

Bozeman FTC Staff

Fish Technology Center

George Jordan, Acting Complex
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

Dr. Wendy Sealey, Physiologist
(Lead Researcher-Diet and
Nutrition)

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



May Report – FTC Highlights:

Activities deemed “Mission Critical” continued on station, while due to continued safety restrictions, other work activities continued remotely. Staff associated with on-station work remain on staggered work schedules to minimize exposure risks.

As Spring is springing, people are wanting to get outside. Trail-head improvements to Drinking Horse Mountain and the completion of a pedestrian underpass connecting the upper parking lot at the Bozeman Fish Technology Center (BFTC) with other hiking trails resulted in increased usage of the upper parking area. This resulted in the need to improve visibility along the road to the lower parking lot at the BFTC. To increase visibility, Jon Gilleen led efforts to begin the removal of excess vegetation and thinning of tree growth at the junction of the station entrance road and the upper visitor parking lot. With the addition of signage and these improvements, the BFTC hopes to minimize potentially unsafe traffic-pedestrian interactions.



The thinning of trees and brush has greatly increased visibility on the road to the lower parking lot. USFWS Photo -Jon Gilleen

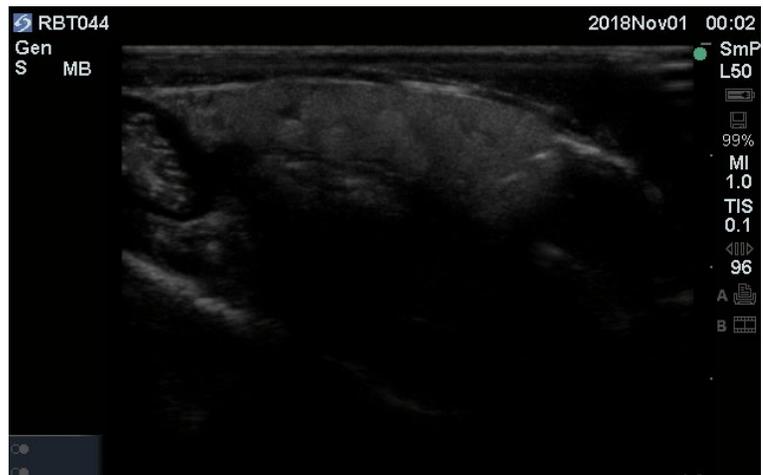
Contact Us:

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

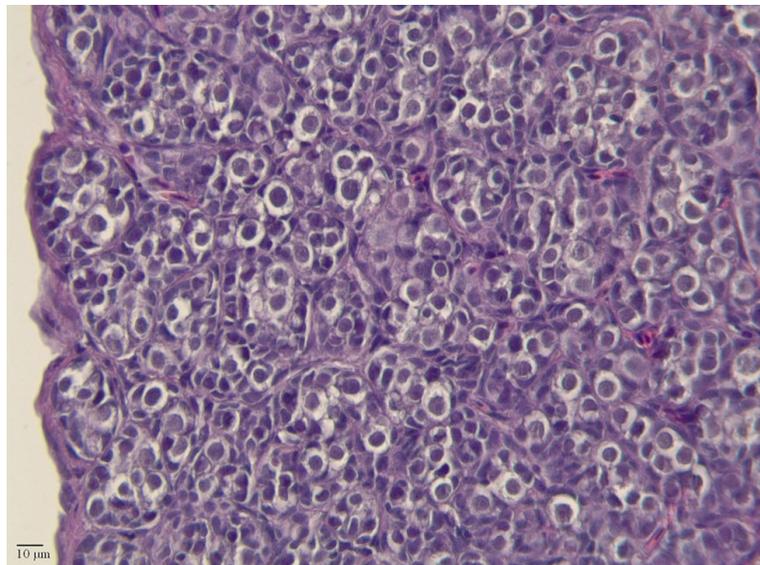
**Bozeman Fish
Health Center**
1805 S. 22nd Ave Suite #1
Bozeman, MT 59718
(406) 582-8656

Drs. Gibson Gaylord and Wendy Sealey manufactured Rainbow Trout feed for the Alfalfa Nutrition experiment and contractor Mark Portman top-coated, packaged and shipped 300 kg of 3.0 mm floating feed. This research is part of the ongoing collaboration with the University of Wisconsin. For more information, please contact [Dr. Wendy Sealey](#).

Dr. Molly Webb is working on a collaborative project with Drs. James Crossman (BC Hydro), Josh Korman (Ecometric Research Inc.), and Mike Yard (USGS) to develop a sampling program that can be incorporated into ongoing monitoring efforts to assign sex and stage of maturity in Rainbow Trout (RBT) in the Colorado River below Glen Canyon Dam. Understanding the reproductive structure of the RBT population is fundamentally important when describing the biological mechanisms associated with recruitment. For more information, please contact [Dr. Molly Webb](#).



