

USING PASSIVE SAMPLERS

at Contaminated Sediment Superfund Sites

A cost-effective and scientifically robust method to measure contaminant concentrations in aquatic systems

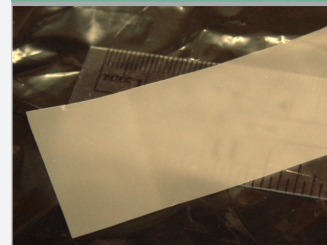
WHY USE PASSIVE SAMPLERS?

- Improve accuracy and precision of measuring freely dissolved concentrations
- Assess bioavailability and risk to benthic organisms
- Reduce uncertainty in eco-risk assessment
- Delineate Exposure Units, Decisions Units, or Sediment Management Units
- Assess remedy effectiveness and monitor risk reduction
- Target hydrophobic organic contaminants, such as PCBs, PAHs, dioxins, furans, and chlorinated pesticides

WHAT DO PASSIVE SAMPLERS DO?

- Measure freely dissolved concentrations (i.e., bioavailable) of contaminants in aquatic systems
- Collect time integrated, average samples that account for variations in concentrations
- May serve as surrogate for organism bioaccumulation
- Applications in water column and sediment interstitial waters

TYPES OF PASSIVE SAMPLERS



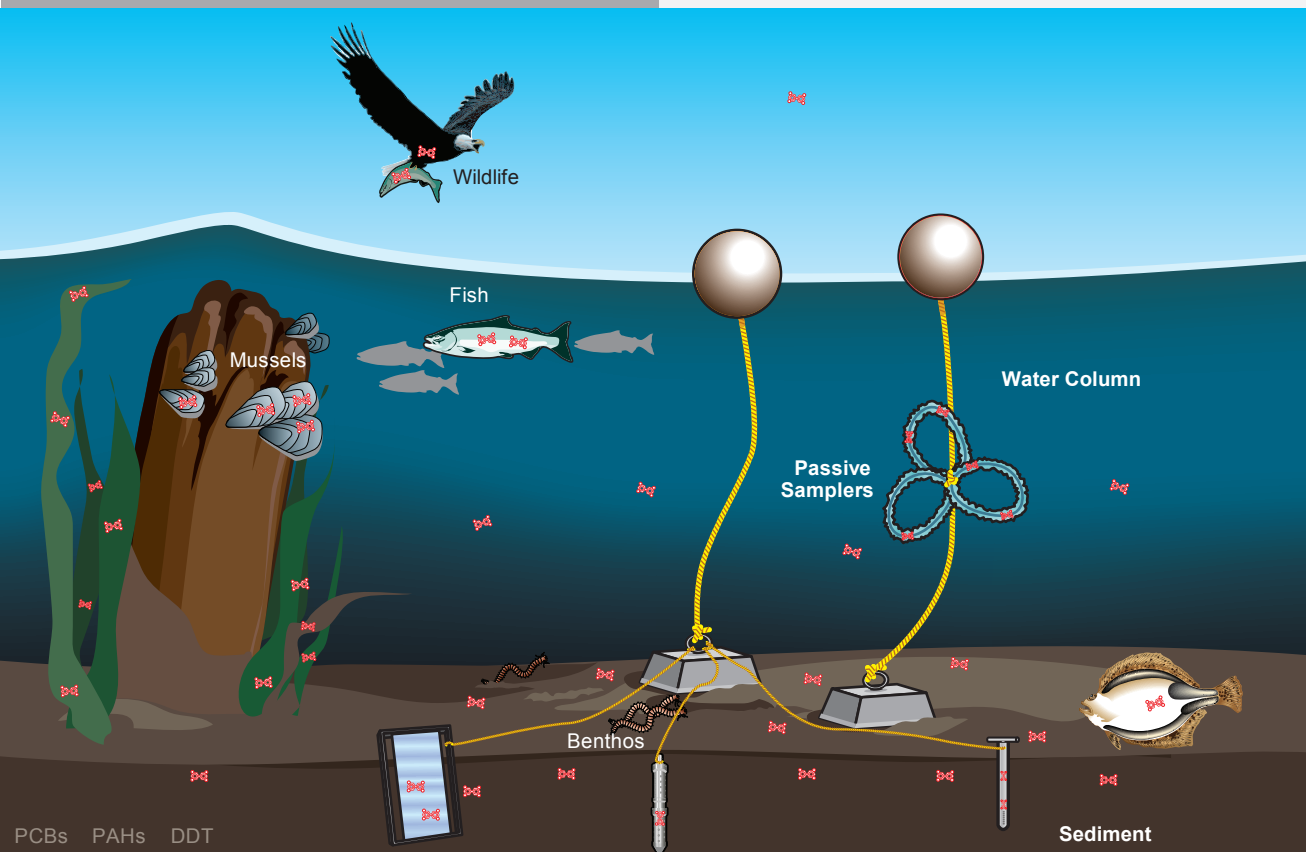
POLYOXYMETHYLENE (POM)



LOW DENSITY POLYETHYLENE (LDPE)



SOLID PHASE MICROEXTRACTION (SPME)



Deployment of Passive Samplers in Aquatic Systems

HOW DO PASSIVE SAMPLERS WORK?

01

PREPARE

Samplers are cleaned and sealed in clean containers until deployment.

02

DEPLOY

Contaminants partition into polymer until equilibrium with the environmental media is achieved.

03

RECOVER

Samplers are recovered, cleaned, and submitted to laboratory for analysis.

04

ANALYZE

Laboratory conducts chemical analysis of sampler. Dissolved contaminant concentrations in adjacent media are calculated.

CONTAMINANT CONCENTRATIONS IN PASSIVE SAMPLER OVER TIME

