SPAWNING SALMON POPULATION ANALYSIS OF WALKER AND MILLER CREEKS
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Results
- Significantly more coho were found in the upper reach of Walker Creek compared to the upper reach of Miller Creek, and fewer coho were found in the lower reach of Walker Creek compared to Miller Creek.
- Significantly more live fish and fewer dead fish were found in the upper reach of Walker Creek compared to the upper reach of Miller Creek.
- Both these findings were consistent with Miller Creek being longer than Walker Creek with more exposure to roadways and toxic runoff.
- Not enough spawning beds were found to analyze the data and to compare the number of spawning beds in the creeks.
- Predation was high, 84% of the fish found in the lower reaches of the creeks, and 50% of the fish found in the upper reaches of the creeks, and no pre-spawn mortality cases were confirmed.

Introduction
- This research is important to expand understanding of pre-spawn mortality, why coho are dying in large numbers before spawning, particularly in urbanized areas where the death rate has been found to be as high as 90%.
- Walker and Miller Creeks, urban streams that flow out to Puget Sound, have been showing a steep decline in fall salmon runs for years.
- The predominant factor contributing to the declines in coho has been found to be toxic runoff from roads.
- Specifically, 6PPD, an antioxidant from vehicle tires, has been found to be highly lethal to coho (Tian et al 2020), and it finds its way into creeks when water runs off of roadways.

Research Questions
- How does the number of spawning salmon present in the upper reaches of Walker and Miller Creeks in Walker Preserve compare to the number of spawning salmon in the lower survey range of Walker and Miller Creeks?
- How does the number of spawning beds in the Walker Preserve section of the creeks compare to the number of spawning beds in the lower survey range of Walker and Miller Creeks?
- How does the number of pre-spawn mortality cases in the Walker Preserve range of the creeks compare to the pre-spawn mortality cases in the lower survey range of Walker and Miller Creeks?

Conclusion
Solutions to reduce toxic road runoff that kills coho include creating sand biofiltration systems along impervious surfaces and producing vehicle tires that do not contain 6PPD.

Significance
Salmon survival is important for the fishing industry, Native American tribal culture and sustenance, and it is a sentinel species important to the ecosystem.

Methods
- During the fall salmon run October to December I walked the upper reaches of Walker and Upper Miller Creeks in the Walker Preserve to look for returning salmon.
- I identified salmon species and gender, watched for signs of spawning behavior, and I dissected dead salmon to look for signs of prespawn mortality.