Monthly Hatchery Report

June, 2016

Report by: Kyle Winslow

A report of monthly activities and events

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

Summer is in full swing here in East Machias. All of the fry that will be stocked have been stocked, fish are firmly on food, and our focus is on monitoring the fish and preparing for the very busy fall season.

The final day of smolt trapping was June 7th this year. This followed three consecutive days without capturing a smolt. Figure 1 shows a graph of smolt captures, graphed with stream stage and temperature, for the 2016 smolt trapping season. The stream stage dropped significantly throughout the season, impacting trapping efficiency later in the season. Though the stream stage dropped consistently throughout the season, temperatures remained relatively low through much of May. Table 1 below outlines the total captures, broken out by age class, along with the estimate produced by biologists with the Maine Department of Marine Resources. P8, P20 and P32 indicates the age of a hatchery origin smolt. A P8 smolt has spent about 8 months in the river, and was stocked in 2015 if it was captured in 2016; a P20 smolt has spent 20 months in the river after stock out and would have been stocked in 2014 if it was captured in 2016; and a P32 has spent 32 months in the river post stock out and would have been stocked in 2013. The total smolt estimate was 1,873 +/- 953. This estimate is higher than any previous year, and much higher than last year (see figure 2 below). The increased percentage in P8 smolt this year, and higher overall smolt estimate, may indicate that over winter survival during the winter of 2014/2015 was poor and led to the low smolt numbers seen in 2015. These smolt numbers are very encouraging. The number of smolt have increased significantly, they look very healthy, and we are producing more p20 smolt which will likely lead to a higher survival rate in the ocean.

	P8	P20	P32	Naturally Reared	Grand Total
Captured	49	120	10	27	206
Total Estimate	448	1,092	88	246	1,873 +/- 953

Table 1

DOWNEAST SALMON FEDERATION

Season Captures

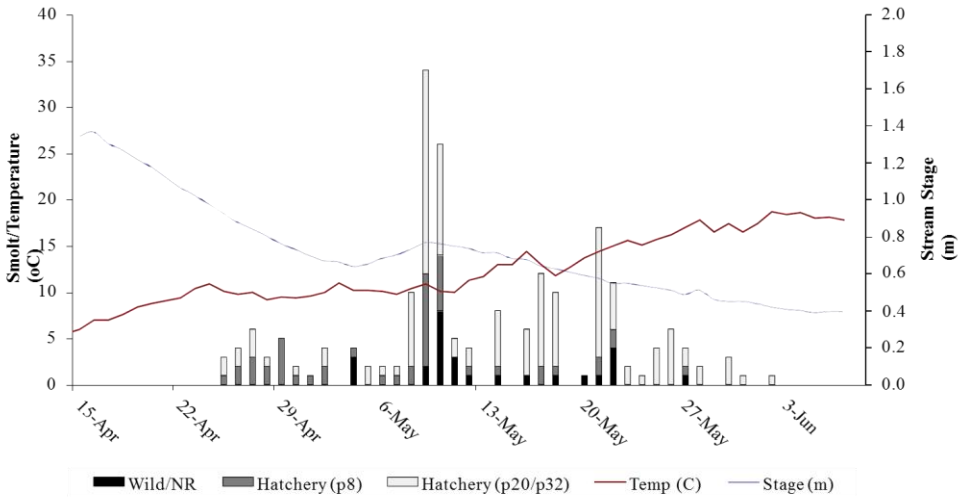


Figure 1. Daily smolt catch (by origin), water temperature (°C), and stream stage (m) at the Route 191/Jacksonville Bridge RST transect, East Machias River, Maine, 2016.

