United States Department of the Interior

U. S. GEOLOGICAL SURVEY
Oregon Water Science Center
2130 SW 5th Avenue
Portland, Oregon 97201
http://or.water.usgs.gov/

October 6, 2010

Dear Sir/Madam:

The enclosed report describes results from a recent U.S. Geological Survey study that assessed the thermal effects of dams in the Willamette River Basin in northwestern Oregon. The work was completed with support from the U.S. Army Corps of Engineers and the Oregon Association of Clean Water Agencies.

The report focuses on two subjects:

- First, methods were developed to estimate the streamflow and water-temperature conditions that would occur at major dam sites in the Willamette River Basin in the absence of upstream dams. The study included 13 dams built and operated by the U.S. Army Corps of Engineers as part of the Willamette Project, and 1 dam on the Clackamas River owned and operated by Portland General Electric. These "no-dam" conditions were estimated for the entire 2001-02 period, but methods and equations were developed and documented so that conditions during other years also could be estimated.

- Second, the report describes how the "no-dams" conditions were used in conjunction with river models to simulate downstream flows and temperatures under both a no-dams and with-dams scenario. The results were compared to determine the downstream effects of the dams on flow and water temperature. The study used the models that were developed as part of the Willamette River water-temperature Total Maximum Daily Load program; those models simulate the entire Willamette River and most of its major tributaries up to the first major dam on each tributary.

The report is available online at http://pubs.usgs.gov/sir/2010/5153/.

I hope that the information in this report is useful to you. If you have any questions or require further information, please don't hesitate to contact me at 503-251-3280 or by email at sarounds@usgs.gov.

Sincerely,

Stewart Rounds

Stewart Rounds
Hydrologist