

## Population trends of Redband Trout and Brown Trout in habitat improvement reaches of Whychus Creek, Oregon

Michael Riehle, US Forest Service  
and

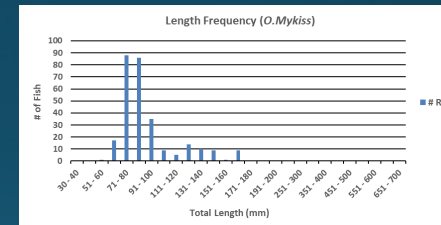
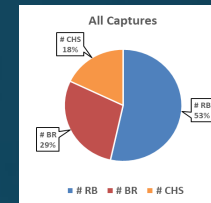
Erik Moberly, Oregon Department of Fish and Wildlife\*

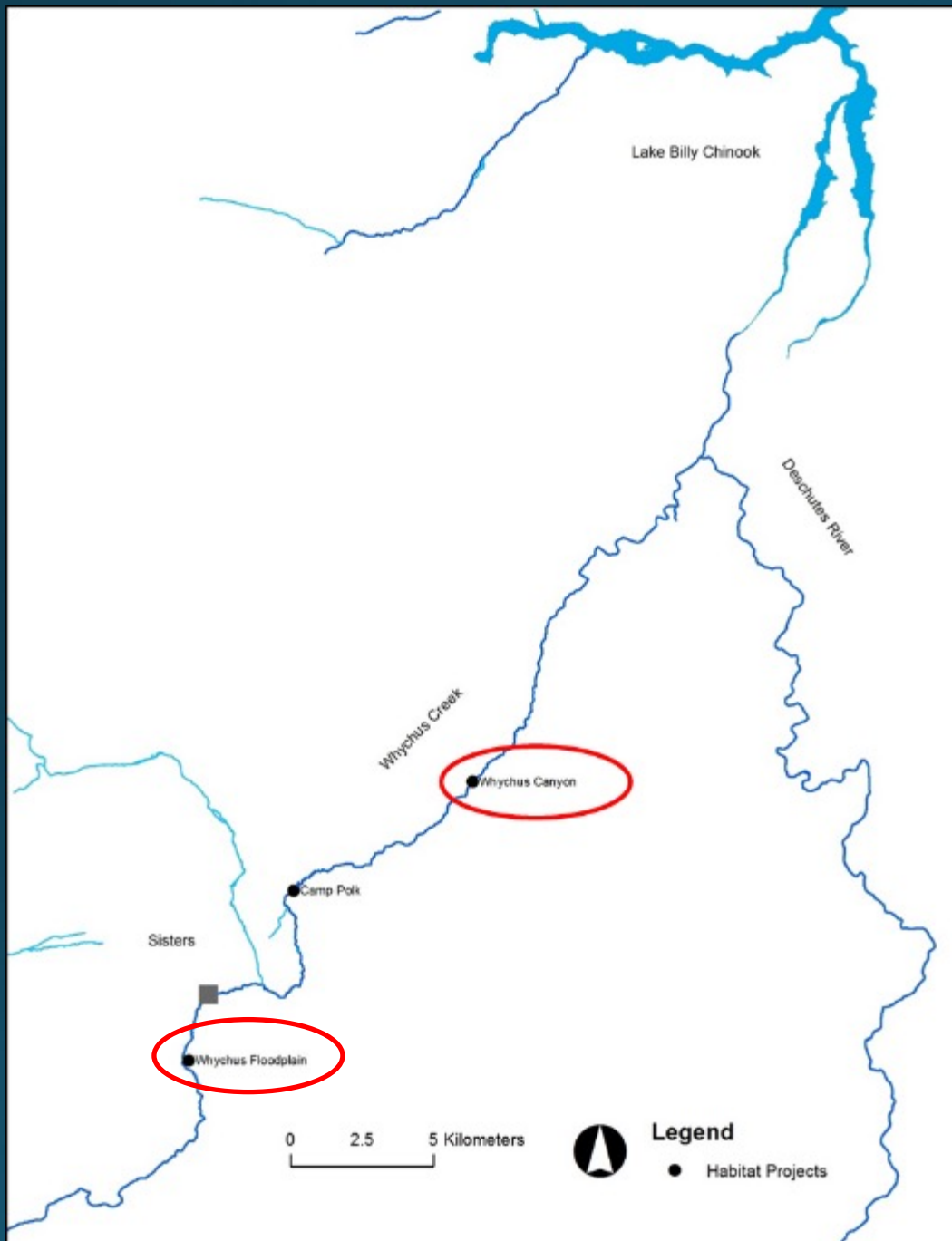


\* Currently with Oregon Department of Forestry

# Population trends of Redband Trout and Brown Trout before and after habitat improvement and steelhead fry releases

- Species Composition
- Population densities
- Length frequency
- Summary
- Next Steps





**Location of Habitat  
Projects Sampled  
in 2022**





## Floodplain Upper- 2016

many side channels  
many log jams  
some larger pools

## Sisters – PGE Monitoring Reach

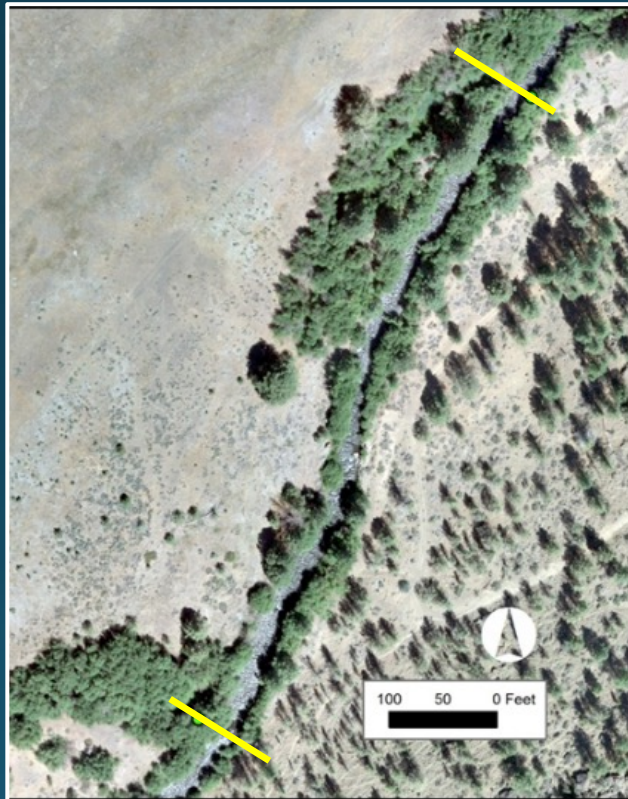
some pools  
no side channels  
large substrate