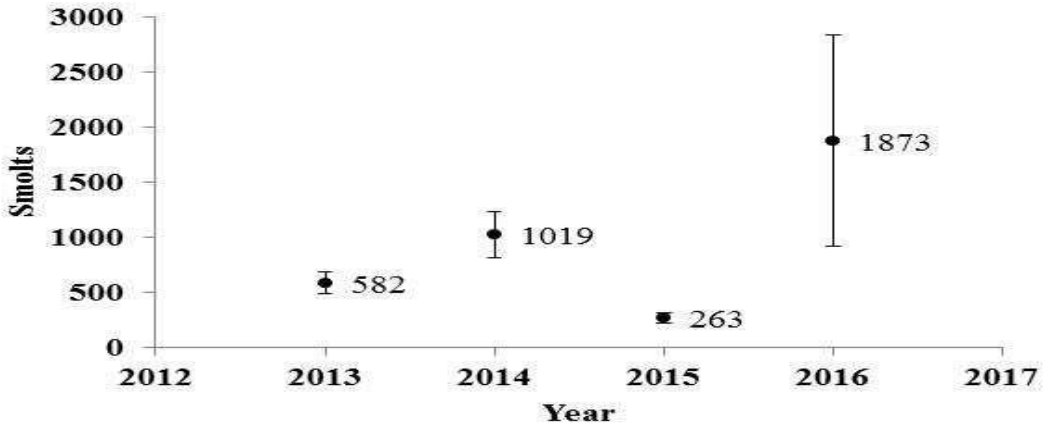
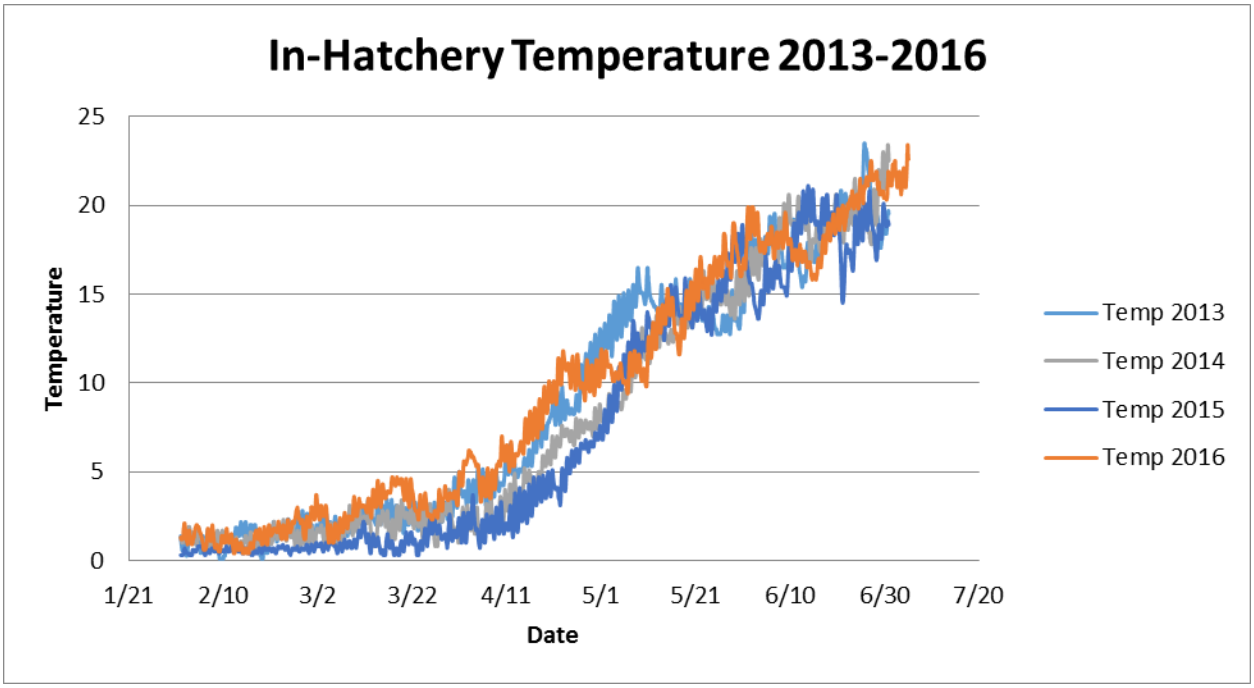


