



WILD FISH HABITAT INITIATIVE

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There is growing consensus among scientists, practitioners, and professional organizations over the lack of evaluation of stream restoration projects, which is hampering progress in the science and practice of stream restoration. The Wild Fish Habitat Initiative (WFHI) is a regional program, funded through the U.S. Fish and Wildlife Service (USFWS), designed to augment the success of the USFWS Partners Program through *targeted research* and *technology transfer* that addresses the information/data gaps in the science and practice of stream restoration. The focus is on restoration practices specific to recovery of native fish populations.

TECHNOLOGY TRANSFER

The WFHI technology transfer program is intended to translate and disseminate research findings and other useful information primarily through the WFHI Web site (<http://wildfish.montana.edu>). Our primary audience is the restoration practitioner. We have made available a large bibliography of publications, manuals, and other resources, summaries of research, and detailed case histories on outstanding stream restoration projects completed in the western U.S.



Location of restoration projects currently showcased on the Initiative web site.

Case Histories

Provo River Restoration Project

Prior to the 1940s, the middle Provo River meandered freely through the Heber Valley in Utah, offering outstanding fish and wildlife habitat. In the 1940s, large quantities of water were diverted to the middle Provo from numerous watersheds to help meet the needs of central Utah's citizens, and the middle Provo River was channelized and confined between dikes. In the 1990s, the Jordanelle Dam was constructed on the Provo River to store the diverted water, which altered river flows below the dam.



Before restoration.



After restoration.

The goal of the project was to re-establish critical ecological processes in the river. The objectives were to provide a diversity of habitat variability and structure, allow lateral channel migration and meander across a large floodplain, and promote floodplain inundation and natural revegetation of the floodplain through a network of cutoff channels and side channels extending off the main channel.

In keeping with the ecological approach of the Provo River restoration project, an interdisciplinary team of scientists have been conducting biological and physical studies to determine the effectiveness of restoration actions on the aquatic ecosystem, and to provide guidance for future adaptive management practices.

Standards for Case History Selection:

- **Pre-Project Evaluation:** a collection of baseline information to determine the causes and processes of any disturbance to fish habitat.
- **Guiding Image:** restoration goal(s) created either through computer modeling or from a reference reach.
- **Project Design and Implementation:** the most suitable techniques to reach the restoration goals.
- **Project Evaluation (Monitoring):** documentation of restoration effects on fish habitat/populations, conditions of the stream channel and riparian area.

Resources

- **Restoration Bibliography:** a searchable collation of information on various fish habitat restoration techniques.
- **Habitat Manuals:** a collection of habitat restoration manuals available online or to download in PDF format.
- **Links:** a database of links through which to browse or search.
- **Initiative Reports and Publications:** a listing of semi-annual reports, workplans, and research theses.

RESEARCH

The Montana Cooperative Fishery Research Unit, Department of Ecology, Montana State University gives oversight to targeted research related to native fish habitat restoration techniques.

Current Projects

Evaluation of the Efficiency and Efficacy of Non-Native Fish Eradication and Exclusion Techniques for Native Fish Restoration

Alexander Zale and Peter Brown

Research objective is a thorough investigation of the techniques used to eradicate and exclude non-native fish, specifically addressing the efficiency of piscicide use and proper barrier design.



Evaluation of Habitat Restoration for the Conservation of Cutthroat Trout

Alexander Zale and Brad Shepard

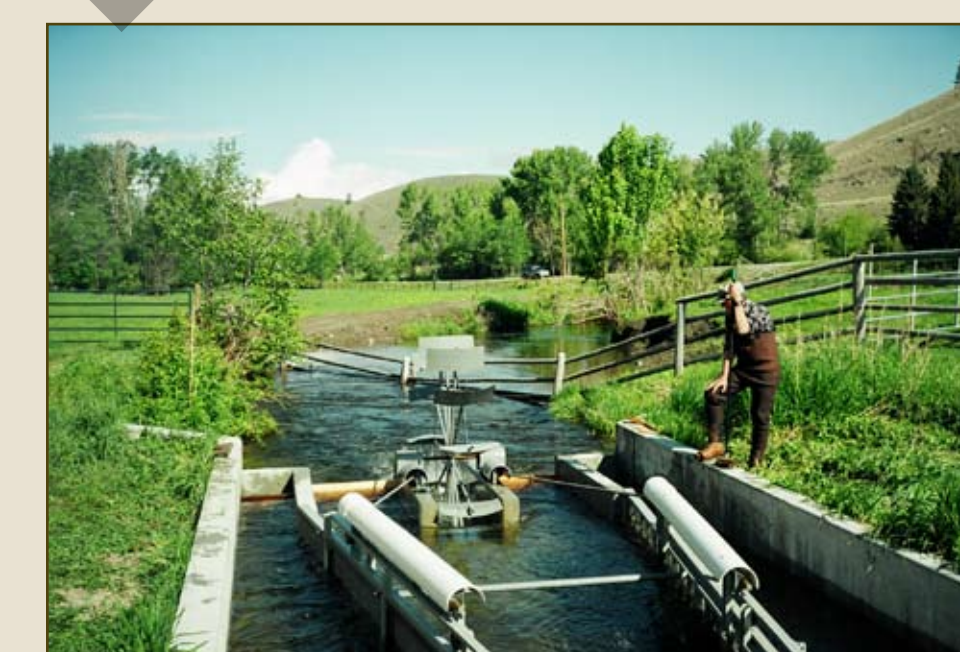
Research objectives are to: (1) quantify the distribution and abundance of cutthroat trout and other species at habitat restoration sites prior to and following restoration activities, (2) quantify habitat conditions and the distribution and abundance of cutthroat trout at locations where they occur in allopatry and relate habitat condition to both distribution and abundance of cutthroat trout, and (3) repeat these same measures at sites where cutthroat and brook trout occur in sympatry.



Evaluation of Entrainment Losses of Westslope Cutthroat Trout at Private Irrigation Diversions on Skalkaho Creek, Montana: Part II

Alexander Zale, Christopher Clancy and Ryan Harnish

Research objectives are to: (1) evaluate the efficacy of the irrigation diversion fish-screens using an improved study design that incorporates detection of fish moving upstream through the headgates, (2) assess the importance of canal screens to the recruitment contribution of westslope cutthroat trout to the Bitterroot River, and (3) evaluate the efficacy of forthcoming siphon structures.



Effects of Coalbed Methane Development on Great Plains Fish Assemblages

Alexander Zale, Robert Bramblett, Windy Davis

Research goals are to better understand the influence of coalbed methane development on the aquatic biota and habitats of southeast Montana and northeast Wyoming. The specific objective is to determine the effect of coalbed methane development on intermittent prairie stream fish assemblages.



Evaluation of Habitat Restoration for the Fluvial Arctic Grayling in the Big Hole River, Montana

Robert Gresswell, Alexander Zale, Shane Vatland

Research goals are to investigate the relationships between instream flow, water temperature, and fish-assemblage composition on Arctic grayling distribution, abundance, and movement patterns in the upper Big Hole River.



<http://wildfish.montana.edu/>