## Whychus Canyon R3- 2018

pre-project  
Few pools  
No side channels  
Large substrate



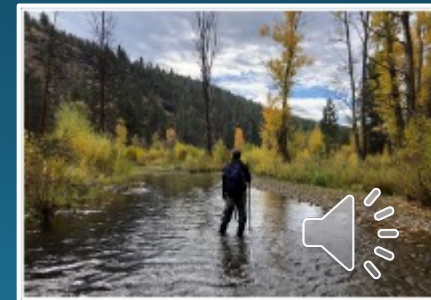
## Whychus Canyon R4 Upper- 2018

Many pools  
Many side channels  
Abundant Large wood



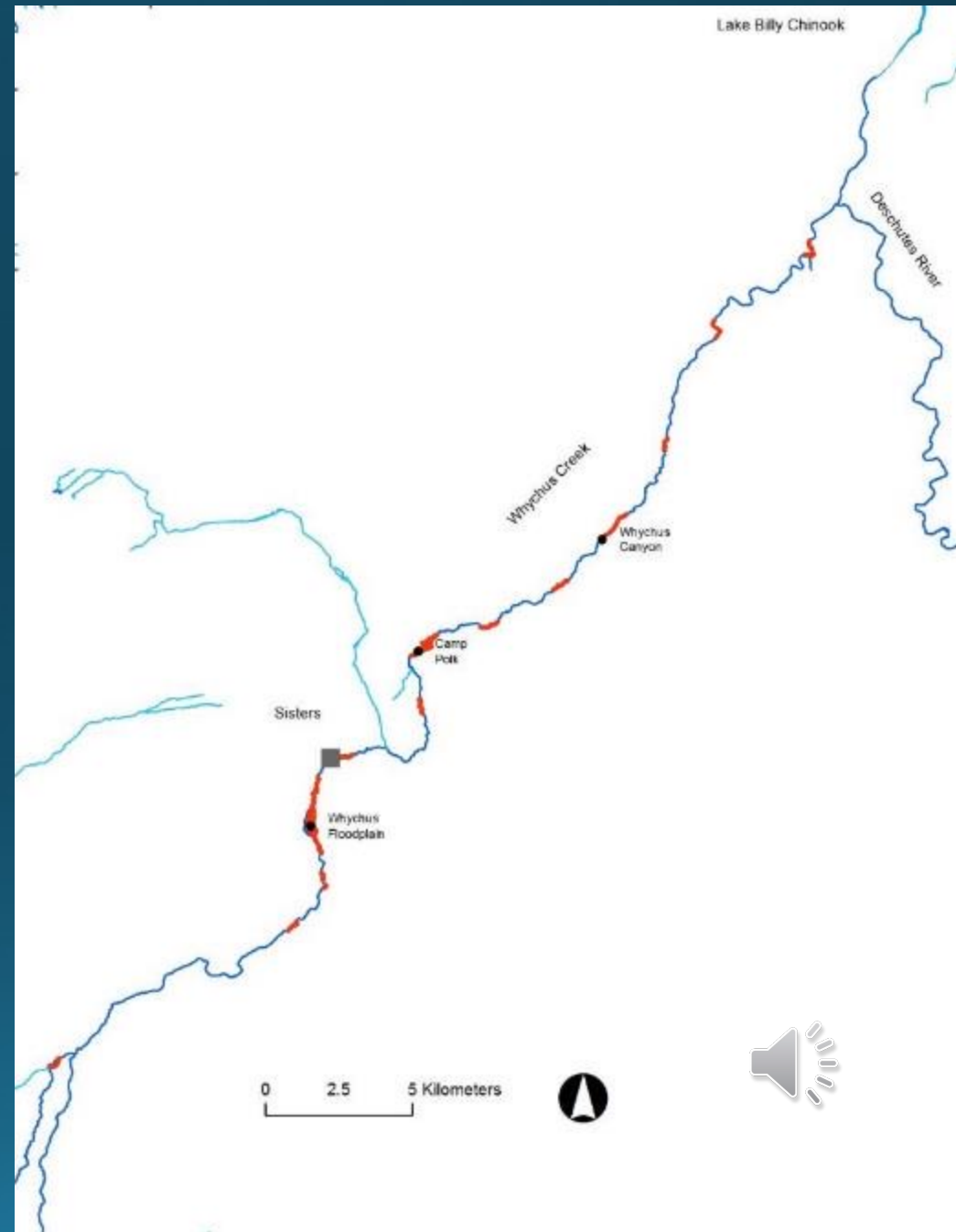
## Fish Density Monitoring Methods

- ~200m long sample reaches.
- Block nets on upper and lower end.
- Mark-recapture with caudal fin clip.
- Two passes in same day with 2 hours rest between passes.
- 20% recapture goal or third pass required.
- Same protocol as PGE annual redband trout monitoring.
- All electrofishing reaches were surveyed for habitat using ODFW protocol



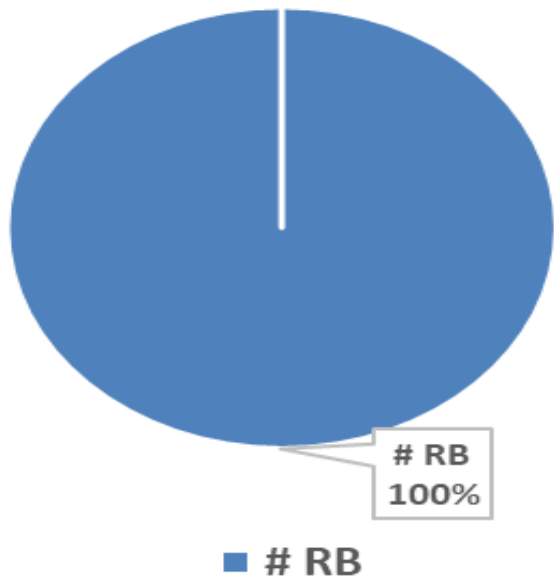
Steelhead fry release locations  
(red) in relation to habitat  
projects on  
Whychus Creek

- 112,000 to 311,000 fry/annually
- 2007 to 2018

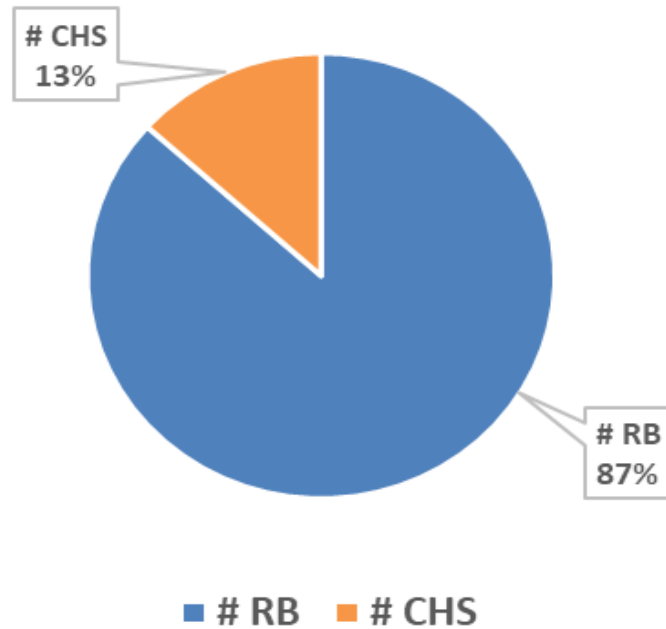


# Species Composition

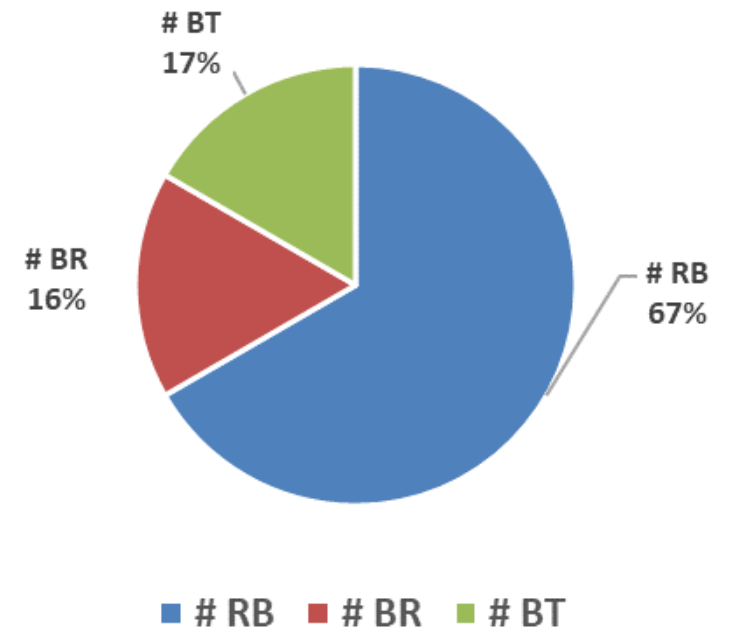
Percent of catch at Floodplain Project



Floodplain Before 2014



Floodplain Upper After 2016

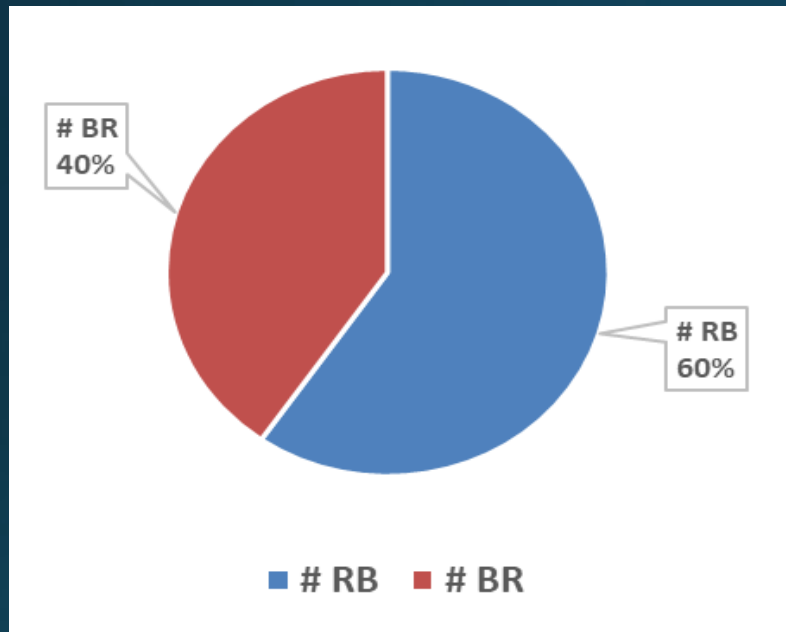


Floodplain Upper After 2022

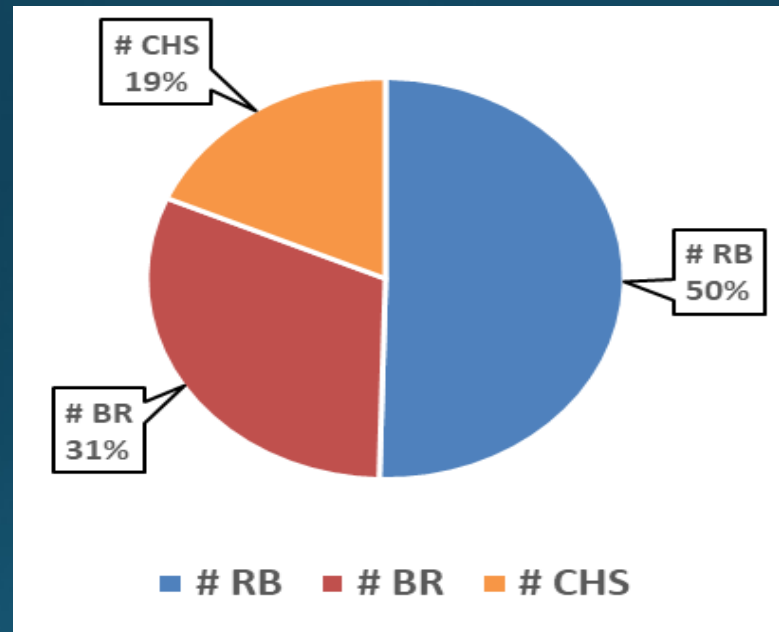


# Species Composition

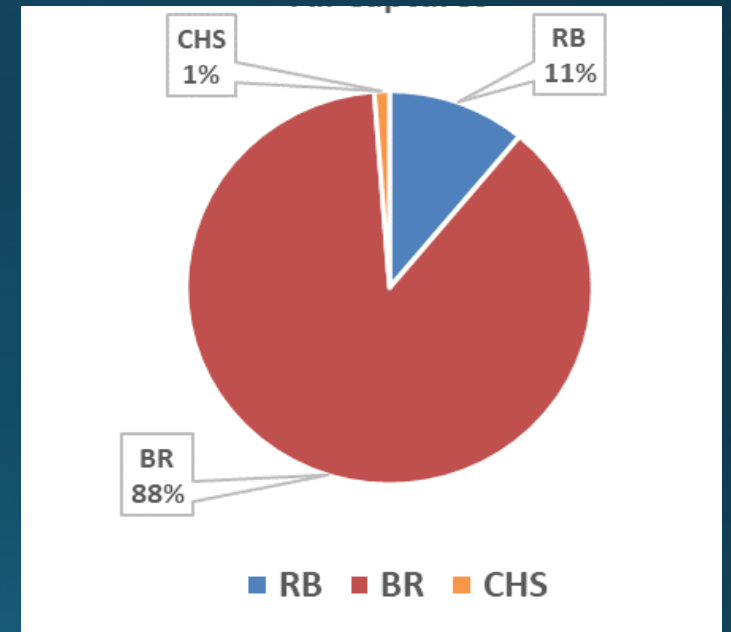
Percent of catch at Whychus Canyon Project



