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# **DIFFUSIVE EXCHANGE OF GASEOUS POLYCYCLIC AROMATIC HYDROCARBONS AND POLYCHLORINATED BIPHENYLS ACROSS THE AIR-WATER INTERFACE OF THE CHESAPEAKE BAY**

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***Interpretive Summary:***

The atmosphere is an important pathway in the transport of pollutants within the environment. Gas exchange is a bi-directional atmospheric process where pollutants can be absorbed into a water column or released from a water column. The Chesapeake Bay is a shallow body of water sandwiched between the atmosphere and sediments. Polycyclic aromatic hydrocarbons (PAHs) are released from combustion sources such as industry and automobiles. Polychlorinated biphenyls (PCBs), were widely used in the past in electrical capacitors, are extremely persistent in the environment. Results from this study reveal that the fate of these persistent organic compounds in the Chesapeake Bay is largely governed by the process of gas exchange. Data from simultaneous measurement of air and surface water concentrations of PCBs and PAHs in the Chesapeake Bay were used to calculate flux rates for different sections of the Bay and finally to estimate annual loadings. The atmosphere is the dominant source of PAHs to the Bay with the largest flux rates occurring near Baltimore. Sediments and riverine sources are the dominant input of PCBs to the Bay with volatilization to the atmosphere being the largest sink.

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