FISHERIES MANAGEMENT AND STREAM ECOLOGY IN A FLOW-REGULATED RIVER

BLUE VALLEY RANCH

KREMMLING, COLORADO (GRAND AND SUMMIT COUNTY)

COLORADO STATE UNIVERSITY EXTENSION

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Mentors: Yoichiro Kanno, Brien Rose, Dan Schroder, Kelley Sinning

INTRODUCTION

This summer internship focused on developing practical skills used in freshwater fisheries and natural resource management while gaining a better understanding of how flow regulation, drought, and other environmental factors can affect aquatic ecosystems

At Blue Valley Ranch I worked in both field and hatchery settings to better understand stream health, aquatic food webs, and fishery management. My fieldwork included electrofishing, PIT- tag- mark-recapture, aquatic macroinvertebrate sampling, algae collection, habitat restoration, and fish health assessment.

Through Summit Country CSU Extension, I also gained experience in public outreach and environmental education by participating in youth hikes, bike rides, and plant walks focused on conservation.

Figure 1.



Palomino trout fry being weighed and counted as a part of hatchery management

Figure 2.



Assessing the health and diet of a brown trout captured by electrofishing

Figure 3.



Adult rainbow trout captured by a seine in an aquaculture pond

INTERNSHIP GOALS

- Gain hands on experience in fisheries management and aquatic ecosystem assessment
- Learn fish hatchery operations and fish health practices
- Develop skills in assessing stream health and aquatic food webs
- Understand how environmental conditions affect fisheries management
- Strengthen my ability to communicate natural resource and conservation topics to the public

MY IMPACT

Field Fisheries and Stream Health

- Conducted backpack and barge electrofishing throughout reaches of the lower Blue Valley River
- Assessed adult trout health and abundance through PIT- tag-mark- recapture
- Examined trout and sculpin diets to better understand aquatic food webs
- Collected aquatic macroinvertebrates using a Hess sampler to evaluate stream health
- Collected algae using top-rock sampling and a bentho-torch
- Managed tree planting to help stabilize stream banks and support aquatic habitats and soil health

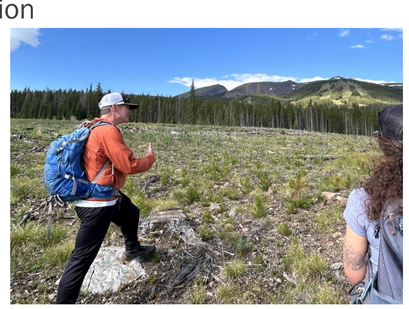
Hatchery Operations and Fish Management

- Raised fish from eggs through fry and juvenile life stages
- Fed fish and monitored their growth and health
- Maintained fish tanks and hatchery equipment
- Seined fish from aquaculture ponds to assess fish health and prepare fish for stocking
- Assisted with fish transport and stocking into aquaculture ponds and the Blue Valley River

Public Outreach and Environmental Education

- Participated in youth hikes and bike rides through Summit County Extension
- Discussed environmental health and wildfire risk with the public
- Participated and ran plant walks focused on identifying native and invasive species
- Helped connect community members with the land through outdoor environmental education

Figure 4.



CSU Extension mentor, Dan Schroder, explaining the importance of clear-cutting to youth after a hike in Summit County

Figure 5.



My mentor, Yoichiro Kanno, and I backpack electrofishing a stretch of the Lower Blue Valley River

Figure 6.



Aquatic macroinvertebrate sampling using a Hess sampler in a high- flow zone of the Lower Blue Valley River

KEY TAKEAWAYS

Effective conservation requires both scientific knowledge and the ability to communicate that knowledge with the people who interact with natural resources. This internship gave me hands-on experience with fisheries sampling, stream health assessments, and fish hatchery operations. I gained a better understanding of how fish, macroinvertebrates, algae, and food webs can be used to assess stream health. I also strengthened my communication skills by teaching youth and the public about conservation.

IMPLICATIONS IN MY EDUCATION

My coursework has provided me with an understanding of fish ecology, aquatic ecosystems, conservation, and natural resource management. This internship allowed me to apply that knowledge in real-world field and hatchery settings.

Working with different aspects of aquatic food webs allowed me to understand how different components of an aquatic ecosystem interact. My hatchery experience provided practical knowledge of fish culture and management, while my work with Summit County Extension strengthened my ability to communicate conservation concepts with the public.

A special thank you to Blue Valley Ranch and CSU Extension for an opportunity of a lifetime. I am incredibly grateful for the support, guidance, and investment in my future career in wildlife, fish, and conservation biology.