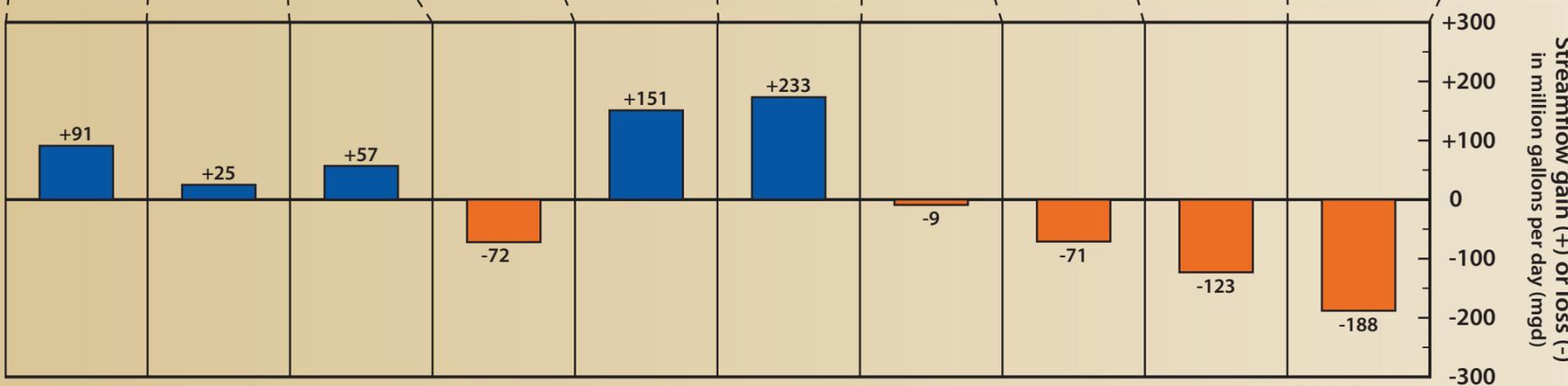
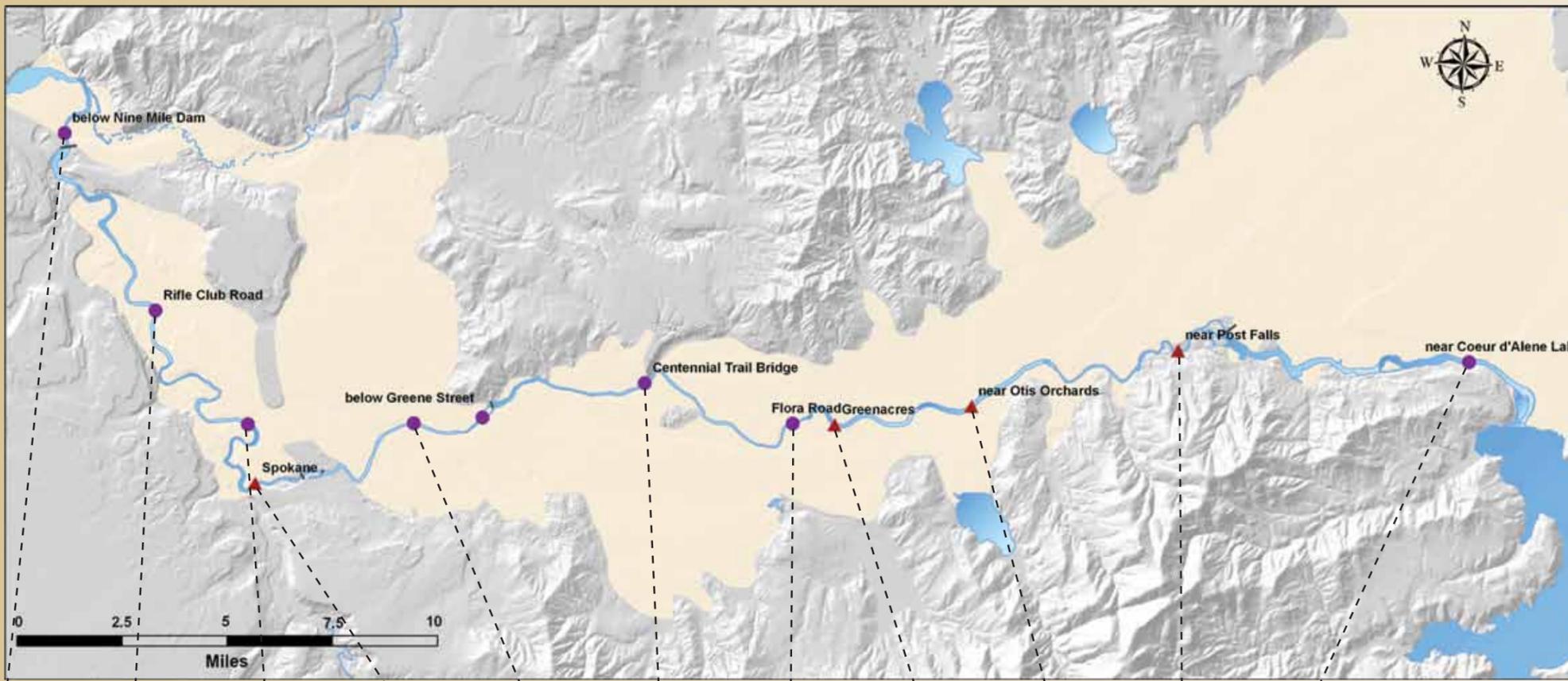


