed, the ecological risk assessment process can be used to identify vulnerable and valued resources, prioritize data collection activities, and link human activities with their potential effects. Risk assessments provide a focal point for cooperation among local communities and state and federal government agencies, and provide a basis for comparing different management options.

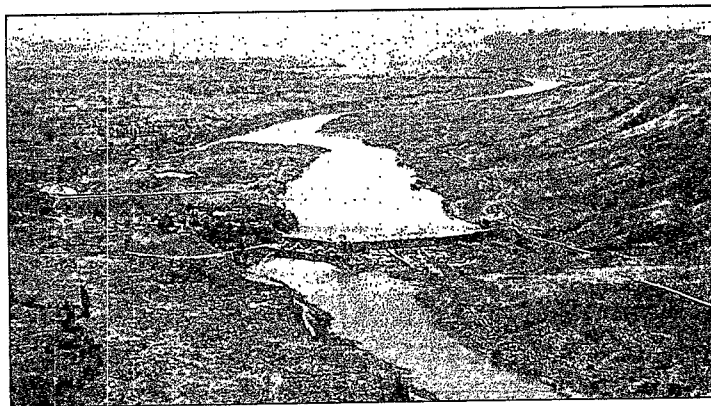
## Why is the Mid-Snake River special?

**T**his case study covers the middle reach of the Snake River which runs about 100 kilometers (62 miles) from Milner Dam to King Hill. The watershed includes 22,326 square kilometers (8600 square miles) of land. The Snake River has long been valued as a source of water for irrigation and for generating hydroelectric power. Prior to impoundment of the river approximately 24 native fish species were found below Shoshone Falls, including chinook salmon, Pacific lamprey, steelhead trout and white sturgeon.

This exceptional stream is threatened by many stressors from the day-to-day activities of people within the watershed. Dams and other diversion structures, and land use practices in the watershed have reduced flow rates allowing aquatic weeds and algae to choke the river. The native fish and invertebrates that require cold, swiftly flowing water have been lost or severely reduced in number. Currently eight invertebrate species are classified as either endangered or threatened.



*The middle reaches of the Snake River lie in the west-central Snake River Plain of southern Idaho.*



*Changes in flow caused by dams and irrigation withdrawal fragment the river system and alter available habitat. Local land users, power generators, and watershed managers can work together to protect the Mid-Snake River from the effects of flow alterations while maintaining economic use of the river.*

## How can this valuable resource be protected?

**T**his ecological risk assessment will analyze the stressors and resulting ecological effects in the Mid-Snake River watershed. The assessment promotes community awareness of ecological problems in the watershed and will provide information to resource managers, including government officials, organizations and the public. These actions promote environmentally beneficial results.



*Decreased water flow and velocity permit the growth of aquatic nuisance plant species. Cold-water fish species, including trout and sturgeon, lose critical habitat for spawning and their food base in these environments.*

## How is the ecological risk assessment being done?

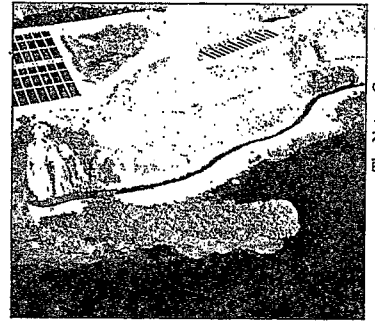
**I**nterested organizations collectively developed a management goal and a scientific study approach. The ecological risk assessment brought together numerous organizations to develop a goal to maintain and restore conditions that support the native cold-water biota of the Mid-Snake River, while also maintaining the river's economic value. The ecological risk assessment uses a water quality model and field studies to analyze the impact of stressors on the watershed. Water quality will be examined to determine relationships between land and water use within the watershed and what effects are seen in the river. By evaluating current and past conditions, forecasts can be made about future risks associated with land and water use decisions. A report describing the management goals for the Mid-Snake River watershed and the analysis plan for the assessment will be available upon completion of the analysis described above.

### Key stressors being evaluated are:

changes in water flow  
nutrient enrichment  
sedimentation

## How will the results be used?

**T**he Mid-Snake River Ecological Risk Assessment will help resource managers predict how potential changes in land use and river flow will affect the biological communities in the watershed. This will enable resource managers to make decisions based on more information. This project is co-sponsored by the USEPA's Office of Water and Office of Research and Development as an effort to bring the science of risk assessment into the local community decision-making process.



The Nature Conservatory

*Sediment loading from human activity, such as the visible plume being released from this fish hatchery, have direct ecological effects on the riverine community. The sediment chokes the stream, narrowing the channel and forming sand bars that reduce the flow of water. Sediment deposition makes the riverbed unsuitable for indigenous invertebrate and fish populations.*

The U.S. Environmental Protection Agency thanks the following for their participation in this case study:

Idaho Department of Health and Welfare  
University of California at Irvine  
Mid-Snake River Planning Group  
University of Idaho  
US Fish and Wildlife Service  
Idaho State University

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