

**Meeting Notes**  
**Henry's Fork Watershed Council**  
**March 18, 2008**

The Henry's Fork Watershed council meeting began with 32 people in attendance. Dale Swensen started the meeting with community building followed by introductions and an overview of the agenda by Steve Traffon.

After the overview, the council heard from Lee Mabey from USFS, who talked about the history of the Buffalo River hydropower project and the new fish ladder and intake screens that were added as part of the latest relicensing efforts. The new fish ladders design has proven effective at meeting its goal of passing migrating adults to increase spawning and recruitment potential to the Henrys Fork. It has also proven effective at passing age-0 trout in the fall that are looking for a more favorable place to spend the winter. Efforts are underway with HFF and others to quantitatively assess the actual increase in fish numbers this project may be providing to the Henrys Fork via a new outmigrant trap and study. Another project in 2008 is to evaluate the Buffalo River and its tributaries to determine if channel dynamics can be improved to increase fish habitat and production. This fish ladder design is also being used as the basis for passage at the Chester Diversion.

Mike Lien from Friends of the Teton River presented next with information on FTR's fish passage and entrainment projects in the upper Teton River watershed. In 2005, FTR assessed tributaries in the upper Teton River watershed to determine the location of diversion structures and the hazard each diversion posed to fish in terms of entrainment hazard and as barriers to fish passage. FTR prioritized projects and began work on Trail Creek in 2006. FTR improved a fish ladder on Trail Creek by installing a new entrance pool to the ladder to reduce entrance orifice velocities. FTR improved a concrete check dam which was a 4 foot high barrier to fish passage during low flows by installing a vortex weir which created a series of 8 inch pools. In 2007, FTR replaced the Splitter diversion on Badger Creek with a new structure, headgates, a by-pass pipe and vertical belt fish screens designed to pass up to 50 cfs.

Lastly, Jim De Rito, HFF Conservation Director, gave a presentation on the Lower Henrys Fork Fish Passage. Jim first presented an update to the Council of a couple ongoing fish passage related projects that he has previously discussed: 1) the Lower Henrys Fork Trout Telemetry; and 2) the Chester Diversion Dam Hydroelectric Proposal. Both of these projects provide context for the project that was proposed for the WIRE process: the Lower Henrys Fork Fish Passage Assessment. This project proposes to assess barriers to upstream and downstream fish passage in the lower Henrys Fork mainstem along with Fall River and its tributaries. The assessment is comprised of three parts: 1) river and canal flow analysis of the Henrys Fork and Fall River; 2) an on-the-ground inventory of dams and canals on the Henrys Fork and Fall River and its tributaries; and 3) collection of fish from a subsample of canals at the end of the irrigation season to validate passage rankings developed from the first two parts of the assessment.

The council divided in to two groups consisting of "professionals" and "citizens" and completed the WIRE process. The Council agreed to WIRE the project, contingent upon the project summary being included with the meeting notes.

The meeting then turned to questions and comments followed by community building and then adjourned at noon.

Please Note: The Watershed Integrity Review & Evaluation (WIRE) Project Cover Sheet for "Lower Henrys Fork Fish Passage Assessment" is available online at [www.henrysfork.org](http://www.henrysfork.org) and will also be available at the April meeting.

**WATERSHED INTEGRITY REVIEW & EVALUATION (WIRE)  
PROJECT COVER SHEET**

**Instructions:** Please complete this cover sheet including the brief summary requested on the reverse side. Attach a map of the project or problem area and provide no more than three pages of background information covering the following: a) Resource description b) Resource problem(s) addressed c) Scope of the project d) Timeline for implementation e) Nature of involvement—agencies, owners, etc. f) Financial considerations.

**Submission Date:** March 28, 2008

**Project Title:** Lower Henrys Fork Fish Passage Assessment

**Sponsoring Agency/Entity:** Henry's Fork Foundation (HFF) & Idaho Department of Fish and Game (IDFG)

**Responsible Individual:** Jim De Rito, Conservation Director, Henry's Fork Foundation

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**Subwatershed:** Lower Henrys Fork (17040203)

**Project Location:** see attached map

**Other Agencies & Individuals Involved:** The Fremont-Madison Irrigation District has offered assistance with setting up a meeting in April with representatives of canal companies to present the project, seek input and ideas, and obtain permission to conduct an on-the-ground inventory in 2008. HFF will work with canal companies individually at their desired level of involvement with data collection.

**Estimate of Project Duration:** Fieldwork from May through November, 2008. Final Report by April 1, 2009

**Brief Project Summary (Cover the following: Goals or objectives, benefits, urgency, potential impacts, post-project monitoring and implications if no action taken. Use up to 2 additional sheets if necessary. Use the watershed integrity criteria for guidance in preparing the background discussion).**

**Goal:** To understand fish passage in the Lower Henrys Fork subwatershed.

**Need:** The Lower Henrys Fork subwatershed contains the majority of the dams and diversions in the Henrys Fork drainage (Figure 1 attached). A complete fish passage inventory of irrigation and hydropower diversions and canals has never been completed for the mainstems of the Lower Henrys Fork, Fall River, or Conant and Squirrel creeks. Previous studies of fish passage have focused only on a few canals on the Lower Henrys Fork and Fall River, making it impossible to assess all 19 irrigation canals and related infrastructures on these rivers. Furthermore, there has never been a fish passage assessment of irrigation diversions on Conant Creek (the major tributary of the lower Fall River) or its primary tributary, Squirrel Creek.

