



BUREAU OF FRESHWATER FISHERIES MONTHLY REPORT



January 14, 2021 – February 13, 2021

Lisa Barno, Chief
Craig Lemon, Superintendent
Edward Conley, Superintendent
Shawn Crouse, Supervising Biologist

Christopher Smith, Principal Fisheries Biologist

Dominick Mercurio, Crew Supervisor Bldg. Maintenance
Tyler Tresslar, Crew Supervisor, WW

Ross Shramko, Sr. Fisheries Biologist
Scott Collenburg, Sr. Fisheries Biologist
Eric Boehm, Sr. Fisheries Biologist

Thomas Bissonnette, Technician II
Nicholas Healy, Technician II
Ron Jacobsen, Technician II
Charles Sedor, Technician II

Matthew Gadek, Sr. Wildlife Worker
Jonathan Kline, Sr. Wildlife Worker
Shaun Young, Sr. Wildlife Worker
Doug Cutler, Sr. Wildlife Worker
Kyle Civalier, Sr. Wildlife Worker
Nick Ruberto, Sr. Wildlife Worker
Brad Duckworth, Sr. Wildlife Worker

Grace Johnson, Wildlife Worker

Steve Jeffries, Repairer

Nancy Geiger, Agency Services Rep
Elizabeth O'Neill, Administrative Analyst

Seasonals: Kate Ayers, Karl Lightner, Jordan Allen, Joseph Citro, Justin Rozema, Nick Cornine, Travis Nitko, and Christian Nitko.

RESEARCH AND MANAGEMENT (Shawn Crouse)

2019 Bureau of Freshwater Fisheries Annual Report – Draft Report Completed. (Crouse)

2020 Sportfish Restoration F-48-R-29 Interim Performance Report – Draft Report Completed. (Crouse)

2021 Spring Trout Stocking – Due to COVID-19, the 2021 trout stocking program will have many changes from a typical year. Much like 2020, the spring trout stocking program will work on an accelerated schedule to minimize staff interactions, keep social distancing precautions, and help keep everyone involved as safe as possible while still allocating a full season's worth of trout. The 2021 spring trout season will begin stocking 1 week earlier than scheduled (March 15). The pre-season closure will also begin on March 15 instead of March 22. A draft schedule to stock all the state's trout stocked waters prior to April 1 has been created. This draft schedule is very ambitious as it plans to stock over 360,000 trout prior to April 1. On April 1 the Division of Fish and Wildlife will open the state's trout stocked waters to "Catch & Release" regulations on all non-special regulated areas. Special Regulation Areas will keep their normal regulations. The April 1 Catch & Release Regulation was enacted in 2020 and was well received by anglers. It also helped keep crowds down some on Opening Day helping keep everyone safer from the pandemic. The Division will continue to stock after April 1 until April 9 where an additional 140,000 trout will be stocked throughout the state. By opening day on April 10 the Division will have stocked a total of 500,000 trout. An additional 70,000 – 75,000 trout will be stocked in mid – May in a selection of trout stocked waters reaching the normal spring allocation of 570,000 trout stocked.

During this monthly cycle, the trout stocking draft schedule, stocking points, web information for stocking, hatchery loading cards, and driver load sheets have been drafted for the 2021 spring trout stocking season. Coordination with Division fisheries biologists, hatchery staff, and Land Management staff assisted with the draft trout stocking schedule development. (Shramko)

Spring Trout Stocking In-house Meeting Presentation – Prepared slideshow and presented current draft plan on the 2021 spring trout stocking program to DFW staff including Lands Management, Information and Education and Law Enforcement. This presentation was also given to the Fish and Game Council for approval. (Staff)

Warmwater and Coldwater Stocking – Began organizing the 2021 warmwater and coldwater stocking request spreadsheet that will be submitted to Hackettstown Hatchery prior to March 1. Regional biologists will receive the form via email, the week of February 15, for annual stocking recommendations. (Smith)

Warmwater Fisheries Management Plan –

- All drafts for coolwater species, Walleye, Northern Pike, Muskellunge, and Hybrid Striped Bass, have been updated since their 2019 versions to align with new species management plan template. (Collenburg)
- Completed revisions to the Largemouth Bass species management section. (Smith)
- Submitted completed draft Channel Catfish Management Plan. (Boehm)

