

## Undergraduate Research Symposium May 19, 2017 Mary Gates Hall

### Online Proceedings

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#### POSTER SESSION 1

Balcony, Easel 103

11:00 AM to 1:00 PM

##### **Seasonal Variation of North American River Otter (*Lontra canadensis*) Predation on Local Fish Species**

*Alena Eldridge, Freshman, Marine Science, Everett Community College*

*Mentor: Robin Araniva, Everett Community College*

*Lontra canadensis*, or the North American river otter, is a member of the mustelid family residing in estuarine and riparian environments such as the Snohomish River estuary system in Everett, WA. Ocean Research College Academy (ORCA) collected *L. canadensis* scat samples near the Port of Everett for dissection and seasonal diet analysis. Past research found that the diet of *L. canadensis* is comprised of fish, crustacean, and avian prey at the mouth of the Snohomish River. Current research to identify prey species in the scat are now underway with the extraction of bony parts for genetic analysis at Shoreline Community College. Other species markers were also determined through the identification of otoliths in the scat itself through dissection and visual analysis. Camera traps were set and monitored weekly using motion sensors at known latrine sites and surface temperature were monitored monthly using a YSI probe. Preliminary genetic results identified *Oncorhynchus gorbuscha*, or pink salmon, during the fall of 2013, demonstrating opportunistic predation on available salmon species during the biennial migration. Other species identified include sculpin and flatfish. Further questions being explored include a correlation with increased consumption of faster swimming fish during colder seasons or with larger groups gathering at latrine sites through camera monitors. Characterization of seasonal, inter-annual, and social factors affecting the diet of *L. canadensis* can raise awareness of other environmental stressors in the ecosystem, such as fish population changes and changes in prey availability.

##### **Investigating the Effects of Freshwater Inputs on the Concentration of Microplastics in Possession Sound**

*Dylan Krause, Senior, Biology, Chemistry, Marine Science, Everett Community College*

*Mentor: Robin Araniva, Everett Community College*

*Mentor: Ardi Kveven, Ocean Research College Academy, Everett Community College*

The appearance of plastic in the world's oceans has increased since the early 1970s. As these plastics get older, they begin to break down and erode, which causes microscopic fibers of these plastics to end up in the ecosystem. These microplastics end up in the world's oceans through runoff and other freshwater inputs. The main issue with these plastics is that they can be toxic to marine organisms. This study can bring awareness to this problem that the world is facing. A localized study in Possession Sound to monitor these microplastics incorporates two components: visual surveys from plankton tows and a targeted sieving of seawater. I hypothesize that there will be higher concentrations of microplastics in areas that are closer to the Snohomish River. The data that is being looked at is from 2013 plankton counts to present day, as well as data that I have collected by pumping surface seawater through three different sieves (with mesh sizes of 60 microns, 150 microns, and 250 microns) for three minutes. With the data collected by plankton counts, the most microplastics were found at a station called Buoy (an area just outside of the Snohomish River) with 42 counted, and the least plastics that were found was at North Jetty (an area that is adjacent to the mouth of the Snohomish River) with one plastic fiber counted. My hypothesis was not supported because there was only one fiber that was found at the mouth of the river, while 42 fibers were counted were counted further away from the river.

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