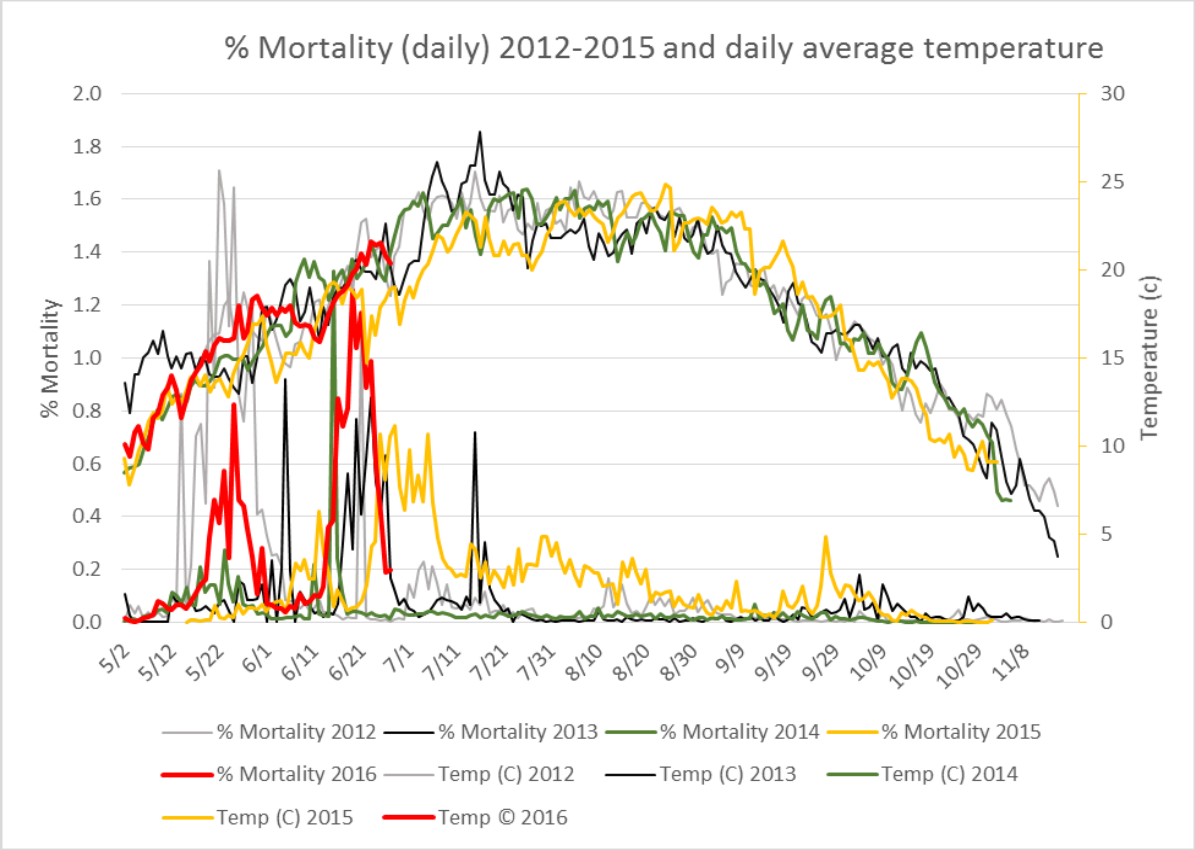
Figure 2. Produced by Maine DMR. This graph shows estimated total (hatchery origin and naturally reared) smolt populations for 2013 – 2016 on the East Machias.

