VIRGIN RIVER
PROGRAM

FALL 2011 NEWSLETTER

Focus on fish and people unique to Virgin River Program

By Ron Thompson, Washington County Water Conservancy District General Manager

The Endangered Species Act of 1973 brought with it broad public support as well as potential for conflict.

From the beginning of its first planning efforts in the early 1980s, Washington County Water Conservancy District (District) has done its best to be a positive force in connection with conservation of native species, river corridor protection, recreation, flood control and water development.

Ron Thompson
Washington County Water Conservancy District General Manager

Most of the biological diversity in Washington County is found within the river corridors that provide the surface water supplies our customers rely upon for daily use. We knew that in order to fulfill our mission to provide water for local residents, we had to take care of the environment and the river system on which we depend.

We did not want to be a source of discord among the legitimate demands on our water resources, so we decided to become actively involved in the preservation of native species. Since so much of what we do has some impact on our rivers, we have invested significant resources to understand and address the biological needs in the river system.

As early as 1982, the District contracted for studies that would address the impact of Quail Creek Reservoir on the endangered woundfin.

In 1986, the District worked with state and federal agencies to address concerns about native fish habitat, with particular focus on threatened and endangered species such as the Virgin River chub and the woundfin by looking at the

- effects of flooding
- effects of predators such as the red shiner and
- effects of fluctuating flows.

The District always searches for win-win situations that allow the system to function for the well-being of wildlife and people.

At one time there were at least five different teams and committees trying to deal with the many challenges for water for wildlife, recreation, environmental demands and domestic, industrial and agricultural needs. Each of these issues had their own set of problems which further complicated the process.

The Virgin River Program (Program) was born out of this effort 10 years ago. The Program was given the task to

- recover, conserve, enhance and protect native species in the Virgin River basin and
- enhance the ability to provide water for sustaining human needs.

The Program has been instrumental in forming strong local, state and federal partnerships dedicated to restoring and protecting species as well as providing mechanisms that allow us to continue to find water for people.

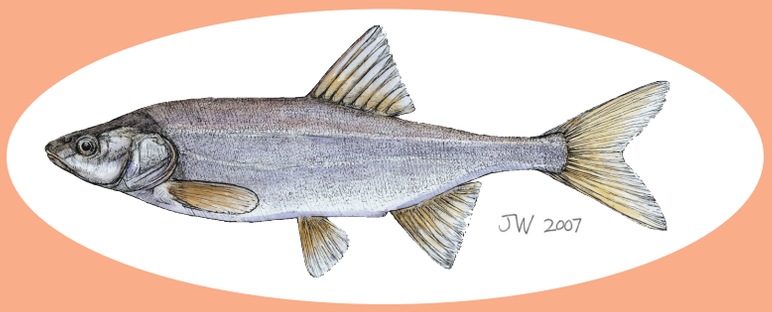
The Program is unique in working toward finding a balanced approach to water issues as they affect all living creatures in Washington County.

Virgin River Chub - 18" long

Rare and beautiful, this fish is the top native predator in the Virgin River. The chub is a fast streamlined fish with a sloped forehead, humped back and thin rounded tail.

The Virgin River chub is found only in the Virgin River system downstream from Pah Tempe hot springs. The chub prefers deep pools and runs with boulders and debris for cover.

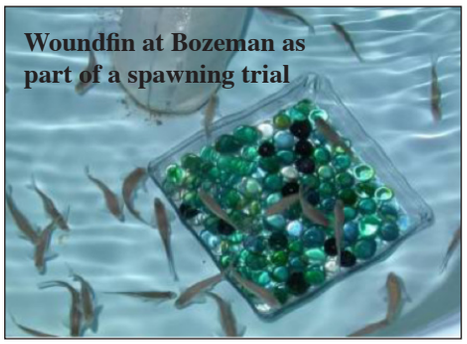
The Virgin River chub is currently listed as an endangered species.



