

## Shaken Not Sonicated: Optimization of Extraction and Clean-up Methods for Measuring Perfluorinated Alkyl Substances in Mussel Samples.

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Perfluorinated alkyl substances (PFAS) have become a prevalent contaminant in various environmental matrices. PFAS has been referred to as forever chemicals because they are lasting chemicals which break down gradually over time. They have been used in everyday products such as rain jackets to nonstick cookware as surface protectant. PFAS widespread use may have led to their widespread contamination in the environment including detection in animal tissue, water and soil. There have been links between the contamination of PFAS in humans to increased risk of cancers, fertility problems and changes in liver enzymes. In the Pacific Northwest the Puget Sound is a major water source that provides food, energy and trade that builds an economy for local residents. This study will compare two slightly different extraction methods employing QuECHERS (Quick Easy Cheap Effective Rugged Safe) to quantify various PFAS from mussel samples collected from urban and remote bays around the Puget Sound region. Samples were collected in collaboration with the Washington State Department of Ecology Mussel watch program. The difference between extraction methods was the use of sonication or simply shaking the tissue samples on a shaker table. Results indicated better recoveries from using a shaker table rather than sonication. It is likely sonication leads to the release of proteins and other macromolecules, such as DNA from tissue that could bind the analytes of interest, leading to lower extraction recoveries. Results favored the use of a shaker table and led to the question of how PFAS interacts with tissues.