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Correlation Between pH, Temperature, and Ammonia in the Recirculating Water System and Stress in Steelhead Trout.

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Recirculating water systems, by using less water and space than traditional aquaculture ponds, offer a feasible way to conduct both research and farming of fish. These systems, however, must be constantly maintained to ensure optimal water quality for the fish. One of the common problems encountered in these recirculating systems is high ammonia levels, resulting from the release of organic waste within the system. These high ammonia levels can lead to stress and ultimately death of the fish. Based on observations made in our lab over the past year and various comments from other peer-reviewed articles in the aquaculture field, it has been observed that lethal ammonia doses tend to be correlated with fluctuations in the pH and temperature of the system, with high temperature and low pH being found in tanks with high ammonia. These findings, however, have not been shown experimentally. In this experiment, we wanted to check these parameters to find a definitive correlation between pH, temperature, and ammonia levels in the tank, as well as stress levels in the fish. Successful completion of this research may lead to findings that help regulate ammonia levels in recirculating systems by carefully controlling the pH and temperature of the tank. Results from the experiment will be presented in the IPFW student research and creative endeavor symposium.