Research center works with the Program to enhance endangered fish production

By Ann Jensen, Washington County Water Conservancy District

Bozeman Fish Technology Center



Woundfin at Bozeman as part of a spawning trial

Thermal unit at Bozeman

The Virgin River Program (Program) works closely with fish hatcheries to supplement native fish populations and have a backup supply of fish should a catastrophic event occur. The Program also works with fish research centers that seek to improve hatchery production levels through manipulation of such variables as feeding regimes, temperatures and pond density. One of these research centers is the Bozeman Fish Technology Center.

On August 5, 1892, the Bozeman National Fish Hatchery was authorized by Congress as a fish culture station in Montana for production and stocking of trout and grayling in the Northern Rocky Mountains region. At that time, $10,000 was appropriated to purchase land and water rights, construct buildings and purchase hatchery equipment.

Currently, Bozeman is the fourth oldest active fish culture facility in the National Fish Hatchery system. Historic archives indicate that Buffalo Bill Cody made use of the hatchery to obtain trout and grayling for some waters on his Wyoming ranch.

In 1966, fish production ceased when the hatchery became a Fish Cultural Development Center to focus on researching methods for improving fish culture.

In 1983, this research center was designated as the Bozeman Fish Technology Center. Bozeman is now one of just six fish technology centers nationwide that provide technical and scientific support in the restoration, recovery and management of aquatic resources on regional and national scales. The fish technology centers maintain applied research programs in conservation genetics, population dynamics and modeling, physiology, nutrition and ecology.

Bozeman works in partnership with state, federal and private partners on various projects that promote the conservation of endangered and other rare aquatic species. In addition to the woundfin, the technology center works with June sucker, pallid sturgeon, rainbow trout, razorback sucker, shovelnose sturgeon, tailed frog, tilapia, westslope cutthroat trout, and aquatic insects.

Bozeman employs ten full-time employees, several temporary employees and students to conduct research and provide technical assistance.

The Program has been working closely with Bozeman for about four years in an attempt to:

- enhance woundfin reproduction at both Wahweap and Dexter fish hatcheries
- increase size, longevity, health and reproductive capability by enhancing diets and by studying the tendency of the adults to cannibalize the young, and
- produce larger numbers of woundfin by optimizing spawning output through manipulation of such variables as diet, nutrition, temperature and ecology in order to re-establish wild populations.

Since fish production strictly for stocking is no longer the function of the technology center, Bozeman does not supply fish to the Program.

Over the years, the Program has worked in partnership with two hatcheries that have provided fish for stocking in the Virgin River:

- Wahweap hatchery has supplied over 11,000 Virgin River chub and woundfin and
- Dexter hatchery has supplied over 114,000 Virgin River chub and woundfin.

Bozeman Fish Technology Center is located on 171 acres along Bridger Creek adjacent to the Gallatin National Forest on Highway 86 northeast of Bozeman, Montana.

More than 15,000 visitors per year tour the facility.

Information and photos provided by Bob Muth, Director of the Bozeman Fish Technology Center


Fathead minnow


Red shiner

All is not rosy when nonnative species threaten local fish

By Ann Jensen, Washington County Water Conservancy District

They're baaaaaaack and they brought friends!! The first chemical treatment to rid the Virgin River of nonnative red shiner occurred in 1988. It took 20 years to get this invasive species out of our river system and away from native fish. After the floods of December 2010 and the good spring runoff, they are back.

Between October 2008 and December 2010, red shiners have not been found above the stateline fish barrier. Unfortunately, floods and spring runoff provided the perfect opportunity for red shiners to re-invade the river above the constructed fish barriers. In August 2011, 200 young-of-year (baby) red shiners were captured between the Johnson Diversion and the stateline fish barrier. The presence of red shiners will require a rotenone treatment this fall to remove them from the Virgin River.

The fathead minnow was also found in the Virgin River this past spring. The fathead has a color variation which is sometimes referred to as a "rosy-red" minnow (see photo above).

Over the past three or four years, one or two fathead minnows have been found each year in the Virgin River. Their numbers started to increase in February and March of 2011, especially downstream from the Santa Clara River confluence, and this trend continues. Between the Johnson Diversion and the Utah/Arizona state line, over 2,600 fathead minnows have been found.