Coldwater Management Plan – Continued to write the Management of Wild Trout section of the plan. (Collenburg and Shramko)

Statewide Dam Removal Partnership – Biologists Smith and Boehm participated in a meeting with the Statewide Dam Removal Partnership, on January 20. Assisted with leading a group discussion on invasive species concerns, as related to dam removal and fish passage. Volunteered to serve as the groups invasive species coordinator and provide Department updates at future meetings related to invasive species policy. The next meeting is planned for March 2021. Reviewed SDRP Inventory of Dams page which contains any of the dams the partnership is working on, from those in the earliest stage of the process to those near completion. Any available updates or additional information was provided. (Smith and Boehm)

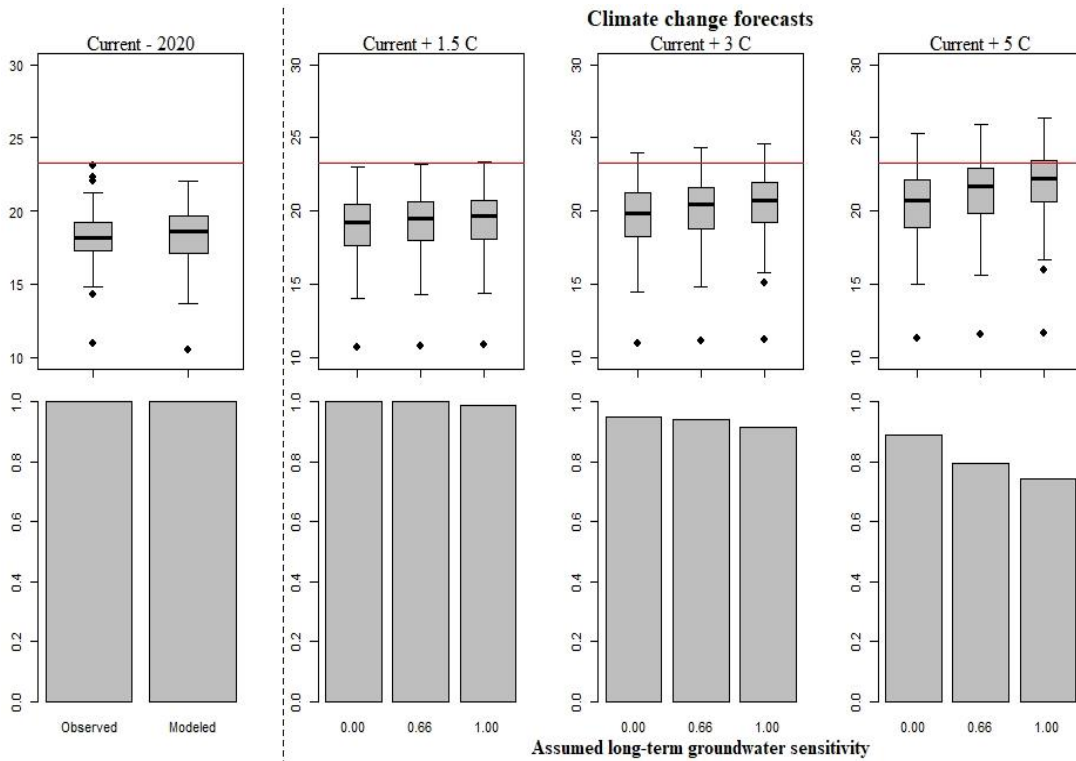
Cedar Lake (Gloucester) – The Division received a request to consider Cedar Lake, Washington Twp. for trout stocking. Extensive improvements were recently completed to the lake and surrounding park. Amenities include fishing piers, walking trails, dog park, ball fields, and playground. Project coordinators previously contacted the Division in 2019 for information on stocking, at which time no formal recommendations were made. A site evaluation is planned in April 2021 and formal recommendations regarding trout stocking will be made at that time. The location would be an excellent candidate for warmwater stocking and will be added to the 2021 stocking list. (Smith)

