Relative Risk of Waterbird Species on the Berkeley Pit - AMortality Assessment of 18 Taxa

Stella Capoccia*, Biology, Montana Technological University, Butte
Brian Balmer, US FWS, Helena
Dan Autenrieth, Safety, Health, and Industrial Hygiene, Montana Technological, Butte
Kaleb Starr, Student, Montana Technological University, Butte

*Indicates Presenter

**Indicates Student Presentation

Acute and chronic health effects of various chemical contaminants to wildlife are well-documented across numerous laboratory and in-field studies. For waterbird species, the impacts of acid metalliferous water (AMW) are a particular focus in which dermal exposure and ingestion have been identified to cause direct mortality and may reduce long-term fitness (Isanhart et al. 2011). Acid mine waterbodies, known as 'pit lakes,' are a result of historical and ongoing open-pit mining that can be hot spots for exposure to metals and other contaminants, especially for waterbird species that may use these waterbodies as stop-overs or staging areas along migration routes. The Berkeley Pit, in Butte, Montana, is likely one of the most intensively monitored pit lakes on the planet, especially for waterbird activity. The unique, geochemistry and extensive size of the Pit, in addition to its geographic location along the eastern edge of thePacific Flyway, make this acid mine waterbody a novel, in-field laboratory for scientists and resource managers to quantify waterbird populations and evaluate risks and mitigation strategies. As a result of systematic waterbird observations on the Pit over a six-year period (2018 – 2023), we identified 54 taxa, 18 of which have at least species had at least one known mortality on the Pit. This study examined the annual distribution of the different species and assessed which ones were most at risk of mortality when exposed to AMW. These results provide baseline information essential for effective management and conservation of species exposed to anthropogenic landscapes and associated contaminants.