Whychus Canyon R4  
Before 2015

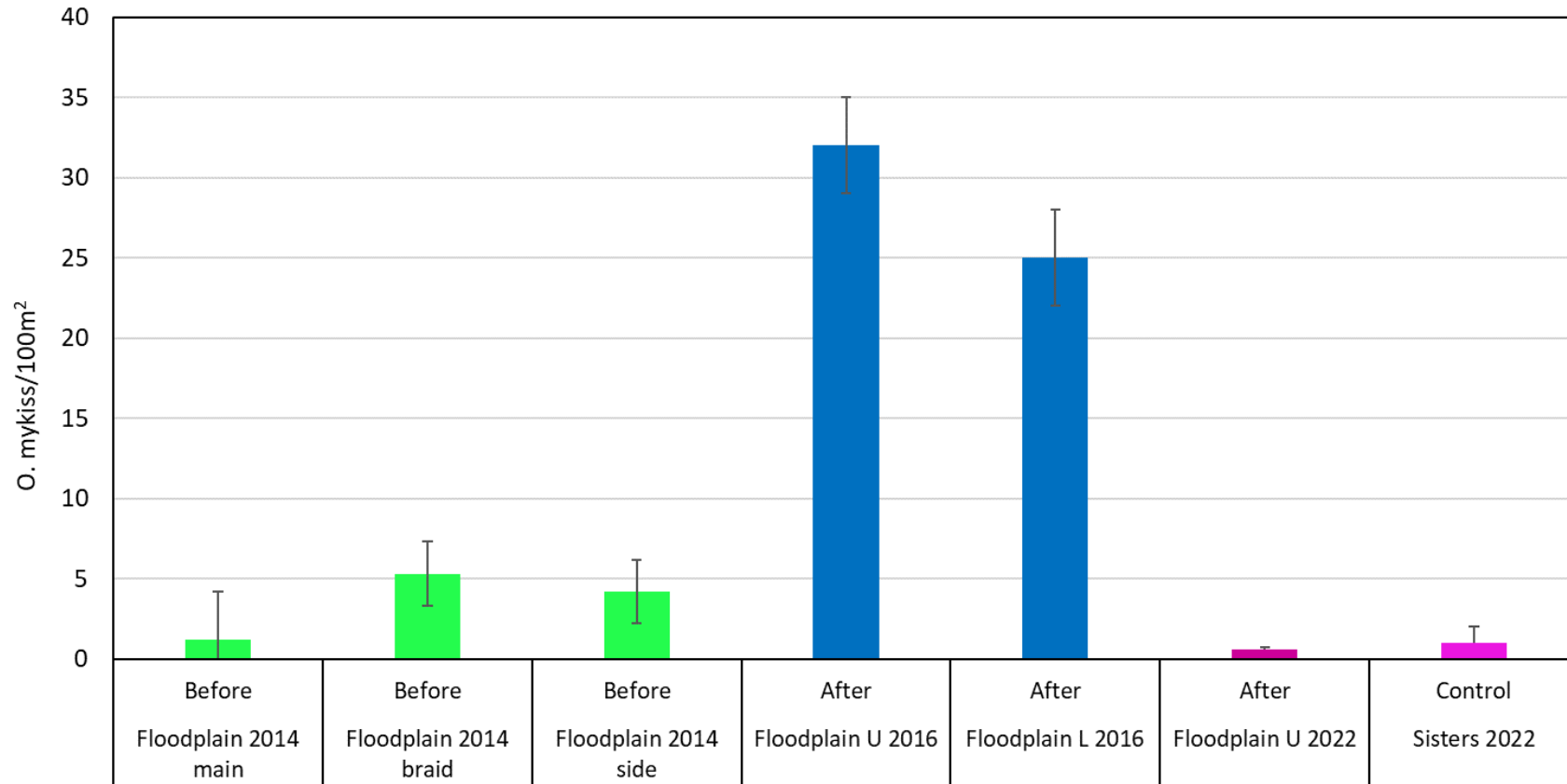


Whychus Canyon R4  
Upper After 2018

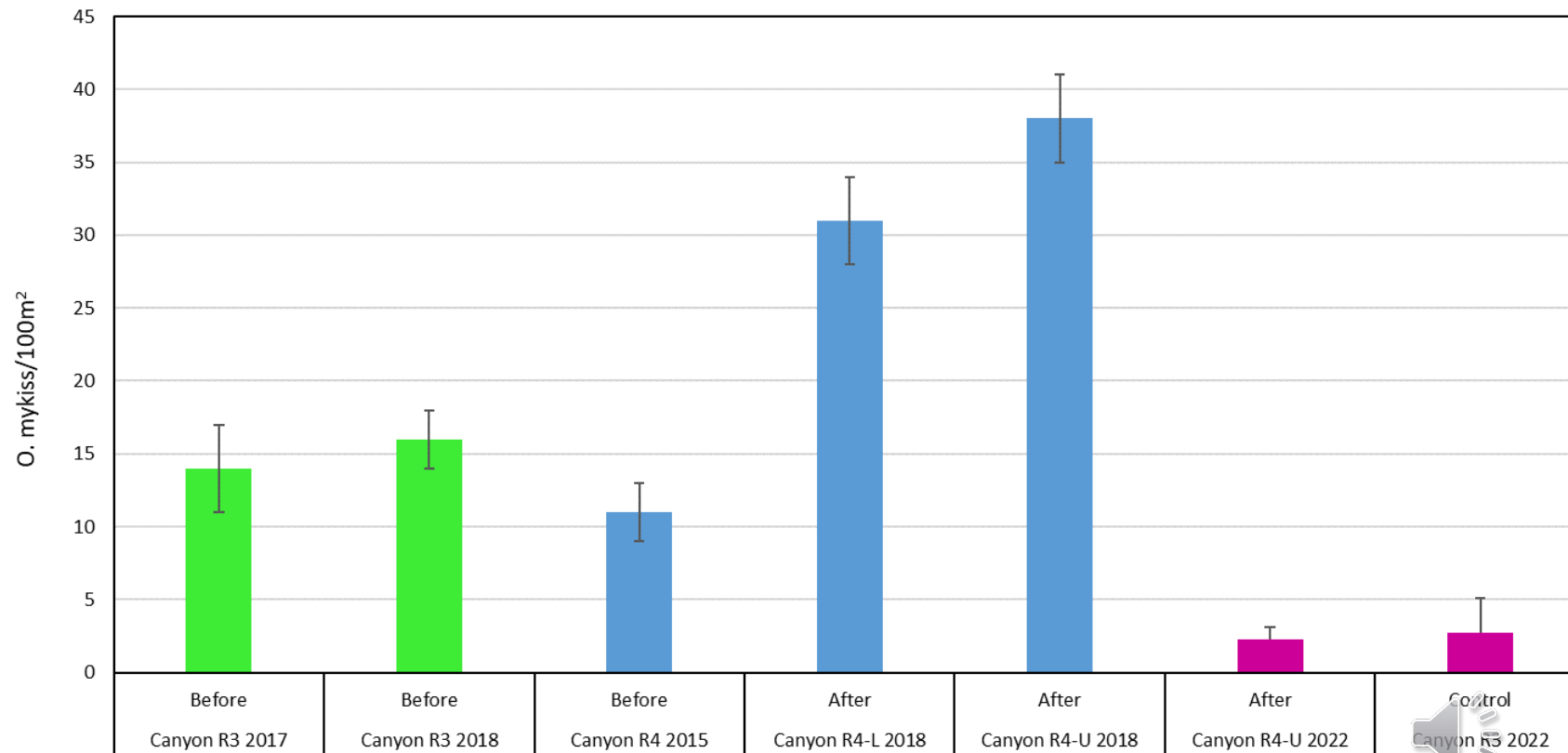


Whychus Canyon R4  
Upper After 2022

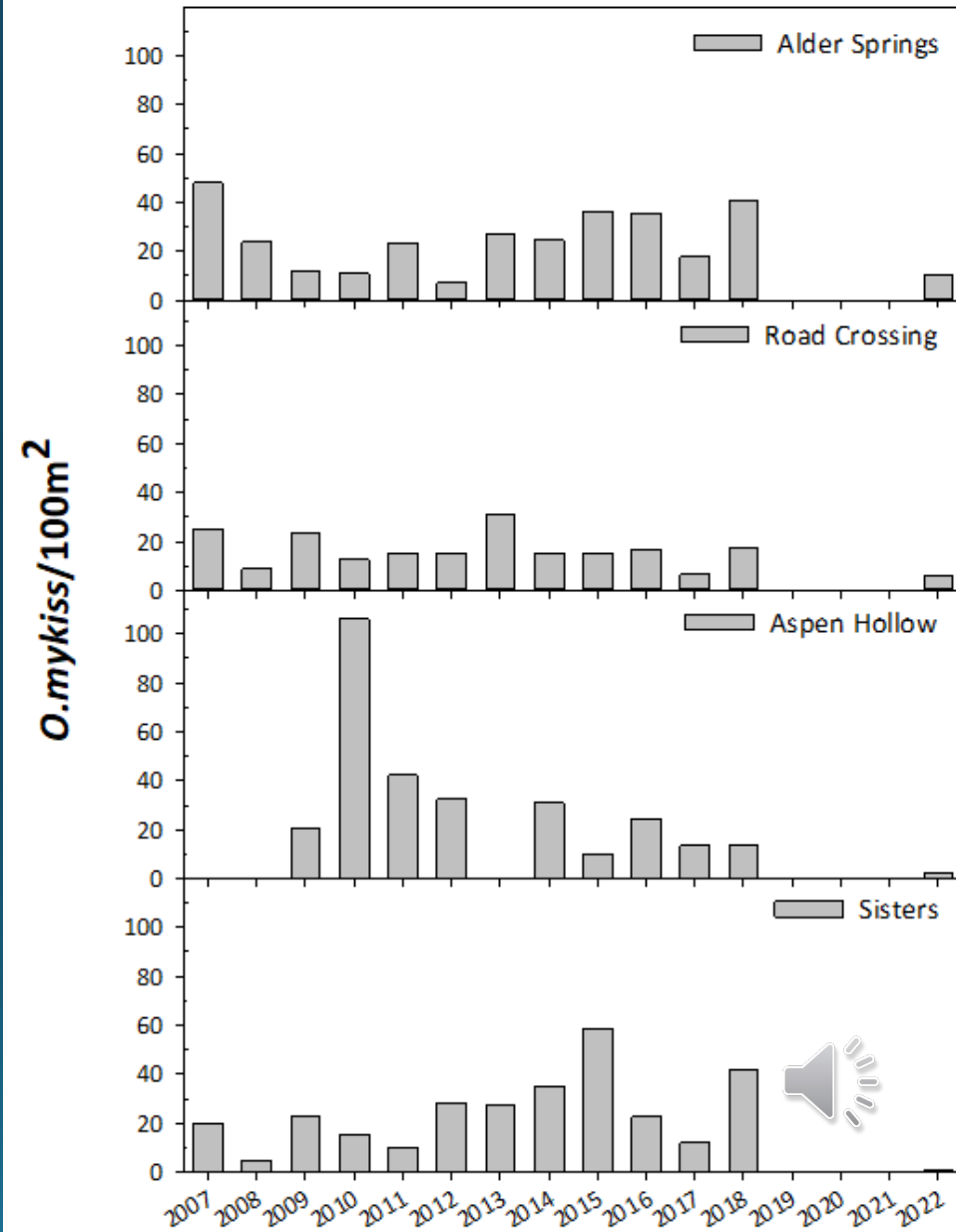
## O. mykiss/100m<sup>2</sup> Floodplain Project



# O. mykiss/100m<sup>2</sup> Whyhus