



## CEEn-2018CPST-010 - Asian Clam Eradication of Lehi City's Irrigation System

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### Issue

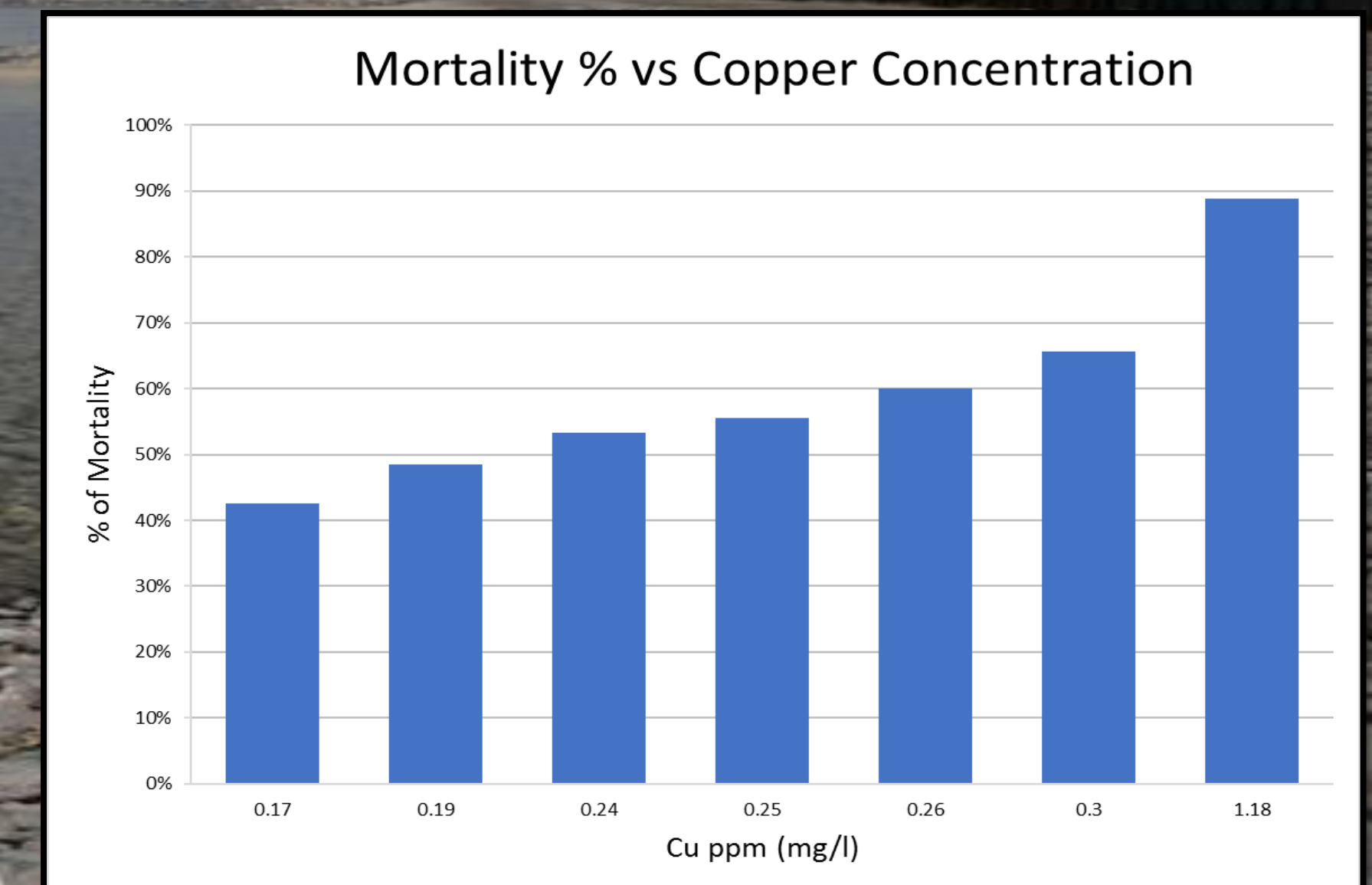
Asian Clams have infected Utah Lake and the Jordan River, Lehi City's water source. Lehi has seen clams fill up their irrigation system which also feeds the fire hydrants. Since the system cannot be turned off due to the fire hydrants, a chemical treatment is needed to kill and flush out the clams. The objective of the project was to determine whether application of Earth Tec QZ is an effective identify treatment options for the removal of Asian Clams in Lehi City's Pressurized Irrigation system.



### Results

The object of the testing was to find the highest percent of Clam mortality with the least amount of Earthtec. In addition to staying within a moderate Copper concentration that is not hazardous to humans or the environment. (Drinking water MCL for copper set by the EPA is 1.3 mg/L). The recommendation from the amount of Earthtec that Lehi should use based on the results is 2-4 gallons of EarthTec Per one million gallons of water. Along with this recommendation Lehi should test various points in their PI system for Copper concentrations to stay within MCL set by the EPA.

| Gallons of Earthtec Per 1 Million Gallons of Water | Cu ppm (mg/l) | Percent of Mortality |
|--|---------------|----------------------|
| 1.76   | 0.17          | 43%                  |
| 3.52   | 0.19          | 49%                  |
| 4.01   | 0.24          | 53%                  |
| 4.11   | 0.25          | 56%                  |
| 5.28   | 0.26          | 60%                  |
| 5.87   | 0.3           | 66%                  |
| 8.81   | 1.18          | 89%                  |



### Experimental Method

A method was devised during which life and movement was observed and measured for a sample of clams. Then different concentrations of EarthTec were applied to different samples for 24 hours (EarthTec provides Copper sulfate in which clams are sensitive too). Finally, each sample were observed again and the difference in movement before and after treatment were measured. Below is the step by step method used to determine the Mortality of Clams vs Copper Concentration.



**Frist Step:** Distinguish live clams by Recording them.



**Second Step:** Calculate amount of EartTec For treatment.



**Third Step:** Place Live Clams and EarthTec in 100 Gallon Tubs. Treat clams in tub for one day.



**Fourth Step:** Take clams out of treatment tubs and place them in observatory tank with cameras. Take sample of treatment water.



**Final Step:** Analyze data by using computer for recordings and taking samples to the lab.