



# Garrison Dam National Fish Hatchery Complex

## *Restoring America's Fisheries*

*"We work with our partners and engage the public, using a science-based approach, to conserve, restore and enhance fish and other aquatic resources for the continuing benefit of the American people."*

*December / January 2020*

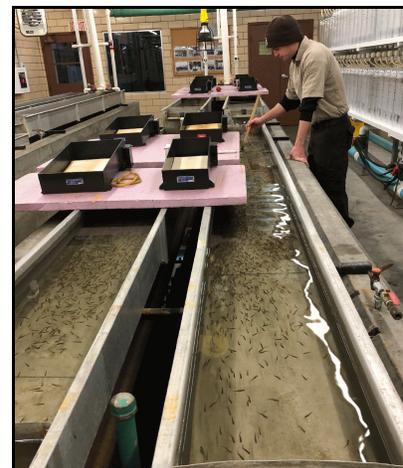
### *Fish Culture*

The walleye YY study in our isolation room is gaining attention. Local television picked up on the story with the headlines 'Raising walleye-males only.' We are working with Dan Schill of the Idaho <https://www.minotdailynews.com/life/outdoors/2021/01/raising-walleye-males-only/> Department of Fish and Game to develop the broodstock at the request of Western Association of Fish and Wildlife Agencies (WAFWA). The project is progressing with hopes of acquiring permission from FDA to use estrogen laced feeds on walleye yet this Spring if NovaEel agrees to sponsor the project. NovaEel is a Canadian based company that produces glass eels for aquaculture with an interest in the production of all female eels. Currently we are holding 700 advanced fingerling walleye averaging 7.1 inches at 11.2 fish per pound. With this lot of fish we will be gaining information on growth, feed rates and acceptability, density and techniques to predict future capabilities for YY broodstock development.



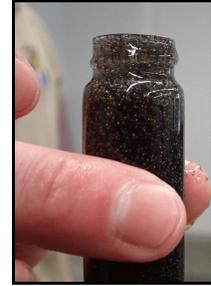
The routine coldwater propagation activities are underway with 100,000 Shasta Rainbow Trout eggs received from Ennis NFH now on feed as well as the 30,000 Brown

Trout from Saratoga NFH and 30,000 Hot Creek Rainbow Trout from the Dubois State Fish Hatchery in Wyoming. Our Chinooks have also outgrown their tanks and a portion redistributed into one of the hatchery's 8 X 80 raceways.





Burbot spawning was a success with 652,000 eggs collected from five females using one to one crosses over the course of about a week at the end of January. The eggs will be incubating into March with hopes of stocking a hatchery pond with sac fry in early April. Yes, you read that right, spawned in January and still sac fry in April. Burbot spawning temperature is in the mid 30's and incubation at ambient water temperatures during a North Dakota winter doesn't add many temperature units. To give you an idea on the size of the eggs, they are right at 850 eggs per ml. With a ml being about 20 drops - that would be 42 eggs per drop of water. Once hatched they are a little smaller with 24,000 larvae fitting in this 20 ml vial when topped off!



### *Upcoming Activities*

Upper Basin Pallid Sturgeon Workgroup virtual meeting  
Dakota Chapter AFS virtual meeting  
Red River Lake Sturgeon Team updates  
Installation of a Nanobubble generator and oxygen concentrator in the Salmon Building

### *Public Use*

The North Country Trail Association's Central Flyway Chapter highlighted the hatchery's trails with a 'self-guided hike' from January 29 through February 7, 2021. The Chapter included a page long introduction to the hatchery's trails is many of the region's newspapers and television to get the attention of the public and encourage the use of the North Country National Scenic Trails. A scavenger hunt for kids 12 and

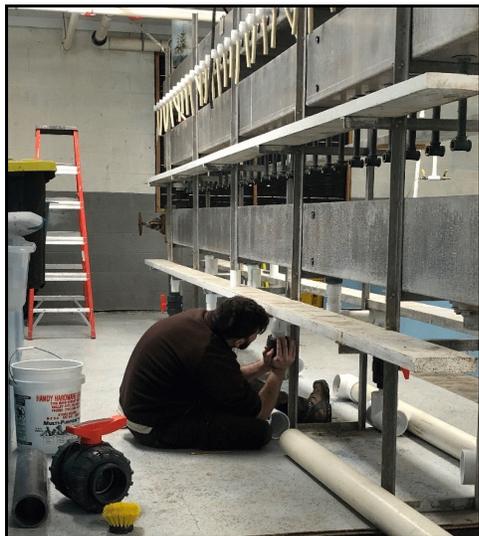


under was included in the promotion with prizes for all who completed the hike and scavenger hunt. The North Country Trail is the longest footpath in the United States stretching over 4,700 miles from central Vermont to Lake Sakakawea in North Dakota with a goal of connecting the Appalachian Trail with the Lewis and Clark Trail. The trail at the hatchery meanders through the cottonwoods along the Missouri River where at this time of the year Bald Eagles are seen routinely and open water attracts

thousands of wintering ducks and geese.