Canyon Project

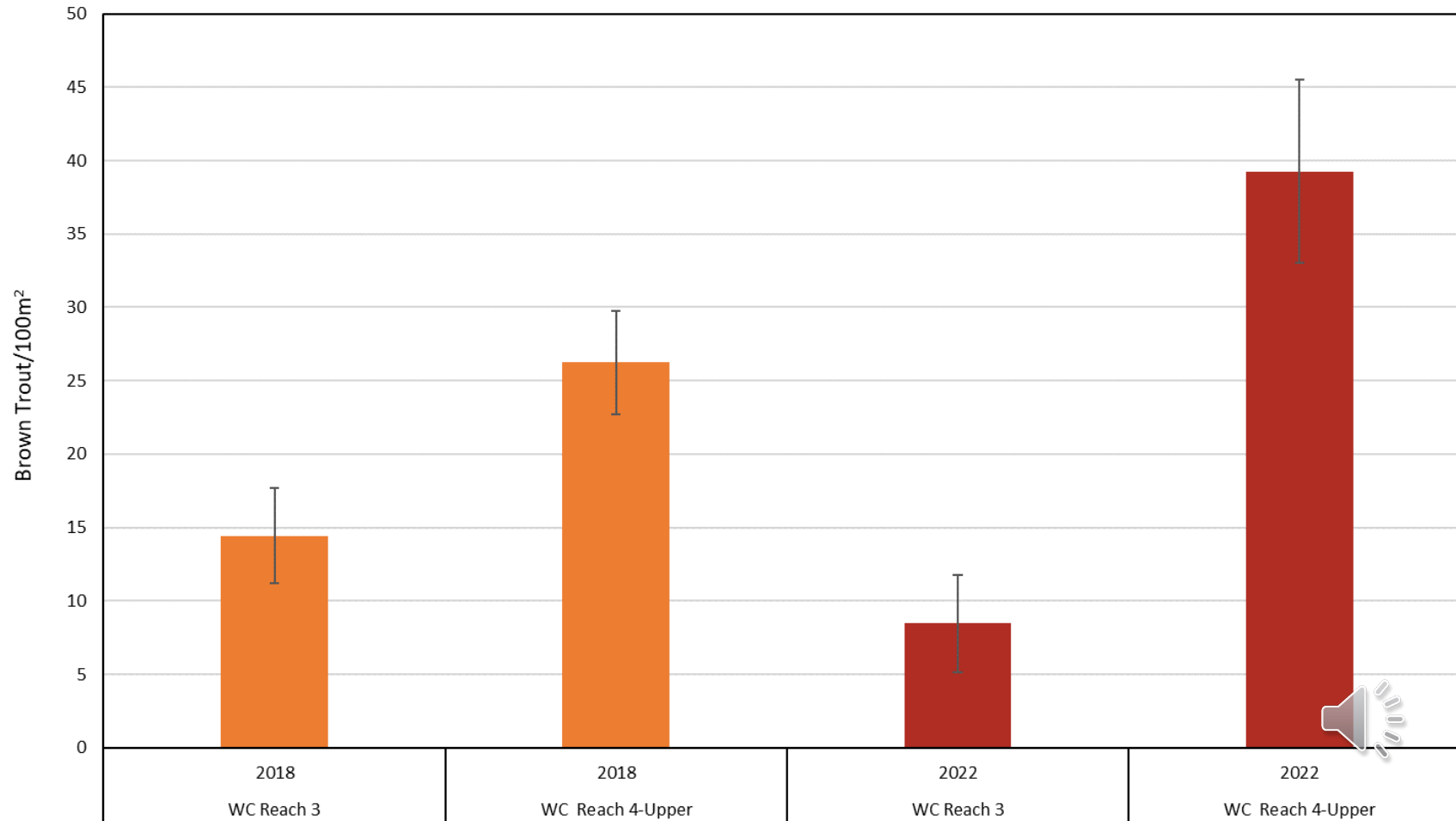


**Figure 4.** Estimated *O. mykiss* densities estimates per 100m<sup>2</sup> from 2007 - 2022 at four sites in Whychus Creek. Note, no surveys were conducted 2019-2021. Last year of fry stocking in Whychus Creek was 2018 (From Madden, Bennett and Burcell 2023).





