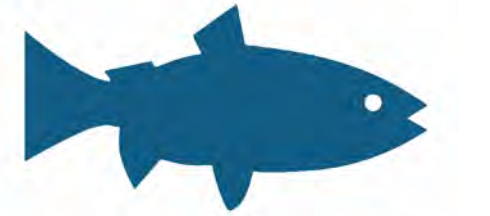




# HABITAT, PASSAGE, SCREENS



## PASSAGE



Radial Gate at Structure 2

Passage improvement needs have been identified at the LNFH and in upper Icicle Creek. This could include operational improvements at Structure 2 and addressing passage issues at the boulder field near the IPID diversion. These improvements would provide passage and access to approximately 26 miles of upstream, mainstem habitat. The estimated cost is \$6 million.



Boulder Field

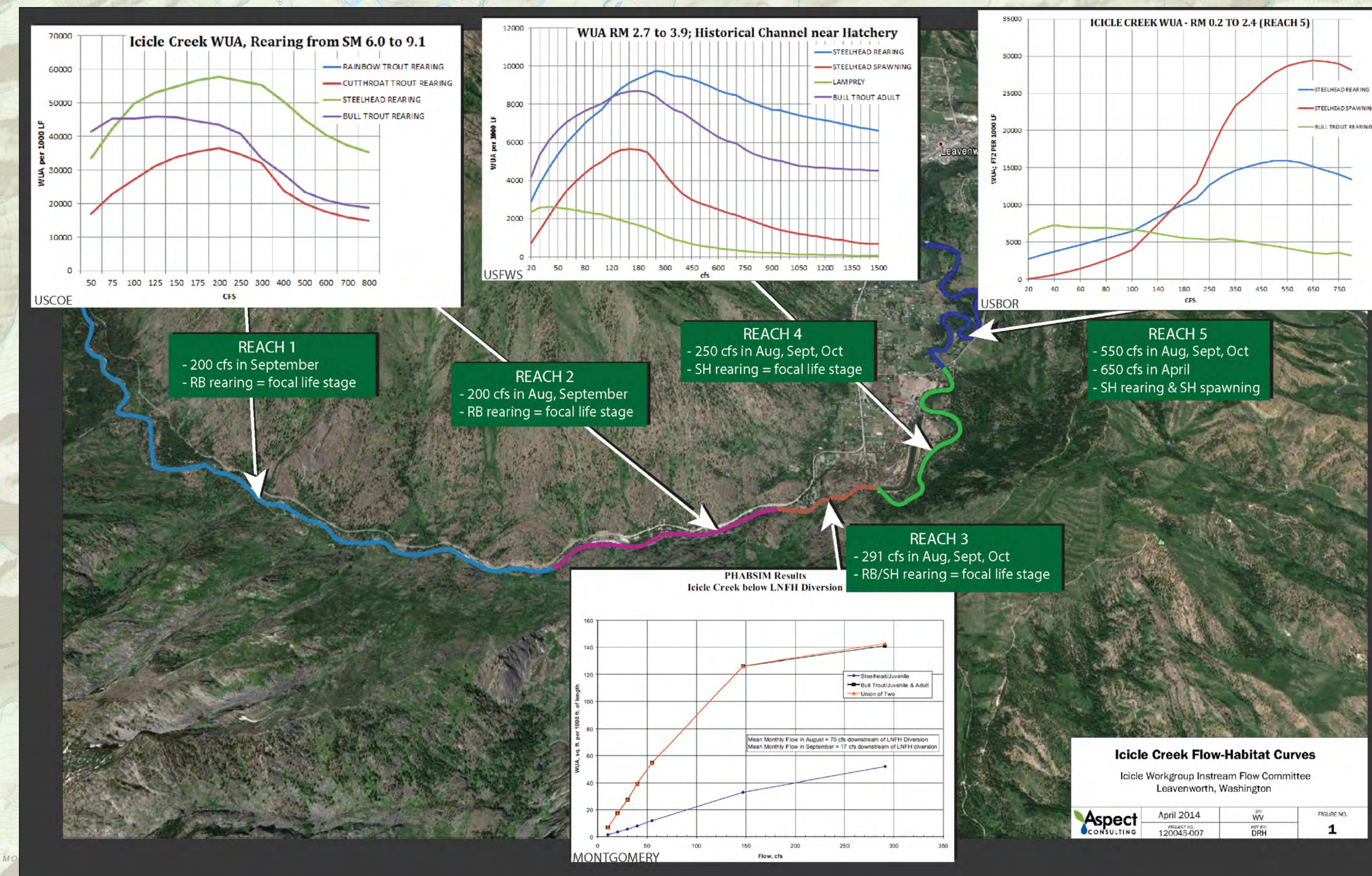
(photo credit: Trout Unlimited-Washington Water Project, 2013)

## HABITAT

Several habitat improvement projects are planned throughout Icicle Creek. These include riparian plantings, engineered log jams, conservation easements and land acquisitions. The cost of these projects are estimated at \$2.5 million dollars.