Ultrasound image of ovarian tissue in a ripe female Rainbow Trout in the Colorado River below Glen Canyon Dam.



Histological section of testicular cysts containing spermatogonia in an immature Rainbow Trout in the Colorado River below Glen Canyon Dam. *USFWS Photo – Molly Webb*



With COVID-19 ever present on peoples minds, additional signage was added to the Piper Building. USFWS Photo -Jon Gilleen



Seasonal bio-tech, Kyle Moon,
feeding rainbow trout. Photo Credit:
Cal Fraser

Drs. Molly Webb and Wendy Sealey and Jason Ilgen in collaboration with Dr. Christopher Guy (Montana Cooperative Fishery Research Unit) and Hilary Treanor (Montana Cooperative Fishery Research Unit) received Pallid Sturgeon embryos from Gavins Point National Fish Hatchery. Embryos were hatched at the Bozeman Fish Technology Center to conduct a larval Pallid Sturgeon diet trial. USFWS conservation propagation hatcheries are currently experiencing variable survival of post-hatch larval Pallid Sturgeon following initiation to exogenous feeding, which directly affects the families that are returned to the upper Missouri River and potentially artificially selects the genetic composition of the Pallid Sturgeon population in the Upper Missouri River Basin. The objective of this study is to identify a diet that improves parity of survival and condition (i.e., weight) of first feeding larval Pallid Sturgeon regardless of genetic lot. For more information, please contact [Drs. Molly Webb](#) and [Wendy Sealey](#)



Larval Pallid Sturgeon from diet trial at the Bozeman Fish Technology Center.
Montana Cooperative Fishery Research Unit Photo Credit: Dr. Christopher Guy.

Jason Ilgen continued to provide oversight and guidance to contractors working on the pump installation for the fish passage flume. For more information, please contact [Jason Ilgen](#).



With the help of a crane, the pump intakes were lowered into the flume well (left). Pumps and intakes in place and ready for wiring and plumbing (right). *USFWS photo-Jason Ilgen*

As the flume construction continues, so too does planning and preparation for its use. Currently, mini Denil ladders are being designed and built for a collaborative project involving the Bozeman Fish Technology Center, Montana State University (Western Transport Institute and Department of Engineering), and the Montana Cooperative Fishery Research Unit. The plan is to develop and lab-test scaled-down Denil fish ladders (approximately 60 and 75% of full-scale scale) and assess the passage efficiency to support Arctic Grayling and Westslope Cutthroat Trout. For more information, please contact [Kevin Kappenman](#).

Fish on Station:

LOT NUMBER	TOTAL Number	TOTAL Weight (lbs)	Approximate Length (in)
Pallid Sturgeon	40	40	19
Paddlefish	100	100	16
Rainbow Trout	3000	150	5
Rainbow Trout	1200	480	10
Rainbow Trout	3000	24	3
Rainbow Trout	2000	3	2
Arctic grayling	500	62	7
Pallid Sturgeon	20	100	32

Other FTC Happenings:

- During the month of May, about half of the staff remained off-site in telework status due to COVID-19.
- Staff participated on numerous calls related to COVID 19.
- Multiple new agreements were discussed/coordinated/developed with various partners.
- Staff completed numerous assigned trainings including those associated with Grants Solutions.
- Mid-year check-ins were completed with all staff.
- Staff began preparations of a COVID related Job Hazard Assessment in advance of planned limited lab work commencing in June.
- Several members of the BFTC team provided peer reviews of manuscripts submitted by others for publication.

Covid Cancellations:

Due to the COVID-19 virus restrictions and orders, BFTC staff were unable to collaborate with Montana Fish Wildlife and Parks to collect Northern Pike during April and May. These pike were to be experimental subjects to help quantify physiological limitations and jumping and swimming behavior in order to inform barrier design guidelines. For more information, please contact [Kevin Kappenman](#).

Bozeman FHC

May 2020 Highlights:

Bozeman FHC is currently operating with limited staffing during the COVID-19 pandemic. Even with social distancing restrictions in place, Mission-Critical work continues to be accomplished!

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

- Ennis NFH; Complete inspection plus *Tetracapsuloides bryosalmonae* (PKX) monitoring on six strains of rainbow trout – 5/12, 420 fish.
- Ouray NFH-Grand Valley Unit; Complete inspections plus *Ichthyophthirius* (Ich.) and *Schyzocotyle acheilognathi* (Asian tapeworm) monitoring on endangered bonytail chub and razorback suckers – 5/13, 120 fish.