# Brown Trout /100m<sup>2</sup> Whychus Canyon 2018 to 2022

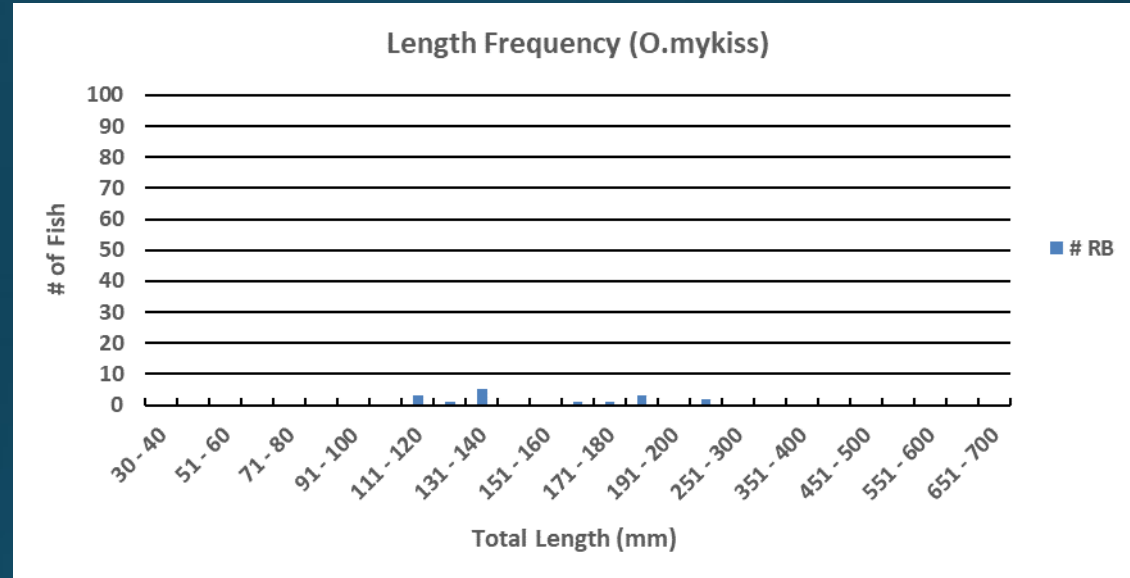


# Length Frequency

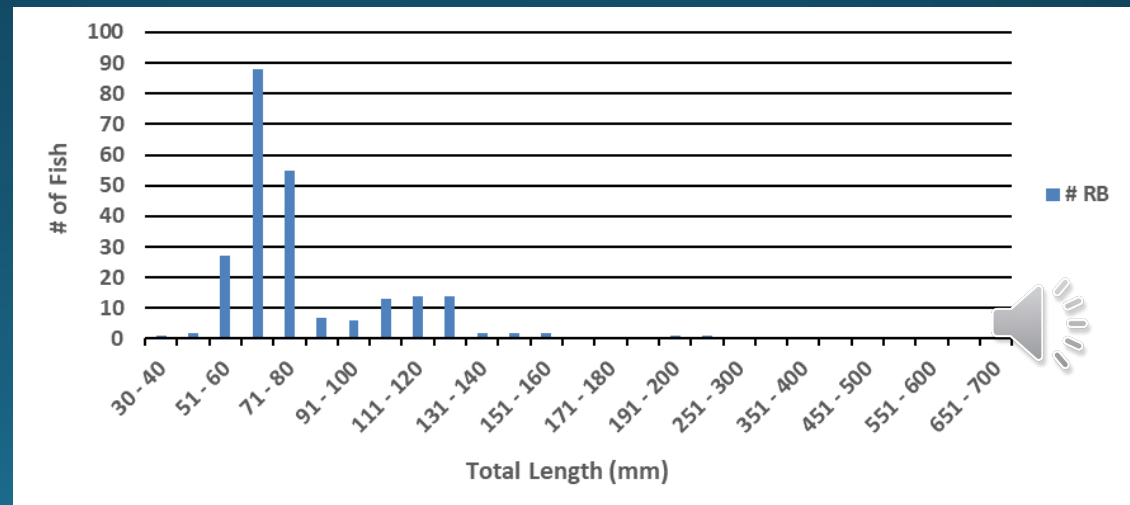
## Redband Trout- *O. mykiss*

at Floodplain Upper

2022



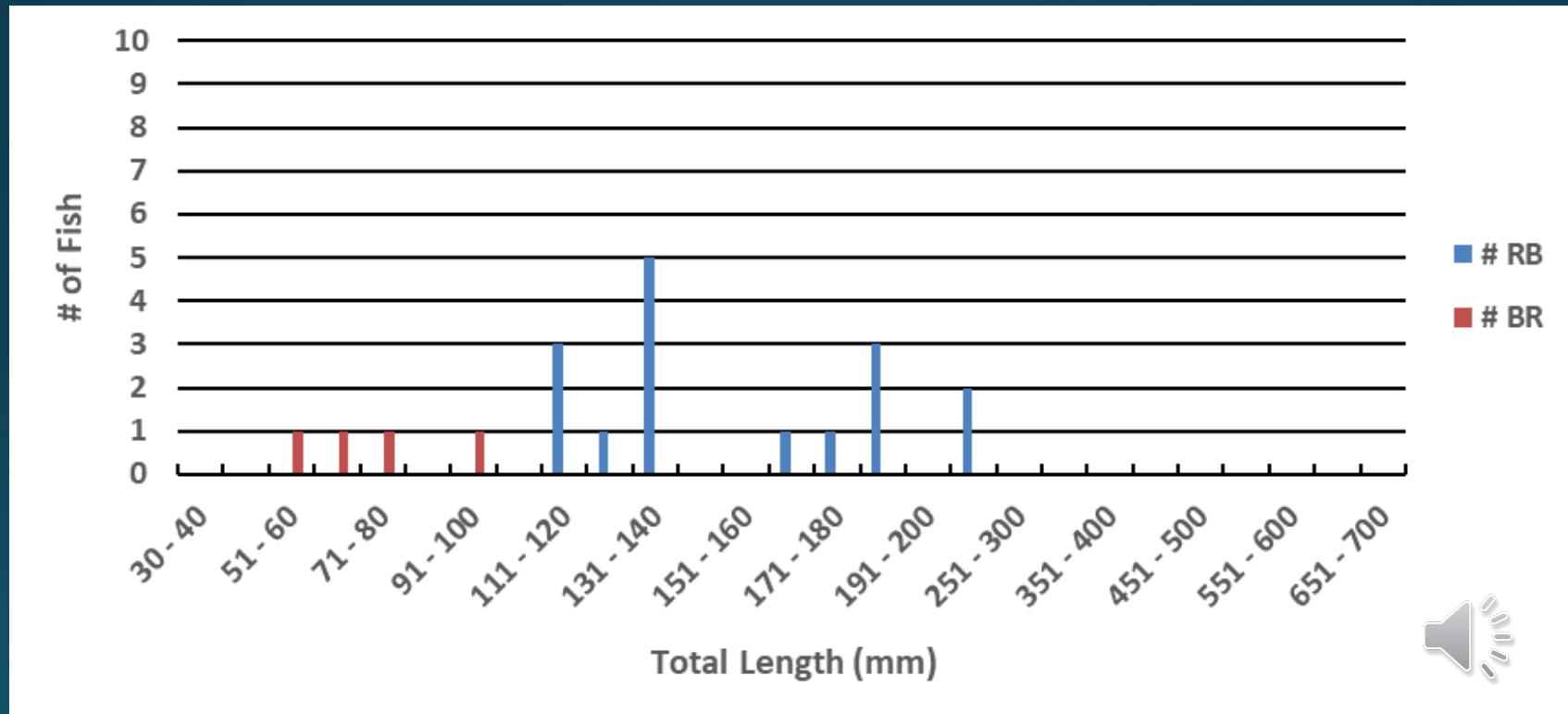
2016



# Length Frequency

## Brown Trout and *O. mykiss*

at Floodplain Upper 2022



# Length Frequency

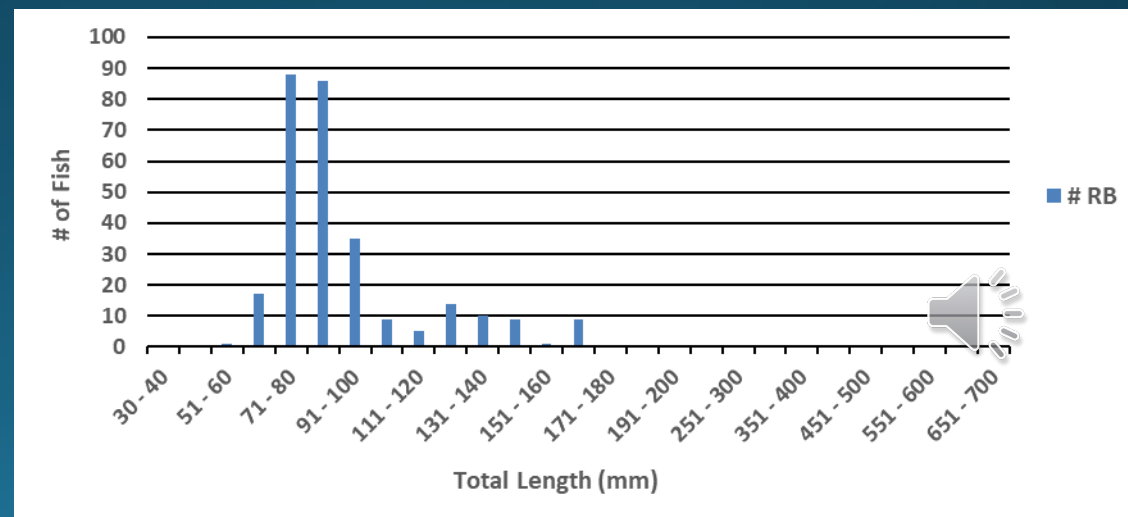
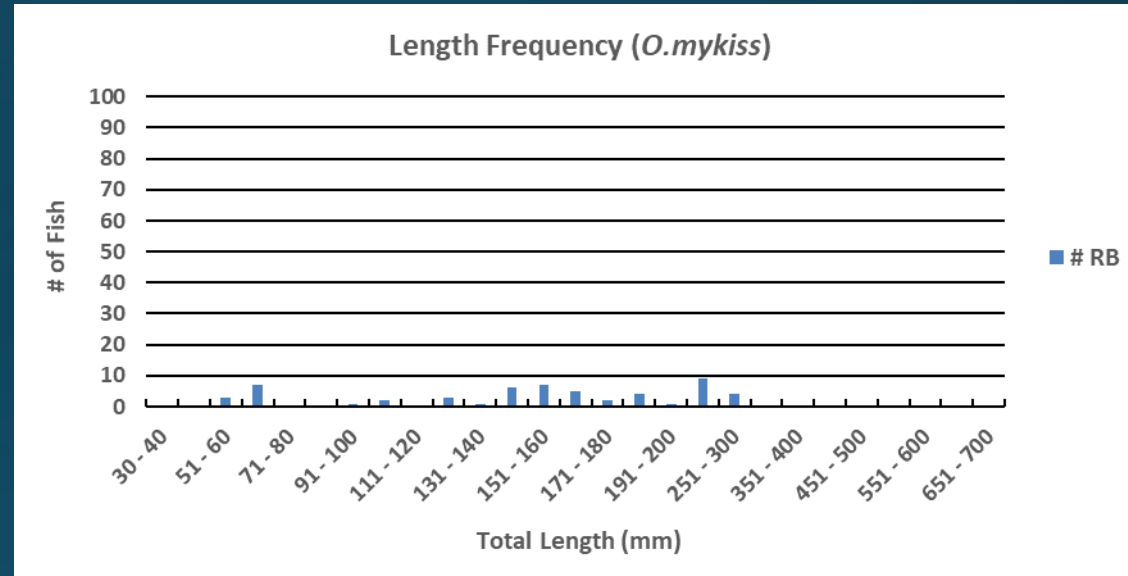
## Redband Trout- *O. mykiss*

