

Probing the Outfall-related Anomalous Hg levels in the Danshuei Estuarine Coastal, Taiwan, by Online Flow Injection Mercury Analyzer

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Total Mercury (THg) investigations in the Danshuei Estuary and adjacent coastal area near the ocean outfall of Taipei, northern Taiwan, have been successfully carried out using an online flow injection mercury analyzer (THg-FIMA). The THg-FIMA is a dual-channel and purge-and-trap hyphenated system which provides simultaneous operation of sample loading and analysis by handling six-way injection valves. Alternating analysis and easy operation make analytical throughput and accuracy improved. Here, we report the results of system optimization and reliability regarding the THg determination in water, sediment and biota samples. Seasonally spatial distributions of THg concentration around the Danshui Estuarine area from May 2003, July 2004, November 2004 to January 2005 are also presented. High THg concentrations in sediments and seawater were found near the effluent outfall of the Bali Sewage Treatment Plant (BSTP). In addition, outfall-related THg levels (average: 9 (Jan. 2005) -22 (Nov. 2004) ng L⁻¹) were much higher than those in surrounding marginal seawaters (~1-2 ng L⁻¹). It implies the Danshuei coastal environment nearby the BSTP sewer outfall is facing significant Hg pollution.