



Colorado River near Parshall

FISH SURVEY AND MANAGEMENT INFORMATION

Jon Ewert - Aquatic Biologist (Hot Sulphur Springs)

General Information: The Colorado River offers approximately 4 miles of public access on the Kemp-Breeze, Lone Buck, and Paul Gilbert State Wildlife Areas and BLM Sunset property unit.

Location: Approximately 10 miles east of Kremmling, CO on US highway 40.

Recreational Management: Colorado Division of Wildlife, Bureau of Land Management

Fishery Management: Gold medal river trout fishery

Amenities and General Info.

- 4 miles of public river access for wade or bank angling at multiple access points
- Picnic Areas
- Kids fishing pond
- Primitive restrooms
- Guide services available through several area businesses

Regulations

- All fishing is by flies and lures only, and all trout must be returned to the water immediately.

Previous Stocking

2011

- Rainbow trout

2010

- Rainbow trout

2009

- Rainbow trout

2008

- Rainbow trout

2007

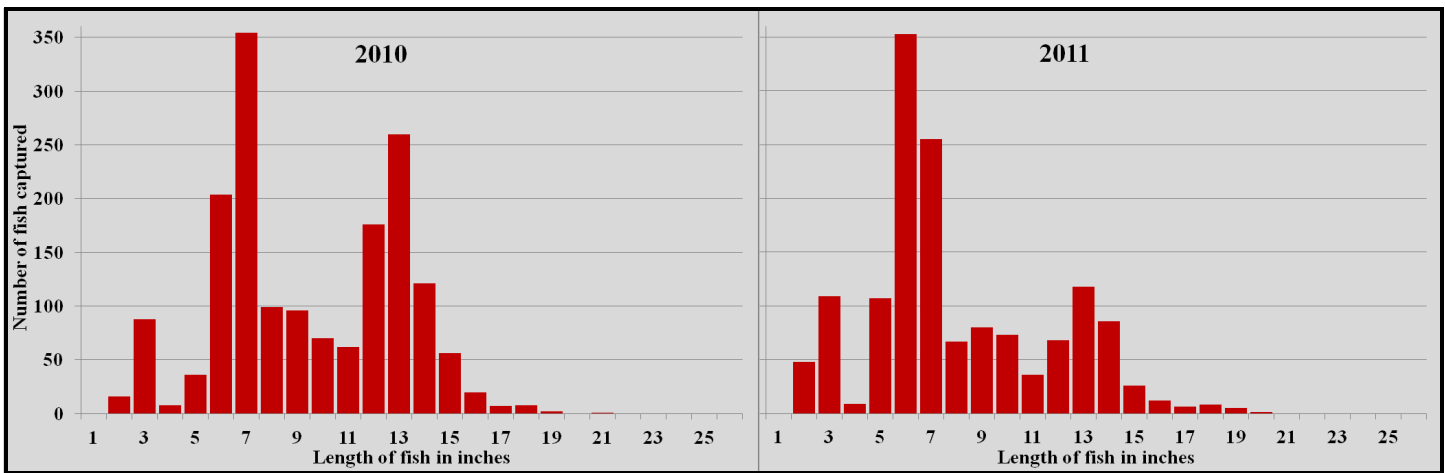
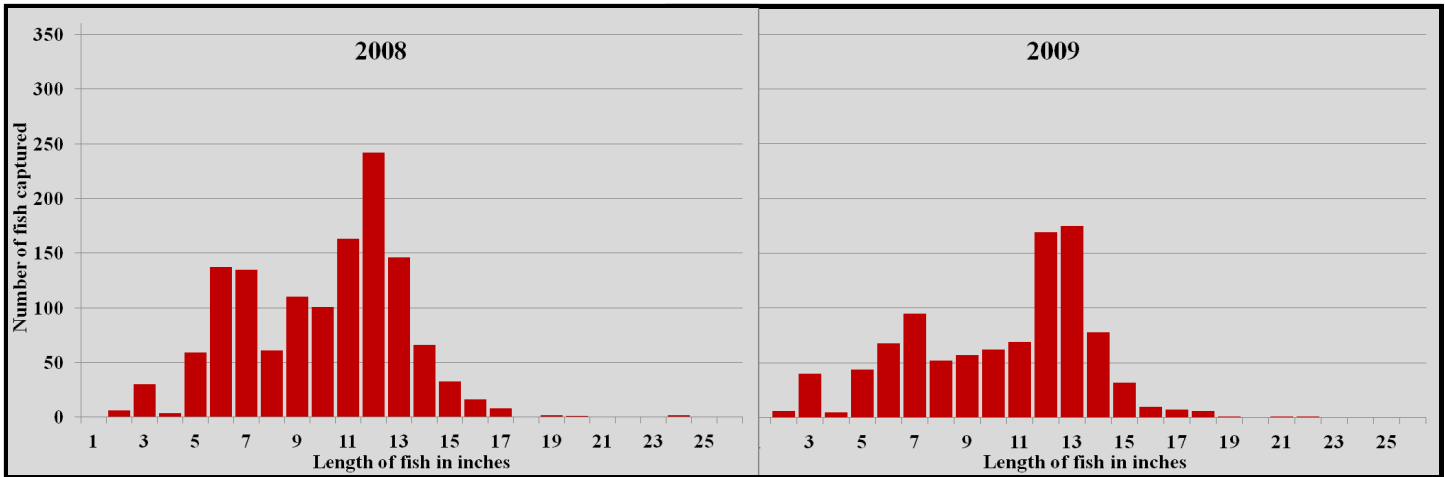
- Rainbow trout

