

Bozeman Staff

Fish Technology Center

Jeff Powell, Center Director

Zach Conley, General Biologist

Cal Fraser, Fish Biologist

Dr. Gibson Gaylord, Physiologist
(Lead Researcher-Diet and Nutrition)

Jon Gilleen, Maintenance
Mechanic

Jason Ilgen, Biological Science
Technician

Kevin Kappenman, Research Fish
Biologist (Lead Researcher-Fish
Passage)

Sharri Lunde, Administrative
Officer

Matt Toner, Fish Biologist (MGMT)

Dr. Molly Webb, Research Fish
Biologist (Lead Researcher-
Reproductive Physiology)

Kyle Moon, Seasonal Biological
Science Technician

Bozeman Fish Technology and Health Complex



February-March FTC Highlights:



Directly behind the shop and above ground storage tanks.

Quarters 2, southwest corner of the structure.



Fortunately for the Bozeman FTC, maintenance mechanic Jon Gilleen took the opportunity to take a chain saw safety class with the Forest Service last year. A pair of trees fell into Bridger Creek last month during a powerful storm that also knocked power out to the facility for a couple of hours. Jon, with the help of hatchery staff, was able to remove the obstructions safely prior to high water and prevent any erosion problems close to building foundations.

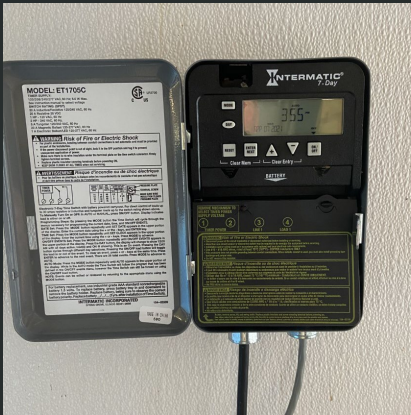
Pictured left: As quickly as staff wanted to get the trees out of Bridger Creek, a pair of beavers were busy building a new dam over the past few months just below the facility.



Contact Us:

**Bozeman Fish Technology
Center**
4050 Bridger Canyon RD
Bozeman, MT 59715
(406) 994-9900

**Bozeman Fish
Health Center**
1805 S. 22nd Ave Suite #1
Bozeman, MT 59718
(406) 582-8656



Hatchery staff installed a light timer control box to regulate when sand filters execute a backwash cycle. By using a set time rather than a pressure differential the sand filters are operating more efficiently, reducing back pressure on pumps and stabilized flow rates throughout the day.



Above: BFTC Feed Manufacturing Building.

The Feed manufacturing team had a busy few months. They processed an estimated 5,000 lbs. of experimental diets including: Rainbow Trout, Yellowtail, Bluehead Sucker, Chinook, Steelhead, Largemouth Bass, and even produced a diet for a species of Sea Urchin.



Above, Wendy Sealey & Gibson Gaylord sample count fish prior to start of a disease challenge trial.

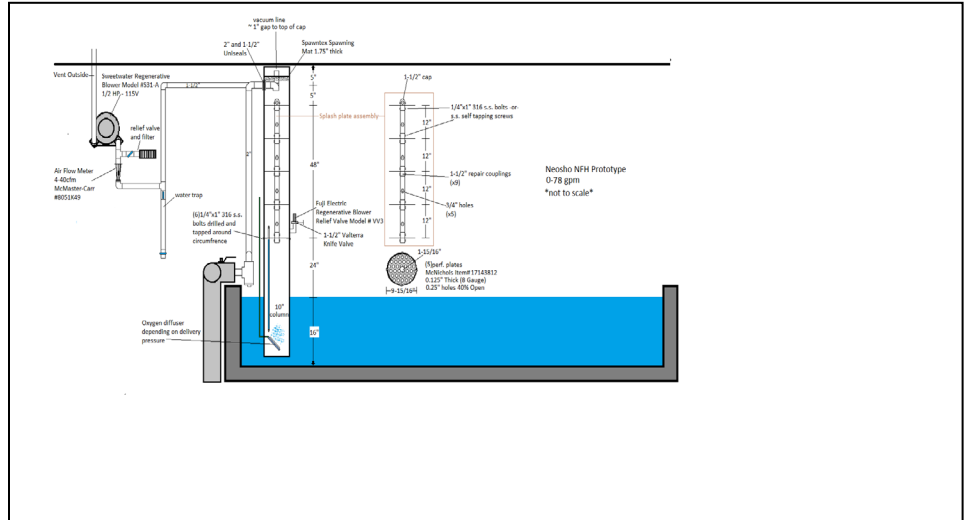


Below, Wendy Sealey injects trout with coldwater disease bacteria provided by the Bozeman Fish Health Center.

