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Paddling the Verde in Cottonwood, AZ

Jeanmarie Haney paddles the Verde River. Photograph by Kimberly Schonek

I floated towards the black hawk, every feature coming clear. He was perched on a limb just a few feet above the water, and I was headed in his direction. This was the closest I'd ever been to a black hawk; he flew just before I passed under him. He seemed unwilling to turn and go back upriver over our heads, so we saw him repeatedly as we floated the Verde River near Cottonwood. We also watched wood ducks, mallards, cinnamon teals, and great blue herons floating and flying before us.

I've heard it said, "If you want to get to know a river, paddle it."

That old adage certainly applies to the Verde River. The Verde River increases in flow as it makes its way from its headwaters near Paulden, through the Verde River Canyon, the Verde Valley, and the Wild & Scenic reach (see table below), to pause at impoundments that store water for the Phoenix area. Below the impoundments, regulated flow continues to the confluence with the Salt River. The Salt River is tributary to the Gila River, which is tributary to the Colorado River. Thus, the Verde River is part of the 242,900 square-mile Colorado River watershed (see map pg 2).

There is considerable variety among the reaches, so you can pick your pleasure when paddling the Verde River. The Verde Canyon is gorgeous and largely unpopulated, but access is difficult, and because of the naturally small flow, a small boat and a willingness to walk is beneficial. Access in the Verde Valley is easy, but summertime flow is depleted due to irrigation diversions. However, it is still boatable in a canoe or small kayak, if you don't mind scraping bottom over some riffles. The Wild & Scenic reach has the most thrills, with bona fide rapids.

I feel extremely fortunate to live along a boatable river in Arizona. I have paddled the full length of the river through the Verde Valley, and find it highly enjoyable. There are long reaches without a visible building, and a feeling of "being out there" pervades. In other reaches, stately homes in park-like settings are setback from the banks. There are ample opportunities for wildlife viewing, especially herons, ducks, hawks, eagles, and songbirds. I have seen river otter, and of-

(Cont'd on Pg 2)

Paddling *(Cont'd from Pg. 1)*

ten hear the booming slap of beaver tails hitting the water. If it has been awhile since the last flood, beaver dams may be numerous, at times presenting a navigation challenge.

In February-March each year, there is a three-week period when the Cottonwood Ditch is turned off for maintenance. The Cottonwood Ditch, which supplies water for my fruit and nut trees, my garden, and my lawn, is the main diverter of surface water in the Cottonwood reach of the river, along with the Hickey Ditch, which diverts water for the ponds at Dead Horse Ranch State Park. My favorite time to boat the Verde River through Cottonwood is after the winter floods recede and before the Cottonwood Ditch is turned back on. But even in the summer months I float the river, walking the riffles where they are too shallow to navigate by boat. It is a great respite from the summer heat.

Many adventure-seekers go downstream to the Wild & Scenic reach, but if you enjoy the calm solitude of floating through a corridor of green, with great blue herons and black hawks flying before you, the Verde Valley reach is for you.

Keep in mind that any river has its hazards, and the Verde River is no exception. Although there are no rapids in the Verde Valley, there are narrow, swift reaches with overhanging vegetation. There may be beaver dams and there also numerous diversion dams – it's best to portage these, as the overflow areas may contain hazards.

The Verde River Recreation Guide by Jim Slingluff provides information for boating all sections of the river. Arizona State Parks provides river route maps for the Verde River Greenway State Natural Area. The maps are available online at http://www.azparks.gov/Parks/VERI/facilities.html ***By: Jeanmarie Haney***

USGS Stream Gage	**Average Annual Base Flow, cfs**	**Data Source**
Verde River near Paulden (09503700)	24.4	1
Verde River near Clarkdale (09504000)	79	1
Verde River near Camp Verde (09506000)	199a	1
Verde River above Tangle Creek	268	2

a Average winter base flow, 1989-2003
1 Blasch et al 2006
2 50% percentile flow

FOSSIL CREEK: NOW WILD & SCENIC

The U.S. House of Representatives passed the Omnibus Public Land Management Act on March 25; the Senate had approved it a week earlier. This landmark legislation provides permanent protection for more than 3.3 million acres of public lands in Arizona.

A major highlight is the designation of nearly 17 miles of Fossil Creek as a Wild and Scenic River—from its headwaters region near Strawberry to its confluence with the Verde River below Childs. This is an important step to ensure the survival of five rare native Arizona fish species and create more than 14 contiguous miles of protected year-round stream flow.