<https://www.kxnet.com/news/local-news/north-country-trail-associations-central-flyway-chapter-hoping-to-redraw-attention-to-north-dakotas-many-trail-systems/>

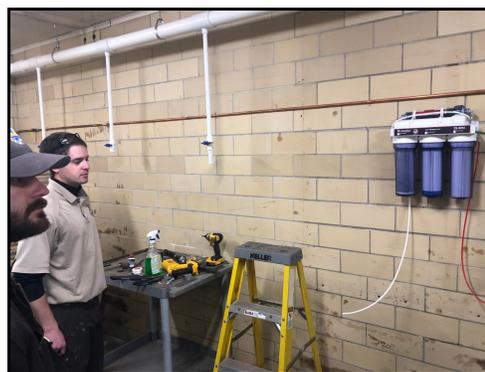
## *Maintenance*



The Valley City National Fish Hatchery purchased a pool heater to be installed in the holding house which can provide the appropriate water temperatures when incubating eggs. This will allow staff to hold eggs at different temperatures to space out hatching times so ponds can be stocked in intervals to facilitate harvest and shipping schedules. This will also allow the hatchery to stock ponds earlier so they can be harvested before zebra mussel veligers are present in the source water precluding further stockings in zebra mussel free waters. Additionally, the hatchery picked up a used egg battery from Gavin's Point NFH to install in the holding house. After remodeling the aluminum tanks, the setup was put back together and secured in the building. Along with

installing the new egg battery, the staff is retrofitting the existing egg battery with the same temperature control and drain line modifications. New overhead plumbing will supply the egg batteries with cold and warm water.

At Garrison Dam NFH several projects were initiated including installing a center console on the new F-250. In spite of several attempts to have the center console included in the GSA order and repeated requests to confirm that it was in fact part of the package, the truck arrived, you guessed, without one.



Our UV disinfection system maintains a set dosage with the assistance of an attached turbidity meter. The turbidity meter in turn requires regular calibration using distilled water which means frequent trips to purchase water. A new water filtration system was installed by the staff to produce our own distilled water through filtration which provides ever ready distilled water at our disposal.

A nanobubble generator was installed in the Sturgeon Building to facilitate nitrogen removal. Total dissolved gas levels at our facility provide a constant source of stress for all our intensively cultured fish species. Nanobubble injection shows promise for correcting the issue while infusing the water with nanobubbles, described as 2500 times smaller than a grain of salt.

To monitor the effects of nanobubble injection we have installed a HydroVu monitoring system that works in conjunction with In-Situ water monitoring probes to provide us with cloud based water quality information and alarming. With real time monitoring of oxygen levels, temperature and TDG values we have confidence in assessing overall water quality on a continual basis. The alarming feature will enable hatchery staff to set specific water parameters on a tank by tank basis to alert by text, phone or email when alarming conditions exist. Events like temperature spikes, notifications when water valves have been shut inadvertently, or even chronic low oxygen levels that may exist during periods of tank cleaning are recognized and corrected with the system. A wall mounted Mace FloPro is used as our telemetry device to collect and display water quality from the In-Situ probes and transmit the data to the HydroVu which in turn can be monitored remotely by your PC or smart phone. Technology today, what ever happened to the Weiss Saturometer and Winkler titration?



After forty years of operation above the fish tanks, the old North Star feeders were retired and replaced with much quieter Whisper feeders. The new feeders are taking the fun out of the school tours, with no opportunity to startle the kids with the shotgun slamming of the feeders as they drop feed to the hungry trout below. Which of us as fish culturists hasn't been jolted out of the mind numbing morning of fish tank cleaning by the sound of these feeders?

### *Administrative*

Fish requests for upcoming year were finalized with ND Game and Fish

Annual report was completed and sent to RO.

Pesticide Use reporting was wrapped up.

Station SOP's for several station maintenance and propagation activities were finalized.

2020 water use reports were submitted.

# Production Summary

Station:	Garrison Dam NFH		Period Covered:	October 1, 2020	Through	January 31, 2021						
Fish on Hand the Last Day of the Period			To Date This Fiscal Year									
Lot Number	Number	Weight (Lbs)	Length (in)	Density Index	Flow Index	Weight Gain	Feed Expended		Fish Shipped		% Survival	Feed Conversion
							Pounds	Cost	Number	Weight		
RBT-SSD-20-ENN	67,945	27,061	10.6	0.37	1.14	12,297	16,800	\$9,546			100	1.37
BNT-PRD-19-SAR	18,245	7,303	10.0	0.40	1.15	2,563	4,234	\$2,408			95.2	1.65
RBT-HCD-20-WY	17,016	22	1.6	0.18	0.57	30	13	\$18			99.8	0.42
BNT-PRD-20-SAR	20,414	18	1.3	0.17	0.54	17	11	\$16			99.7	0.63
FCS-LSW-20-FR	368,393	1,942	2.6	0.22	1.22	1,791	1,127	\$2,315			99.7	0.63
WAE-LSW-20-FR	700	28	5.9	0.14	0.78	28	34	\$65			89.0	1.25
Totals/Averages	492,026	37,246				16,698	22,185	\$14,403				1.33

## Hatchery Complex Personnel

Employee	Functional Title	Grade
Robert Holm	Project Leader	GS-13
Jerry Tishmack	Fishery Biologist	GS-11
Sean Henderson	Fishery Biologist	GS-11
Shawn Cole	Fishery Biologist	GS-7
Toni Ganje	Administrative Support	GS-7
Ben Oldenburg	Fisheries Technician	GS-6
Aaron Von Eschen	Assistant Project Leader	GS-12
Tyler Sexton	Biological Technician	GS-7
Paul Drabus	Maintenance Worker	GS-7

## *Meet the Garrison Dam NFH Complex Staff*

Shawn Cole is the Sturgeon Biologist for Garrison Dam NFH. Shawn transferred from Region 1 to Garrison Dam NFH in November of 2014 and has become an integral part of our team assisting with all of our programs as needed. His primary responsibility lies in the day to day culture activities of both

Shovelnose and Pallid Sturgeon. He transitioned well from his salmonid background into sturgeon propagation and was quick to learn operations of the Garrison Dam NFH Complex. He also 'inherited' the responsibilities of Burbot culture and is working to develop intensive culture techniques for propagation of that species. Shawn and his wife, Michelle, live on station with their two bird dogs and is an avid hunter and fisherman.

