

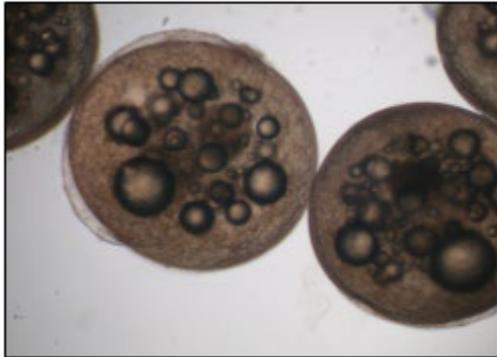


Garrison Dam National Fish Hatchery Complex

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 2019



Oocytes showing coalescing of oil globule

Spawning

Female burbot broodstock are being monitored for oocyte maturation. A catheter is used to extract the oocytes where they are observed under magnification for coalescing of the oil globule similar to what you will find in Piper's book, *Fish Hatchery Management*. From what we are observing, Spawning is still a week or more out.

Fish Culture

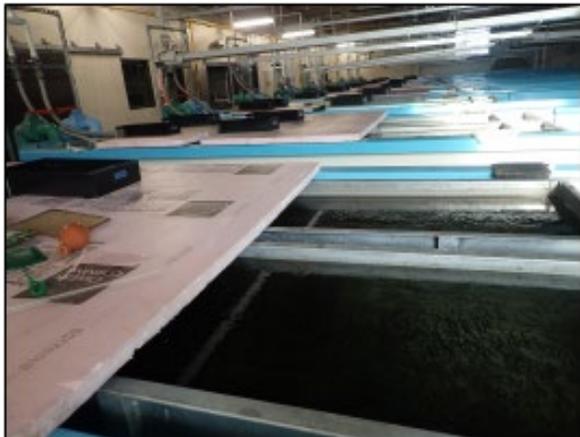
Salmonid culture has been our focus the past few months.

The Chinook salmon are now all on feed and looking great. The brown trout from eggs received compliments of the Saratoga NFH are also looking great. We have an experiment going on, second year, evaluating the use of netting to suspend the larval brown trout off the bottom and away from excess feed and fecal material. In past years we have been plagued with bacterial gill disease on the larval browns and wanted to see if we could modify our culture practices to resolve that issue. Last year neither the control nor treatment group contracted BGD.

So far this year we are seeing similar results. Go figure.



Brown trout larvae experiment



Chinook larvae in rearing tank

Our yearling brown trout have been struggling the past couple months with Coldwater Disease. The lesions brought on by CWD have turned to patches of fungus. The parasite, *Chilodonella*, have also increased in severity and are attached to the gill lamella. Treatments for CWD with medicated feed have been administered. The oxytetracycline medicated feed didn't appear effective so florfenicol feed was administered. To get control of the parasites, a treatment of formalin was also given. The formalin appeared to be effective in treating the *Chilodonella* and reducing the fungal patches. Jump screens were put in place to prevent the infected browns from contaminating the adjacent raceway. Permanent jump screens are being considered as the source of infection may have been wild chinook broodstock that were held adjacent to the brown trout for spawning.



Yearling brown trout receive a formalin treatment

Upcoming Activities

Burbot spawning will be occurring in January at Garrison Dam NFH. The progeny from this year's spawn will be stocked in hatchery ponds in March just prior to transition to exogenous feeding. They have a long larval development phase at 34F. The advanced fingerling burbot will be stocked in Duck Lake, MT this summer.

Upcoming events at Valley City NFH include installing a new filter and UV in the Isolation Building, wrapping up report writing, working on station SOP's and likely more snow removal.

Partnerships

Met with the North Dakota Game and Fish Departments's Fish Production/Development Section Supervisor and ANS Coordinator to review the 2019 production season and discuss tentative recreational fishing production goals for 2020. Requests for the upcoming production season include 11.1 million walleye fingerlings, 1.4 million pike fingerlings, 182,000 largemouth bass, 17,450 brown trout, 15,000 Hot Creek Rainbow Trout and 550,000 chinook salmon. In addition we will be targeting 15,000 shovelnose sturgeon for restoration work in Wyoming and 8,000 lake sturgeon for restoration in the Red River watershed, Minnesota tributaries.

