

## A.1 Technology Name

### Polymeric Sampling Devices

#### A.1.1 Source

Khairy, Mohammed A., Gregory O. Noonan, and Rainer Lohmann. 2019. Uptake of Hydrophobic Organic Compounds, Including Organochlorine Pesticides, Polybrominated Diphenyl Ethers, and Perfluoroalkyl Acids in Fish and Blue Crabs of the Lower Passaic River, New Jersey, USA. *Environmental Toxicology and Chemistry* 38(4): 872–882. <https://doi.org/10.1002/etc.4354>.

#### A.1.2 Summary

<b>Media:</b>	In-situ sediment porewater and water column vs. fish
<b>Study Type:</b>	In-situ
<b>Technology:</b>	LDPE
<b>Peer Reviewed:</b>	Yes
<b>Publication Date:</b>	April 2019

#### A.1.3 Site Description

- The study includes collection of biota samples (12 species from 3 locations), surficial sediment samples (18 locations), in-situ LDPE (60-days) surface water (six events at six locations), and ex-situ LDPE (9 weeks) porewater (18 samples) from Lower Passaic River. These samples were analyzed for hydrophobic organic contaminants (HOCs), including organochlorine pesticides (OCPs), polybrominated diphenyl ethers (PBDEs), polychlorinated biphenyls (PCBs) and polychlorinated dibenzo-p-dioxins/furans (PCDD/Fs). A subset of sediment and biota samples were analyzed for PFAS.
- Additionally, surface water grab samples (8 locations) were collected for PFAS.
- Freely dissolved concentrations were corrected for dis-equilibrium using a sampling rate model described in Booij and Smedes (2010).

#### A.1.4 Remedial Phase

RI/FS

#### A.1.5 Outcome

Porewater concentrations from passive sampling for HOCs and/or sediment geochemistry (OC-normalized or OC+BC normalized) for PDBEs and PFAAs were good predictors of lipid-normalized tissue concentrations. Measured lipid-based tissue concentrations of the majority of HOCs exceeded the predicted concentrations from porewater by at least 2-fold, suggesting dietary uptake. The dominant exposure pathways for legacy HOCs in biota were porewater and sediments rather than the river water.

#### A.1.6 References

31    Booij, Kees, and Foppe Smedes. "An Improved Method for Estimating in Situ Sampling Rates of  
32    Nonpolar Passive Samplers." *Environmental Science & Technology* 44, no. 17 (September 1,  
33    2010): 6789–94. <https://doi.org/10.1021/es101321v>.