Things have been warming up here as we head into the summer months. Though we started the spring off very warm, things moderated a bit in early May and kept the temperatures from continuing their unusually warm trend through the summer. This also kept the temperatures in an optimal feeding range for longer allowing the fish to feed steadily well into June, before

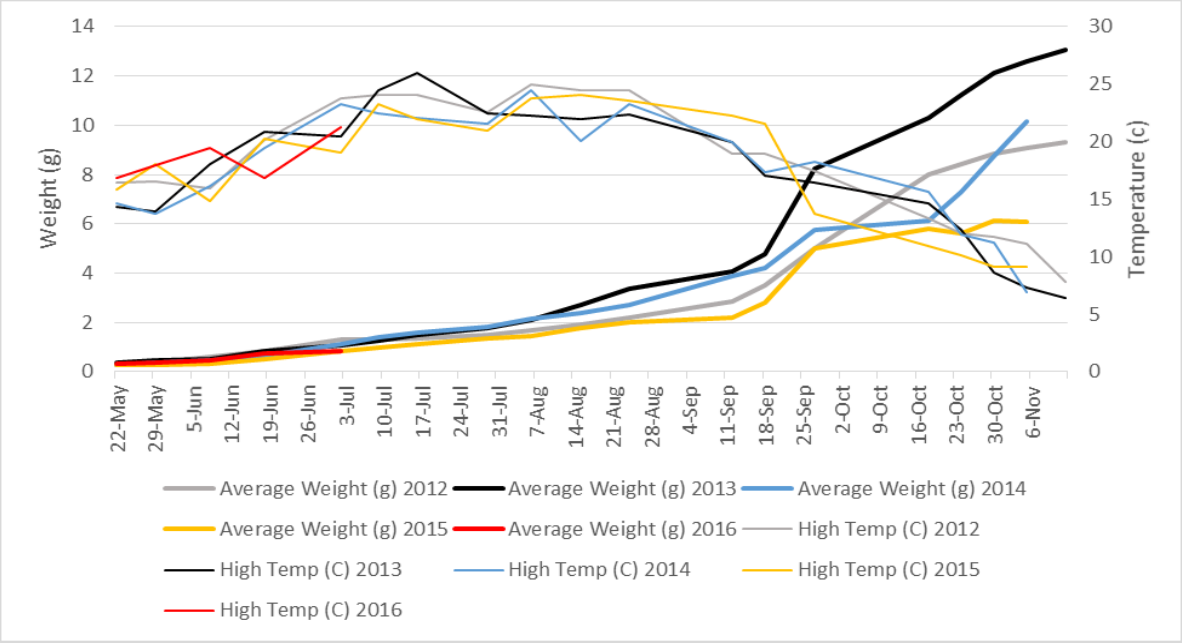
temperatures got warm enough to impact their feeding rate. With water levels very low, we are hoping to see some rainy weather come up the coast here in the near future!



Unfortunately, we have been experiencing similar mortality in the hatchery as last year. It seems as though we have identified the problem as a bacteria, Plesiomonas shigelloides. This bacteria is a common, freshwater bacteria. In a hatchery setting, when fish are in high concentrations, this bacteria can impact the fish, especially when they are under stress. Below is a mortality graph showing what we have seen for mortality through June. We reacted to initial signs of health problems with static salt baths of up to 1%, or about 10g/L and we cut back feeding rates for a period of time. As a precautionary measure, we immediately changed food, should the bag of food we were using have been the problem (it wasn't). The salt baths helped to address the issue; however, we still saw high mortality over the course of about two weeks. The mortality rate has decreased and we are seeing much better survival at present.



Growth of our parr has been in line with previous years. The stress of this bacterial infection has led to a slower growth rate, but as mortality has subsided, the fish have been feeding a little heavier and are looking quite healthy. Below is a graph showing growth through this rearing season, as well as previous years.



We had our bi-annual meeting with agency staff involved in the Project. The meeting went very well and there was a lot of great, positive support for the project. We have had continued support for the project by state and federal agencies, and this meeting certainly helped solidify this following last year's low smolt numbers. Through our smolt trapping effort, we have been able to show that stocking the density of fish we are stocking is not having a negative impact on the overall condition, or health, of the fish present in the river, and we have been able to increase the smolt population migrating out of the river significantly. I have included two presentations given at this meeting with this report.