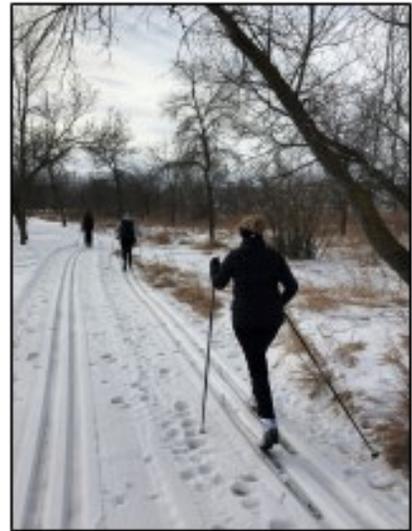
Discussion ensued on the zebra mussel 'discovery' in Lake Ashtabula, the water supply for both Valley City NFH and Baldhill Dam NFH. The ND Game and Fish Department (NDGF) requested that stocking of fish from either Baldhill Dam or Valley City NFH be limited to the Red River Basin Watershed. All fish will be subjected to a 24 hour flush of 'clean' water to minimize the potential spread of the mussel. Clean water will be supplied via a 25 micron filter and UV disinfection. The NDGF will hire a seasonal employee to be stationed at Valley City NFH to perform veliger monitoring of the facility. If zebra mussel veligers are found after the flush treatment, the fingerlings will be released only into Lake Ashtabula. Lake sturgeon production from Valley City NFH will be subject to similar flush treatments with the Minnesota Department of Natural Resources asking that we provide 30 micron filtration. Many of the sites in the Red River watershed where our restoration stockings occur are already positive waters.

The Missouri River FWMAO office staff and volunteers spent a day in the Lake Sakakawea tailwaters with a couple hatchery staff searching for a few broodstock burbot to increase the genetic diversity of the population we are establishing in Duck Lake, MT. Fishing wasn't too productive but the crews did enjoy a rather pleasant December day on the river in North Dakota, a rarity.

Public Use

Cross country skiing is in season with the fairly significant early season snowfalls. We had been awaiting a new carburetor for our tracked ATV. With the ATV up and running, several miles of trails were groomed for the first time on December 20th, just in time for the Christmas break.

The trails through the Missouri River cottonwood bottoms provide a relief from the North Dakota winds. Along the trail skiers and snowshoers will have an opportunity to enjoy flocks of ducks and geese along with the occasional bald eagle that make this section of the river an annual overwinter home. Sections of the trail meander along the Missouri River and through the Corps of Engineers Downstream Campground. Those sections benefit from occasional lighting and make night skiing possible.



Skiing on the hatchery trails

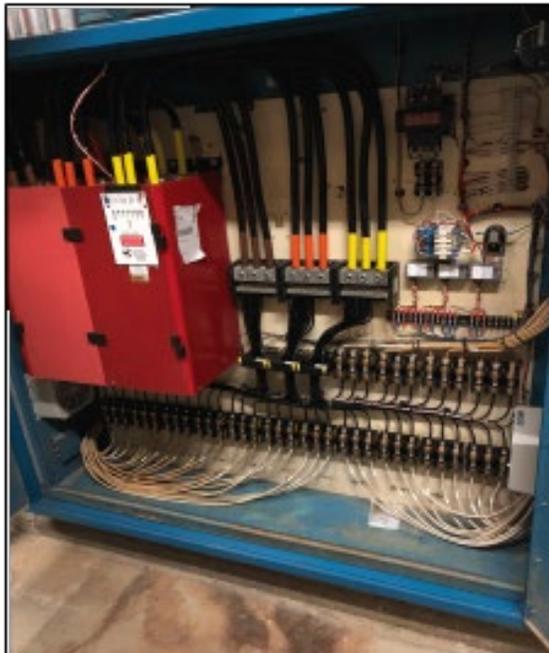
Maintenance

The staff has been busy developing SOP's for the many activities performed at the hatchery including maintenance. Gefroh Electric put the final touches on our old electric boiler to make it safer to operate and maintain. The 43 year old 480 volt boiler was in need of some upgrades which included solid state stepping which eliminated contactors for the heater elements and reduces blown fuses - which means less exposure of our staff to dangerous high voltage when making repairs. Our vacuum degassing unit installed this fall in the attic didn't fare well with the below zero temperatures. The schedule 40 PVC cap froze and cracked creating a waterfall from the ceiling of the isolation room. Modifications by the staff to the unit were made and the unit is back up and running to supply water for burbot production.