Whychus Canyon  
R4 Upper

2022



2018





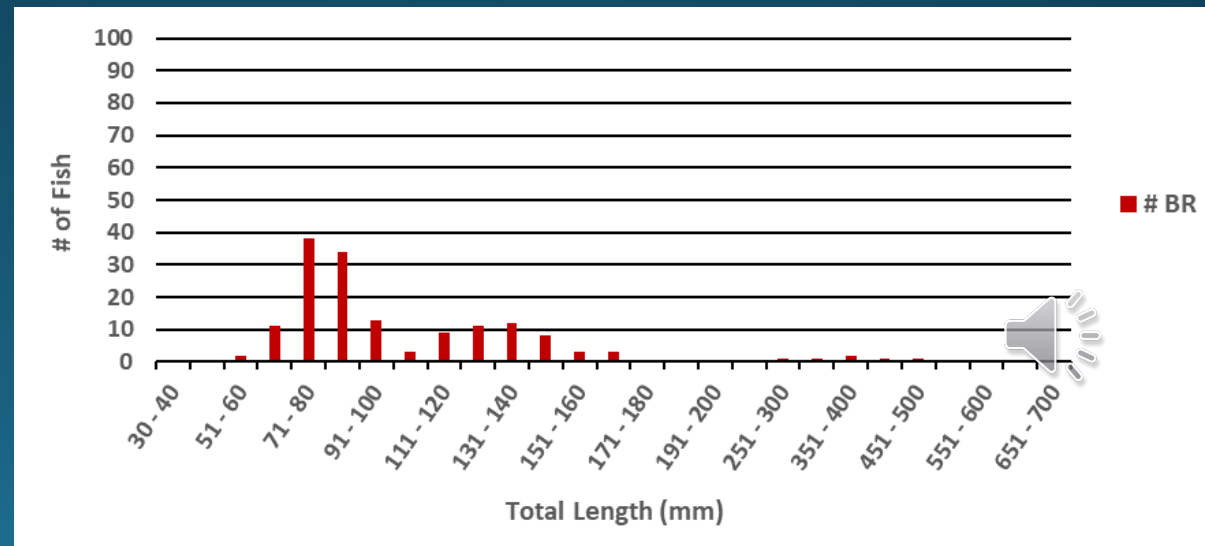
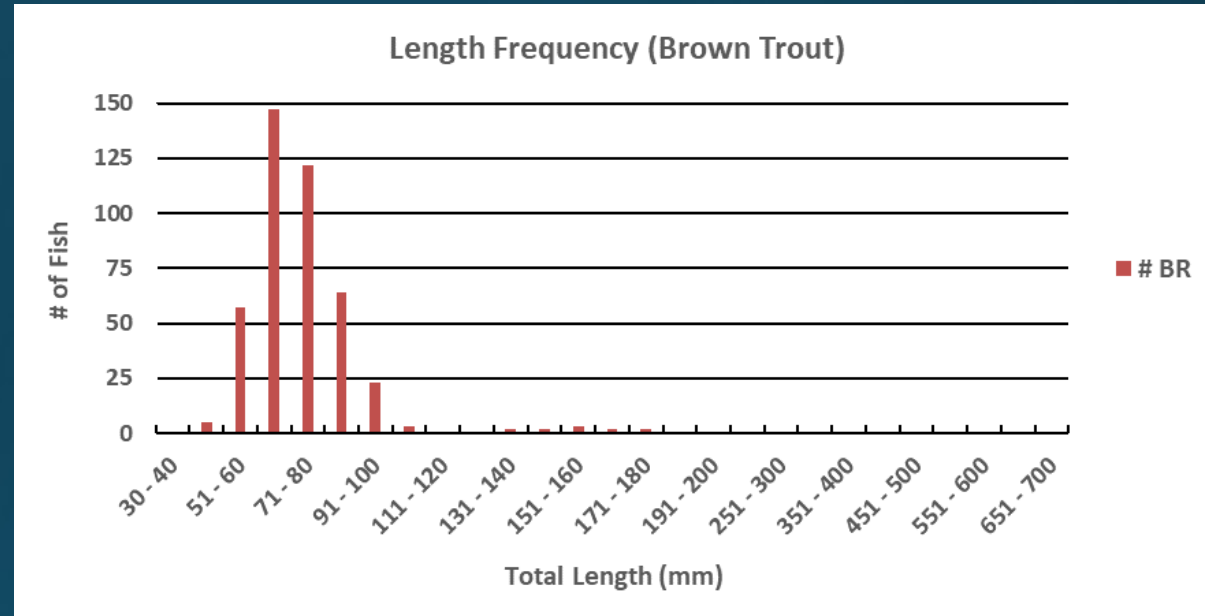
# Length Frequency Brown Trout

Whychus Canyon  
R4 Upper

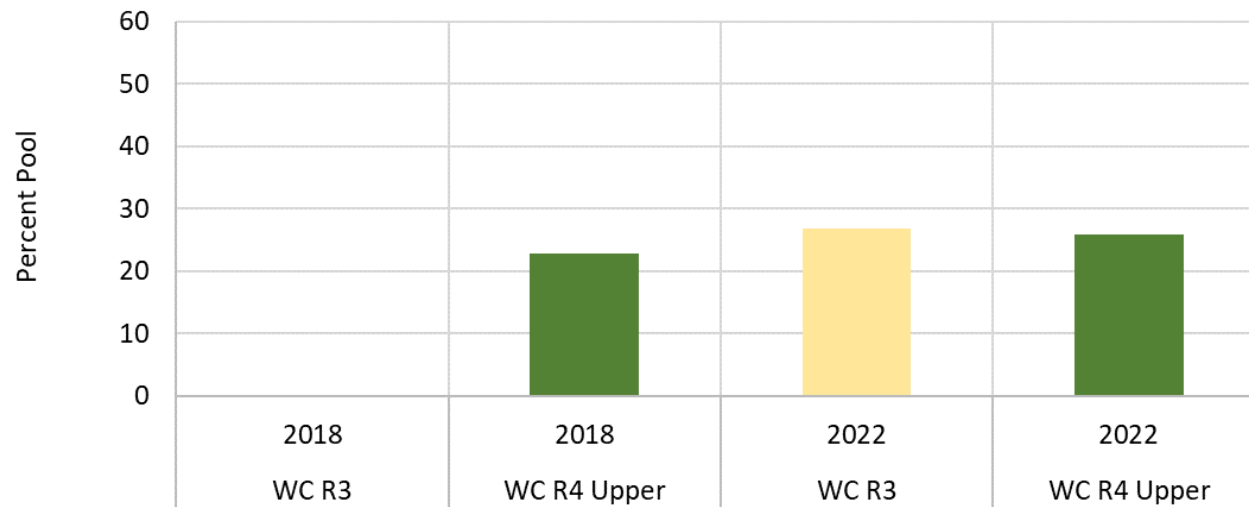
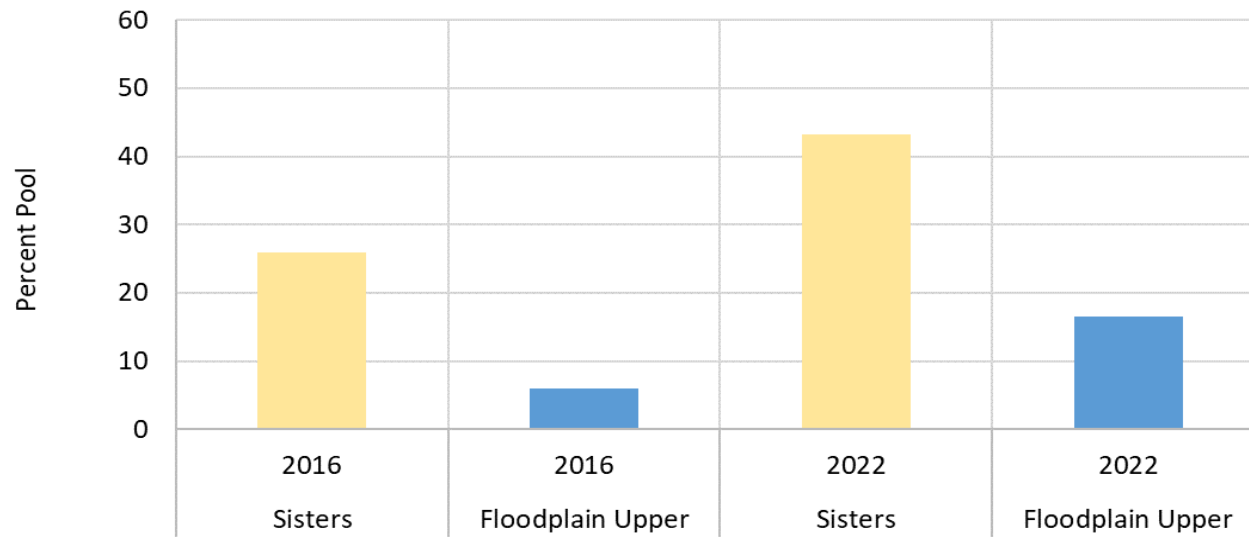
2022



