



# South Delaney Butte Lake

## FISH SURVEY AND MANAGEMENT DATA

Kyle Battige - Aquatic Biologist (Fort Collins)

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**General Information:** South Delaney Butte Lake (160 acres) is a coldwater impoundment on the Delaney Butte State Wildlife Area offering fishing for rainbow, Snake River cutthroat, and brown trout.

**Location:** Jackson County, North Park. From Walden, go 1/2 mile west on HWY 14 to CR 12; then go 5.3 miles west to CR 18. Go 4.5 miles west to CR 5 then 1/2 mile north to the SWA.

**Recreational Management:** Colorado Parks and Wildlife

**Fishery Management:** Coldwater angling

**Purchase a Fishing License:** <http://cpw.state.co.us/thingstodo/Pages/Fishing.aspx>

### Amenities

- Boat Ramp
- Pit Restrooms
- Camping

### Regulations

- Bag and possession limit for trout is 2 fish
- Artificial flies and lures or scented flies or lures 1.5" or longer
- Brown trout 14-20" long must be returned to the water immediately
- Rainbow and cutthroat trout 18-22" long must be returned to the water immediately
- Wakeless boating only
- Ice fishing allowed
- No fishing in the inlet

### Previous Stocking

#### 2021

- Snake River Cutthroat
- Rainbow Trout
- Brown Trout

#### 2020

- Snake River Cutthroat
- Rainbow Trout
- Brown Trout

#### 2019

- Snake River Cutthroat
- Rainbow Trout
- Brown Trout

#### 2018

- Snake River Cutthroat
- Rainbow Trout
- Brown Trout

### ANS Alert

- New Zealand Mud Snails have been found at East Delaney Butte Lake
- Please prevent the spread of these to other waters and **Clean, Drain and Dry** all equipment including boats, float tubes, waders and wading boots used while fishing here before traveling to other waters.

### Sportfishing Notes

#### Spring

- Fish midge patterns to rising fish at ice out
- Streamers near the inlet work well when it is flowing

#### Summer

- Damselfly hatches start in the early summer
- Target fish early and late in the day
- Fish will tend to be in deeper water midday
- Callibaetis hatches occur mid to late summer

