



Monthly Hatchery Report July, 2016



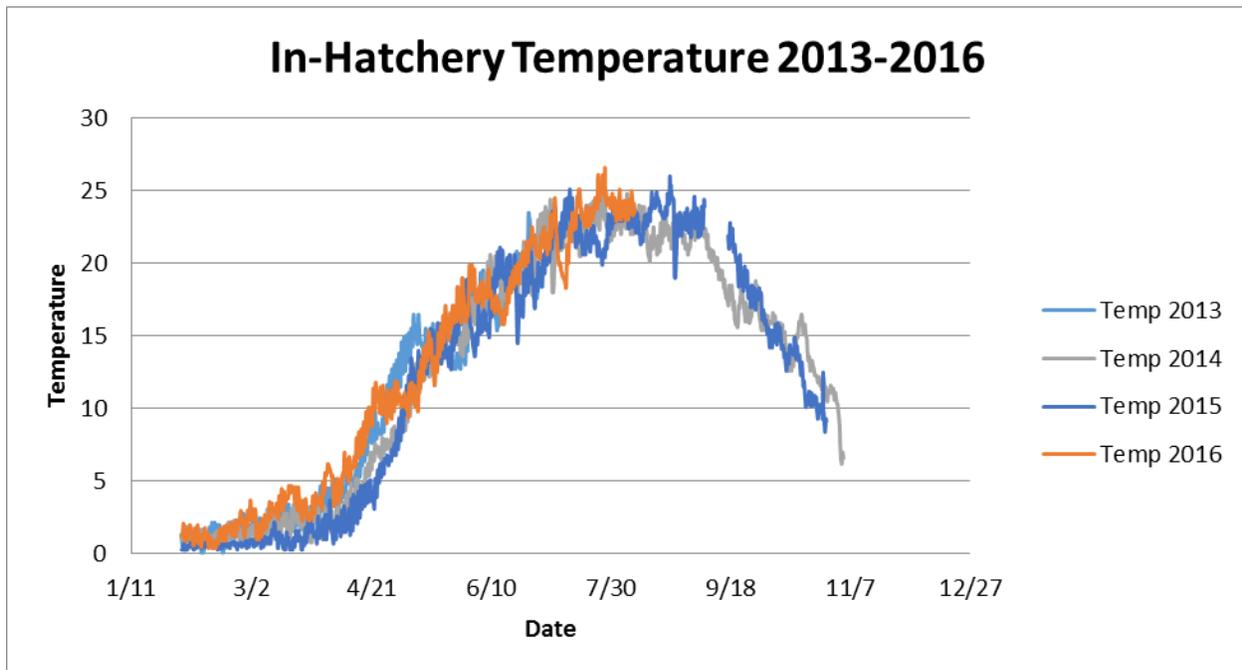
Report by: Kyle Winslow

A report of monthly activities and events

A Report on activities from the *Peter Gray Hatchery*, East Machias, ME.

