

Bozeman Staff

April 2020

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
Assistant

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

Matt Toner, Fish Biologist (MGMT)

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

Kyle Moon, Seasonal Bio-tech

Bozeman Fish Technology and Health Complex



April Report – FTC Highlights:

New Team Members:

Kyle Moon reported for duty April 27. Kyle spent his first week learning the animal husbandry aspects under the tutelage of Cal Fraser, as well as aspects of grounds maintenance with Jon Gilleen. Kyle earned his Bachelor of Science in Wildlife Ecology and Conservation from the University of Florida, Gainesville and has served in a variety of natural resource related positions since that time. As COVID-19 restrictions are lifted, Kyle will begin transitioning to laboratory assistance duties for ongoing research projects. Welcome to the Bozeman FTC Kyle.

Jeff Powell was selected as the new Center Director for the Bozeman Fish Technology and Fish Health Center complex. Jeff graduated from Montana State University-Bozeman with an undergraduate degree in Fish & Wildlife Management and later earned a Master's of Public Administration from San Diego State University. During his career, Jeff has worked with many species of fish and a variety of recovery, restoration, and sport fish programs. Currently, Jeff is the project leader at Gavins Point NFH and has also served as the project leader at Mora NFH. He plans to assume his new role in mid-to-late July.

Contact Us:

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4050 Bridger Canyon RD
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(406) 994-9900

**Bozeman Fish
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1805 S. 22nd Ave Suite #1
Bozeman, MT 59718
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One byproduct of analytical laboratory work is waste materials. Zach Conley sorted the waste materials and arranged for proper disposal. USFWWS Photo - Jon Gilleen

Infrastructure Protection, Maintenance, and Animal Husbandry:

Due to current restrictions, there are certain activities that have been deemed “Mission Critical”, among which are items related to preserving both our infrastructure and animals in our care. Currently staff associated with these activities are generally on staggered work schedules to minimize exposure risks.



One of two 30 HP hot water pumps that were removed and sent in for bearing and seal replacements. USFWS Photo – Jon Gilleen



Part of annual ground maintenance includes fuel reduction measures near buildings. USFWS Photo – Jon Gilleen



Hatchery-origin White Sturgeon captured on a set line in the lower Columbia River, British Columbia, Canada. Photo Credit: Marco Marrello

Taking care of fish requires them to be fed—be it on station or at other facilities. This month, Drs. Gibson Gaylord and Wendy Sealey manufactured, packaged, and shipped Chinook salmon feed to collaborators in Oregon. Total batch production included 100 pounds of 1.2 mm and 50 pounds of 1.5 mm feed allowing the experimental animals and project dependent feed trials to continue. For more information, please contact Drs. [Gibson Gaylord](#) or [Wendy Sealey](#).

Dr. Gibson Gaylord, Zach Conley, and Mark Portman (contractor) formulated and manufactured 6 diets for a collaborative project with Dr. Gary Burr, USDA ARS National Coldwater Marine Aquaculture Center, to address the protein and energy requirements for juvenile lumpfish. Lumpfish are a new aquaculture species being utilized in sea cages as a cleaner fish and natural form of biological control for sea lice. The information obtained from the experiment will improve formulation accuracy of diets to ensure they are nutritionally complete and cost effective for future lumpfish aquaculture. For more information, please contact Dr. [Gibson Gaylord](#).

Research:

Graduate student, Paige Maskill, Montana Cooperative Fishery Research Unit, Montana State University successfully defended her thesis entitled “Description of the Reproductive Structure, Size, Growth, and Condition of Hatchery-origin White Sturgeon in the Lower Columbia River, British Columbia, Canada”. For more information, please contact [Dr. Molly Webb](#).

Graduate student, Matea Djokic, Montana State University, successfully defended her thesis entitled "An Expansion of Nonlethal Tools for Use in Juvenile Pallid Sturgeon in the Upper Basin of the Missouri River". For more information, please contact [Kevin Kappenman](#).