#### Fall

- Egg patterns become effective, especially for rainbows

#### Winter

- Use small jigs and flies
- Finding the right depth is the key to catching fish

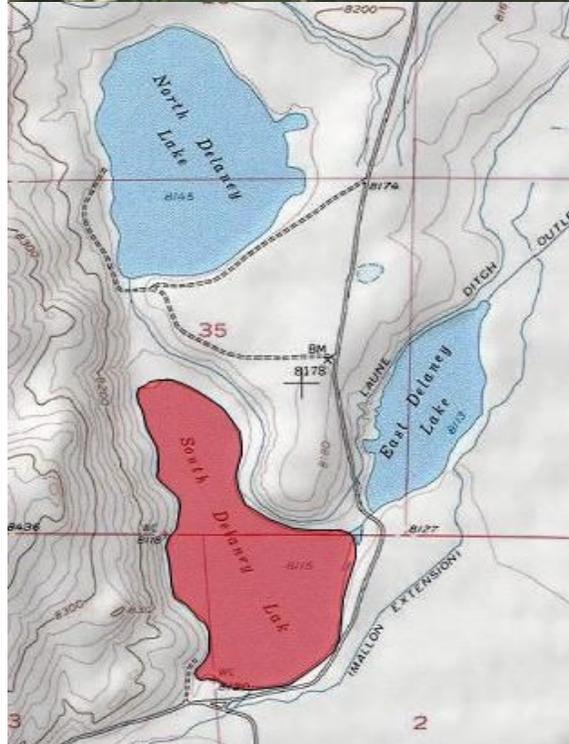
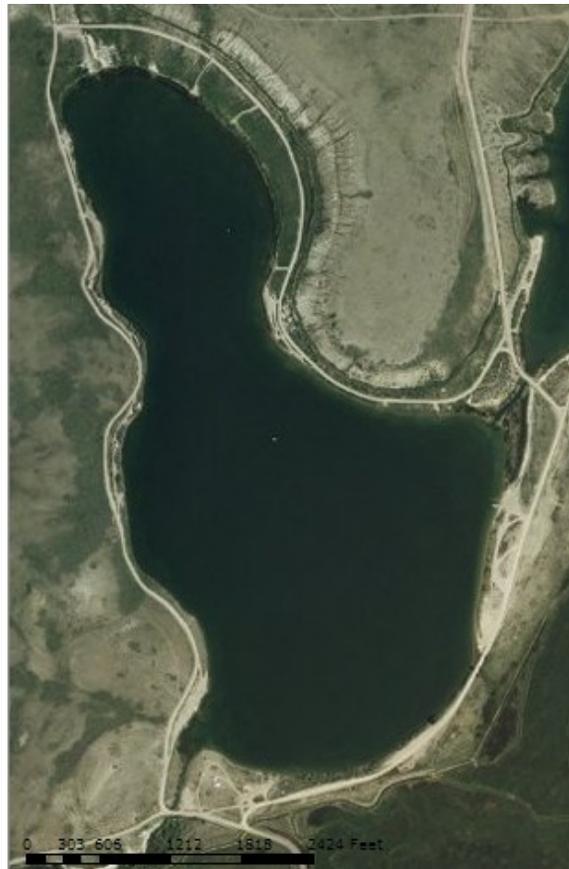


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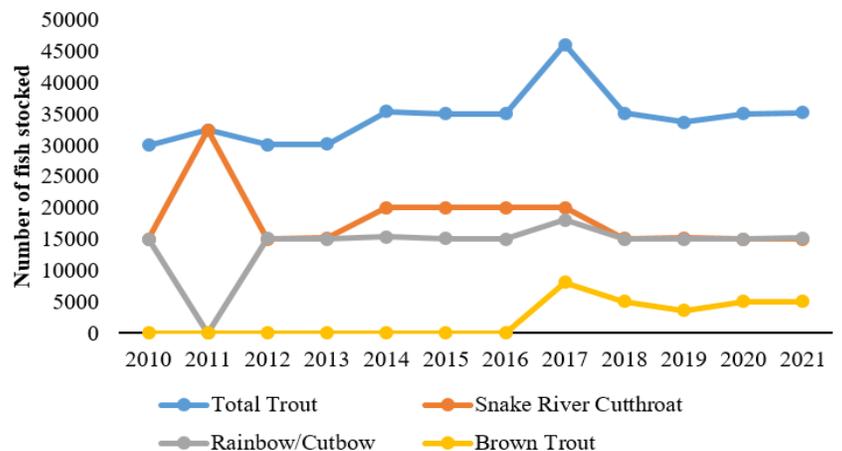


### Management Notes

South Delaney is one of the three lakes on the Delaney Butte State Wildlife Area. It is 157 surface acres and has a max depth of 23'. Like the other two lakes, South Delaney is a highly productive system that is capable of growing trout quickly. Generally Snake River cutthroat and hybrid cutthroat/rainbow trout are stocked in equal proportion at a rate of ~200/acre, at about 4.5 inches.

South Delaney has some characteristics that make it prone to experiencing winterkill situations. It is fairly shallow overall and produces a high load of vegetation over a large portion of the lake in the summer. A high snowpack on the ice in the winter can set off a reaction leading to decreased levels of oxygen in the water.

Total biomass and percentage of suckers in the population at South Delaney is high. White suckers numbers have reached levels to where they are competing with and limiting trout growth and survival. Brown trout were stocked in low numbers beginning in 2017 in an attempt to put predation pressure on the sucker population. However, the density of brown trout is not that high and is not a long term solution for sucker control. Sucker numbers are reaching the point when CPW will consider a chemical reclamation to renovate the lake in order to provide a higher quality fishery. However, conditions must be right to allow draining and refilling of the lake during the reclamation and one is not currently scheduled.





