

Assessing Disease Susceptibility of Great Lakes Fishes Following Perfluorooctane Sulfonate Exposure

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Per- and polyfluoroalkyl substances (PFAS) are known to pose a significant risk to human health. However, the extent of their adverse effects on wildlife remains an area that requires further investigation. This study aims to explore the influence of perfluorooctane sulfonate (PFOS), one of the most prevalent PFASs across the globe, on the disease susceptibility, disease progression and survival of prominent Great Lakes fishes. Juvenile lake whitefish (*Coregonus clupeaformis*), lake trout (*Salvelinus namaycush*), and steelhead trout (*Oncorhynchus mykiss*) will be exposed to PFOS at concentrations that have been shown to induce effects in other fish species. After the PFOS exposure, each fish will be subjected to specific disease challenges: lake whitefish to Viral Hemorrhagic Septicemia Virus (VHSV), lake trout to Epizootic Epitheliotropic Disease Virus (EEDV), and steelhead trout to *Flavobacterium psychrophilum*. The fish will then be transferred to flow-through polypropylene tanks for the development of morbidity or mortality. Fish will be sampled at specific sampling time points and thoroughly examined to detect and monitor any clinical signs of infection. Kidney, spleen, heart and blood samples will also be obtained for subsequent analysis. If PFOS impacts the disease susceptibility and survival of these keystone fish species, regulatory actions to mitigate pollution source, prevent further contamination, and implementation of effective remediation measures will be critical to ensure long-term ecosystem sustainability in the Great Lakes region.