Implementing Fish Screen Projects on Glacially Fed and High-gradient River Systems

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Abstract:

The Hood River Watershed is primarily made up of glacially fed rivers and streams. The retreat of the glaciers on Mt. Hood has led to increasing frequencies of debris flows, flooding, and increased sedimentation. Irrigation districts within the Hood River Basin have faced increasing difficulty in operating and maintaining diversions while protecting fish populations in the face of these changes.

Collaborative design processes have facilitated project designs that address issues associated with these operating conditions while also addressing the needs and issues of river function and wildlife.

Middle Fork Irrigation District diverts water very high in the Hood River Basin and is highly impacted by increased frequency of debris and flooding events as well as sedimentation. In November 2006, a debris flow eliminated the Eliot Creek diversion within Middle Fork Irrigation District's system. A new diversion and fish screen were constructed in May of 2007. The new fish screen was designed to meet current agency criteria and to withstand another event of similar size while managing increased sediment. Advanced sediment management facilities were incorporated into the screen design.

The fish screen was buried by softball sized cobble shortly after water was turned into it. The diversion was rebuilt shortly after the project was constructed to further minimize large material entering the diversion. The diversion now directs the energy of the stream down the stream channel and therefore keeps the large debris out of the diversion.