Sportfishing Notes

- This section of The Colorado River is one of the most well-known and heavily fished sections of river in the state.
- Despite heavy fishing pressure, trout populations are consistently excellent
- Fly fishing is the most common method of choice. There is a wide spectrum of aquatic insect varieties to imitate, from midges in the winter to various mayflies in the spring, stoneflies in early summer, caddis, terrestrials, and more mayflies later in the summer. Usually the biggest challenge for catching fish is figuring out what the trout happen to be focused on that particular day.
- These fish are well-educated and demand an accurate presentation.

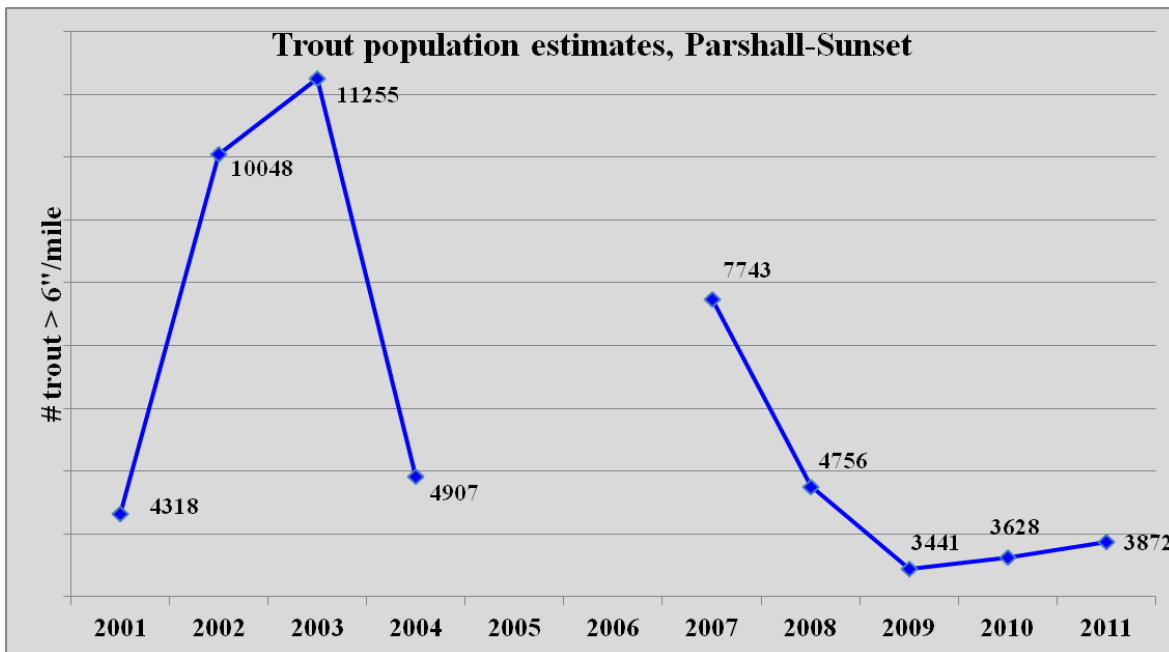
Colorado River at Parshall

Fish sampling information
Jon Ewert—aquatic biologist

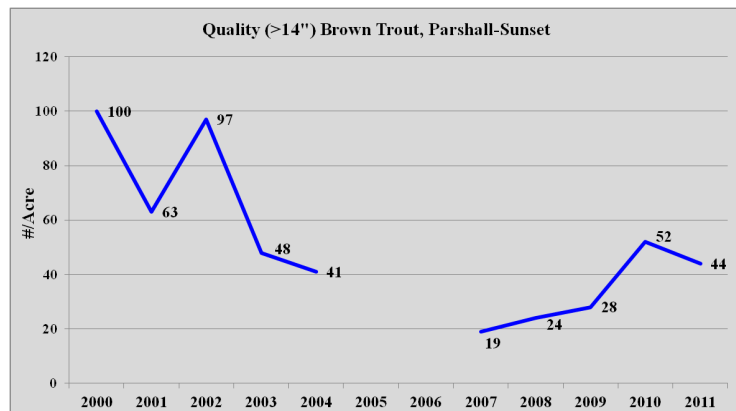
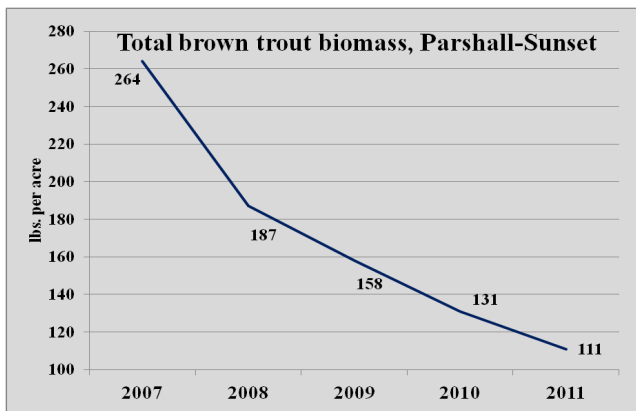


This and all the following information reflects trout population data collected on the two-mile reach of river beginning just upstream of the “Parshall Hole” and extending downstream to the large irrigation diversion on the BLM Sunset property. The figures above depict the size structure of all the brown trout captured in raft electrofishing surveys for the past four years. The vertical axis on all four graphs is the same, so comparisons among years can be easily made. This survey is conducted in the third or fourth week of September annually. Viewing the data in this way gives a graphical picture of the size structure of the population and the relative abundance of specific year-classes. Fish less than 6” long are not effectively captured during these surveys, so it is difficult to confidently assess the abundance of the age-0 year class (the fish that were born the year the survey is conducted) from this data. However, the age-1 year class (born the year prior to the sample), in the 6-8” range, is represented more accurately. By looking at the age-1 year classes, it is apparent that 2007 and 2008 saw relatively weak survival and/or recruitment, which is often an effect of high water years. Consistently weak year classes for multiple years present concerns that the adult population of fish (10” and larger) will eventually suffer due to this lack of recruitment. However, 2009 produced a large year class (seen in the 2010 sample) more similar to what has been historically seen, or what might be considered “normal.” The 2010 year class (seen in the 2011 sample) appears healthy as well. It is surprising to see strong Age-0 (3”) and Age-1 (6”) year classes in 2011, given the extremely high runoff that occurred in 2011. Abnormally high runoff often results in poor survival of young year-classes, but that pattern does not appear to have held true in 2011.

