Compound-specific carbon isotope analysis of PAH compounds isolated from shallow sediments from St. John's Harbour and Conception Bay (Newfoundland)

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Organic pollution in marine and estuarine environments has generated great concern over the last few decades. Polycyclic (or polynuclear) aromatic hydrocarbons (PAH) which contain two or more fused benzene rings represent an important class of contaminants deposited in sediments. These compounds are ubiquitous environmental pollutants that have toxic characteristics and represent the largest class of suspected chemical carcinogens. PAH can enter into aquatic systems via a number of natural and anthropogenic pathways. Past studies of fluxes and deposition of PAH in sediments have relied on a number of molecular criteria for distinguishing such inputs.

Compound-specific isotope analysis (CSIA) of carbon is a technique that is currently being investigated as a complementary tool for studying sources of PAH in these environments. The $^{13}C/^{12}C$ ratios of individual compounds are determined using a modified conventional isotope ratio mass spectrometer following initial separation by gas chromatog-

raphy (GC) and quantitative conversion to carbon dioxide in a combustion interface.

The presentation will outline the procedures employed for isotopically analyzing individual PAH compounds extracted from two very different environmental systems. The applicability of CSIA for characterizing PAH sources and fate in these environments is also explored.