Stream Temperature Monitoring – This program was initiated in 2012 to monitor stream temperature in our major rivers that are currently regulated as Trout Maintenance. The continuous temperature monitoring program is designed to closely monitor stream temperature in areas that have marginal thermal habitat for the purpose of trout stocking, understanding thermal regimes in our major river systems, and expand the program to Trout Production streams to gain a deeper understanding of stream temperature's role on the entire life cycle of wild trout in New Jersey and assist in guiding management of these streams. This reporting period effort focused on collecting and managing stream temperature data that are of the Brook Trout Strongholds Project. (Collenburg)

Brook Trout Strongholds – Completed results and reports for Federal Aid and the Bureau of Freshwater Fisheries annual report. This project was initiated in 2018 and 94 sites with continuous stream temperature monitors are being analyzed and modeled in 2020 and primarily focused on the Delaware River drainage. The catalyst for this project was the idea that as air temperature increases due to climate change, stream temperature response will vary spatially and temporally depending on GWI and several other factors. This idea is more pronounced in headwater streams where GWI may be stronger. Still, GWI is largely unknown, unless measured. The developed models can be used to estimate GWI using direct measurements of air and stream temperature. Models have been developed in the past to determine stream temperature sensitivity and vulnerability to climate change but are scaled too large and do not consider small scale differences in GWI. Results from 2020, which monitored many streams in the Delaware River drainage, found that under the most extreme event of 5°C of air temperature warming and a high sensitivity of groundwater to air temperature change, a total of 21 sites (out of 81)

are predicted to no longer have suitable temperatures for Brook Trout. Models were developed following methodology from USGS and found that incorporating covariates of both modeled/predicted daily average air temperature (DMAT) and accumulated degree days (ADD, a proxy for groundwater) (avg. *adj. R*² = 0.9022) performed better than DMAT alone (avg. *adj. R*² = 0.8012) and reflects the importance of understanding groundwater in predicting the future of Brook Trout habitat. (Collenburg)

Figure. Climate change forecasts based on the warming scenarios of 1°C, 3°C, and 5°C, and the known thermal tolerance threshold of Brook Trout of 23.3°C MWAT.



Storm Water Investigation – Preliminary analysis of sites that were continuously monitored for water temperature in 2020 found that 14 had at least one water temperature surge on 13 streams defined as a 2°C increase of water temperature, or greater, in a 30-minute period. Additional analysis of data collected in 2020 and 2019 will be integrated into a report to identify all impacts and provide guidance on further investigation and mitigation. (Collenburg)

Data Share – In collaboration with Trout Unlimited, The Nature Conservancy, and Musconetcong Watershed Association, work continued to provide continuous stream temperature data to the USGS Ecosheds platform. USGS has been involved in the Eastern Brook Trout Joint Venture providing predictive models for Brook Trout occurrence and suitable habitat. Modeling in NJ based on preliminary observed-predicted comparisons of stream temperature has been inaccurate and usefulness of the

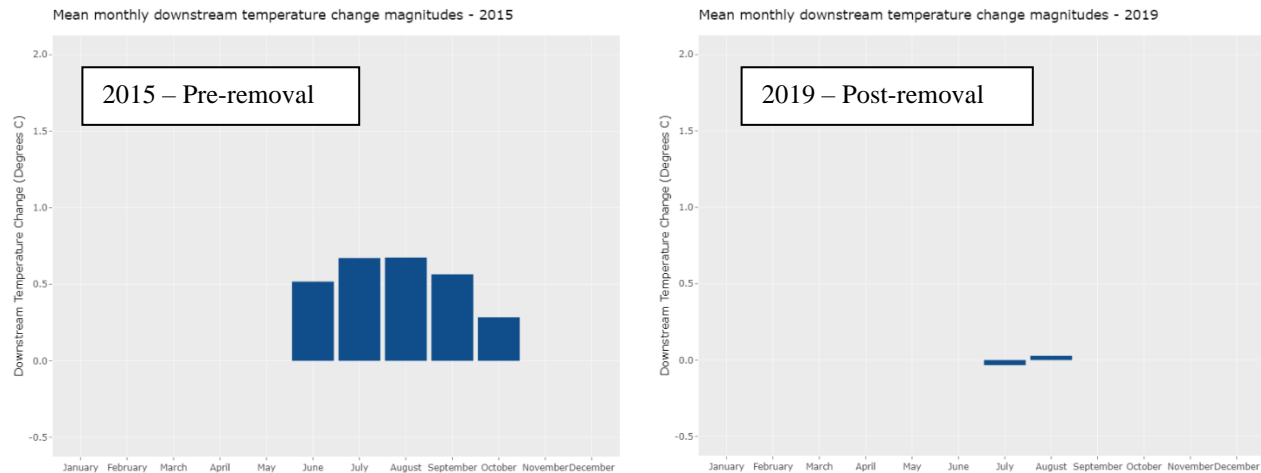
regional models for persistence of Brook Trout may not prove useful because of the highly fragmented nature of Brook Trout populations. However, USGS provides modeling and results and supplying our data may improve model calibration. The Ecosheds platform is a very user-friendly interface to share data as well. (Collenburg)

