

Hartland Dam Fish Passage Study

US Fish and Wildlife Service



Overview

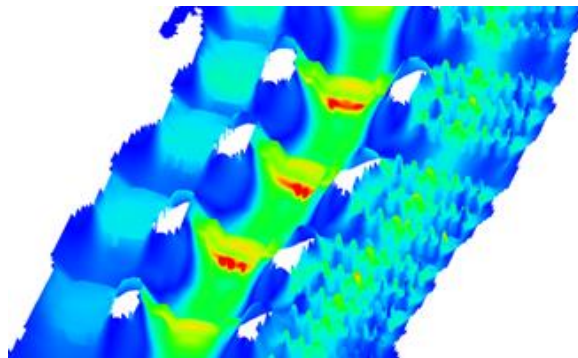
- Fish passage application
- 2D finite difference model development

Applied Software

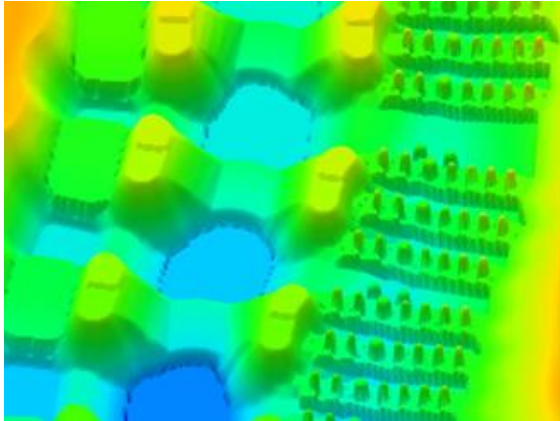
- SMS (TUFLOW)

Problem

The Hartland Diversion dam was constructed 129 years ago on the Gunnison River near Delta, Colorado. While facilitating the delivery of valuable agricultural water to downstream users, the dam has also prevented the migration of several target fish species to upstream habitats. The Hartland fish passage project proposes to remove a portion of the Hartland Diversion dam to construct a channel that will allow free passage to three target species of fish.



Solution



The proposed fish passage structure was modeled by Aquaveo using TUFLOW, a model well suited and very stable for analyzing 2D hydrodynamic effects that may result from the presence of hydraulic structures. A 0.25 meter modeling grid was used to represent the model domain which included several trapezoidal weirs, pools, two V-shaped channels, and large boulders.

Benefits

The model results assisted in the adjustment of the proposed design to accomplish required velocities and depths in the channel.