Eroding Banks, Icicle Creek



### Recommended Flow by Reach

Fish habitat (WUA, weighted usable area) generally increases as stream flow increases. Studies by US Fish & Wildlife Service and others created the following habitat curves. These were helpful in identifying flow improvement targets for Icicle Creek.



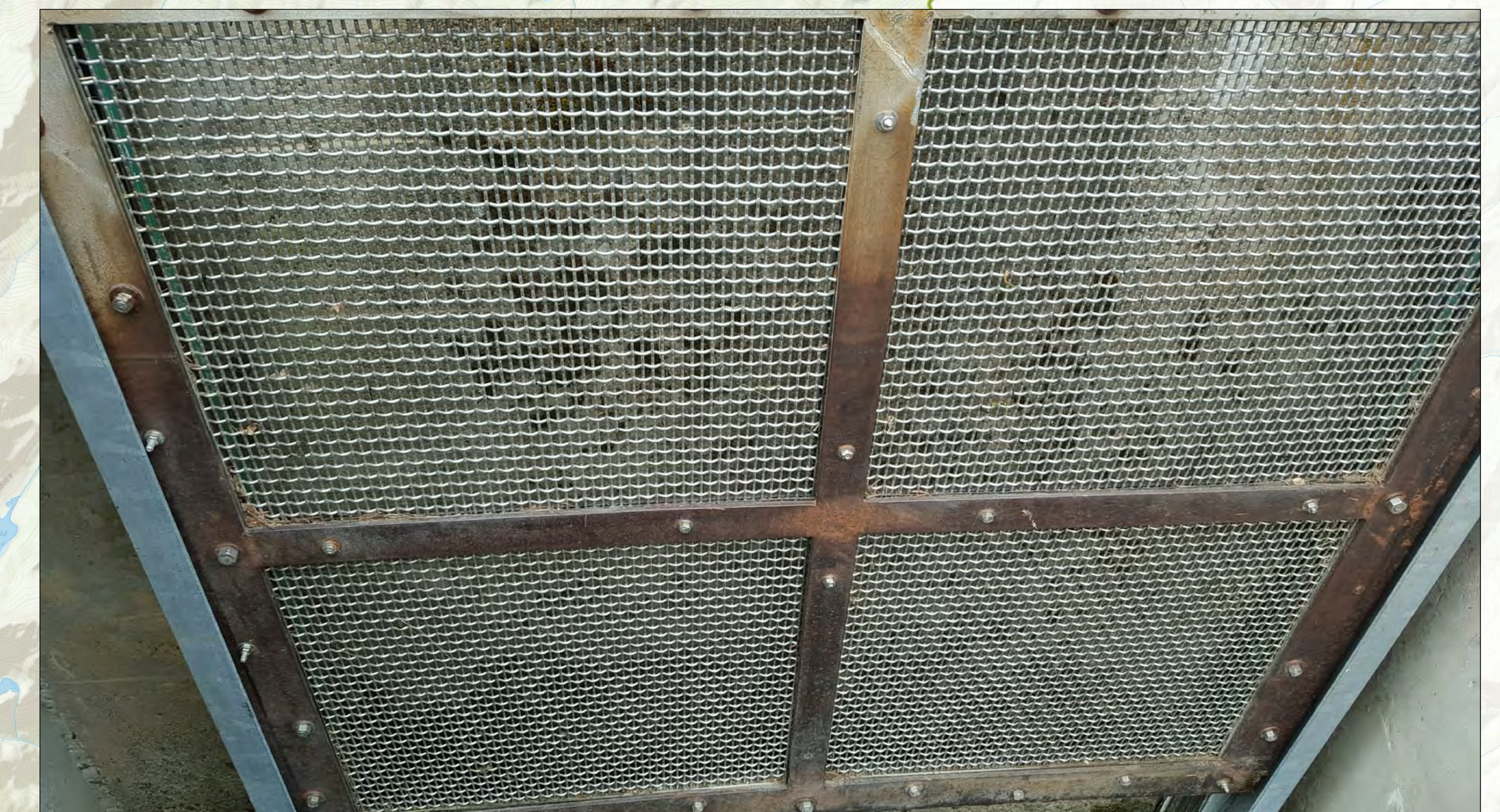
Brush Mattress, Icicle Creek

## SCREENING



Fish Bypass and Screen, COIC Bifurcation

There are three large diversion on Icicle Creek with inadequate screens: City of Leavenworth, Leavenworth National Fish Hatchery/Cascade Orchards Irrigation Company, and Icicle-Peshastin Irrigation District. Upgrading these screens to environmentally compliant screens will decrease fish mortality and ensure compliance with State and Federal Laws. The estimated cost is \$5 million.



Fish Screen, City of Leavenworth