



Bioremediation of Petroleum and PFAS Impacted Industrial Sites in North America

Katherine French, BluumBio

Bioremediation is a cost-effective way to remediate industrial sites but its application is not widespread, often overshadowed by dig and haul and chemical approaches. Bioremediation relies on the natural ability of microbes to metabolize (or 'eat') specific chemicals as a source of energy. This talk will briefly touch upon our research on how microbes break down petroleum and PFAS. I will then present three case studies from Alaska and California demonstrating the efficacy of microbial remediation of petroleum and PFAS at petroleum sites. At Fairbanks, AK we saw >90% removal of petroleum hydrocarbons with a single application of Bluum Helios, achieving remediation goals within one year. At a former oil refinery in northern CA, we were able to reduce PAH levels by >65%, from an average of $6,590 \pm 890$ ppm (mg/kg) in the control, to $2,280 \pm 650$ ppm in the treated plots in a three month pilot. At two refineries in Northern California, we were successfully able to co-treat petroleum and PFAS with two of our product lines (BluumHelios and Delta), demonstrating for the first time microbial remediation of up to 98% of PFAS and 86% of petroleum hydrocarbons simultaneously. We will also briefly present some of our work treating PFAS-impacted industrial groundwater, as many petroleum industrial sites may face increasing regulation in this area. These case studies indicate that bioremediation can be a cost-effective way of achieving remediation goals on large sites without the need for dig and haul or pump and treat systems.

Katherine French

Dr. Katherine French is the founder and CEO of BluumBio, a Berkeley-based biotech company that develops novel technologies for bioremediation. She completed her PhD at the University of Oxford and postdocs at UC Berkeley and Lawrence Berkeley National Lab. Her areas of expertise include bioremediation and environmental restoration.