

Bozeman FTC 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

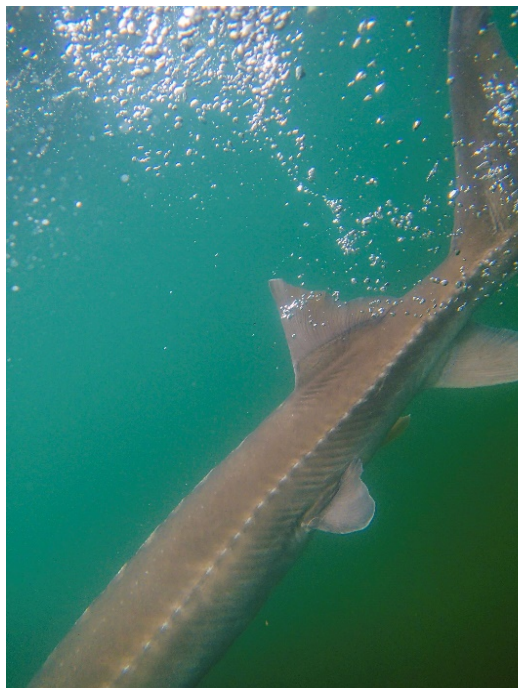


A little unusual to see a bear in the spring on campus, but this bear made a few appearances before moving on.

Bozeman Fish Technology and Health Complex

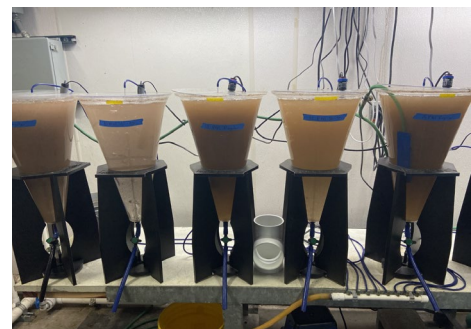


April & May FTC Highlights:



Matt Toner, Jeff Powell, and Molly Webb collected fin clips from known sex pallid sturgeon to confirm the use of a new sex-specific genetic sequence. The new tool will determine sex in sturgeon. The sequence was identified by European researchers, and Dr. Andrea Schreier at the University of California, Davis. The lab at UC Davis will analyze the fin clips by PCR-genotyping to confirm the use of the tool in *Scaphirhynchus* species.

Pictured right – Artemia being incubated for an initiation to feed, pallid sturgeon diet trial. Artemia is one of the four diets being evaluated to determine an optimal initiation food source. Treatments will be evaluated for an additional three months to observe the prevalence of fin curl associated with initiation diets.



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Cal Fraser sits in on a weekly collaborative leadership call. The collaborative leadership program is designed to help shape, design and promote FAC program and build for the future.

Teams of the CL program & participation by BFTC and Health Complex

Vision – Molly Webb
Design – Lacey Hopper
Implementation – Cal Fraser
Assessment – Gibson Gaylord
Communication – Matt Toner
Review – Kevin Kappenman, Rene Yamamoto
Focus – Molly Bensley
Subject Matter Expert – Sharri Lunde, Kevin Kappenman, Jason Ilgen, Jon Gilleen, Lacey Hopper



Pictured left- Stock tank of newly hatched pallid sturgeon fry for first feeding trial. 300 four-day old fry were hand counted to each experimental tank. Mortalities are counted daily and replaced for the first five days.

Pictured right – Experimental PLS tanks, two genetically different families will be exposed to the same diet treatments for growth and survival.



