

## **\*\*Stress Hormones Mediate Tradeoffs Between Survival and Growth for Amphibians Exposed to Increased Salinity**

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Salinity has increased in many freshwater ecosystems in the last century. Despite this, limited information exists on its effects on freshwater vertebrates. Amphibians are sensitive to salinity because of their porous skin and primarily-aquatic lifecycle. Wildlife managers often seek biomarkers to gauge the influence of contaminants on population health; one marker may be changes in stress hormones (e.g., corticosterone; CORT). We investigated the influence of increased salinity on growth, CORT, and survival of larval leopard frogs (*Rana pipiens*) in a controlled experiment. We exposed larvae to one of three environmentally-relevant salt concentrations, and compared them against controls. For half of the larvae, we also blocked actions of CORT (using RU486) to determine if it mediates effects of salinity. We used novel, noninvasive techniques to collect waterborne CORT samples from larvae every 4 d for 24 d (baseline and stress-induced). Larval size, development, and survival decreased with exposure to increasing salinity. Survival decreased faster when CORT was also blocked. However, size and development did not decrease compared to controls when CORT was blocked. Baseline and stress-induced CORT were positively related to survival. Our results demonstrate that CORT may mediate life history tradeoffs of larvae exposed to increased salinity by diverting energy from growth and development towards survival. However, by blocking CORT, the opposite occurred. We detected some differences in CORT among treatments during the experiment, but CORT responses were not different after 3 weeks of exposure. Therefore, CORT may not be a suitable biomarker for monitoring influences of salinity on amphibians.