The number of fish captured over 12” declined from 2010 to 2011. This is likely the result of the weak year-classes born in 2007 and 2008. By 2012 we should begin to see the larger 2009 year class beginning to recruit into the adult population and strengthen those numbers.



The figure above displays total trout population estimates (rainbow and brown trout combined), in fish per mile 6” or larger. This estimate has slowly increased since reaching a low point in 2009 but remains at relatively suppressed levels relative to what has been seen historically. This reach of river was not surveyed in 2005 and 2006. The high estimates in 2002 and 2003 are the result of massive year-classes of young fish recruiting during the drought years. As discussed previously, in coming years when the larger 2009 and 2010 year classes recruit into the adult population this estimate may continue to increase. The 2011 estimate for rainbow trout was 39 fish per mile, or approximately 1% of the total trout population.



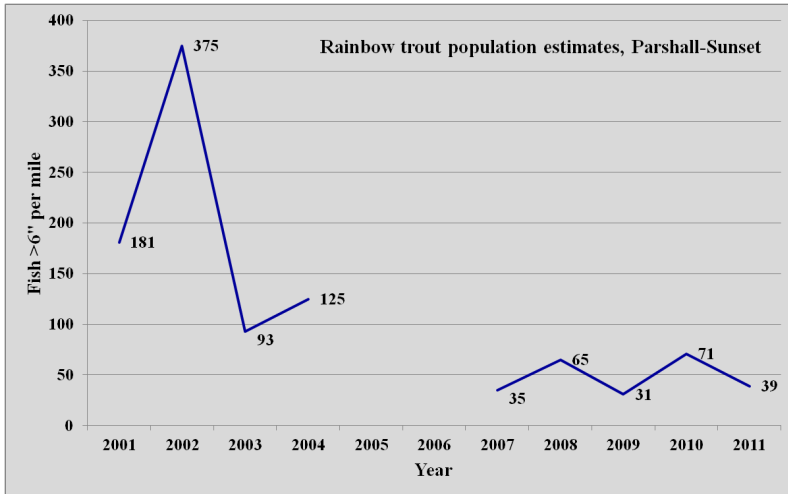
The figures above display the two parameters used to determine whether or not a river meets Gold Medal standards as defined by Colorado Parks and Wildlife. The biological standard for Gold Medal water is that the water naturally produces at least 60 lbs. of trout per acre in biomass, and at least 12 quality (>14”) trout per acre. These parameters are calculated by surface acre of water to enable comparisons of rivers of different sizes. Densities of quality fish have improved over the past two years, but the biomass estimate continues an alarming downward trend.

The reason for the decline in biomass can be seen in the table at right. Smaller fish often make up the bulk of the biomass estimate due to their overwhelming numbers. Because of apparently strong year class recruitment in 2006 and 2005, numbers of 6-10” fish were significantly higher than they are currently. As the 2010 and 2011 year classes recruit into the population, hopefully this negative trend in total biomass will reverse itself in the near future.