TECHNICAL ASSISTANCE

Bear Swamp Lake Dam Meeting – On Wednesday, January 27, met with Ringwood State Park Superintendent, Eric Pain, and East Jersey Trout Unlimited President, Chris Henrickson, and TU Conservation Chair, Rich Malizia, to discuss removal of Bear Swamp Lake dam. Information on engineering costs, feasibility, the last dam inspection by dam safety (2001), letter of interest signed by conservation groups and the Dam Partnership, were presented. Next step includes confirmation from State Parks, owner of the dam, that they support removal. Time is sensitive as Trout Unlimited has interest in obtaining grant funding through an Embrace A Stream grant. The deadline to notify with intention to apply is April 15. (Collenburg)

Trout Unlimited Draft Report Review- Reviewed a draft report for a pilot project testing a computer-based approach to fish passage assessment at road crossings. They found that the method was accurate at detecting all "significant" and "severe" barriers to fish passage according to the standard NAACC ranking system, and can save 50-85% of the time and money of broad-scale field assessments. TU is considering scaling up testing and application of this approach in NJ and other northeastern states. BFF staff indicate the methodology and use seems like a very practical approach to prioritize culvert assessments and that it can result in a significant and cost savings. BFF also indicates that its trout-focused approach to ecological prioritization should work well to prioritize TU projects, however its use to prioritize barriers to fish passage may require a more comprehensive approach to conservation if it were to be adopted by DFW, that may include additional considerations, taxa, and/or priority species. (Collenburg, Shramko, Crouse)

Columbia Dam Monitoring Meeting – This is an annual meeting with the Columbia Dam removal partners where each partner shares the monitoring that was performed since the last meeting. Compiled data from The Nature Conservancy and Bureau of Freshwater Fisheries from 2015 to 2019 to compare water quality data before and after Columbia Lake dam removal. Time was spent developing a dashboard for TNC to present water quality data (<https://rpubs.com/Ottski/715952>). Additional water quality metrics, such as dissolved oxygen, and turbidity, will be incorporated. On January 25, presented the results from data analysis on stream temperature data before and after dam removal. The average August temperature difference at the downstream site was +0.52 degrees Celsius and in 2019, post-removal, the temperature difference in August was +0.03 degrees Celsius (see Figure above). Work will continue to collaborate on analysis of other water quality metrics with TNC and create an interactive dashboard to share TNC data. DFW also gave updates on fish collection (electrofishing and angler reports) and on-stream channel development. (Collenburg and Shramko)



Statewide Dam Removal Partnership Review – Reviewed guidance documents that provide a brief overview of monitoring impacts of stream temperature from impounded waters. The documents are aimed at encouraging project managers to reach out to the Statewide Dam Removal Partnership for more site-specific guidance. (Collenburg)

County Line Dam Removal – Investigated the habitat above the County Line Dam for American Shad spawning potential. A summary from this work is as follows:

- Estimate the removal of this dam as low to medium importance to American Shad.
- Since Paulins Kill Lake is highly unlikely to be removed, anadromous fish passage would end at the Paulins Kill Lake Dam for the foreseeable future (if no fish ladder is constructed). Therefore, the removal of County Line Dam would only open up about 5.5 miles more miles and these river miles are the least important to American Shad from a distance from the Delaware and habitat type (depth mainly) perspective.
- Recommend to table the discussion until at least Paulina Dam is removed and it is known for sure that shad will not only swim up to county line, but also that they cannot already traverse this location in the current state the dam is in. This dam is similar in size and structure to the USGS gauging station dam that is believed to be traversable by American Shad under normal springtime flows.
- Acknowledgement of the other benefits of removing a dam from a river system not mentioned here, but these benefits do not outweigh the potential loss of any State Threatened or Endangered species. (Shramko)

