

Undergraduate Research Symposium May 17, 2013 Mary Gates Hall

Online Proceedings

POSTER SESSION 4

Balcony, Easel 108

4:15 PM to 5:45 PM

Stratification and Seasonal Trends of Fecal Coliform and Other Bacteria in the Water Column

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Possession Sound is a smaller estuary within the northeast arm of Puget Sound, with influence from the Snohomish River. As a result of the watershed runoff into the Snohomish River, fecal coliform and other bacteria are present in the Possession Sound water column. We hypothesized that the most fecal coliform and other bacteria would be found at the surface and halocline (the zone of rapid increase in salinity) of the water column. The density difference would therefore trap the bacteria in or above the halocline. Low salinity surface water from the Snohomish River is the vector of fecal coliform due to warm-blooded animals. To determine the distribution of fecal coliform and other bacteria we referenced historical data from past State of Possession Sound (SOPS) cruises collected by Ocean Research College Academy (ORCA) students at the research station Buoy. The location Buoy is near the Snohomish River and therefore has a strong influence from the river discharge. We tested for fecal coliform at North Jetty (NJ) another location near the river. Using a sediment grab we collected samples of sediment and tested them for fecal as well. River discharge and watershed runoff change seasonally, affecting the depth and strength of the halocline so we categorized the data by season in order to find any correlation. The data shows during times of strong stratification, only a single fecal coliform at the surface, whereas an average of twenty other bacteria colonies were found at the surface. At the halocline there were no fecal coliform, but on average four other bacteria. In the deep layer there were no fecal coliform and on average two other bacteria found. The seasonal analysis of the same data demonstrates that fall months had the highest concentration of other bacteria and winter contained the most fecal.