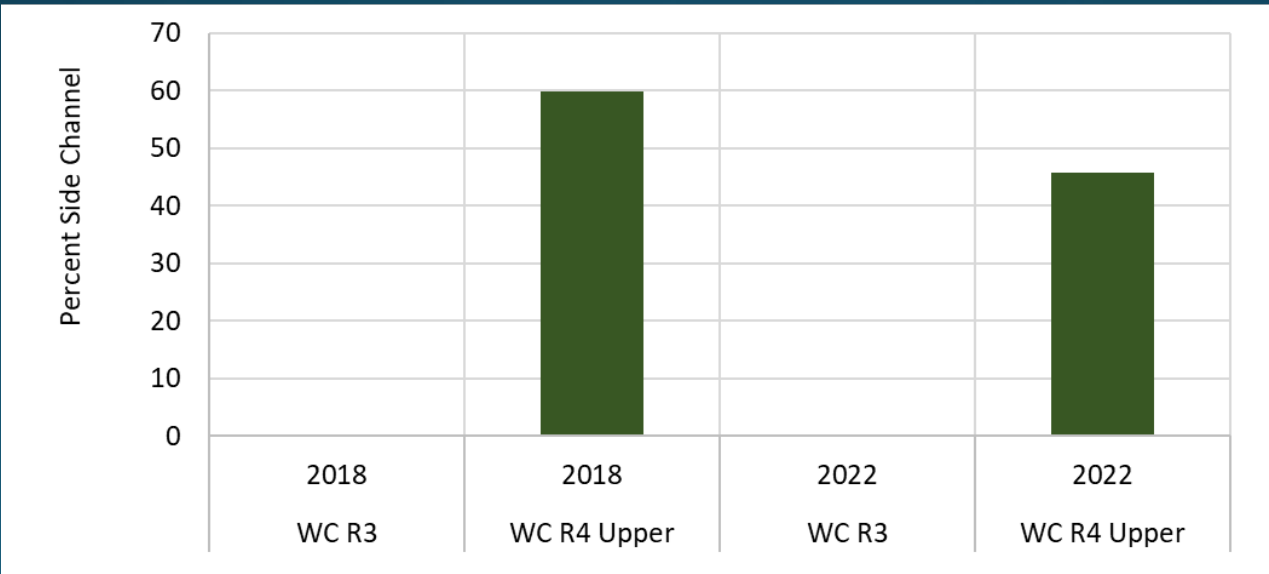
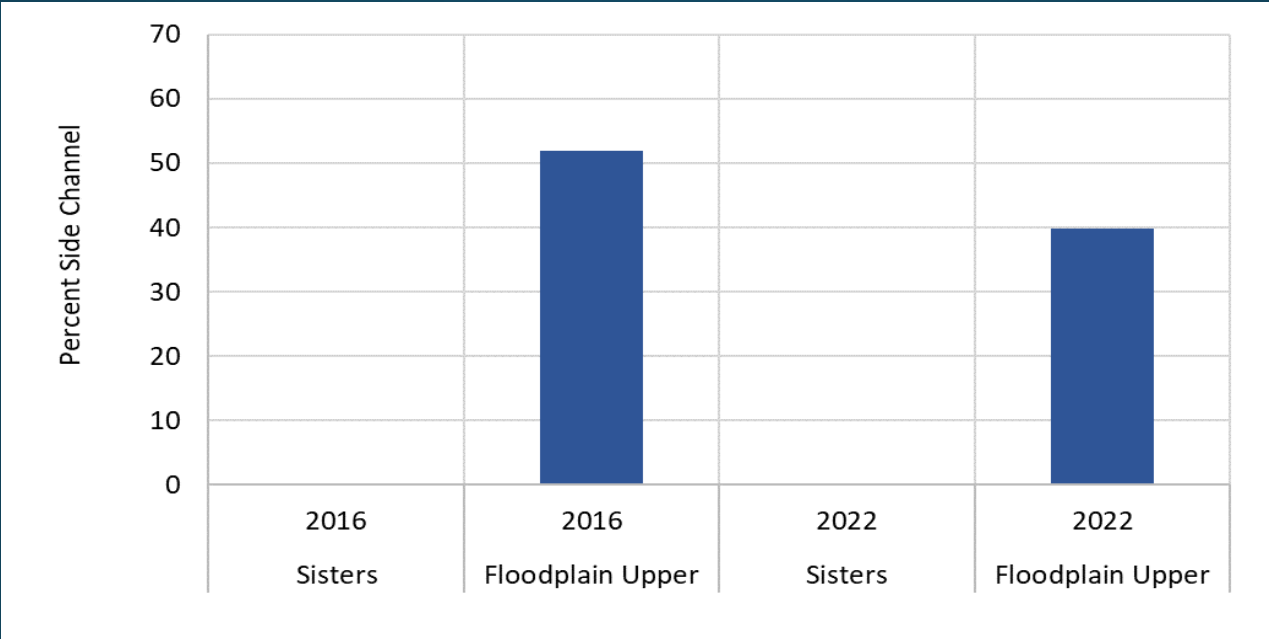
2018



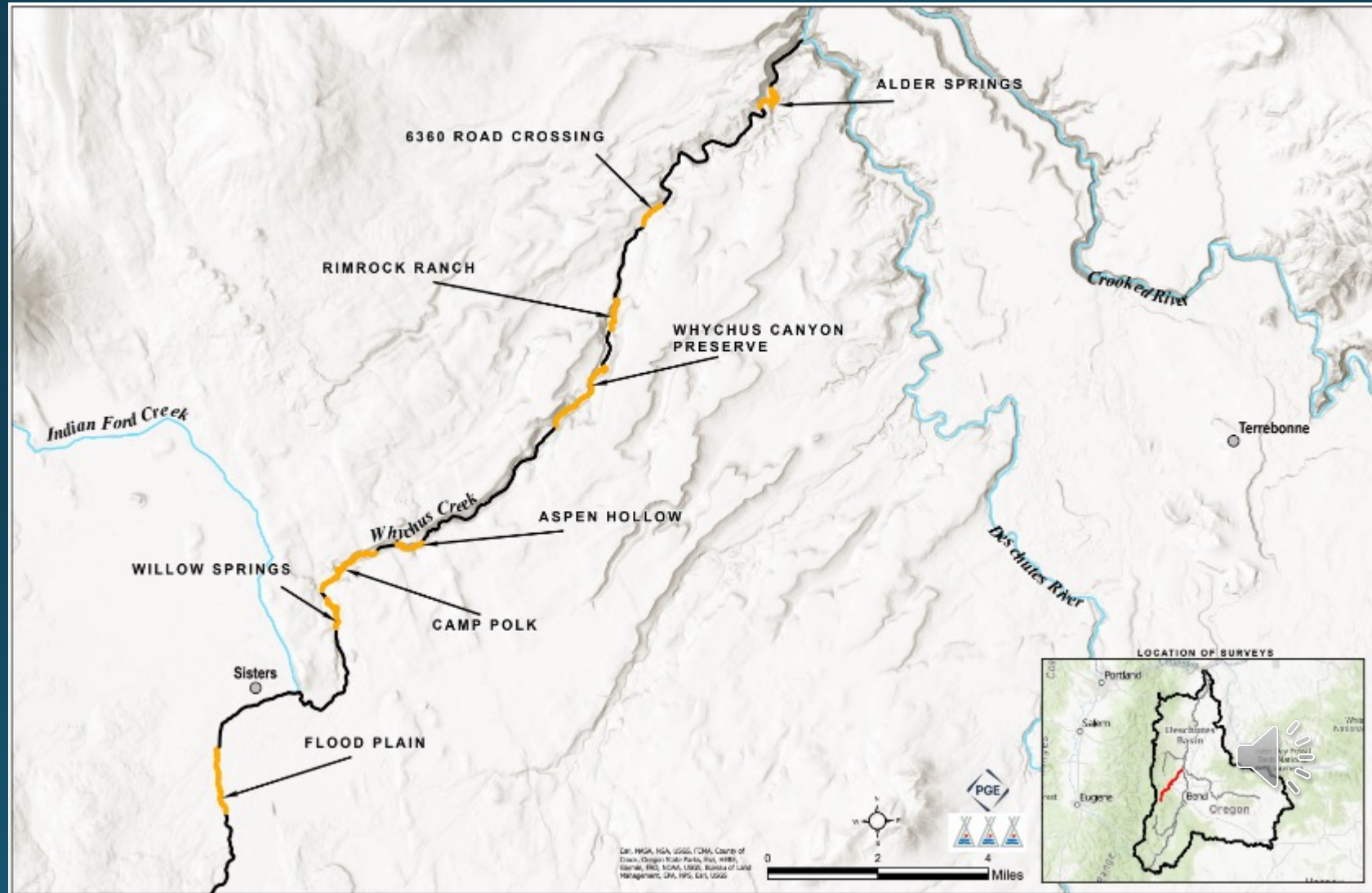
## Percent Pool was similar or improved in 2022