Fossil Creek had the vast majority of flow diverted to the Childs-Irving Hydroelectric Facility for nearly a century. That changed on June 18, 2005, when the Arizona Public Service Company (APS) decommissioned the Childs and Irving power plants and returned full flow (more than 40 cfs) to Fossil Creek. Fossil Creek is a unique warmwater perennial streams that issues from Fossil Springs, a complex of springs high below the Mogollon Rim. Fossil Springs produces a constant supply of water that is approximately 70 degrees Fahrenheit and precipitates calcium carbonate along its path to form travertine-floored pools.

A critical need that stems from restoration of Fossil Creek and its Wild and Scenic designation is providing the Forest Service with sufficient resources to protect the remarkable qualities of the stream and its banks while accommodating the public's enthusiastic enjoyment.

Prepared by Ed Wolfe

Yavapai County Water Advisory Committee (WAC) Update

The Yavapai County Water Advisory Committee is continuing to collaborate and make progress on priority projects. The Central Yavapai Highlands Water Resource Management Study (CYHWRMS) with The Arizona department of Water Resources (ADWR) and U.S. Bureau of Reclamation is nearing completion of the first phase. NAU is progressing with collecting information of the surface water system of the Verde Valley in support of model development. The U.S. Geological Survey (USGS) is collecting hydrologic data and preparing the Northern Arizona regional Groundwater Model. A couple of projects will be recommended to the WAC in April.

The first phase of the CYHWRMS study will be complete when the Demand Analysis Table is complete. At this time the Technical Working Group is estimating future demands (2050). Upon completion of that approximation, each planning area, and the region will have an estimate of the difference between current supplies and future water demands. The next phase will consist of a water supply assessment followed by development of alternatives to meet future demands. The Demand Analysis Table will be presented to and discussed by the WAC at an upcoming meeting.

NAU graduate student Rob Ross is working on a Verde Valley surface water model. Currently, the second phase of the NAU project is beginning to build a hydraulic model of the Verde River from Mile Zero to the Camp Verde gage, including the perennial tributaries and the major diversions and ditches. Near-term goals are to simulate steady, low-flow condition of the Middle and Upper Verde River without diversions, and simulate unsteady flow of the Middle and Upper Verde River with up to two major diversions constrained by new data collected in this study.

The USGS will continue hydrologic monitoring in the Verde Basin. The WAC will contribute funds to operate the Williamson Valley gaging station and precipitation gage; continuous groundwater level monitoring in 8 wells; and stable isotope monitoring of precipitation, streamflow, and winter runoff on the Mogollon Rim. The purpose of the information is to continue key long-term records and provide information useful to hydrologic models.

The Technical Advisory Committee (TAC) of the WAC will recommend that the WAC work with the USGS to install several gravity monitoring stations in the Verde Valley and Big Chino Valley in order to collect data to improve our understanding of aquifer properties (specific yield and aquifer storage change). Also, the TAC will recommend continuing with Verde Valley surface model work in the Verde Valley. These efforts are contingent upon approval by the WAC at the April meeting.

In an effort to refocus on management objectives of the WAC, the WAC has asked its members to review the 2004 WAC report on water management strategies. The report is posted on the WAC website: http://www.co.yavapai.az.us/Content.aspx?id=20562. Click on Reports; then click on Water Management.

Please contact the WAC Coordinator, John Rasmussen, for more details on any of the WAC activities or if you would like to be added to the WAC email-recipient list (john.rasmussen@co.yavapai.az.us or 928-442-5199).

Prepared by John Rasmussen

SNOWPACK AND SURFACE-WATER STORAGE IN THE VERDE WATERSHED

The Verde Watershed received 1.40 inches of precipitation in late November and another 3.47 inches in December. The snowpack in the Verde Watershed was 319 percent of normal on January 1st, 2009 despite La Niña conditions returning in the fall of 2008. However, the Verde Watershed received just 0.72 inches of precipitation in January, 2.17 inches in February, and a meager 0.06 inches in March which is 38 percent, 114 percent, and 3 percent of normal, respectively.

The paucity of recent precipitation combined with warmer temperatures this winter has greatly diminished the snowpack. As of April 1st, the snowpack is 9 percent of normal. Runoff from snowmelt peaked in late February at 6,170 cfs. Inflows into Horseshoe Reservoir this winter from January through March produced approximately 135,000 acre-feet which is 86 percent of median. On January 1st, 2009, the Verde System was 41 percent full with 117,976 acre-feet stored. As of April 1st, the Verde System is 79 percent full with 226,585 acre-feet stored.