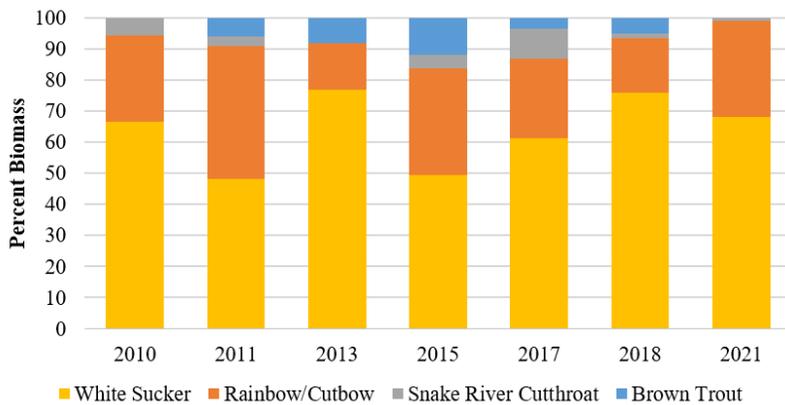
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**South Delaney: Species Composition By Percent Biomass**

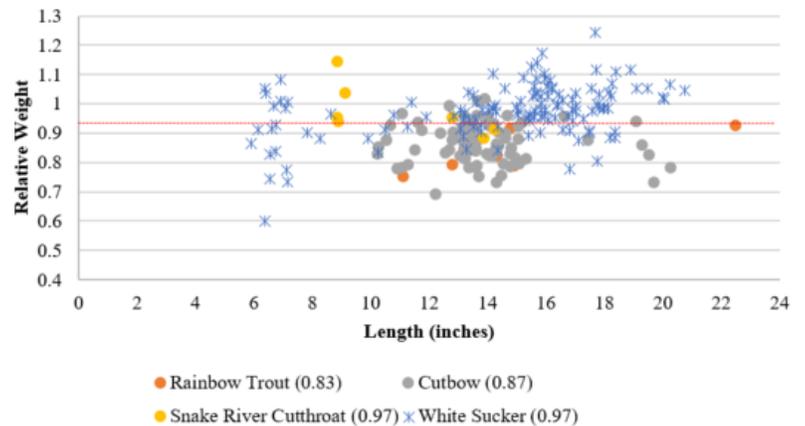


### Management Notes

Results from 2021 sampling aligned with previous years in terms of species composition. There continues to be a high percentage of suckers in South Delaney, both in terms of percent by number and biomass (pictured at the left). Since 2010, white suckers have accounted for greater than 50% of total biomass in the lake, with that percentage as high as 76% in 2017. The high abundance of white suckers takes up resources that could otherwise be utilized by sport fish. No brown trout were captured in 2021, which was surprising given the recent stocking efforts.

Analyzing relative weight data (figure to the right) allows CPW to assess the overall body condition of fish. An average relative weight in Colorado is 0.93 (represented by the red line) and average relative weights by species are listed in the legend. In general, South Delaney trout are in slightly below average condition. This is likely a result of increased competition due to the large white sucker population in the lake as well as sampling occurring in May before productivity in the lake increased during warm summer months.