The passage of fish either upstream or downstream can be affected by infrastructures, i.e., dams, diversions, and canals along streams and rivers. Fishes in mainstem rivers can be highly migratory, capable of moving long distances within waterways to find the habitat they need for spawning, summer rearing, and winter refuge. Connection of fish to these different types of habitat plays a large role in determining how many fish will be found in a given part of a stream or river.

Fish passage has been the primary emphasis of a couple of ongoing projects within the lower Henrys Fork subwatershed. First, an HFF and IDFG radio telemetry study of adult rainbow trout and brown trout has been underway since 2006. This study is evaluating how these trout move within the Henrys Fork from Chester Dam to St. Anthony in relation to small diversion dams. A small percentage of adult fish have moved either upstream, downstream, or both in relation to the smaller dams, but no trout moved upstream past Chester Dam. However, a hydropower project proposed on the Chester Dam, and as modified in a settlement agreement, would improve both upstream and downstream fish passage at the dam. This hydropower project, including the fish passage improvements, is dependent upon the Federal Energy Regulatory Commission issuing a hydropower license, which should be forthcoming soon.

The proposed Fish Passage Assessment is the next step in determining the presence and extent of fish barriers within the Lower Henrys Fork subwatershed. This basic information will be used to formulate a design for more intensive study of how fish may be affected by fish barriers and the potential cumulative effects upon fish populations. The assessment will also be used to identify opportunities to restore connectivity between the mainstem rivers and streams and headwater habitat and fish. Long-term solutions that provide for both supplying irrigation water and supporting fish passage will benefit river and stream users and the local economy.

**Objectives:**

1. Comprehensively assess all potential fish passage impediments in the Henrys Fork and Fall River (and its tributaries).
2. Evaluate the individual and cumulative effects of fish passage impediments.
3. Provide a framework for future research related to understanding the effects of fish passage on fish populations.
4. Evaluate options for fish passage improvements.
5. Develop working relationships with canal companies and landowners.

**Methods:** HFF & IDFG will present the Fish Passage Assessment project, ask for input and advice, and seek approval to proceed at a meeting with canal company representatives that will be organized by the Fremont-Madison Irrigation District in April. If canal companies approve of the on-the-ground inventory of their infrastructure, then they will be invited to assist with data collections during the summer.

The Fish Passage Assessment will utilize three types of information: 1) an analysis of water flow data for the Henrys Fork and Fall River and the canals that originate there; 2) an on-the-ground inventory of infrastructure; and 3) fish collected from a subsample of canals.

The water flow analysis utilizes river and canal flow data from 1972 to 2005 for the Henrys Fork and Fall River. This analysis includes the flow magnitude, proportion of stream flow diverted, and timing of diversions and subsequent theoretical affects upon fish entrainment into canals. A draft report has been produced by a HFF intern that will be reviewed, edited, and completed in 2008.

The on-the-ground inventory of infrastructure will take place in 2008. The first round of the inventories will occur in May (period of low water diverted into canals and high water in rivers) and then again in July (period of high water diverted into the canals and low water in the rivers). Data collected will be similar to inventories of the Upper Snake Drainage (IDFG 1997), Teton River tributaries (Friends of the Teton River 2005), and Bear River (Caribou-Targhee National Forest and Trout Unlimited 2007). Data collected may include quantitative variables such as: dam height, length, and span; jump pool depths; headgate size and number of openings; canal approach velocities, width, depth, gradient; and water velocities. Qualitative variables may include: dam materials and condition; headgate location and type; presence of flow measuring devices (Conant and Squirrel Creeks), presence of fishways and fish screens; and photos.

The water flow and inventory data will be used to place dams and canals into upstream and downstream fish passage categories: low, moderate, and high. Validation of downstream fish passage categories will be attempted by selecting one to two canals from each of the three categories for fish collection (fish collection is already conducted on the Egin Canal and therefore this canal will be excluded from sampling for this assessment). Canal companies will be contacted if their canals are selected for fish collection and asked for their permission to collect fish at the end of the irrigation season in October or November. A one- to three-pass population estimate of fishes in the canals will be made using backpack electrofishing equipment. Canal length sampled will be from the headgate downstream for a specified distance. Fish will be identified to species, measured, and then returned to river.

**Products:** This fish passage assessment will provide:

1. A categorization and ranking of upstream and downstream fish passage into canals based upon the inventory and the ongoing canal and river flow assessment.
2. A preliminary validation of the potential fish entrainment rankings from the end-of-season fish sampling in selected canals.
3. A knowledge framework and stratification of canals for future intensive study of fish entrainment in canals.
4. Identification and determination of priorities for fish passage improvement options within the drainages.
5. Development of a collaborative process and working relationships with canal companies that are interested in managing their diversion structures and canals to limit fish passage problems.