A bacterial coldwater disease trial started in the Containment Building with ten experimental diets being feed over a twelve week period. Various organic acids and essential oils were added to the experimental diets with the intent that they would help suppress the effects of common pathogens, thus reducing the need for and/or level of antibiotic treatments. A subset of fish from the ten feed treatments were moved from the original culture tanks to the quarantine room. There, they were injected with coldwater bacteria and are currently being observed.



Farewell to Dr. Wendy Sealey. Wendy has had a tremendous opportunity to move on from the US Fish and Wildlife Service. Wendy is now with the USDA Agricultural Research Service, as a Nutritional Physiologist. Wendy's expertise in her field combined with her collaboration skills and scientific integrity made her an ideal candidate. We look forward to working with Wendy and the ARS staff in the future.



Above, diagram designed by Jason Ilgen

Jason Ilgen has been working with multiple hatcheries in several regions to assist with improving water quality. The design above is a template he starts with, then adjusts per condition the hatchery is trying to mitigate. Some water saturation conditions this template has improved include: nitrogen, carbon dioxide, radon, total gas pressure, and oxygen. Jason is currently investigating the potential of the column to aid in the removal of hydrogen sulfide.

Fish on-station for research projects:



Rainbow Trout – 60 gr/fish, 3500 fish

Rainbow Trout – 90 gr/fish, 2500 fish

Rainbow Trout - < 1gr/fish, 10,000 fish

Arctic Grayling – 350 gr/fish, 250 fish

Cutthroat Trout – 20 gr/fish, 300 fish

Cutthroat Trout – 200 gr/fish, 300 fish

Pike – 3 to 7 lbs/fish, 60 fish

Kendall Warm Springs Dace – 2 to 5 gr/fish, 400 fish

Pallid Sturgeon – 10 lbs/fish, 29 fish

Fish Health Center

Staff:

Lacey Hopper, Project Leader

Molly Bensley, Fish Biologist

Rick Cordes, Fish and
Wildlife Biologist

Amberly Huttinger, Fish
Biologist

Tammy Weiss, Fish Biologist

Renee Yamamoto (Martin),
Fish Biologist

Contact Us

Bozeman Fish Health
Center
1805 S. 22nd Ave Suite #1
Bozeman, MT 59718

Bozeman Fish Health Center February-March 2021 Highlights:

Laboratory Services Supporting Recovery, Restoration and Recreation – Federal Health Inspections:

- Hotchkiss National Fish Hatchery (NFH); Complete AFS health inspection on rainbow and brown trout - 180 fish.
- Jones Hole NFH; Complete AFS health inspection plus additional whirling disease testing on Bear Lake and Bear River cutthroat, kokanee, and tiger trout - 300 fish.
- Ouray NFH; Complete health inspection per CRFWC Fish Disease Control Policy on bonytail chub and razorback sucker - 120 fish.
- Creston NFH; Complete AFS health inspection on rainbow and Westslope cutthroat trout - 360 fish.
- Garrison Dam NFH; Complete AFS health inspection on rainbow and brown trout, fall Chinook salmon and walleye - 420 fish.
- Saratoga NFH; Complete AFS health inspection on lake, brown, and rainbow trout, Yellowstone cutthroat trout - 510 fish.
- Gavins Point NFH;
Collaborative health inspection with Ken Phillips, Project Leader at La Crosse Fish Health Center, per Pallid Sturgeon Health Assessment requirements - 60 fish.
- DC Booth; Complete AFS health inspection on rainbow trout - 140 fish.
- Palisade High School Hatchery (Ouray NFH- Grand Valley Unit);
Complete health inspection per CRFWC Fish Disease Control Policy on razorback suckers – 23 fish.



Ken Phillips, La Crosse FHC collecting tissue samples during the pallid sturgeon health inspection at Gavins Point NFH. Photo: USFWS/Lacey Hopper



Bozeman FHC Fish Biologist Amberly Huttinger, with Sean Henderson at Garrison Dam NFH. Photo: USFWS/R. Yamamoto

Laboratory Services Supporting Tribal Trust – Health Inspections:

- Big Springs Ute Tribal Fish Hatchery; Complete AFS health inspection on rainbow, brown and tiger trout – 360 fish.