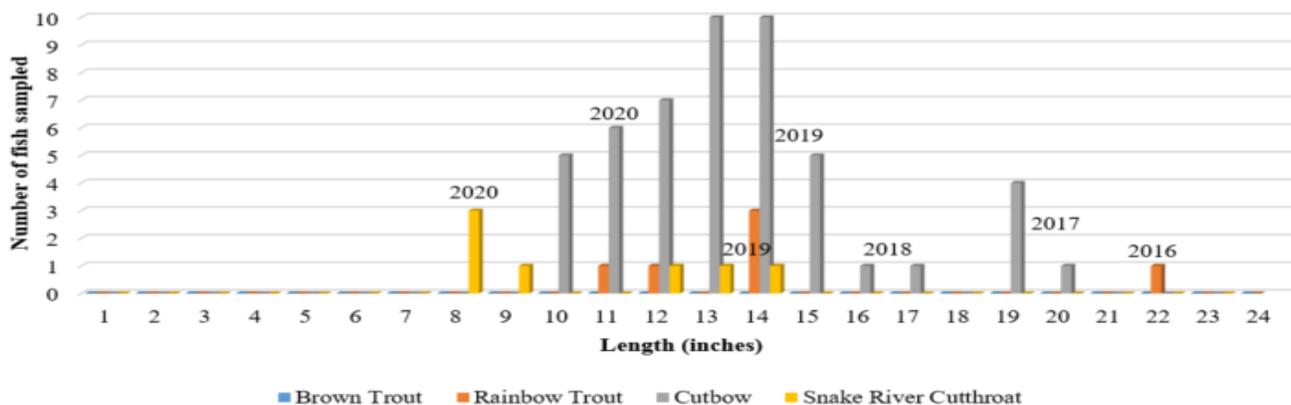
**2021 Relative Weight Analysis**



Length frequency data from 2021 sampling shows a relatively diverse size structure, but not many individuals greater than 20 inches.

Text boxes within the figure correspond to the year each cohort of trout was stocked in the lake allowing one to observe trout growth through time. As you can see cutbow stocked in May 2020 as four inch fish grew to 11 inches on average in a year while Snake River cutthroat stocked in June 2020 grew to 8 inches on average. South Delaney has a protective slot limit for rainbows and cutbows (18-22"), it appears to take a trout four years in the lake to reach that slot.

**Trout Length Frequency: 5-14-2021**





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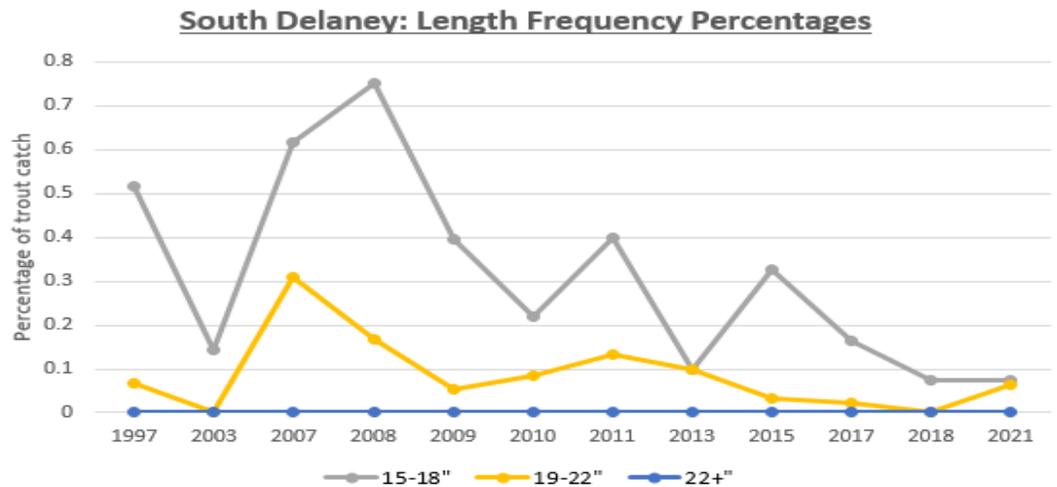
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### Management Notes Continued

