

Sources, Impacts, and Chemistry of Hydrogen Sulfide in Reservoirs and Tailwaters

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ABSTRACT:

Hydrogen sulfide is a relatively soluble gas produced by the microbial reduction of dissolved sulfate in anoxic waters, wetland soils, and sediments. Under extraordinary circumstances, it has been known to be deadly to humans. In some coastal marsh soils, hydrogen sulfide is reported to adversely affect the health of wetland plants, especially in subsiding coastal wetlands. However, most of our problems with hydrogen sulfide are due to its corrosive effect on exposed concrete and metal structures associated with dams and pipes, and with the malodorous nature of this gas when it is released to the atmosphere which occurs in some reservoir tailwaters and sewage collection and treatment systems.

This presentation will be an overview of the sources and fate of hydrogen sulfide in reservoirs, including problems associated with this compound. The biogeochemical factors and processes involved with its formation, its stability, and its transformation to innocuous chemical species will also be presented. An understanding of the biogeochemistry affecting its formation, stability, and fate offers the potential for applying management practices to mitigate the harmful and nuisance propensities of this gas.