Aquifer-River Interchange

The two maps on this page provide similar views of Aquifer-River interactions. The map at left shows the information collected during a 5-day investigation of streamflow in August 2005. The map below provides an estimate of the annual reach interactions from 2004 data, and it compares well to the map at left. Study of Aquifer-River interactions has generally occurred during late summer low streamflow conditions, and these interactions during other periods of the year are less well known.



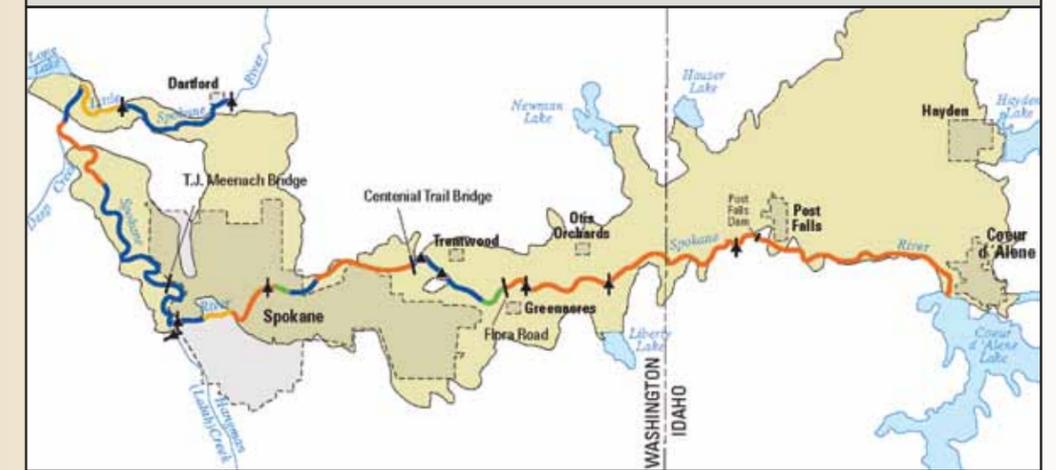
Low Flow Seepage Run: Spokane River Aquifer Interchange August 26-31, 2005



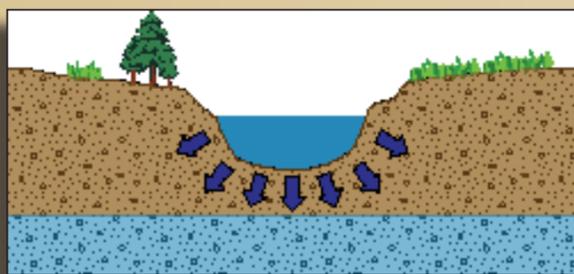
Losing reach of the Spokane River near Greenacres, August 1, 2003

River Reaches: Loss and Gain

A strong relationship between the Aquifer and the Spokane River is present throughout the river's length, from Lake Coeur d'Alene to the confluence with the Little Spokane River. Although the Aquifer-River interchange is complex, studies of the river have identified four types of interaction: **gaining**, **losing**, **transitional** and **minimal**. The average annual reach interactions based on 2004 data are shown below.



- Losing Reach:** the river loses water to the Aquifer
- Gaining Reach:** the river gains water from the Aquifer
- Transitional Reach:** changing condition between gain/lose
- Minimal Interaction:** the river neither gains nor loses



Losing Reach

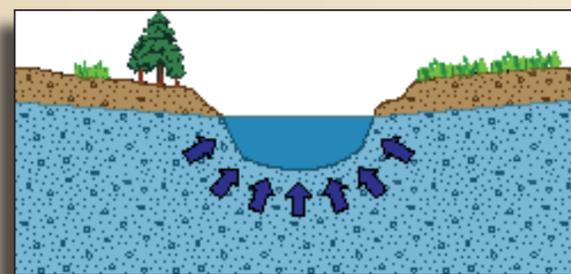
Where the water table is below the bed of the river, water percolates through the gravelly bed and downward into the Aquifer. In these locations the river is losing water, the typical condition for the Spokane River in Idaho and into Washington to Flora Road.

Aquifer Recharge and Discharge

River Streamflow Gain = Aquifer Discharge
 River Streamflow Loss = Aquifer Recharge

Aquifer Facts

For almost its entire length, the Spokane River interacts dynamically with the Aquifer. Measurements of the River-Aquifer interactions have only been performed during low streamflow conditions in late summer. When the streamflow in the River is greater than 10,000 cubic feet per second, gaining and losing reach trends are hard to determine.



Gaining Reach

Where the water table is higher than the river bed, the Aquifer loses water through springs and seeps and adds volume to the river. In these areas the reach of the river is gaining. The reach between Sullivan Road and the Centennial Trail Bridge is a gaining reach.