Photo: Big Springs Hatchery/David Chapoose

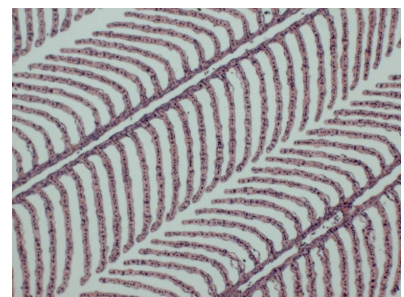
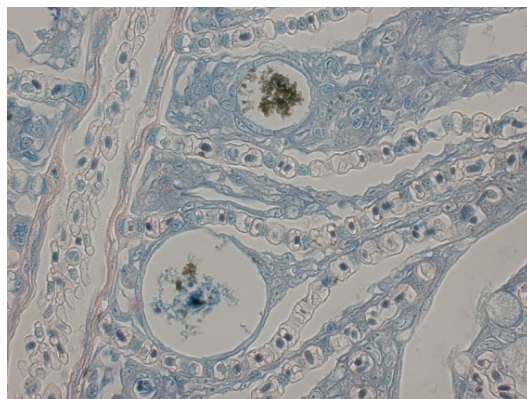
Laboratory Diagnostic Support to Reduce Federal Hatchery and Wild Fish Losses:

- Provided comprehensive diagnostic assistance to 4 Federal facilities, 3 species, 58 fish.
- Big Thompson River-Rocky Mountain National Park, CO; Histopathology on 30 brown and brook trout following a significant wildfire that was extinguished by snow.



Left: Pockets of debris in gill tissue of fish from RMNP wildfire. Below: Normal gill tissue in histology.

Photos: USFWS/Amberly Huttinger



Laboratory Services Supporting Partner Recovery, Restoration and Recreation:

- Montana Fish, Wildlife and Parks; Hatchery fish health inspections and certifications completed on rainbow trout, kokanee salmon, and yellow perch from 3 state facilities – 530 fish tested.
- Kansas Department of Wildlife, Parks and Tourism; Meade State Fish Hatchery, largemouth bass, channel catfish, green sunfish and koi – 150 fish tested.
- Utah Division of Wildlife; State facility whirling disease certification by molecular methods, rainbow trout – 60 fish tested.

Special Projects and Research Assistance:

- Jones Hole Creek, UT; filtered water samples from 4 locations for *Myxobolus cerebralis* eDNA detection. No Mc detected. No Mc was detected in *Tubifex tubifex* samples tested by PCR.



Jones Hole Creek. Photo: L. Hopper

- Bozeman FTC; Process and analyze by histology 81 intestines and 45 livers from rainbow trout for diet and nutrition studies.
- Ennis NFH; Collected final 200 fin clips from rainbow trout brood stock for system-wide funded brood stock genetics project. Renee Yamamoto is currently processing and analyzing all 600 fin clips.

Outreach, Employee Development & Upcoming:

- New BFHC/USGS collaborative publication:
Patrick R. Hutchins Adam J. Sepulveda Hanna Hartikainen Ken D. Staigmilller Scott T. Opitz Renee M. Yamamoto Amberly Huttinger Rick J. Cordes Tammy Weiss Lacey R. Hopper Maureen K. Purcell Beth Okamura, **Exploration of the 2016 Yellowstone River Fish Kill and Proliferative Kidney Disease in Wild Fish Populations**, Ecosphere, Vol. 12 Issue 3, March 2021.
- Staff worked with the Youth Education Coordinator for Colorado's Trout in the



Classroom program to plan upcoming health inspections and activities via Zoom for classroom release events.

- Staff joined numerous Asian carp eDNA coordination calls.
- BFHC Asian carp eDNA monitoring SOPs and station-specific workflow plans were submitted to staff at the Whitney Genetics Lab in La Crosse, WI for review and comment.
- Rick Cordes participated in the virtual Rocky Plains Fish Health Coordination Meeting with multiple state partners.
- Bozeman FHC completed and submitted the annual Station Safety Self-Inspection for FY21. No safety concerns were found.
- Staff participated in the Montana USFWS fisheries stations safety committee virtual meeting.

- Rick Cordes and Jon Gilleen from the Bozeman FTC disassembled and repaired an old clean air hood in the virology lab.
- Staff provided a fish health update at the Upper Basin Pallid Sturgeon Workgroup Virtual Meeting.



Virology hood repair. Photo: USFWS/Rick Cordes

- Renee Yamamoto participated in the Conservation Genetics CoP meeting.
- Amberly Huttinger joined a mussel webinar hosted by NCTC.
- Tammy Weiss continues to participate in the Pollinator Conservation CoP and numerous webinars on pollinator species.



Renee Yamamoto and Rick Cordes at the Saratoga NFH annual health inspection. Photos: USFWS/Rick Cordes and Renee Yamamoto