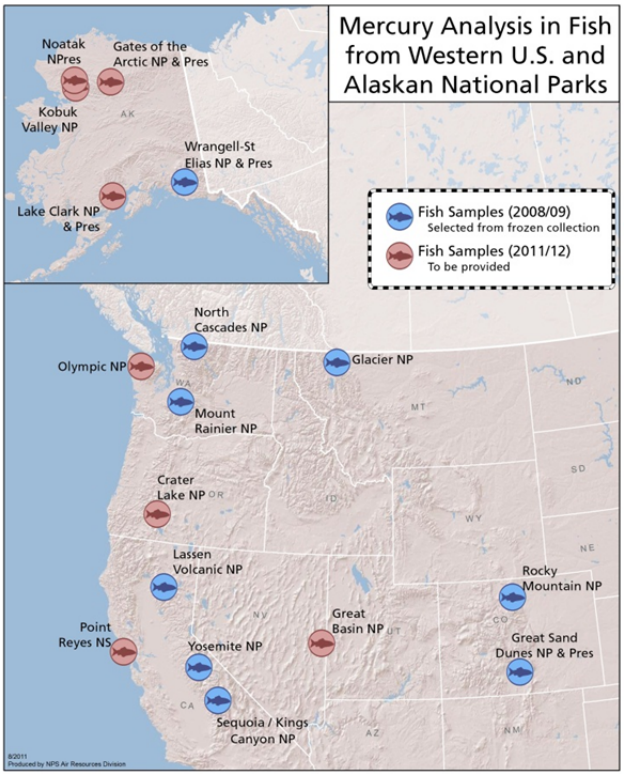
Mercury Bioaccumulation Across Western U.S. & Alaskan National Parks

Study Description:

Mercury is a globally distributed contaminant that can cause mortality, impaired reproduction, stunted development, and abnormal behavior in exposed wildlife. Due in part to emissions from coal-burning power plants and worldwide fossil fuel combustion, even remote national park environments receive substantial mercury deposition from the atmosphere. Fish tissue from freshwater environments represents an important matrix for evaluating mercury cycling, bioaccumulation, and ecological risk, including the potential risk to humans consuming fish. Through a collaborative effort between the NPS and USGS, fish samples collected from approximately 50 lakes spanning 17 national parks will be analyzed for mercury concentrations. This effort is designed to fill gaps in our spatial understanding of mercury contamination throughout western and Alaskan national parks and to evaluate the landscape-scale patterns of mercury distribution in remote western environments.



Study Locations:

This study encompasses a vast geographic area, spanning north-south from Alaska to southern California, and east-west from the Pacific Ocean to the Rocky Mountains. See adjacent map for current participating national park units throughout the western U.S. and Alaska. Fish samples are targeted from three remote high elevation/high latitude lakes per park unit.

Media Sampled and Parameters Analyzed:

Fish samples will be analyzed for mercury concentrations and compared with fish age and length, as older fish and those feeding higher in the food chain tend to accumulate higher mercury levels. Results will also shed light on how mercury levels in park fish compare to human and wildlife health consumption thresholds, as well as how levels compare both within and among park units.

Study Timeline:

This study spans 2011-2013. NPS fish will be sampled in 2011/2012, and USGS lab analysis to occur concurrently. Data will be reported upon in 2013.

Agencies and Partners:

USGS Pacific Northwest Contaminant Ecology Research Program
NPS Air Resources Division and participating national park units

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