U of A CEAC short course 2012

**Title:**

Polyculture of Tilapia (*Oreochromis niloticus)* and Freshwater Shrimp (*Macrobrachium rosenbergii)* in a Recirculating Aquaponics System

**Name of Presenter:**

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**Title:**

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**Summary of Presentation:**

**a) Caged *Macrobrachium rosenbergii* under fish vs. under plants**

*Macrobrachium rosenbergii*, were caged in individual corrugated plastic shells and placed at two different locations within an existing aquaponics system containing *Oreochromis niloticus* and *Lactuca sativa.* In treatment one, cages were placed at the bottom of Tilapia grow out tanks where they consumed fecal material, biofilms and undigested fish feed. In treatment two, cages were placed underneath floating raft of lettuce where detritus material available consisted of dead and decaying plant matter, biofilms, and residual organic wastes from the fish. Biomass increases of Macrobrachium and mortality rates were monitored after eight weeks~~.~~

**b) *Lactuca sativa* biomass with caged *Macrobrachium* vs. uncaged *Macrobrachium***

Equal numbers of *Macrobrachium rosenbergii* were placed under two plant beds, one group was caged while the other was not. After 56-day incubations, 10 heads of mature lettuce were sampled from both plant beds, and seedling rafts were introduced every seven days. Samples were weighed, dried and re-weighed. This process was repeated weekly for eight weeks to determine if uncaged *Macrobrachium* affected the growth of plants compared to caged *Macrobrachium*. Mortality rates of shrimp were determined along with the overall increase in biomass.

*Macrobrachium* experienced higher mortality rates, and smaller increases in biomass when caged under the floating raft lettuce compared to caged under fish. Lettuce grown with uncaged *Macrobrachium* below the rafts saw an increase in weight compared to lettuce grown over caged *Macrobrachium*, indicating a favorable role for uncaged *Macrobrachium* in an aquaponics system.

**Biography:**

Eric D. Highfield is 33 years old and about to complete his masters degree from the department of Soil, Water & Environmental & Science at the University of Arizona with an emphasis on Aquaculture and Aquaponics. His undergraduate degree is from the Metropolitan State University of Denver, where he completed a bachelor’s of Science in molecular biology with a chemistry minor and he worked with waste degradation via sub-surface flow wetland systems. Eric has always possessed a passion for environmental responsibility and sustainability, and he has had a longstanding interest in fish and hydroponic production as a hobbyist. He is well versed in real world experiences and has worked many jobs ranging from construction to bartending. All of these characteristics attribute to the person he is today, and what the future holds for him.

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