

Project: Lower Granite 1:12-scale Vertical Barrier Screen Model

PI: Robert A. Davidson

Branch/Group: Inland Hydraulic Structures Branch, Environmental Hydraulics Group

Project Description/Activities/Capabilities:

Powerhouse operations, fish-passage design, hydraulic modeling, hydraulic structures

Sponsor: Walla Walla District. POC – Sean Milligan

CHL Personnel

Bob Davidson, Marshall Thomas, Dana Polk, Jason Jackson

Project Location and Description:

Lower Granite Lock and Dam is the upstream-most project on the Lower Snake River, located 107.5 miles above the Snake River confluence with the Columbia River. The main structure includes the powerhouse, spillway and stilling basin, navigation lock, fish facilities, concrete non-overflow sections, and a rock-filled embankment adjacent to the north shore. The dam spans 3,200 ft including the earthen non-overflow embankment. The powerhouse is located near the south shore with the spillway and navigation lock to the north. The powerhouse consists of six generator bays with a maximum total discharge capacity of 130,000-cfs. The hydraulic capacity of Lower Monumental Dam is similar to Little Goose and Lower Granite. The powerhouse capacity is only 123 kcfs when all units are operated within 1 percent of peak efficiency. The turbine units are numbered from 1 to 6 starting at the south bank. The Lower Granite spillway is 512 feet long. It has eight 50-foot wide spillway bays separated by seven 14-foot wide piers. The spill bays are numbered consecutively from north to south. The spillway crest elevation is 681.0 fmsl. The spillway discharge is controlled by eight radial (tainter) gates that are 50 feet wide by 60 feet high. The spillway will pass the project design flood of 850,000-cfs, with the maximum pool elevation of 746.5 fmsl, and the standard project flow of 678,000-cfs with the normal full pool elevation 738.0 fmsl. A raised spillway crest was added to spillbay 1 during the winter of 2002. The RSW is operated in a full open or closed mode with an average discharge of about 6.8 kcfs.

Facilities: Bldg. 3179

Related Topic Areas: Physical models, fish passage, juvenile bypass system, vertical barrier screens, extended submerged bar screens, trashracks, debris, rivers, reservoirs, hydraulic structures

