

## CONSERVATION CORNER

### Return Flow Study

It seems every day there is a new story about the water shortages on the Colorado River and the efforts that are being made to decrease water consumption. As a result of this shortage, the West is under severe pressure to implement water conservation. The CO River water shortages could have a major impact on water availability and allowed uses of water in CO, including the White River Basin. Before significant changes to water use are made, it is very important to provide policy makers, decision makers, and irrigators accurate data so they can make well informed decisions. Presently, there are no studies on return flows from agriculture to the White River. This is a critical gap in our current knowledge that the White River Integrated Water Initiative (Initiative) is planning on filling. The Initiative is studying the effects of agriculture water use on later season (not peak run-off) water flow in the White River.



As the pressure on our water supply increases, it will be crucial to know how irrigation practices might alter flow patterns within the White River. While flood irrigation removes a significant amount of water from the river during the late spring and summer months, it is important to understand how much of that water might be returned to the river later to supply critical water to the Town of Rangely, endangered fish, other irrigators, and the river ecosystem.

Common thoughts about the White River are agricultural return flows are an important source of water in the later months of the year. The Initiative is starting to gather data to establish the role return flows play in the later flow (baseflow) of water in the White River. Return flow is water that comes back into the river after being diverted upstream. This flow can be in the form of water that traverses across the top of the land (surface return flow) or water that travels underground (groundwater) before returning to the river. Baseflow is the sustained flow of the river between precipitation events. It is theorized return flows are an important source of water for the base flow of the White River. The Initiative is investigating this theory.

One of the main focal points of the Initiative's study will be to determine if flood irrigation contributes to the base flow of the White River. Flood irrigation is thought to recharge groundwater, increase domestic well levels, and contribute to return flows in the White River.

The Initiative's Water Supply Study is designed to quantify these points. Data will be collected to document the amount of water diverted from the river, well levels, the amount of water at various locations of the river, and tributary contributions to the White River. The data collected will be used in building a water model of return flows on the White River. The goal is to provide a tool that all water managers can use in making decisions on their water use based on various irrigation scenarios.

Several river systems throughout the west are experiencing water shortages, in part because changes were made to how water was used without understanding the impact the change would cause to the river system. This has resulted in the loss of return flows to the rivers which has exacerbated the water shortages in those rivers caused by the current drought conditions. The Initiative is working on a basin specific model that will be useful in keeping the White River system functional, even in low water years.

For additional information on the Water Supply Study or other work by the White River Integrated Water Initiative, please visit [www.whiterivercd.com](http://www.whiterivercd.com) or contact the White River and Douglas Creek Conservation Districts at 970-878-9838.