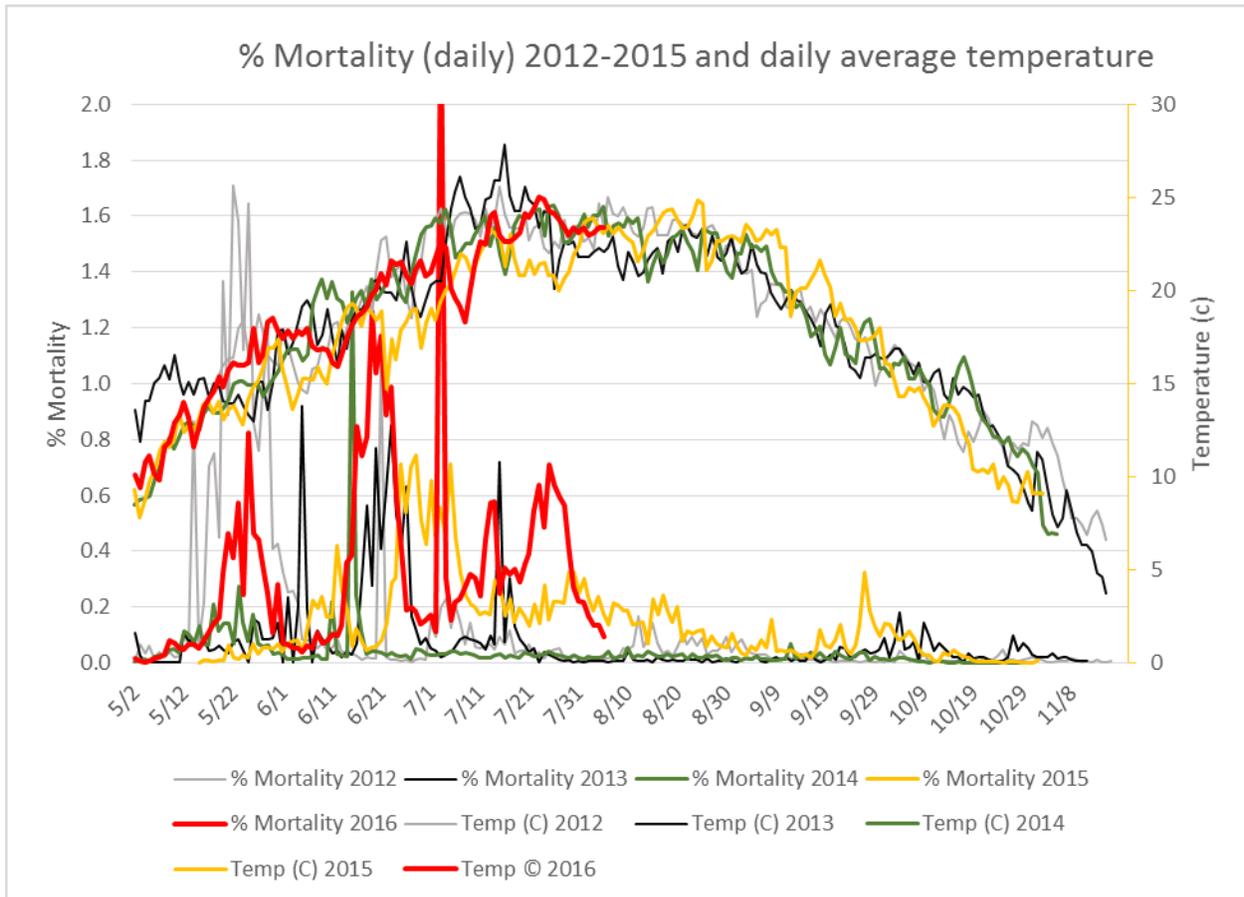
July has come and gone here at The Peter Gray Hatchery. With it came hot temperatures and not a whole lot of rain. Fortunately, there is water in the tanks for our fish and they continue to grow.

With water levels very low, we continue to see temperatures in the hatchery in the 23°C – 25°C range (see temperature graph below). On July 27th, temperatures rose above 26°C and we started adding a small amount of well water to our head tank, bringing temperatures down by 1 – 2°C. Temperatures reaching 28°C can be lethal, and persistent temperatures above 26°C can cause undue stress on the fish. In the wild, cold water fish will move, sometimes great distances, in search of colder water refugia. In the hatchery, however, they do not have this option. This is only the second year in the past five that we have had to add well water to bring the temperatures down.