Greenwood Lake Water Level Management Plan – Supplied comment on draft water level management plan at Greenwood Lake. Main components of the plan include a 5-foot drawdown every five years and potential additional changes for minor maintenance and repairs to lake structures. (Collenburg)

Dredging of Deane Porter Elementary School Pond (Monmouth)- This 0.53 acre pond is anticipated to be dredged this year. It is described as small, shallow, and fed by discharges and

stormwater pipes. As a result, a very minimal fish population is expected to be present. The primary concern with this project is the presence of contaminants, exceeding the residential direct contact site remediation standards. Benzo(a)pyrene at 0.885 mg/kg in one composite and 0.878 mg/kg in the other exceed the residential standard of 0.5 mg/kg). Lead in one composite at 478 mg/kg exceeds the standard of 400 mg/kg. Fish and Wildlife does not support relocation efforts due the contaminant concerns and plans to require the fish be captured and humanly euthanized to prevent the spread of contaminants to a new body of water and prevent any further exposure or consumption of dangerous contaminants by the public. School personnel seem reluctant to euthanize the fish and have expressed interest in relocation if possible. (Boehm)

Merrill Creek Reservoir – Discussed Lake Salmonid sampling of Merrill Creek Reservoir with the Merrill Creek Reservoir Environmental Specialist. The Division is planning to sample the reservoir this fall using gill nets if COVID-19 restrictions are lifted by then. (Shramko)

Musconetcong River Restoration Partnership Meeting – Attended remote meeting of the Musconetcong River Restoration Partnership. Updates on recently removed dams (Finesville Dam and Hughesville Dam) was discussed along with updates on current dam removal projects (Warren Glen Dam, Bloomsbury Dam, and Beatty's Mill Dam). Several other topics concerning water quality, planning, and restoration of the Musconetcong River were discussed as well. (Shramko)

Musconetcong River – Warren Mills Dam Report – Reviewed the Warren Mills Dam – Preliminary Alternatives report prepared by GZA GeoEnvironmental Inc. Following agreement and approval of the preliminary alternatives found in this report by the Department of Environmental Protection (DEP) specifically, The Division of Fish and Wildlife and Dam Safety, GZA will conduct further evaluation and cost estimates on the alternatives. A final alternatives study report will then be prepared and sent to DEP for review. (Shramko)

New Jersey Invasive Species Management Kickoff Meeting - Biologists within the Bureau's Research and Management Unit participated in a kickoff meeting hosted by Joseph Bilinski (DEP Science and Research) on 1/26. The meeting served as an introduction of staff across multiple Divisions within the Department. Staff from various units will be compiling lists of activities in which they actively participate in invasive species management. (Staff)

Freshwater Permits - Reviewed Land Management Reviews (LMR's), water lowering permits and fish stocking applications and contacted applicants as necessary to obtain required information. Responded to requests from the public for information on general fisheries questions, fish stocking and water lowering permit programs. (Staff)

WMA Fishing Tournament Permits – The Division started accepting applications for the 2021 fishing tournament season. Twenty-one additional permit requests were received this month, bring the total to 114 applications for Wildlife Management Area fishing tournament permits. Permits will be issued in late-February. (Smith)

OTHER

Skillful Angler Program - Continued working on compiling and organizing the submissions to the Skillful Angler Program for both 2019 and 2020. Completed updating the format of the certificates, all of which for 2019 and 2020 have been created. All individual letters for 2020 have been printed and the process of printing the certificates has begun. Mailing of the certificates and letters should begin by the end of the month. (Civalier)

PEQUEST TROUT HATCHERY (Ed Conley)

Inventory Data

Stocking Program	Length	Average Daily Length Increase	Conversion
Spring 2022 RBT (4 months old)	3.0"	.019	0.76
Spring 2021 RBT (16 months old)	10.4 "	.019	1.19
Fall 2021 RBT (16 months old)	10.8"	.029	1.65

Flow Rates – January 2021

1.42 inches of precipitation fell during the month of January.