	6-10”	10-14”	14”+
2007	6,012	3,190	265
2008	2,376	2,035	342
2009	902	1,915	396
2010	1,656	1,164	741
2011	1,958	1,392	627

Status of wild rainbow trout in the Parshall-Sunset reach

The Colorado River in Grand County historically supported one of the most productive wild rainbow trout fisheries in the world. In 1981, there were estimated to be 75 rainbow trout per acre over 14". These fish were all the product of wild reproduction and unsupported by stocking of fish. Brown trout comprised 25% of the trout population in the river in that year. Whirling Disease appeared in the river in 1987. The proliferation of this parasite ended virtually all successful reproduction of rainbow trout. In the following years, the brown trout population exploded to fill the habitat that was being vacated due to lack of successful reproduction in the rainbow population. It has always been the goal of the DOW to restore some level of a wild rainbow trout fishery to this reach of the Colorado. Beginning in 1994, the DOW began stocking fingerling rainbow trout to attempt to compensate for the lost natural reproduction. Research has shown that rainbow trout mortality from whirling disease drops dramatically when the fish have reached a length of 5". Based on this information, that is the size of fish that was stocked throughout the 2000's. Due to the timing of rainbow trout spawning, fish of that size were generally not available until the fall, usually October. 40,000 5" fish per year were stocked annually in October in this reach of river.

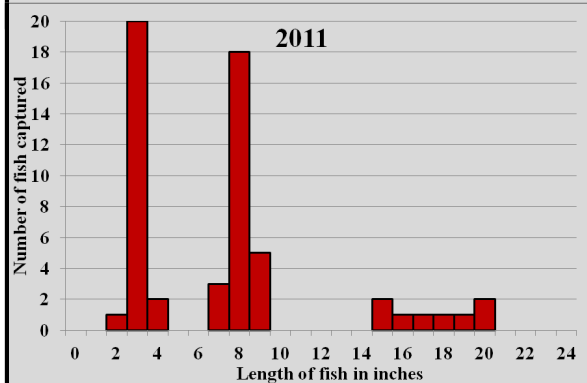
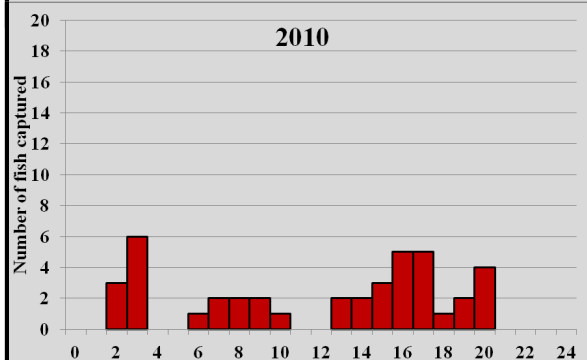
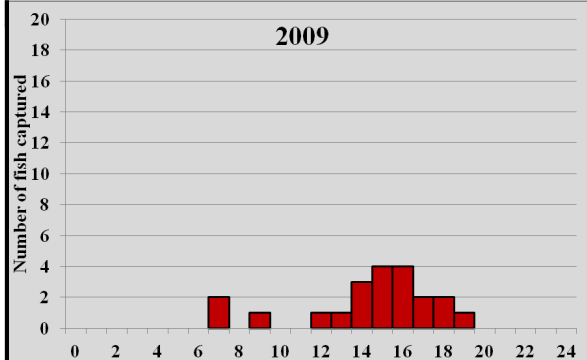
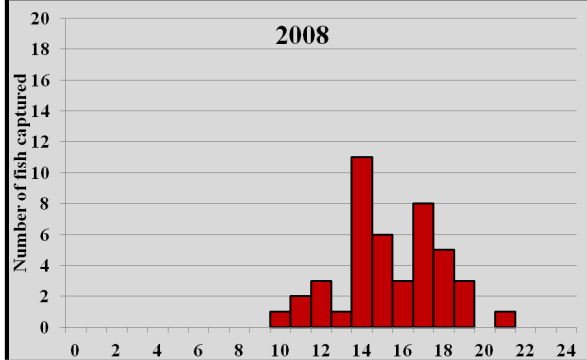
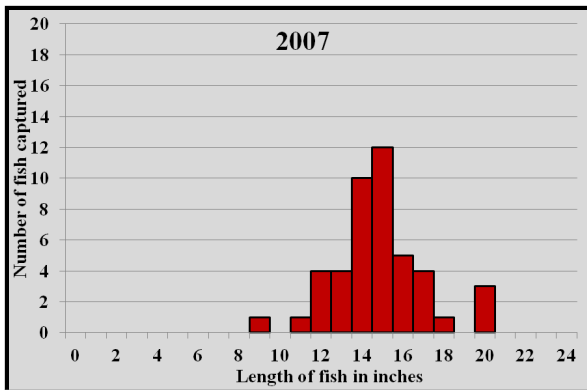


