

Spring Head of Old River Barrier

Installation

- Current barrier design only allows for installation and removal at Vernalis flows less than or equal to 5000 cfs.
- The size (grading) of rock material used to construct the barrier has changed significantly over time. Earlier barrier installation used larger, coarser rock. However, as a result the barrier "leaked" and there were concerns over fish impingement because of the leakage.
- To address this concern, DWR began constructing the barrier with smaller, finer rock. While this made the barrier more impervious, the size of the rock restricts the range of allowable Vernalis flows under which the barrier may be installed. This is particularly true during the closing of the barrier.

Removal Time

- Road access at the barrier and instream channel capacity limits the size of equipment which can be used for barrier removal and lengthens mobilization time.
- Current barrier design requires removal time of 5-6 days due primarily to culvert frames, platform and fike net assembly and the need for a land-based crane operation. This removal timeframe is not compatible with short-term forecasting capability of 2-3 days of a significant late season storm event which could cause Vernalis flows to rise to levels which resulting in barrier overtopping and failure.
- One option DWR is evaluating is to dredge a small portion of the channel at the south side of the barrier site, install the culverts and anchor them to piles and backfill with rock. This would create a permanent abutment of the barrier which would be left in year-round. The remaining portion of the barrier would just consist of rock fill. This design appears to minimize removal and installation time for the barrier to 2-3 days. More detailed information should be available in 2-3 weeks.

Maximum Allowable Flow

- The current barrier is designed to accommodate Vernalis flows of 7,500 cubic feet per second or less. While this is above the maximum targeted flow in the Vernalis Adaptive Management Plan (VAMP) of 7,000 cfs, it may not be enough to accommodate large changes in downstream accretions/depletions which could cause daily Vernalis flows to deviate significantly about the mean VAMP targeted flow.
- There is a berm along the Head barrier site at +11.0 feet above mean sea level. In the event the barrier overtopped and failed at this elevation, bank overflow will occur and levee erosion and failure is likely. Therefore, local interests will require the barrier crest be below the berm elevation.
- The barrier crest is designed for +10.0 feet above mean sea level, a foot below the berm elevation. Current barrier specifications call for a maximum upstream water elevation of +8.5 feet allowing for 1.5 feet of freeboard. DWR is currently evaluating barrier stability for a maximum upstream water elevation of +9.0 feet. We are also performing Delta modeling to determine what the maximum allowable flow at Vernalis is for this water elevation.