Pumping Rate Average for January was 6,544 gpm. An average of 9.48 million gallons per day was pumped during the month of January.

The potable well pumped 4,712 gallons for the month of January.

Fish Culture Activities

All nursery fish are being fed by automatic feeder twice every hour for about 10 hours a day. The feeders are being filled daily with 1.5 mm and #2 feed. All tanks are still being cleaned by all shifts. The B-line raceways are currently being fed by hand 8 times a day 1.5 mm feed.

Monthly inventories of the Spring 2021 production stock (48 pools) and the 2020 Fall Program fish (2 pools) were completed during this time period. Feed quantities have been adjusted to regulate growth rates to reach our final goal of 10.5 inches for the Spring Stocking. These fish are being fed by the feed truck 4 times a day with 5.0 mm feed. Screens are being cleaned twice a day and basins weekly.

Hatchery flows, and dissolved oxygen levels are being monitored and adjusted as needed for the increasing growth of the trout.

Approximately 44,000 pounds of feed was fed during this time period.

Hygiene

The iodine net/brush dip buckets were changed every 3 days or so to keep up with the hatchery hygiene plan.

Weekly catch basin and aerator building cleaning was completed as scheduled.

Head ends as well as lower ends of the raceways were vacuumed and scraped to remove a buildup of algae and moss.

The aerator wheel area of the I-line was vacuumed to remove built up fish waste and decomposing algae.

Floor disinfectant baths were changed on a regular weekly schedule or as needed.

Treatment Plant

Submitted monthly discharge reports, filed any applicable paperwork, and met with the treatment plant operator.

Weekly treatment plant checks including, wastewater testing, chlorine levels, and domestic pit flow were performed. Set-up composite sampling for 3rd Wednesday of the month.

Coordinated the pumping, loading, and spreading of 6000 gals of fish waste to the Pequest WMA. Total of 6 loads spread to Fields #5 during the period of report.

Performed preventative maintenance on treatment plant pumps, motors, greased bearings, and gears, and changed oil in blower motors.

Minor Vehicle and Equipment Maintenance

Coordinated and assisted in the maintenance of 6 in-hatchery vehicles, performed minor vehicle maintenance.

Maintained and submitted monthly mileage report for 16 hatchery vehicles.

Performed weekly site check of both Gasoline and Diesel fuel levels.

Scheduled and transported distribution trucks to Cory Bros Diesel Truck Repair for Diesel emissions inspection, Federal safety inspection and annual preventative maintenance.

Staff has begun to prepare for the upcoming Stocking season by repairing truck tanks and any broken equipment or nets that will be needed.

Miscellaneous Activities

Continued hourly interviews for the upcoming stocking season. Paperwork was filled out and submitted to Trenton for background checks for a couple of individuals. Awaiting start dates once these individuals are approved.

Attended a couple of meetings regarding planning of Spring Trout Stocking for 2021.

Several purchase orders have been created and received from the hatchery's Federal-Aid accounts to operate for the calendar year. This year we received a portion of our funds for the hatchery from the Federal grant, and then the rest will be available in April.

Hatchery personnel cleaned-up a few winter storms during this time period. Winter storm Orlena in which the New Jersey was in a “State of Emergency” for several days, dumped 31 inches of snow on the facility, which took several days to clean-up. Extra staff were placed on various shifts to try to keep up with the plowing in the raceways and well roads in case of emergency. Daily rearing activities were continued throughout all shifts during the storms as well.

The UV treatment system on the domestic waterline continues to be off-line. Bottled water is being provided for drinking until we are back online.

Parts were installed by a contractor for the diaphragm pump in the treatment plant and is functioning fine.

A pre-bid meeting for the Pequest Roof Replacement was cancelled due to snow with Construction and Procurement and potential contractors. Contractors will still be able to bid.

There were no reported problems with trespassers by the night watchmen. The Information & Education Building remains closed due to COVID-19.

