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**RESTORING FLOODPLAIN FUNCTION AND AN ALLUVIAL AQUIFER IN A
DISTRIBUTARY RIVER SYSTEM: MANAGED AQUIFER RECHARGE
THROUGH SURFACE INFILTRATION IN THE WALLA WALLA VALLEY**

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ABSTRACT: The Walla Walla River is a tributary system to the Columbia River located in southeast Washington and northeast Oregon. Once exiting its headwaters in the Blue Mountains, the river system enters the Walla Walla Valley. Geological faulting of the CRB over time has created a unique transition in flow environment; where alluvial thicknesses increase from several feet to more than 800 feet. Historically, the river system acted as a natural distributary system as it entered the Walla Walla Valley, and shed flood waters and energy down various distributary channels. Many of these distributary channels have been modified as irrigation canals and do not activate in the winter and spring during high water, as they would have naturally. As a result of this change in pattern, significant groundwater declines have been noted in the alluvial aquifer since the 1940s. This presentation will focus on highlighting the impact of modifying a distributary river system and the managed aquifer recharge effort currently being made to restore its function. The presenter will share their observation concerning the advantages and disadvantages of each of the following four methods of aquifer recharge:-
Spreading Basins: Observations from the recent expansion of the Hudson Bay shallow aquifer recharge site. - Former Gravel Quarry: Observations from the Locher Road shallow aquifer recharge site where a spreading basin was constructed inside of a former gravel quarry. - Field Flooding: Observations of several projects where recharge water was diverted to parcels of land with a coarse soil composition and allowed to infiltrate passively. -Distributary Channel Seepage Augmentation: Running water in the winter and spring when irrigation demand is low. On-site and off-site monitoring data from each of the project types will be shared to show how these projects has affected the groundwater / surface-water system in the Walla Walla Valley; and lastly highlight some of the modeling tools we are looking to use in the near future to aid in decision making.

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