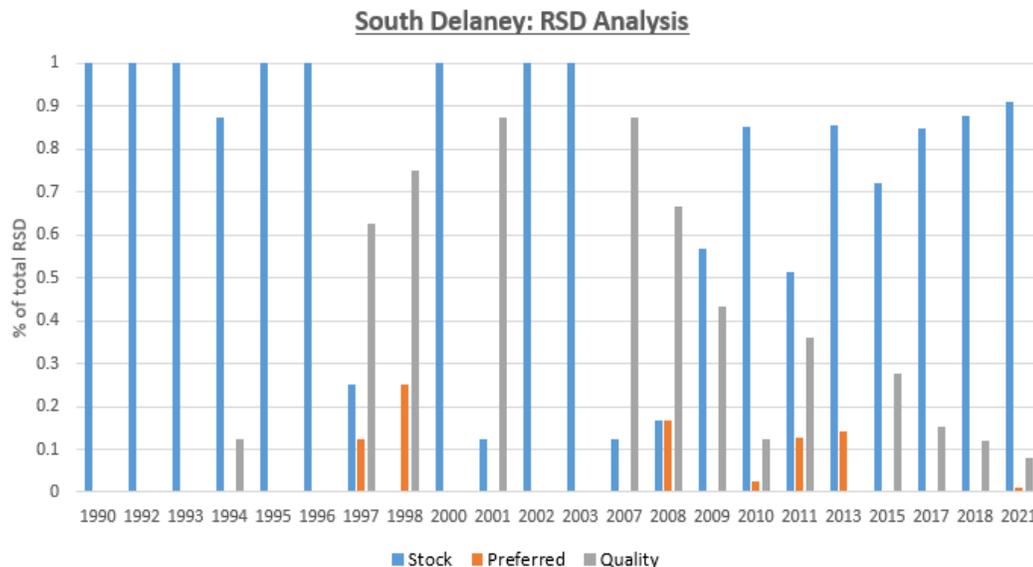
The Delaney Butte Lakes are managed to be destination fisheries known for quality fish. The special regulation slot limits for brown trout and rainbow, cutthroat, and cutbow trout were implemented in 2006 in order to enhance the quality fishing opportunities. When examining the quality component of the fishery at South Delaney Butte Lake over the past couple of decades the data suggests that the quality component has decreased through time.

The figure to the right displays length frequency data through time as a percentage of trout caught within a given length range for each year sampled. For example, the yellow line shows the percentage of all trout sampled that were between 19-22". As you can see, the overall percentages of 15-18" and 19-22" have decreased through time, with a very low percentage of trout sampled within the protective slot within any given year and rarely any trout greater than 22" sampled in South Delaney.



The figure below is a slightly different look at the quality component of the South Delaney fishery. This graph displays relative stock density values through time with stock sized trout being greater than 10", quality sized trout greater than 16", and preferred trout greater than 21" in length. So, in evaluating this figure, the taller the gray bar is means there was a higher proportion of trout greater than 16" in length. As you can see the gray bars have decreased since 2007, with fewer quality sized trout sampled at South Delaney.

There are likely several factors contributing to the decrease in quality trout at South Delaney and likely include high densities of white suckers resulting in increased competition, increased fishing pressure resulting in increased mortality, whether direct harvest or incidental hooking mortality, along with South Delaney aging as a lake and experiencing decreased overall productivity. Colorado Parks and Wildlife will continue to evaluate the fishery and pursue options to increase the quality fishing opportunities at South Delaney Butte Lake.





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### Management Recommendations

- Continue monitoring overall species trends to evaluate health of the fishery and species composition
- Continue brown trout stocking to build in numbers over the next few years and continue monitoring for potential changes in sucker numbers resulting from brown trout predation
- Pursue screening options to keep suckers from entering the lake and make a chemical reclamation to reset the South Delaney fishery feasible
- Monitor numbers of fish that are reaching the protective slot limit and consider adjusting fishing regulations to protect trout earlier



19.8" cutbow



17.5" cutbow

Part of the catch from a single gill net, showing the density of suckers



21" white sucker



### Sampling Pictures