HACKETTSTOWN STATE FISH HATCHERY (Craig Lemon)

Intensive Culture (Inventory)

<u>Species</u>	<u># Fish</u>	<u>Avg.”</u>
Muskellunge	4,600	11.0”
Landlocked Salmon	3,200	7.4”

Stocking Totals (January 15 – February 14)

No stocking during this period.

Intensive Culture

Muskellunge - Currently culturing 4,600 Muskellunge in two 2,000-gallon tanks. These fish are averaging 11 inches currently. These fish will be grown on forage until this Spring.

Landlocked Salmon - Currently culturing 3,200 fish about 7.4-inches. They are currently being cultured in two 2,000-gallon tanks. Staff are cleaning and feeding them daily. These fish will be grown intensively until November 2021 and stocked when they reach 16-18 inches.

Maintenance of Ponds and Ground

Winter Storm Orlena dumped 32 inches of snow on the hatchery between Feb. 1st and 2nd. Staff put in a week plus using 3 snowplows, 2 tractors, a snow blower, and shovels to dig out and clean up from the storm. Heavy winds blew the powdery snow making drifting an issue and making it difficult to access the extensive pond complex. Only the big tractor made access possible. Orlena was followed up with a series of small 2-3-inch snows keeping staff busy cleaning up.

Maintenance of Buildings and Equipment

Staff have been building and repairing plugs, slides, and screens to be used in the extensive ponds this year. All the seines were brought down to the intensive building and are being repaired and inventoried. Working on a date to have all scales certified. Vehicle maintenance continues all the hatchery vehicles. Oil changes, air filters, grease jobs will be performed on all these vehicles over the winter. Wooden decks on a couple of distribution trucks and trailers were conditioned with waterproofing stain. Rust on the metal deck frames of two distribution trucks was scraped, primed, and painted. A contract vendor was in and repaired the weekly generator test timer and while they were here did a full maintenance on the generator.

2021 Fish Culture Season Prep

Orders for equipment are being prepared and placed. Fish food and fertilizer PO's are being prepared. Phone calls to neighboring states about surplus fish trades are being made. This was extremely important in 2020 due to pandemic striking in mid-March when broodstock collection season had just begun. Seems it may be equally important in 2021 as the pandemic does not seem to be lightening. Phone calls checking on our new distribution truck were made.

COVID-19 Protocols

Staff continue to follow all protocols-social distancing, checking temps, answering questions upon entering work areas, etc. Common areas and bathrooms are being cleaned often.

Steve Jeffries starts full time

Steve received a start date of Feb. 13th. He will be supervised by Dom Mercurio and will be splitting his time between the Hackettstown and Pequest Fish Hatcheries. He is in a repairer title and will be involved in the maintenance of both facilities. Steve has been a seasonal with the Hackettstown Hatchery for 10 years. He will be a valuable asset to the Bureau and Division. Congrats to Steve!

Fishtrack, Social Media, and Fisheries Forum

Entered all 2020 stocking information into the Fishtrack database. Provided Paul Tarlowe with all 2020 stocking information for posting on the Division website. Put together a Power Point presentation for the 2021 virtual combined fisheries forum.

BUILDINGS AND MAINTENANCE (Dominick Mercurio)

Pequest Trout Hatchery

This month, several days have been spent on snow removal, keeping well roads and access to the building open. The bid proposal was sent out for the repair of production well #3. In well #2 a new fuel cut off solenoid was installed; the well was test ran and operated fine. The fish waste treatment plant was repaired, the new diaphragm pump internal components were all replaced. The pump was tested and is operating as it should. There was no heat in the auditorium at Pequest, found a broken belt on the upper air handler to be the problem. The belt was replaced, and the motor was adjusted, the heat is operating properly. Two new heater fan motors were replaced in the nursery building.

Did full diesel run test of the whole facility. All diesels were run during this period to simulate a full power outage. All the backup systems function properly. All the alarm and control computers were rebooted. Did all monthly production well number, along with potable UV water numbers, well levels, monthly gallons pumped, rain fall etc.

Hackettstown State Fish Hatchery

The diesel back-up generator was not running its programmed weekly test run. Had a contract vender come out and found a faulty time clock that runs the test program, the time clock was replaced. A full service was also performed on the engine, everything was test ran and operated properly