Snow removal has been a constant at Valley City NFH. Storms and wind have caused excessive drifting around the hatchery on multiple occasions. The last storm before year's end produced over 18 inches that kept staff busy for a couple days getting it all moved.



Attic vacuum degasser



Renovations to 43 year old 480 volt boiler



Blowing snow at Valley City NFH

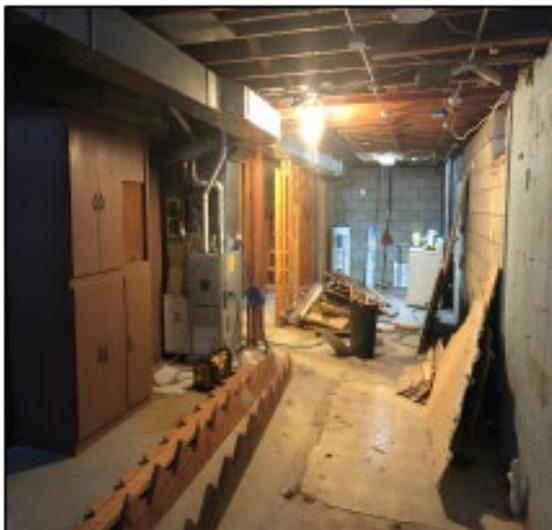
Administrative Activities

At Garrison Dam NFH the Annual Report was finalized as was the Station Quarters Plan. The Project Leader participated in an annual governing board call reviewing project proposals for the Upper Basin Pallid Sturgeon Recovery Program. This year's notes at Garrison Dam NFH for the pallid sturgeon propagation program were reviewed to determine what worked and where improvement is needed. The results of a feed study conducted at the hatchery as well as the past several year's propagation successes indicated a need for improved larval diets for pallid and shovelnose sturgeon. While survival to the onset of exogenous feeding varied by family lot, in all cases improvement was needed.



15 dph pallid sturgeon – both emaciated with or without feed in gut

As a result, a research proposal looking at the development of larval sturgeon feeds was written up for Fisheries Management Team to consider as a means of improving aquaculture practices. The feed would target larvae of all sturgeon species propagated by the Fish and Wildlife Service hatcheries. We are observing the uptake of Otohime diets by both shovelnose and pallid sturgeon, however some of the larvae appear unable to assimilate the feed. We feel that the gut of these larvae are lacking enzymes necessary to break down the feed.



Demolition of vacant hatchery residence basement

Hatchery Quarters

Demolishing of the basement in the vacant hatchery residence at Valley City NFH is complete and sheetrock is now being hung on the exposed walls. Paint contractors are scheduled to come in and repaint the house this upcoming month. Renovations to the quarters are necessary to meet the proposed standards for hatchery housing. This residence will be occupied by a ND Game and Fish employee this summer sampling for the presence of zebra mussels at the hatchery.

Salmonid Production Summary

Station: Garrison Dam NFH

Period Covered: October 1, 2019 – November 30, 2019

Lot Number	Fish on Hand the Last Day of the Period					Weight Gain	Feed Expended		Fish Shipped		% Survival	Feed Conversion
	Number	Weight (lbs)	Length (in)	Density Index	Flow Index		Pounds	Cost	Number	Weight		
RBT-SSD-19-ENN	56288	25355	10.88	0.35	0.97	11743	12400	\$7,564.00			100%	1.06
RBT-SSD-20-ENN												
BNT-PRD-18-SAR	17204	6279	9.75	0.36	1800	2188	3250	\$3,040.72			90.8%	1.49
BNT-PRD-19-SAR												
RBT-HCD-18-WY	14583	6911	11.05	0.35	0.98	2954	3300	\$2,013.00			93.3%	1.12
Totals/Averages	88,075	38,545				16,885	18,950	\$12,618				1.12

Hatchery Complex Personnel

Employee	Functional Title	Grade
Robert Holm	Project Leader	GS-13
Jerry Tishmack	Fishery Biologist	GS-11
Sean Henderson	Fishery Biologist	No personnel change this month. Waiting to fill the vacant biological technician position at Valley City NFH GS-11
Shawn Coles	Fishery Biologist	GS-7
Toni Ganje	Administrative Support	GS-7
Ben Oldenburg	Fisheries Technician	NDGF
Aaron Von Eschen	Assistant Project Leader	GS-12
Vacant	Biological Technician	GS-5
Paul Drabus	Maintenance Worker	GS-7