Mining-Related Contaminants in Osprey Along the Upper Clark Fork River

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Osprey (*Pandion haliaetus*) are widely recognized as environmental sentinels of the health of aquatic ecosystems. Until the time of fledging, nestlings feed exclusively on fish caught within a few kilometers of the nest. Therefore, tissues of these young birds reflect the level of contamination of local fish and more generally, the aquatic ecosystems they inhabit. Ospreys are nesting along the Upper Clark Fork River corridor, which is the largest site on the Environmental Protection Agency's National Priorities (Superfund) List for cleanup. Small blood samples can be easily obtained from the chicks, making them ideal subjects for assessing the success of remediation projects that are currently underway. We have started monitoring the levels of priority pollutants (arsenic, cadmium, lead, copper, zinc, mercury and selenium) in Osprey chicks along a 250-km section of the Clark Fork River. Objectives are to establish current contaminant status, pinpoint pollution hotspots, and assess the success of restoration efforts. Our results suggest mercury to be of highest concern with blood levels of up to 500 micrograms per liter (reference dose for human health is 5.8). Interestingly, we found mercury levels increased in downstream direction, in contrast to concentrations of other pollutants. Reasons may be different sources of mercury such as historic placer mines and the presence of contaminated wetlands where mercury can be transformed into more bioavailable methylmercury. Blood levels of selenium are also elevated throughout the Upper Clark Fork River drainage. We discussed the implications for restoration and remediation of the Clark Fork River.