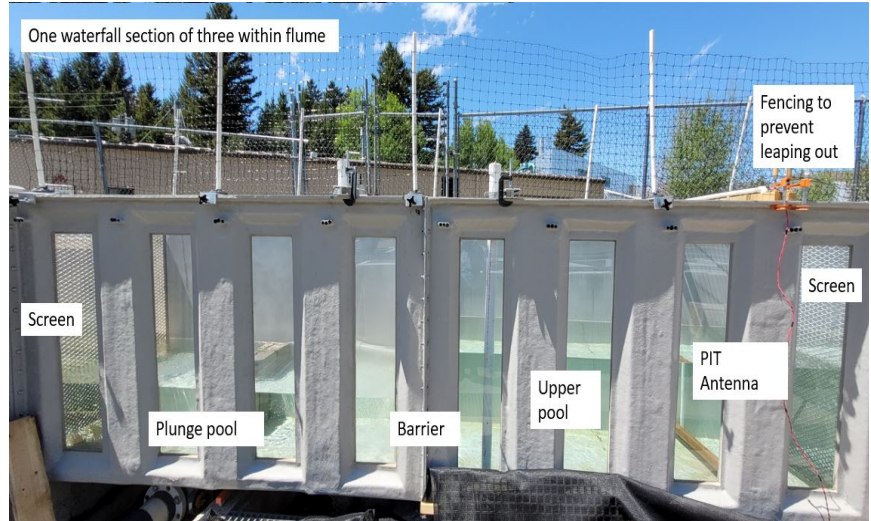
FISH ON!! This was not the typical fishing derby that the BFTC usually hosts, but with a little extra effort by Mark Portman and Matt Toner, the Tech Center had a scaled down version. A small local group from the Big Brothers and Big Sisters program came out for a tour followed up with a little fishing. The Tech Center plans to have a few more of these scaled down fishing derbies through the summer to promote youth fishing.



Typical Murphy's Law, with fish ready to go into the flume and leap structures installed a 3" water line that services the flume didn't hold water anymore. Lucky for us, Jason is half gopher. There was only a day set back to find and repair the broken pipe.



Tagging, measuring, and weighing pike for the trial. Prior to trial PIT tag retention was observed to be 100%, nice job Tayler!



Pictured above is a description of how the flume was modified for the pike leaping project.

The pike leaping project is underway. Staff PIT tagged, weighed, and measured all 61 pike on May 4th, with a range in fork lengths of 525 to 845 mm, and mean of 635 mm. The flume is sectioned off to provide three separate leap heights so multiple trials can be ran simultaneously. A PIT tag array monitoring system was installed in each leap section. Pike have been documented traveling throughout individual sections by the PIT tag monitoring systems. Recently, video footage of pike investigating and leaping over structures was observed and documented.



Pictured above: pike hovering at the bottom of the plunge pool.

A view of one of the leap structures. In the bottom right you can see a pike traveling through the base of the pool.

Fish on hand for research projects:

Rainbow Trout – 120 gr/fish, 1500 fish

Rainbow Trout – 170 gr/fish, 1500 fish

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

Arctic Grayling – 350 gr/fish, 150 fish

Cutthroat Trout – 35 gr/fish, 300 fish

Cutthroat Trout – 250 gr/fish, 300 fish

Pike – 3 to 7 lbs/fish, 60 fish

Kendal Warm Spring Dace – 2 to 5 gr/fish, 400 fish

Pallid Sturgeon – 10 lbs/fish, 29 fish

Pallid Sturgeon – 8,000 newly hatched fry



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

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Visit us on the web!

<https://www.fws.gov/mountain-prairie/fisheries/fhc.php>

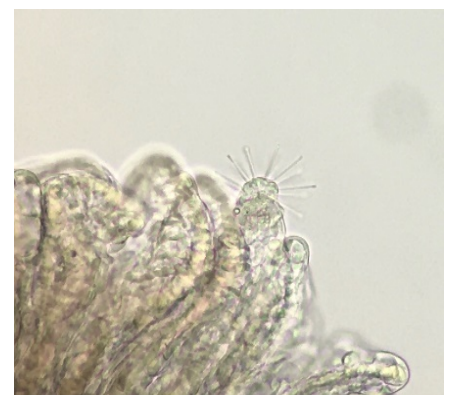
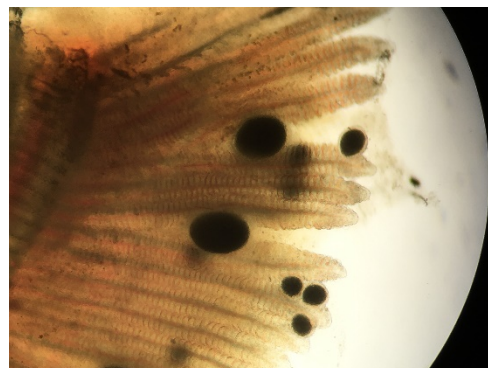
Bozeman Fish Health Center April-May 2021 Highlights:

