Mount Massive Lakes Gill Lice Problem

September 18, 2015

The Gill Lice parasite was introduced when a Pacific Salmon was stocked into Colorado waters in 1907. Gill Lice can cause significant physical trauma to the gill filaments, causing deformities that may affect respiration and efficient uptake of oxygen and release of carbon dioxide, ammonia, and other metabolites. Respiration will be difficult for infected fish at times of exercise, such as when they are caught by angling, or at times of high water temperatures when the dissolved oxygen levels are low. With warm water temperatures, the parasites will develop to maturity faster and will then be able to reproduce one or more extra generations each year. Gill Lice have become more abundant throughout Colorado, infecting trout both in the wild and in fish culture. Over the recent years, extensive studies by CSU and CPW have begun experiments to get a clear understanding of gill lice and find solutions to decrease and/or eradicate the problem throughout Colorado.

The causes for this infestation of the gill lice parasite throughout Colorado include:

- Increased water temperatures
- Low water flows
- Fish density
- Low dissolved oxygen levels

Here at MML, we have experienced the same conditions. We had droughts in 2002, 2012, and 2013 which severely impacted our fishery program causing us to lose rearing ponds full of fish. This winter we will update our water temperature charts. Since 1999 we have seen a water increase of 2-3 degrees for each pond. We have been and will continue to prepare MML waterways for drought conditions.

This past summer we had a significant gill lice problem in our rearing ponds including both 2015 and 2016 Rainbow catchables. Although we had a great water year, water temperatures increased giving gill lice perfect conditions. Gill Lice infestations can range from 1-5 per fish to over 50 per fish. As fish size increases, so does the infection density. We have had gill lice at MML since 1982 when it was first discovered in Lake 7. However, since then it has spread throughout the whole club. Since

2000, club staff have tried numerous practices to control gill lice including salt baths, diquot, and also biological control by placing brook trout populations above our rearing ponds (ie. Lake 15 and Lake 20)to remove gill lice larvae from the water. These attempts have been unsuccessful for eliminating gill lice and current research and development has offered better management practices.

Currently in the United States there are no FDA approved drugs available for eliminating gill lice. Through our partnership with CSU and CPW, we have been able to get information and a step by step process for an opportunity to participate in an Investigational New Animal Drug (INAD). This drug is called Emamectin benzoate, also known as SLICE. By participating in this study, we will be provided SLICE to topcoat our feed and feed fish at the same rate we do with other medicated feed we use (10 straight days of SLICE then back to normal feed after that period). Slice will eliminate gill lice on the fish, but will take 1-2 weeks for the parasite to fall off. Recently, CPW has participated in this experiment for two of their hatcheries and it proved to be successful.

We don't know what condition our production fish will be in after this winter when the ice starts coming off the ponds next spring. We are going to begin this process of enrollment to participate in the INAD to get control of the gill lice problems we have at MML. We want to be proactive and get back on track to meet our fish production goals.

Below are pictures of gill lice infected trout.