**Dissemination of results:** A final report will be completed by April 1, 2009. A presentation will be made to the canal companies to present findings, seek comments and suggestions, and identify future research or restoration options. A presentation will also be made to the Henry's Fork Watershed Council.

**Financial considerations:** Funding for this project has been received from the Fisheries Restoration and Irrigation Mitigation Act (FRIMA). In-kind project support is provided by HFF and IDFG.

**Requested Assistance from the Council: (Check All That Apply)**

- WIRE Endorsement/Letter of Support**
- Financial Assistance (budget attached)**
- Legislative/Political Assistance (specify)**
- Basic Project Design (in response to a new problem)**
- Technical Review Only (for ongoing projects)**
- Other:**

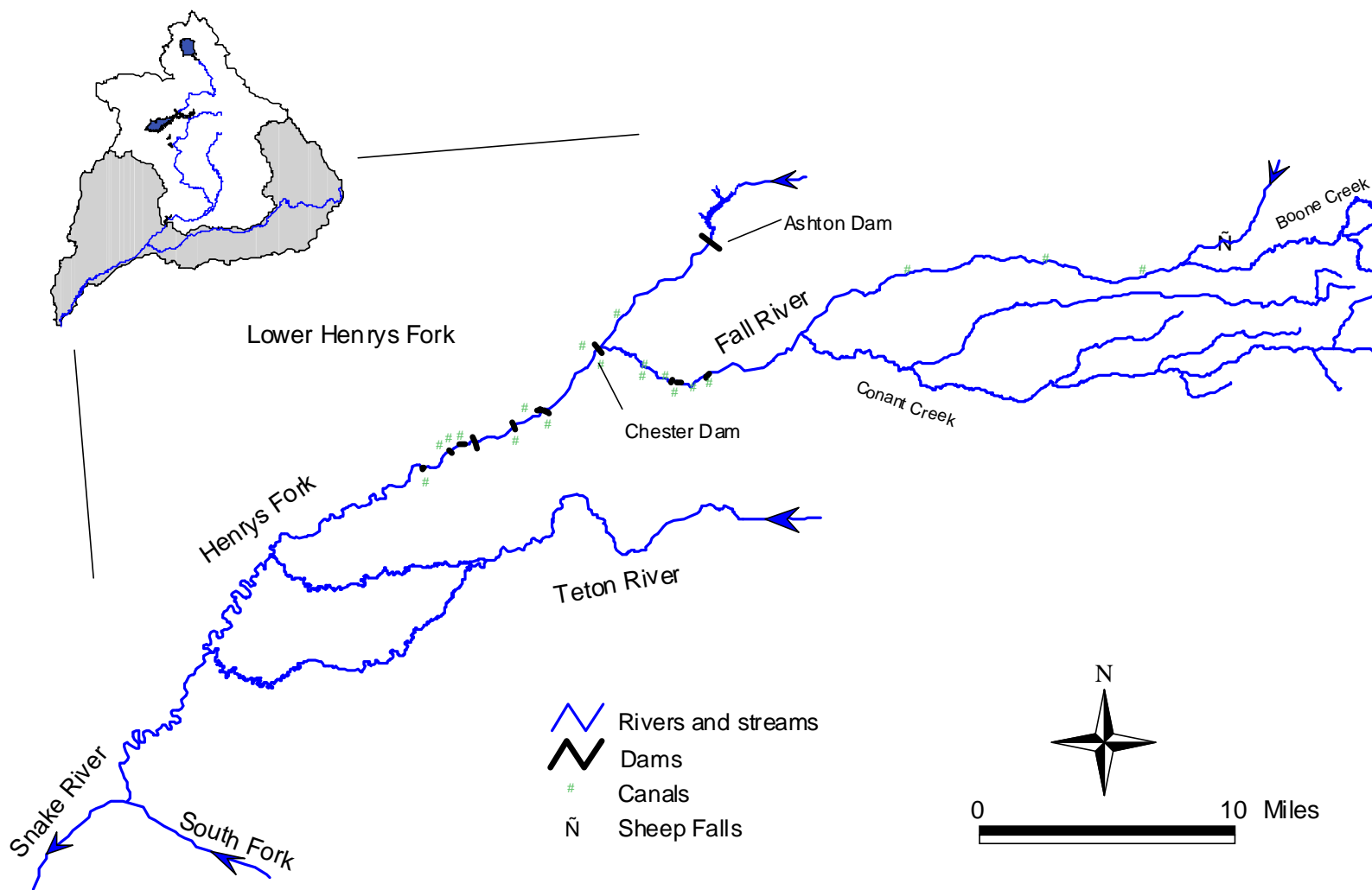


Figure 1: The Lower Henrys Fork subwatershed (17040203) encompasses all waterways downstream of Ashton Dam, including the Fall River and all of its tributaries, but not including the Teton River.