



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."

October / November 2020

Fish Culture

Tiger muskies from the Speas State Fish Hatchery in Wyoming were finished off prior to stocking in Lake Audubon on October 15th. The process of finishing off muskies and tigers has been taking place at Garrison Dam NFH since the isolation room has come online. Fish from state hatcheries outside our watershed are brought in to the facility where they are quarantined and transitioned from a pelleted diet to live trout prior to stocking in state, federal and tribal lakes. The stockings provide a niche trophy fishery many anglers were excited to see get started.

Chinook salmon spawning kicked off on October 2nd with 180,750 eggs collected from 55 females. There were seven takes ending on October 21st with a total collection of just shy of 2.2 million eggs. Of the total, 406,000 were taken directly to Cleghorn Springs State Fish Hatchery in South Dakota. The Chinook Salmon fishery in the Dakotas and Montana dates back to the 1970's when the fishery managers on the Missouri River were looking for a coldwater species to introduce into the recently filled reservoirs. Several species of salmon as well as steelhead and lake trout were introduced before settling on Chinooks. The original stocks came from the west coast hatcheries and Great Lakes, however with disease issues plaguing those sources, the Missouri River states formed a tri-state compact to collect eggs from our reservoir broodstocks. Since 1980 eggs have been taken at Garrison Dam NFH to support this mitigation fishery. Currently approximately one million salmon fry are in the process of buttoning up. Soon they will be on feed and quickly growing to meet the 400,000 stocking request for five inch smolts this May in Lake Sakakawea. The crew has been busy picking eggs, cleaning fry troughs and moving eggs from the incubator room to the tanks. We also have 68,000 rainbows and 18,000 browns in the raceways at a nine inch plus size. These fish will remain with us until the ice goes off the lakes this spring. The browns are stocked in the tailwaters of Lake Sakakawea to support a mitigation fishery. Rainbows are scattered across the state to maintain a trout fishery and in many cases urban fishing opportunities.



Russ (NDGF employee) Sean and Shawn spawning Chinook Salmon

The walleye YY study in our isolation room is ongoing. The intent of the study currently is to establish that we have the capability of rearing walleye from a larvae to yearling intensively and to get an idea of our capacity. Currently we have 715 six inch fish occupying a couple five foot circular tanks that were raised on dry diets from the larval stage. Once we have approval, we will be lacing feeds with estrogen to transform the male walleye into egg producing males. These feminized males will be crossed with normal males producing offspring that at approximately 25% M_{YY}. These progeny will be again exposed to estrogen to produce M_{YY} and F_{YY} offspring which when crossed will end up with all M_{YY} - the product we are looking to release in waters where walleye are unwanted. These supermales will interbreed creating a population consisting of all males and you will have achieved the desired result. Simple, right?

Upcoming Activities

Burbot spawning is just around the corner. We currently have 16 brooders to spawn to advance our success with intensive culture. To date we have been relatively successful raising burbot extensively but intensively we are still having issues with diet acceptance and cannibalism is a problem. Production will be targeted for Duck Lake on the Blackfeet Indian Reservation in Montana.

Partnerships



VCNFH crew collecting mussels on the Sheyenne River

A classic example of the success of partnerships occurred this October with plans to remove the Kathryn Dam on the Sheyenne River near Kathryn, ND. Significant musselbeds were known to exist downstream of the site and concern expressed that construction activities could jeopardize their survival. A workgroup was formed to address the problem consisting of the U. S. Army Corps, the North Dakota Game and Fish Department's conservation and fishery biologists, the Valley State University faculty and students, the USFWS Fish Passage Program and the Valley City/Garrison Dam National Fish Hatcheries. The project began as an opportunity to provide fish passage converting a lowhead dam into a rock ramp with funding provided through the USFWS Fish Passage Program. To facilitate mussel collection the Corps of Engineers operations division was asked to reduce flows on the Sheyenne to allow crews

access to the mussels. Volunteers were needed to collect the mussels and the NDGF fisheries crew to assist with distribution of mussels upstream of the construction site. In order to monitor the success of the project 1,000 passive integrated transponder tags were provided by the Garrison Dam NFH along with readers that were once used in the Pallid Sturgeon Recovery Program but were now obsolete as we moved to a new generation of PIT tags. A subset of the 10,400 mussels relocated were PIT tagged. In subsequent years monitoring by the Valley City State University will provide insight into the success of the project and information relative to the condition of individual mussels as they are moved back to the site.

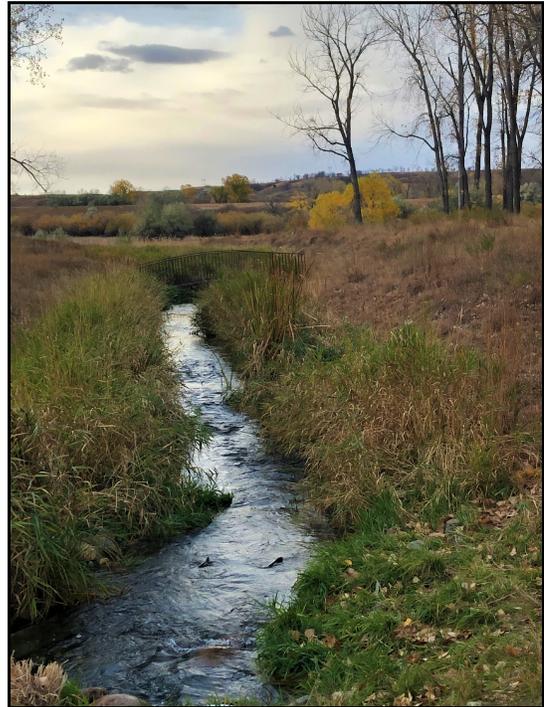


Loading mussels in the distribution tanks

Approximately 15,000-16,000 were estimated to be in the area based on a 2019 survey but burrowing and high water flows made it difficult to find them all. Tragically, a survey in 2009 estimated there were approximate 100,000 mussels in this bed but have experienced significant declines in recent years. A pumping station on Devils Lake, a closed basin lake known for high salinity and sulfates, has been dumping water into the river for several years now and is the suspected cause for the decline in the mussel population on the Sheyenne River.