Graduate student, Ben Triano, Montana State University, successfully defended his thesis entitled "Efficiency of Denil Fish Ladders for Upstream Passage of Arctic Grayling and Other Fishes in the Big Hole River Basin, Montana". For more information, please contact [Kevin Kappenman](#).

Recent Publications:

Happel, A., **Sealey, W.M.**, Myrick, C.A., Powell, M.S., 2020. Effects of varying dietary levels of digestible protein and digestible energy on growth performance in juvenile Yellowstone cutthroat trout (*Oncorhynchus clarkii bouvieri*). Aquaculture Reports Volume 17, <https://doi.org/10.1016/j.aqrep.2020.100336>

Blaufuss, P.C., Bledsoe, J.W., **Gaylord, T.G.**, **Sealey, W.M.**, Overturf, K.E., Powell, M.S., 2020. Selection on a plant-based diet reveals changes in oral tolerance, microbiota and growth in rainbow trout (*Oncorhynchus mykiss*) when fed a high soy diet. Aquaculture 525, 735287.



With the concrete cured, it was time to develop a solid systems for mounting the pumps. *USFWS photo-Jason Ilgen*

Flume Construction:

As the concrete flume sump area had adequate cure-time, it was time to prepare for pump installation and finish aligning the fiberglass flume sections. Jason Ilgen continued to provide oversight and guidance to contractors working on the pump mount. For more information, please contact [Jason Ilgen](#).

MSU graduate student Sierra Quinn is evaluating wound healing in pallid sturgeon. This is a component of a larger project with Kevin Kappenman. The wounds were created from a biopsy punch to determine if this method may be approved for use in the wild as a means to collect tissues for contaminants analyses.



*Stages of wound healing in pallid sturgeon. Wound sites appear to be nearly healed after about 30 days.
Photos: Sierra Quinn*

Other FTC Happenings:

- During the month of April, 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.

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	86	4
Rainbow Trout	2000	333	7
Rainbow Trout	4000	16	2
Rainbow Trout	4000	2	1
Rainbow Trout	700	350	10
Arctic grayling	2000	200	6
Pallid Sturgeon	20	100	32

Fish Health Center

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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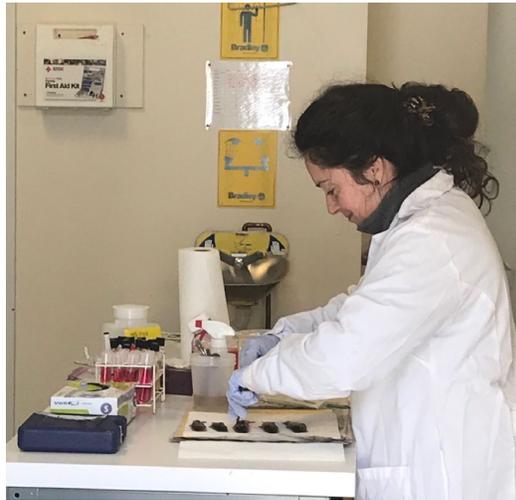
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Bozeman FHC April Highlights:

Bozeman FHC has been operating with limited staffing (rotation of 1-2 staff on-station only) during the COVID-19 pandemic, but still continuing to serve our hatcheries and partners. Even with social distancing restrictions, a lot was accomplished this month!

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

- Leadville NFH; Complete inspection on Hayden Creek and Carr Creek cutthroat and rainbow trout - 4/13 and 4/14, 295 fish
 - Samples for this inspection were collected by Colorado Parks and Wildlife veterinarian, Dr. Colby Wells.
- Leadville NFH; Molecular testing for detection of chytrid fungus (*B. dendrobatidis*) on 11 Wyoming toads - No Bd was detected.