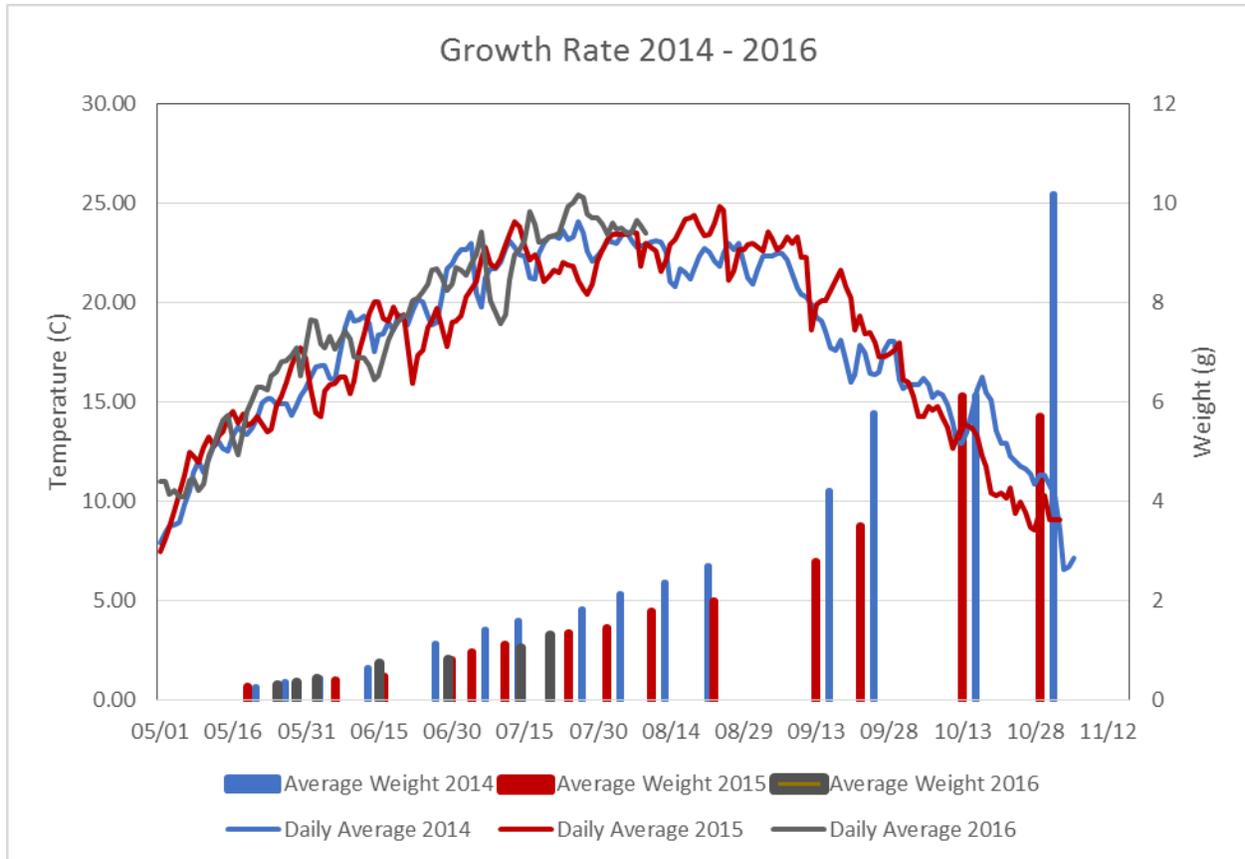
Mortality has been fluctuating in the hatchery this past month. We have seen problems with bacteria get better, only to come back for a period of time. As of now, mortalities are low and keep going down, and are about as low as we have seen all season. However, we have had relatively significant mortality through the season, including one overnight mortality event resulting in the loss of nearly 6,000 fish. The cause is unknown; the die off occurred in only two tanks, there were no physical signs of distress in the fish in the tank, and were no physical signs indicating a cause on the dead fish. All of our data that is recorded, dissolved oxygen, pH and temperature, were fine throughout the night. The mortalities were too far gone to send off to

the fish health lab to perform necropsy or bacteria/virus tests. Fish health looked good the day before, and the evening following the die off, the two tanks impacted had no signs of distress and had very few mortalities. The bacteria that has been impacting our fish is a common, freshwater bacteria. In a hatchery setting, when fish are in high concentrations, this bacteria can especially impact the fish when they are under stress. The cause of this stress could be temperature related. Below is a mortality graph showing what we have seen for mortality through July. We have been continuing with static salt baths when needed, and lower concentration salt treatments as well. In an effort to keep mortality low in the coming years, we are exploring options for decreasing the density in our rearing tanks as high densities in the tanks currently could likely be a contributing factor in the increase rate of mortality we have seen this year and last.



Growth of our parr has been in line with growth seen last year. Bacterial infections and high temperatures have slowed growth, but as temperatures decrease, the feeding rate and growth

rate will rise. Below is a graph showing growth through this rearing season, as well as previous years.



This July, DSF and the CCLC hosted their two week Machias River Wigwam Rapid program, which brings high school age kids out into the woods and immerses them projects ranging from archeological digs, to dump clean ups, to camp/trail maintenance, and stream restoration projects. Two of their days were spent on Beaverdam Stream continuing to help improve the channel at the old road and culvert site that DSF removed last summer. Though the culverts were removed last year, there is still a fair amount of boulder and debris that lay under the culverts. This work involved moving boulders with a grip hoist (pictured on the front page of the report) from the main channel of the stream in an effort to bring down the head water above the crossing.

Work continues on Beaverdam Stream to improve access to the upper half of the system. Below the two culverts that were taken out last fall lie another set of culverts that impede fish passage. The project would involve removing the crossing and either routing a road around the stream, avoiding a crossing completely, or putting a bridge in place of the two culverts. Stay tuned for updates on this project!

We are looking ahead at a very busy few months. We will be working with the Maine Department of Marine Resources at the beginning of September to complete electrofishing surveys which will help to

estimate the population of large parr in the river. Following electrofishing, once temperatures drop below 18°C, we will begin fin clipping. This process will likely take all of four weeks to complete this year. Stocking will come directly after fin clipping, in mid-October. Below is a map which indicates stocking sites for 2016. In the coming weeks we will nail down stocking densities at each site based on the number of units of habitat (1 unit = 100m²). We welcome volunteers for either activity, and both fin clipping and stocking are great opportunities to see and even handle the fish.