The fathead minnow is a competitor for food and habitat with the native fish. They thrive in poor water conditions and are capable of withstanding high water temperatures and low dissolved oxygen.

Each female fathead minnow can produce up to 10,000 offspring in one year. These invasive fish are considered a significant threat to the recovery of endangered fishes and, if left unchecked, they could take over the majority of the habitat necessary for endangered fishes of the Virgin River to survive.

Rotenone treatments planned to rid river of nonnative species

By Steve Meismer, Local Virgin River Program Coordinator

Red shiners were eliminated from the Virgin River in Utah in 2008, but the floods of December 2010 and higher than average spring runoff have allowed them to re-colonize.

The fathead minnow, another nonnative species, is now showing up in both the Virgin and Santa Clara Rivers.

These fish species need to be removed before they can negatively affect native fish populations. The Virgin River Program and its partners will be treating both rivers with rotenone to remove these species.

If all goes as planned, the treatment will take place the week of October 3rd.

The process will take about seven days to complete. Anyone near the river may notice a bit of an odor. Everyone should stay out of the water during the rotenone treatment.

Additional information will be available on the Virgin River Program website at **http://www.virginriverprogram.org/newsroomrotenone-treatment-information/**.


Salvaging native fish before rotenone application

Good water years benefit folks and fish

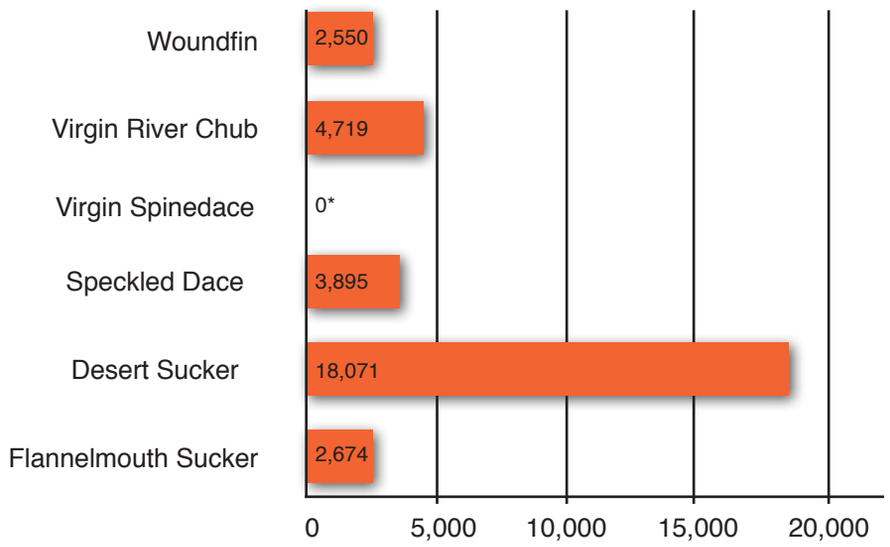
By Steve Meismer, Local Virgin River Program Coordinator

A good water year always brings delight to water managers because reservoirs fill. It also brings good news to state parks and recreation venues as more people take the opportunity to fish and play in the water. For us homeowners, it's good for our pocketbooks as we use less water on our landscape early in the growing season.

For local fish, a good water year provides more reliable river flow conditions that, not only maintain cooler water temperatures, but also supports better fish reproduction and survival. Our native fish thrive in water temperatures below 78° Fahrenheit (26°C).

Good streamflows coupled with increasing adult fish populations resulted in the young fish numbers indicated in the graph to the right.

Virgin River fish sampling results between Washington Fields Diversion and Johnson Diversion from July 29-August 9, 2011



*Virgin Spinedace are more often found in Virgin River tributaries.

VIRGIN RIVER PROGRAM WORD SEARCH

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barrier
Bozeman
chub
culture
fish
flows
issues
minnow
native
offspring
rare
stocking
sucker
trout

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The Virgin River Program webpage received a makeover in August. Check it out at http://www.virginrivierprogram.org.

Virgin River Program Newsletter Fall 2011

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