

Undergraduate Research Symposium May 19, 2017 Mary Gates Hall

Online Proceedings

POSTER SESSION 2

Commons West, Easel 8

1:00 PM to 2:30 PM

Persistent Organic Pollutants in Possession Sound

Jordan Lindgren, Sophomore, Pre-Med, Biotechnology, Everett Community College

Mentor: Ann Murkowski, Biology, North Seattle College

Mentor: Marina Halverson, Biology, Seattle Central College

Persistent organic pollutants (POPs) such as polychlorinated biphenyls (PCBs), dichlorodiphenyl trichlorethane (DDTs), polybrominated diphenyl ethers (PBDEs) and hexabromocyclododecanes (HBCDs) are toxic nonpolar molecules that can cause damage to the reproductive, developmental, behavioral, and endocrine systems. These pollutants accumulate within the fatty tissues of important species in Puget Sound, including orca whales, salmon, herring, and plankton. This study measured the concentrations of two banned POPs, PCBs and PBDEs, and one currently used POP, HBCD, in plankton communities in Possession Sound. POP concentration in the water was measured in situ using a Chemcatcher deployment device to passively sample water at five locations across Possession Sound. Gas chromatography-mass spectrometry (GC-MS) was used to identify and quantify the POPs collected on the Chemcatcher filters and in the plankton samples. This two-pronged approach to sample both the water and plankton communities helps better define the relationship between POP concentrations in the water and those in the plankton community. This relationship is critical as plankton serve as the primary entry point for POPs into marine food webs. Additional research is needed to help determine the pathways that these pollutants travel between organisms.

POSTER SESSION 3

Balcony, Easel 88

2:30 PM to 4:00 PM

Larval Fish Population Comparison between Eelgrass Beds and Open Water

Jordan Lindgren, Sophomore, Pre-Med, Biotechnology, Everett Community College

Joe Sisneros, Sophomore, Environmental Science, Geology, Oceanography, Everett Community College

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

Mentor: Robin Araniva, Everett Community College

Ichthyoplankton are a very important aspect of aquatic ecosystems. Larval fish populations can be a determining factor of the overall health of the ecosystem. Rockfish, for example, are known for their long lifespans and low survival rate past the larval stage. For this study, specific locations in Possession Sound were sampled for the presence of larval fish, with a specific interest in the potential presence of larval rockfish. Eelgrass beds are ideal spawning locations due to their sheltering and food source benefits. Therefore, a 500 μ m plankton net was horizontally towed over eelgrass beds located at southern Whidbey Island and the Mount Baker Terminal (MBT), as well as nearby offshore sites with a minimum depth of 20 meters. It was hypothesized that larval fish populations would be higher at the eelgrass bed sites compared to the offshore sites, due to eelgrass being a favorable habitat for the larval fish. Data collection occurred between the months of February 2017 and April 2017. Preliminary results support the hypothesis with a total of 24 individual larval fish being found in eelgrass beds, and only 12 being found in open water tows. The overarching goal of this study is to help determine whether or not the eelgrass beds in Possession Sound are current homes to larval rockfish. Due to their endangered status it is important to know where larval rockfish thrive in order to know how to protect them in the future.