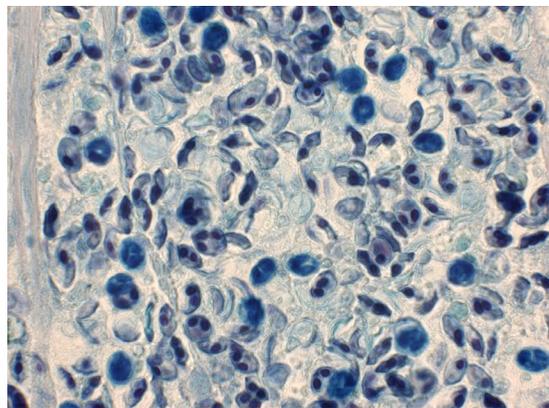
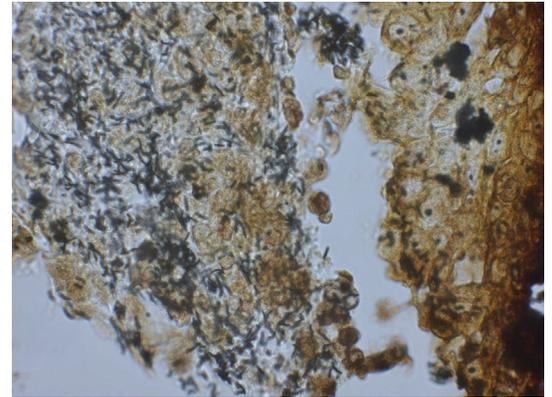
*Dr. Colby Wells,
Colorado Parks and
Wildlife collecting
health samples at
Leadville NFH. Photo:
USFWS/P. Moran*



Laboratory Diagnostic Support to Reduce Hatchery and Wild Fish Losses:

- Hotchkiss NFH - Rainbow trout mortality following drop in dissolved oxygen – 4/16 and 4/20; bacteriology, virology, molecular testing and histopathology was utilized to diagnose emerging low-level Coldwater Disease
- Edenton NFH, NC - Bluehead chub diagnostic; histopathology

Black filamentous bacteria in an external lesion indicative of Bacterial Coldwater Disease. Photo: USFWS/A. Huttinger



Myxosporean parasites in female bluehead chub gonad tissue. Photo: USFWS/A. Huttinger

Measuring a sick rainbow trout during a diagnostic evaluation. Photo: USFWS/A. Huttinger



Laboratory Services Supporting Partner Recovery, Restoration and Recreation:

- Kansas Department of Wildlife, Parks and Tourism; Virology inspection services on 7 different cool and warm water species from 3 State Fish Hatcheries, 240 fish
- Montana Fish, Wildlife and Parks; Complete health inspection on Westslope cutthroat trout from 1 State Fish Hatchery, 60 fish
- Wild Fish Survey - Montana;
 - Complete inspections, virology testing and molecular pathogen testing from five different sites, 4 species, 270 fish
- Wild Fish Survey - Kansas;
 - El Dorado Reservoir, 8 blue catfish for investigative fish kill diagnostic evaluation

Partnerships, Employee Development & Upcoming:

- Due to COVID-19, all out-of-state travel to hatcheries for annual fish health inspections is still suspended. Colorado State Veterinarian, Dr. Colby Wells graciously traveled to and collected tissue samples for Leadville NFH's inspection and shipped them to BFHC. This was a great example of a strong collaborative partnership.
- Staff continued to participate in conference calls and email correspondence with multiple regional FAC partners and the Whitney Genetics Lab in LaCrosse, WI to plan for future Asian carp eDNA surveillance at Bozeman FHC
- Conducted extensive research and planning for proper eDNA lab layout, workflow and equipment needs
- Staff participated in conference calls and internet meetings in support of Kendall Warm Springs Dace and Wyoming Toad restoration and recovery
- Multiple online trainings and webinars were completed by all staff
- Participated in planning a fish health monitoring program at Garrison Dam NFH following nanobubble technology installation
- Provided assistance in re-writing the disclaimer statement for the new and improved ARCGis National Wild Fish Health Survey Database; reviewed new NWFHS Database and compiled years of data for submission
- Upcoming - Ouray GVU and Ennis NFH annual inspections