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

- Jackson National Fish Hatchery (NFH); Complete AFS health inspection on Snake River cutthroat – 60 fish.
- Ennis NFH; Complete AFS health inspection on rainbow trout – 420 fish.
- Ouray NFH-Grand Valley Unit; Complete health inspection per CRFWC Fish Disease Control Policy on bonytail chub and razorback sucker - 120 fish.
- Leadville NFH; Complete AFS health inspection on rainbow trout and greenback cutthroat trout - 235 fish.
- Leadville NFH; Real-time PCR testing for *B. dendrobatidis* (Chytrid fungus) on WY toads – 60 toads tested.
- Saratoga NFH; Real-time PCR testing for *B. dendrobatidis* (Chytrid fungus) on WY toads – 60 toads tested for pre-release.
- Private John Allen NFH, Tupelo, MS (FWS LR4); Parasite check, bacteriology and virology testing of wild warm-water broodfish, 6 species – 19 fish.



Above - Rick Cordes and Tammy Weiss performing a fish health inspection at Ennis NFH. Photo: USFWS/L. Hopper



Wet mount of *Trichophrya* parasite on the gills of fish from Private John Allen NFH.

Left - *Ich. parasites* embedded in gills. Photo: USFWS/L. Hopper

National Wild Fish Health Survey Field and Lab Work:

- Firehole River - Yellowstone National Park; Collaborate with National Park Service Biologists for comprehensive inspection on rainbow and brown trout – 57 fish. Whirling Disease detected in RBT.
- Gibbon River – Yellowstone National Park; Collaborate with National Park Service Biologists for comprehensive inspection on brook and brown trout – 62 fish. Whirling Disease detected in both BKT and BNT.

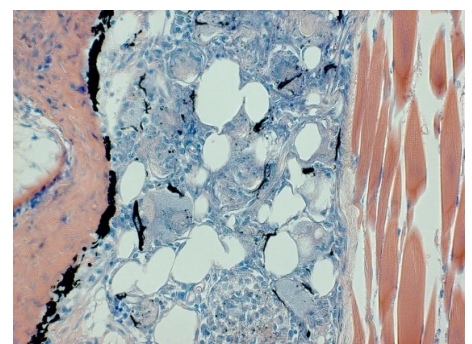
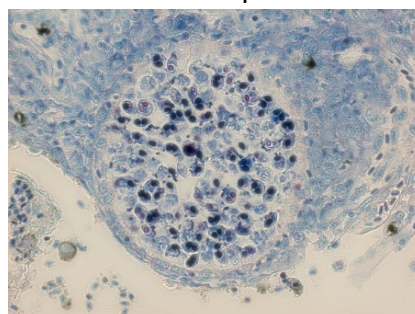


Working with our National Park Service partners on the Firehole (top) and Gibbon (bottom) Rivers, YNP. Photo: USFWS/T. Weiss and A. Huttinger



Laboratory Diagnostic Support to Reduce NFH Fish Losses:

- Provided comprehensive diagnostic assistance to 2 Federal facilities, 7 cold and warm-water species.



Left: Pocket with heavy myxosporean parasite load in carpsucker tissue. Top – Steatitis (inflammation of fat tissue associated with nutritional deficiencies) in rainbow trout tissue.

Photos: USFWS/Amberly Huttinger

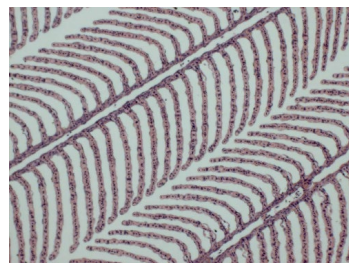
Laboratory Services Supporting Partner Recovery, Restoration and Recreation:

- Kansas Department of Wildlife, Parks and Tourism; 3 State Fish Hatcheries, 12 cool and warm-water species – 386 fish tested.
- Montana Fish, Wildlife and Parks; Hatchery fish health inspections and certifications completed on rainbow trout, Westslope cutthroat and yellow perch from 4 state and private facilities – 175 fish tested.
- Montana Fish, Wildlife and Parks; Complete AFS inspections on wild fish from 8 rivers, creeks, reservoirs and lakes: rainbow trout, brown trout, Arctic grayling – 421 fish.
- Provided on-site collection of wild rainbow trout at Willow Creek, MT to assist MFWP.
- Montana Fish, Wildlife and Parks; Diagnostic assistance including histopathology on brown trout and Westslope cutthroat from 1 river and 1 hatchery – 14 fish.



