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An overview of mercury contamination and remediation of Onondaga Lake, New York, USA

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- * Onondaga Lake, New York, USA, has been contaminated with mercury primarily from inputs resulting from an older technology mercury-cell chlor-alkali facility that was active in the 1940s through the 1980s.
- * Past conditions - elevated external inputs of mercury in drainage from the former chemical facility coupled with a large internal supply of mercury associated with resuspension of sediments adjacent to the former facility.
- * In addition to high mercury inputs, hypolimnetic sediments have been an active zone of methyl mercury production, which is ultimately supplied to the upper waters through internal mixing.
- * Concentrations of mercury have been high ($> 1 \mu\text{g g}^{-1}$) in smallmouth bass, walleye and other fish species at least since the early 1970s.
- * Recently, considerable effort has been directed toward remediation of Onondaga Lake and its watershed, with a goal of achieving a consumable fishery.
 - * Approximately 7 tons of mercury were recovered from soil at the former chemical facility in 2005
 - * A barrier wall groundwater containment system to limit contaminated groundwater inflow was completed along over 2.5 km of lake shoreline in 2012.
 - * A domestic wastewater treatment plant directly discharging to the lake was recently upgraded (2004) to treat ammonium, which greatly increased the loading of nitrate.
- * Increased inputs of nitrate had the un-intended benefit of curtailing in-lake production of methyl mercury.
- * The success of this program led to the design and implementation of an in-lake nitrate treatment program to limit the production of methyl mercury in pelagic sediments.
- * Recently a dredging program has been implemented to remove and treat contaminated sediments that are the source of the internal mercury supply.
- * Time-series observations were presented to illustrate how management actions have influenced the mercury-status of the lake.