

The Chinese mystery snail (*Cipangopaludina chinensis*) is an invasive species that lives within the urban lakes contaminated with arsenic in south and central Puget Sound, WA. Chinese mystery snails can be exposed to arsenic from consumption of periphyton on lake vegetation, the water, and the littoral soil of the lakes they inhabit. This study evaluated a transcription factor of tumor necrosis factor alpha (TNF α) as a potential biomarker for inflammation in the Chinese mystery snail. Following exposure to summer conditions when arsenic bioavailability is highest, vegetation and water were collected from three target lakes. The selected lakes in this study were Killarney (high arsenic), Steel (moderate arsenic) and Meridian (reference). After a two week period, snails exposed to lake vegetation and water were flash frozen and transcriptional regulation of LPS-induced TNF α transcription factor known as CcLITAF was assessed using reverse transcriptase PCR. Additionally, arsenic concentrations were measured in vegetation, water, and tissue using inductively coupled plasma mass spectrometry (ICP-MS). Total arsenic levels measured in plants and water from the three lakes matched the predicted trend. ICP-MS data revealed that though there was a greater amount of arsenic in Lake Killarney, the plant data for Lake Killarney was significantly higher than Steel and Meridian values. Current efforts are focused on further validation of TNF α transcription factor as a biomarker for arsenic exposure in the Chinese Mystery Snail.