The figure to the left demonstrates the failure of the stocking strategy described above. Even though 5" fish should be able to survive in the presence of whirling disease, recruitment rates from stocking these fingerlings has been abysmal, and rainbow trout continue to constitute a tiny fraction of the total trout population of this reach.

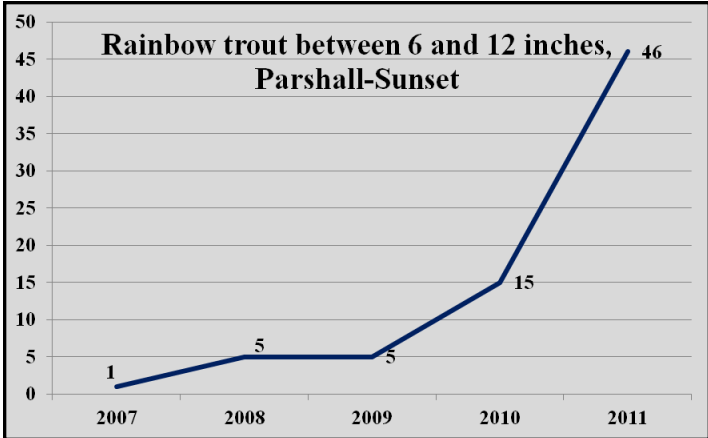
In 2008 and 2009, the fingerlings stocked were a hybrid strain of Colorado River rainbow trout (the historic strain that had been developed in the river over the previous 100+ years), crossed with German rainbow trout which have been found to be highly resistant to whirling disease. The fish were still 5" long, and stocked in October. We have not observed any evidence that this strain has been any more successful at recruiting into the population.

In 2010, we adopted a different stocking strategy based on the hypothesis that the limitation on recruitment in these 5" plants is timing rather than whirling disease infection (if this was not the case we should have seen a positive response with the introduction of the WD-resistant strain in 2008). We stocked a larger number (60,000) of smaller (1.6 inches average) fish during the third week of July. We stocked these small fish out of a raft, only in the most ideal fry habitat. At this small size the fish are not heavily habituated to being fed yet, and will hopefully quickly develop wild behaviors that are likely already lost in fish that have been raised to 5" in a hatchery environment. After encouraging results in 2010, in 2011 we continued this stocking strategy and increased the number of fry stocked to 100,000. Pictures of the stocking operation are shown below.





The figures to the left display the size distribution of all the rainbow trout captured over the past five years during sampling of this reach. In 2010 we captured rainbow trout smaller than 6" for the first time. These were the 2" fry that had been stocked two months previously. In 2011, we found that the fry stocked in 2010 had grown to an average of 8 inches in length. This was a very encouraging sign. In addition, the fish stocked in 2011 were present in good numbers, as can be seen in the large group averaging 3" in length.



The figure above displays the total population estimates on each sampling occasion for rainbow trout in the 6-12" range. Under the old stocking strategy, if the 5" fingerlings that were being stocked in October were surviving into the following year, they should have appeared in significant numbers in this size group. The 2007-2010 estimates suggest that this was not the case. In 2011 this number greatly increased as a result of our different stocking method. While the total numbers are still small, we are very optimistic that rainbow trout numbers will continue to increase and within a few years they will constitute a significant portion of the trout population, and will begin reproducing on their own.