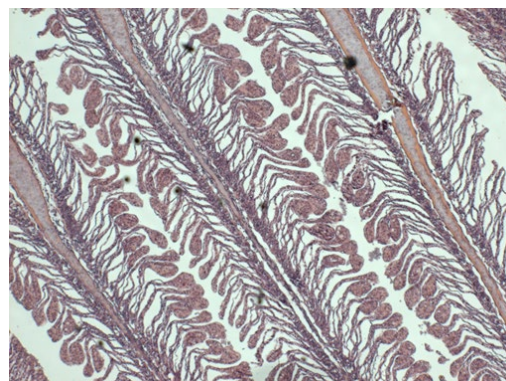
Willow Creek, MT wild fish health survey fieldwork with Ennis NFH & Montana Fish, Wildlife and Parks. Photo: USFWS/J. McFall

- **Madison River, MT wild fish kill investigation;** May 18th BFHC received a request from Montana FWP to help



Left – Histology section of normal gill tissue. Bottom – Severe gill irritation/swelling observed in fish from the Madison River, MT. Photos: USFWS/A. Huttinger.

investigate a moderate-scale fish kill incident in the Bear Trap Canyon. Mortality in



mountain whitefish and trout species was observed. *Tetracapsuloides bryosalmonae* (PKX) was detected in some whitefish and in all brown trout tested, however unknown environmental

factors most likely contributed to mortality.

Special Projects and Research Assistance:

- Jackson NFH/USGS Columbia Environmental Research Center; Fin clips from 14 wild Kendall Warm Springs Dace for ongoing conservation genetics research project.
- Western Nebraska Trout Fisheries Association; Fin clips from wild rainbow trout for genetic analysis – Investigate existing McConaughy rainbow strain genetics in wild populations.

Outreach

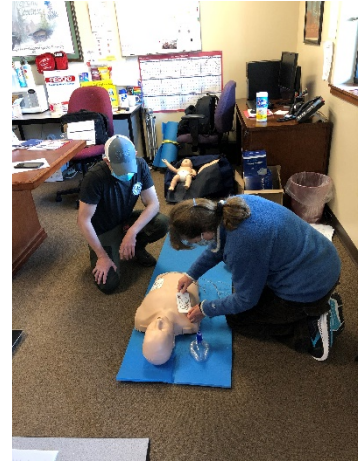
- Earth Day Activities – April 17th Gallatin Valley Earth Day Celebration at the Library. Informational outdoor booth with kid-friendly-activities such as a nature scavenger hunt and pine cone bird feeders.
- Earth Day Activities – April 24th Gallatin Valley Earth Day Celebration at the Park. Informational booth and a nature scavenger hunt for the kids.
- Provided 200 USFWS coloring and activity books to the Bozeman Public Library to be distributed to local community libraries.
- Colorado Trout in the Classroom (TIC)- Provide pre-release disease testing for rainbow trout raised in 6 Colorado High and Middle School classrooms, 140 fish tested.



2021 Earth Day outreach fun!
Photos: USFWS/T. Weiss, A. Huttinger, R. Yamamoto.

Employee Development and Other News:

- Staff participated in numerous invasive carp eDNA monitoring discussions and calls.
- Bozeman FHC invasive carp eDNA SOP's were reviewed and edited by the staff at the Whitney Genetics Lab. Positive control invasive carp eDNA samples will be provided by WGL to test detection levels.
- All staff received on-site Wilderness Safety and CPR/First Aid training.
- Participated in a virtual semiannual IACUC meeting for AADAP.
- Staff reviewed a new study protocol for AADAP.
- Rick Cordes and Lacey Hopper visited Ennis NFH and provided water testing for the newly installed degassing system.



The beauty of Yellowstone National Park. Photo: USFWS/T. Weiss



This is why bear safety training is important! This grizzly bear was spotted near our sampling site in Yellowstone NP. We quickly decided fish would be transported back to the lab that day for processing. Photo: USFWS: T. Weiss