Public Use

The hatchery remains closed to visitors due to the ongoing pandemic and increased occurrence in the state. The hatchery's hiking trails remain open. The Chinook spawning increases visitation on the trail as a section of the trail parallels the creek ascended by spawning Chinooks. To see these fish making their way up the creek driven by their instinct to spawn in the water they had smolted in is impressive. For these fish, their journey began when they were released in Lake Sakakawea a few years earlier. Water releases out of the reservoir flushed the fish either directly through the turbines or spillway gates into the Missouri River below. The fish journey downstream into South Dakota's Lake Oahe where they grow to maturation. The drive to return to their stream of hatch kicks in and they find their way back to the tiny creek that feeds from the hatchery to the Missouri River. It is as amazing on this small scale as it is to their ocean going west coast cousins.



Chinooks swimming up the creek

Maintenance

COVID-19 put a damper on this year's Lake Sturgeon production at Valley City NFH but that did not stop staff from making improvements for next year's production. A new table consisting of ten two foot circular tanks was installed in the Baldhill culture building to create more room to spread newly hatched Lake Sturgeon out. This will decrease densities of larval fish and should aid in increasing survival



Building screens



Terry and Paul installing larval sturgeon tanks

during the feed transition phase. These tanks provide space and replicates for future studies trying different diet combinations. Once Lake Sturgeon are moved to bigger tanks it will also provide extra space for future programs.

An additional eight four foot tanks were installed into the isolation building at Valley City to provide more space for rearing Lake Sturgeon. These tanks will allow staff to move Lake Sturgeon sooner out of Baldhill allowing for reduced densities. Being able to move them sooner will also require less trips moving the fish between stations saving time and resources. This also creates more space and availability of tanks for new programs at the hatchery. Oxygen lines are all that remain to finish the installation of this tank setup.



Recycled Colorado River circular tanks in the Valley City NFH Isolation Building



Isolation Building supply line



Up-sized pond fill line at Valley City

The waterline that supplies the Isolation Building, Holding House, and pond 1 and pond 2 is undergoing replacement in November. This water line previously ran at a depth of 1-4 feet and was subject to frost heaves yearly requiring constant repairs.

Scherbenske Inc out of Jamestown, ND was

awarded the contract to replace the waterline down to a depth of 10 feet to eliminate problems with frost heaving and allowing the hatchery to use the waterline in the winter months. The new water line was bored in and connections were made to the buildings as well as upsizing freshwater lines to the ponds to reduce the amount of time it took to fill the two ponds. A valve was also installed at the end of the line to provide a drain out point and supply water to a future external kettle when drain lines on ponds utilizing a drainage ditch is rerouted. Unfortunately when boring in the new pipe the contractors hit the drain line for pond 2. The drain line will now be replaced as part of the project. Contractors estimate finishing up the project in early December.



One of the entrances to Valley City NFH was comprised when a culvert under the entrance had rusted away and sink holes were developing threatening the integrity of the road. An agreement was reached by Canadian Pacific Railroad, ND DOT, and the hatchery where the ND DOT agreed to supply the new culvert, CP did the work replacing the culvert and the NFH/WMD will cost share the asphalt repair in the spring. Maintaining two entrances is a priority for the hatchery/WMD because trains block at least one entrance daily.



The roof on the shop had old and damaged shingles that were the cause of a couple leaks, in late September/early October the roof was fixed and new steel was installed. The soffit and fascia was also replaced with steel.

Production Summary

| Station: | Garrison Dam NFH | | Period Covered: | October 1, 2020 | Through | October 31, 2020 | | | | | | |
|---|------------------|---------------|-----------------|-----------------|------------|--------------------------|---------------|----------------|--------------|--------|------------|-----------------|
| 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 | 68,086 | 22,106 | 9.8 | 0.31 | 0.72 | 6,442 | 6,868 | \$3,708 | | | 100 | 1.07 |
| BNT-PRD-19-SAR | 18,357 | 5,941 | 9.3 | 0.35 | 1.08 | 1,201 | 1,904 | \$1,028 | | | 96 | 1.59 |
| FCS-LSW-20-FR | | | | | | | | | | | | |
| WAE-LSW-20-FR | 500 | 28 | 5.9 | 0.14 | 0.78 | 28 | 34 | \$65 | | | 89 | 1.25 |
| Totals/Averages | 86,943 | 28,075 | | | | 7,671 | 8,806 | \$4,802 | | | | 1.15 |

Hatchery Complex Personnel

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

Meet the Garrison Dam NFH Complex Staff

Ben Oldenburg is the newest addition to the Garrison Dam NFH staff. Ben had been working as a seasonal hatchery technician since 2016 for the North Dakota Game and Fish Department and was stationed at Garrison Dam NFH.

Ben is a 2017 graduate of the University of Wisconsin - Stevens Point with a major in Fisheries and Water Resources. Ben is an avid hunter and enjoys the fishing and hunting opportunities North Dakota offers. He assists with all operations at the hatchery with his focus on pond culture, intensive musky production and now the YY walleye trials.