Fish Biologist, Renee Yamamoto collecting samples at Ennis NFH's annual health inspection. Photo: USFWS/L. Hopper

Contact Us

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

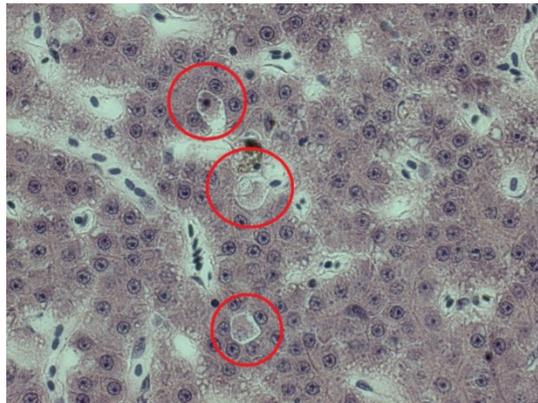
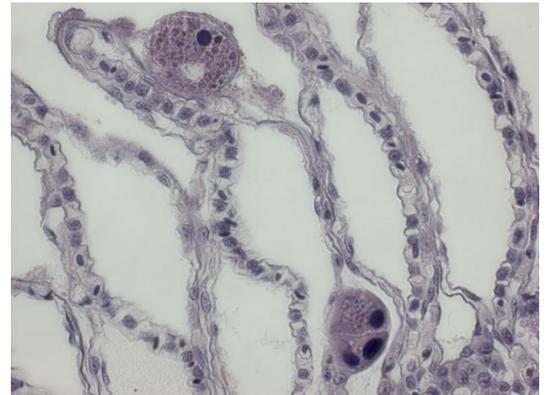
Renee Yamamoto (left) and Lacey Hopper holding rainbow trout broodstock at Ennis NFH. Photo: USFWS/R. Hopper



Laboratory Diagnostic Support to Reduce Hatchery and Wild Fish Losses:

- Missouri River, MT – Wild brown trout and mountain whitefish diagnostic for Montana Fish, Wildlife and Parks; histopathology
- Staff participated in numerous phone/email conversations with hatchery managers and partners regarding fish health issues or questions and treatment recommendations

Protozoan parasites in brown trout gill tissue (H&E stain). Photo: USFWS/A. Huttinger



Single-cell necrosis in mountain whitefish liver tissue (H&E stain). Photo: USFWS/A. Huttinger

Protozoan parasites from a pond water sample. Photo: USFWS/M. Fry

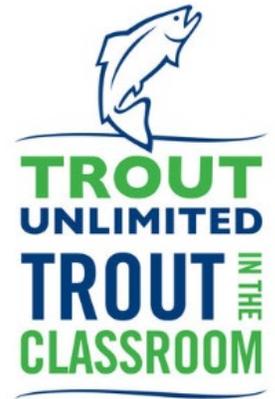


Laboratory Services Supporting Partner Recovery, Restoration and Recreation:

- Montana Fish, Wildlife and Parks; Complete health inspection on rainbow trout from Crystal Lakes Fish Hatchery, 60 fish
- Montana Fish, Wildlife and Parks; Received 236 frozen ovarian fluid samples for future *Flavobacterium psychrophilum* (bacterial coldwater disease) molecular testing from Washoe Park State Fish Hatchery
- Wild Fish Survey - Montana;
 - Complete inspections, virology testing and requested molecular pathogen testing on arctic grayling, rainbow trout, kokanee salmon and brook trout from six different lakes, rivers and creeks- 355 fish

Outreach and Education:

- Trout in the Classroom (TIC) Program - Provided requested fish health testing and certification for rainbow trout raised at Littleton Public Schools and Louisville Middle School in Colorado so children can still release their fish into CO waters!



Partnerships, Employee Development & Other News:

- Continued participating in conference calls and email correspondence with multiple regional FAC/State partners and the Whitney Genetics Lab (WGL) in LaCrosse, WI to plan for upcoming Asian carp eDNA surveillance at Bozeman FHC
- Staff is finalizing research and planning for BFHC eDNA lab layout, workflow and equipment needs. Working with WGL to develop appropriate SOPs and lab-specific Quality Assurance/Control documentation
- Participated in a Kendall Warm Spring Dace conference call and finalizing a genetics technical report draft
- Collaborated with partners from multiple regions to submit a



system-wide proposal for a FWS rainbow trout broodstock genetics and performance project

- Working with Garrison Dam NFH to plan and implement a fish health monitoring program following nanobubble technology installation
- FAC HQ requested assistance from BFHC in writing a comment for a proposed fish health reporting rule change for Infectious Hematopoietic Necrosis Virus (IHNV) by USDA Animal and Plant Health Inspection Service (APHIS)
- Tammy Weiss and Amberly Huttinger volunteered to make cloth masks for distribution out to the region in support of the Covid-19 PPE Cloth Mask Project. So far, 50 masks have been completed for FWS staff



Photo: USFWS/A. Huttinger



Photo: USFWS/T. Weiss



*Fish Biologist,
Tammy Weiss
sewing face
masks for the
Covid-19 PPE
request. Photo:
USFWS/T.
Weiss*