# Percent Side Channels were similar or slightly declined in 2022

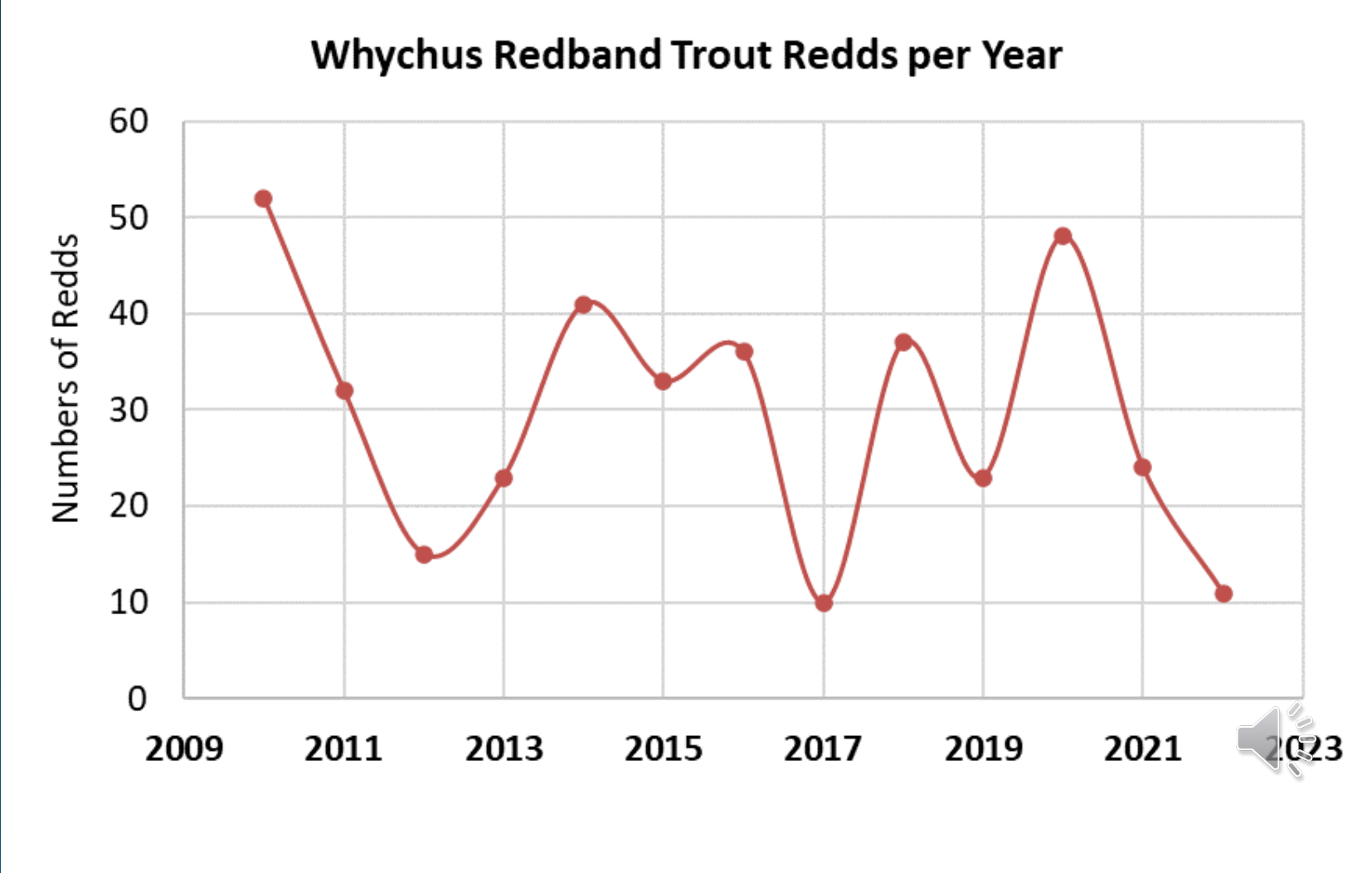


## Reband Trout Spawning Survey Reaches- Whychus Creek

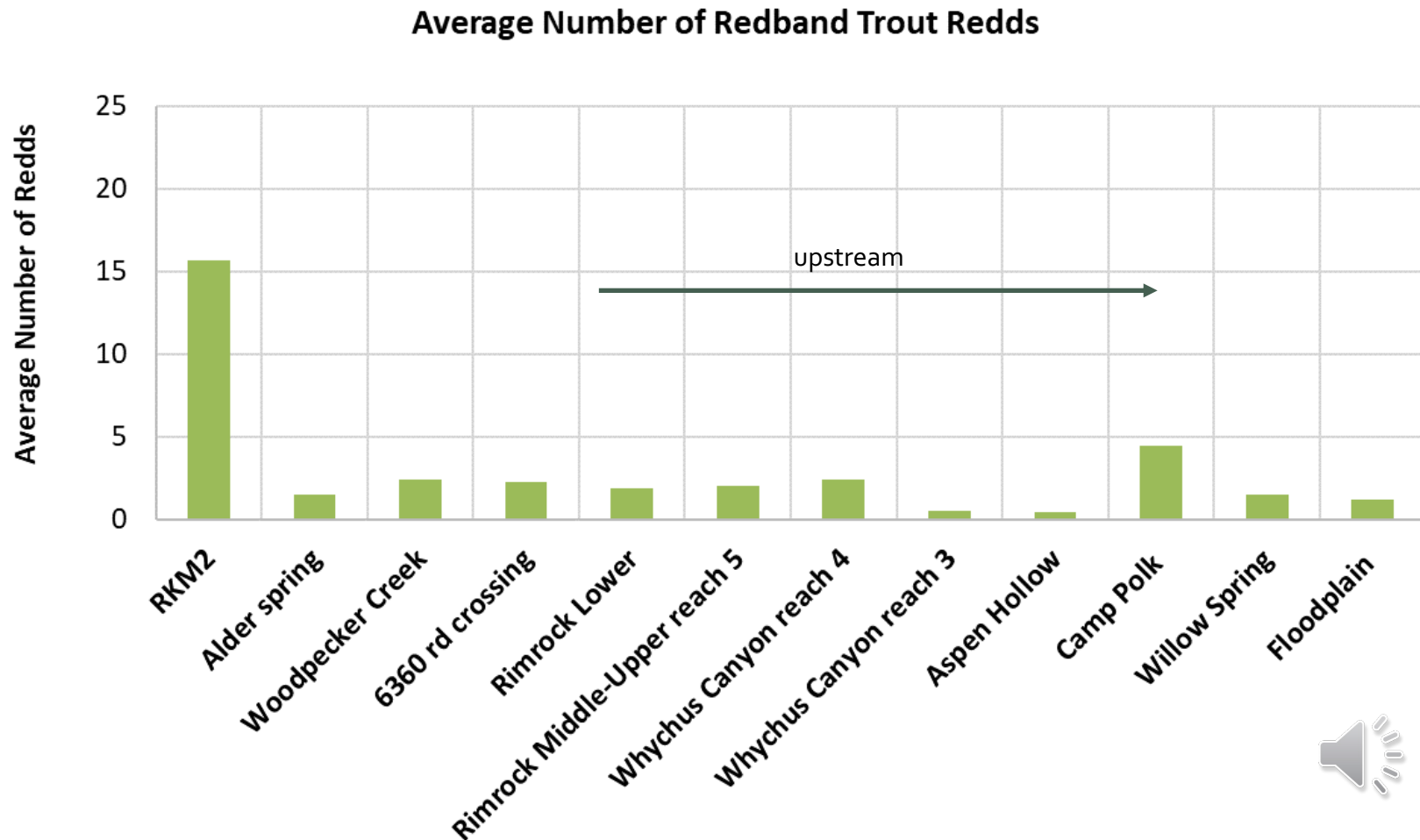




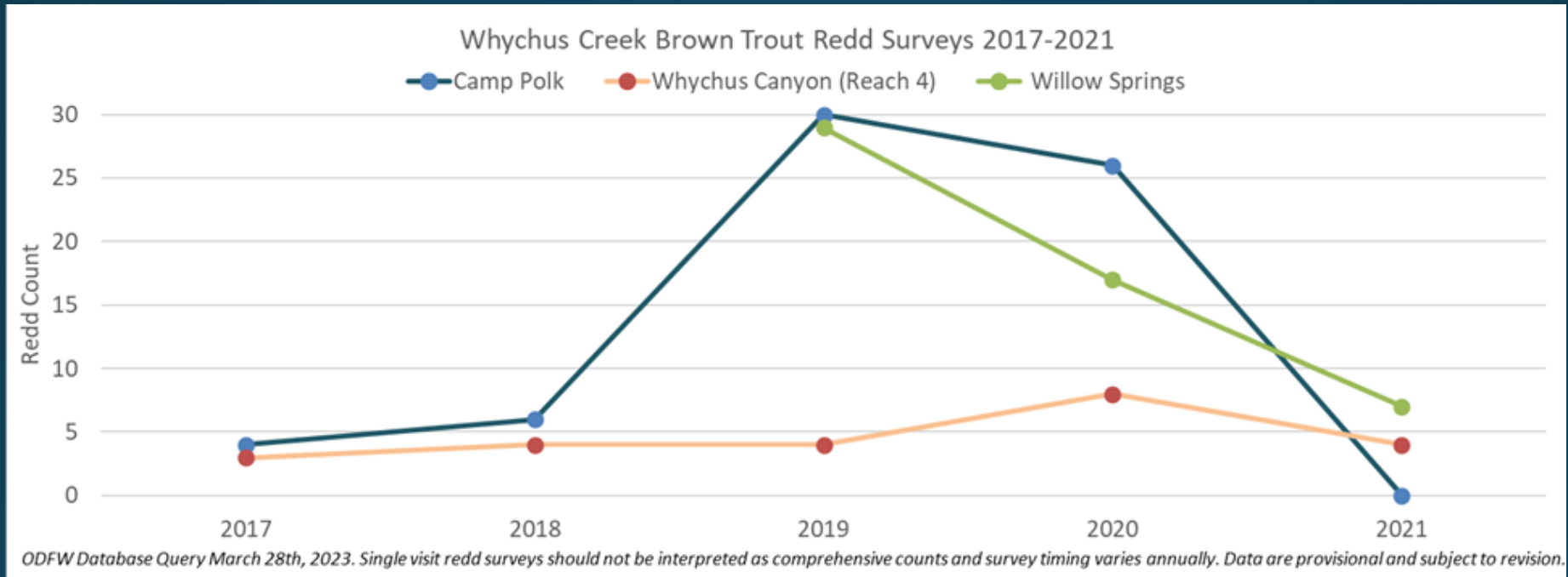
# Redband Trout Redd Counts per year Whychus Creek



# Redband Trout Average Redd Counts by Reach Whychus Creek 2010-2022



# Brown Trout Redd Counts Whychus Creek



Fine sediment (sand) bedload in springtime may limit *O. mykiss* incubation survival.



Redband Trout redd in 2022, marked one month prior to when photo was taken



## Summary of conclusions

- Redband trout were in low numbers in Whychus Creek in 2022.
- Habitat projects have not increased redband trout densities over control reaches without fry releases.
- Brown Trout population is increasing, with strong recruitment of younger age classes, and higher abundance in habitat reaches.
- Redband Trout recruitment is low, possibly due to fine sediment that is mobile in springtime during spawning and incubation period.



## Follow-up sampling

**Next repeated project monitoring:  
Camp Polk 2023 Sept 18-19**



**Monitoring New Projects:  
Willow Springs 2025**



**Genetic Sampling:  
Post Fry Release 2023**



## Thanks

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