Courtesy of Tim Skarupa (Salt River Project)

SRP OPERATIONS OVERVIEW

1. Introduction:

The Salt-Verde watershed encompasses an area of almost 13,000 square miles in central and eastern Arizona. Average annual precipitation on the watershed is approximately 20 inches. The six reservoirs operated by Salt River Project can hold a total volume of 2.3 million acre-feet (maf) of water. Median annual inflow to the reservoirs is about 1.025 maf, and annual deliveries average 950 thousand acre-feet (kaf), including ground water. The SRP water service area comprises an area of 248,240 acres and the most recent data show that more than 85 percent of the annual deliveries go to serve urban use with the remaining volume serving agricultural lands.

2. Salt and Verde reservoir operations:

Although both watersheds are approximately the same size, more runoff comes from the Salt portion of the watershed due to the higher elevations of the White Mountains, which receive more precipitation, particularly snow, in the winter. Annual median runoff volume of the Salt River is 675 kaf, and the annual Verde median is 350 kaf.

Of the total storage volume of 2.313 maf, the two reservoirs on the Verde can hold only 287,400 acre feet (af), which is 12 percent of the total. The total storage capability of the Salt system is 2.026 maf with Roosevelt Lake holding the majority of 1.653 maf, or 71 percent of the combined total.

SRP tries to maximize hydrogeneration during the peak electric and water use months so the bulk of summer deliveries (May-Sep) come from the Salt system. Water from the Verde reservoirs is used during the winter months to maintain storage space for spring runoff and minimize the probability of exceeding the storage capacity there. Both the Verde and Salt releases are supplemented with groundwater pumping in the water service territory of the SRP.

During the drought years since 1996, Colorado River water was available, and SRP bought, or borrowed, over 700 kaf delivered via the CAP canal. Without those additional purchases, Roosevelt Lake might have been essentially empty in late 2002.

3. Ground-water use:

Ground water is considered supplemental water. The 248 wells operated by SRP can supply, at most, only about one third of the annual supply. Naturally, when the reservoirs are nearly full, SRP reduces ground-water pumping to the minimum required volume. Conversely, during times of drought, SRP supplements its surface water supplies with as much as 325,000 acre feet of ground water in order to conserve and extend the availability of the remaining surface water supplies.

4. User demand:

Average annual deliveries have remained relatively constant over the last few decades at about 950 kaf/year despite the transition from agricultural to mostly urban use. During the mid-1980s, the annual distribution was about equal between agricultural and urban use, but the latest figures show that ag deliveries are only 15 percent of the total. Projections indicate that essentially no agricultural land will remain in SRP's service area by 2020.

5. Normal flow:

Because the dams operated by SRP impound the total flow of the Salt and Verde rivers, the lands in the Valley that belong to the Salt River Valley Water Users Association are entitled to the water that would normally flow in the Salt River were the dams not in place.

Normal Flow (NF) is a term used to refer to the natural flow of the rivers appropriated by the Water Users under the doctrine of Prior Appropriation with a priority date for the lands entitled to water under the Kent Decree. The water flow is measured every eight-day period, and lands with a priority date of 1869 are entitled to use NF water before lands with an 1870 date, etc.

The amount of NF water available to eligible lands is 48 miners inches of constant flow to the quarter section (160 acres) measured and delivered at the land. This means that in any 8-day NF period, the maximum amount of NF water the landowner can receive is 19.04 af per quarter section, or 0.11901 af/acre, or about 1.4 inches. (One acre-foot equals 325,851 gallons.)

Provided by Greg Kornumph (Salt River Project)

OUR VERDE WATER, PAST, PRESENT, AND FUTURE

April is Water Awareness Month. The League of Women Voters of Sedona-Verde Valley is hosting an educational forum entitled "Our Verde Water, Past, Present, and Future". The forum will be held on Saturday, April 18th from 10:00 A.M. to 1:00 P.M. in Room M137 at the Yavapai College in Clarkdale (601 Black Hills Dr.). Yavapai College is co-sponsoring this event.

The forum will be moderated by Tom O'Halleran and the presenters include John Rasmussen (Yavapai County Water Coordinator), Dick Ellis, Paul Handverger and Paul Miller.

There will be time for questions and answers. A handout on water issues as well as contact information of the many groups, agencies, and committees involved in the various aspects of water in the Verde Valley will be made available.

For more information, please contact Committee Chairs Mike Ward at 282-2958 or Carol Johnson at 634-6106.

Membership Form for the Verde Watershed Association

Government units	$ 100 per year
Business for profit	100 per year
Civic groups and non-profits	50 per year
Individuals	25 per year

Make check payable and mail to:

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