Sampling and Monitoring at the Portland Harbor Superfund Site

Community Information Session

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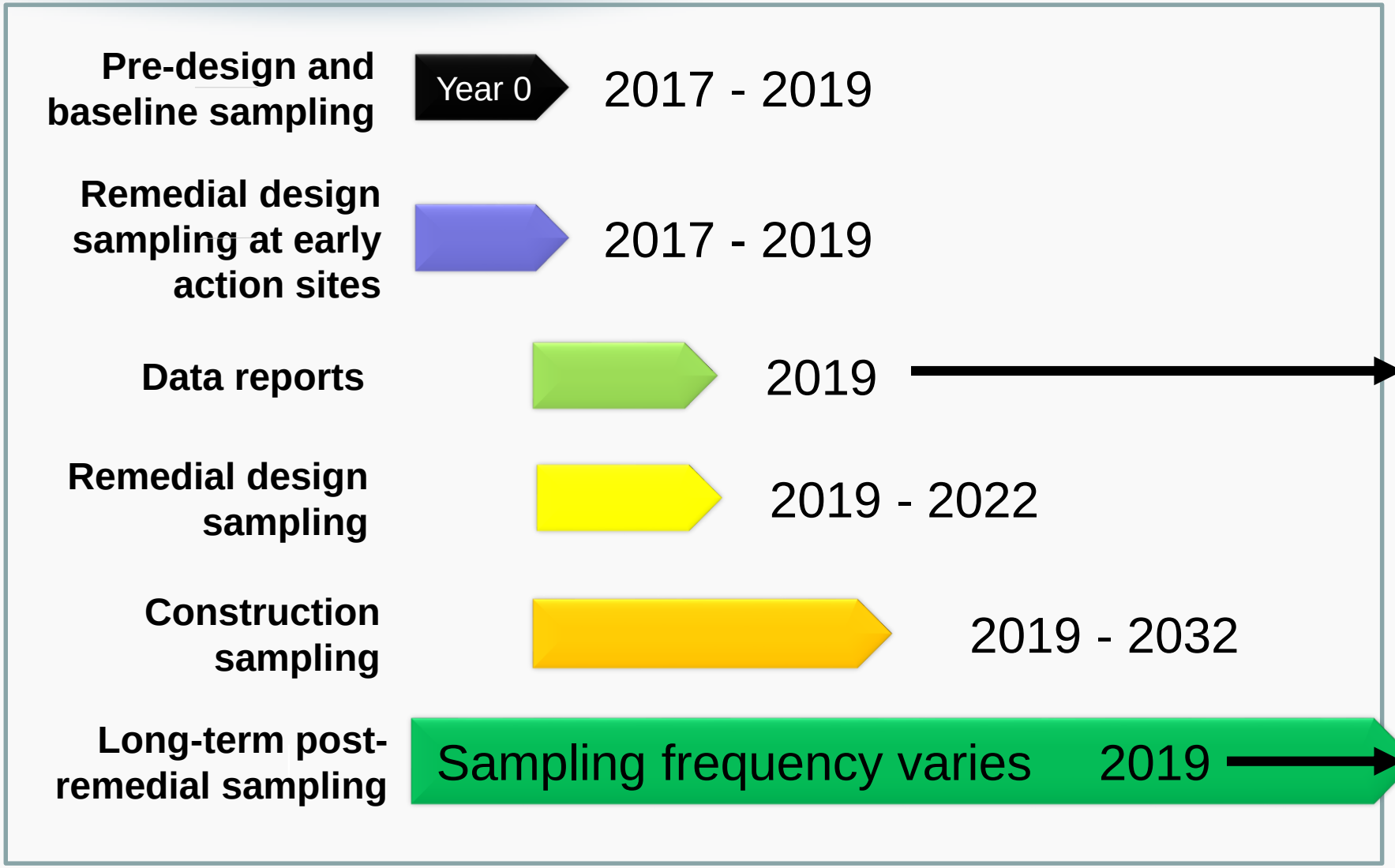
Presentation Overview

- Why do we sample and monitor?
- What do we sample and monitor?
- When?
- Where?

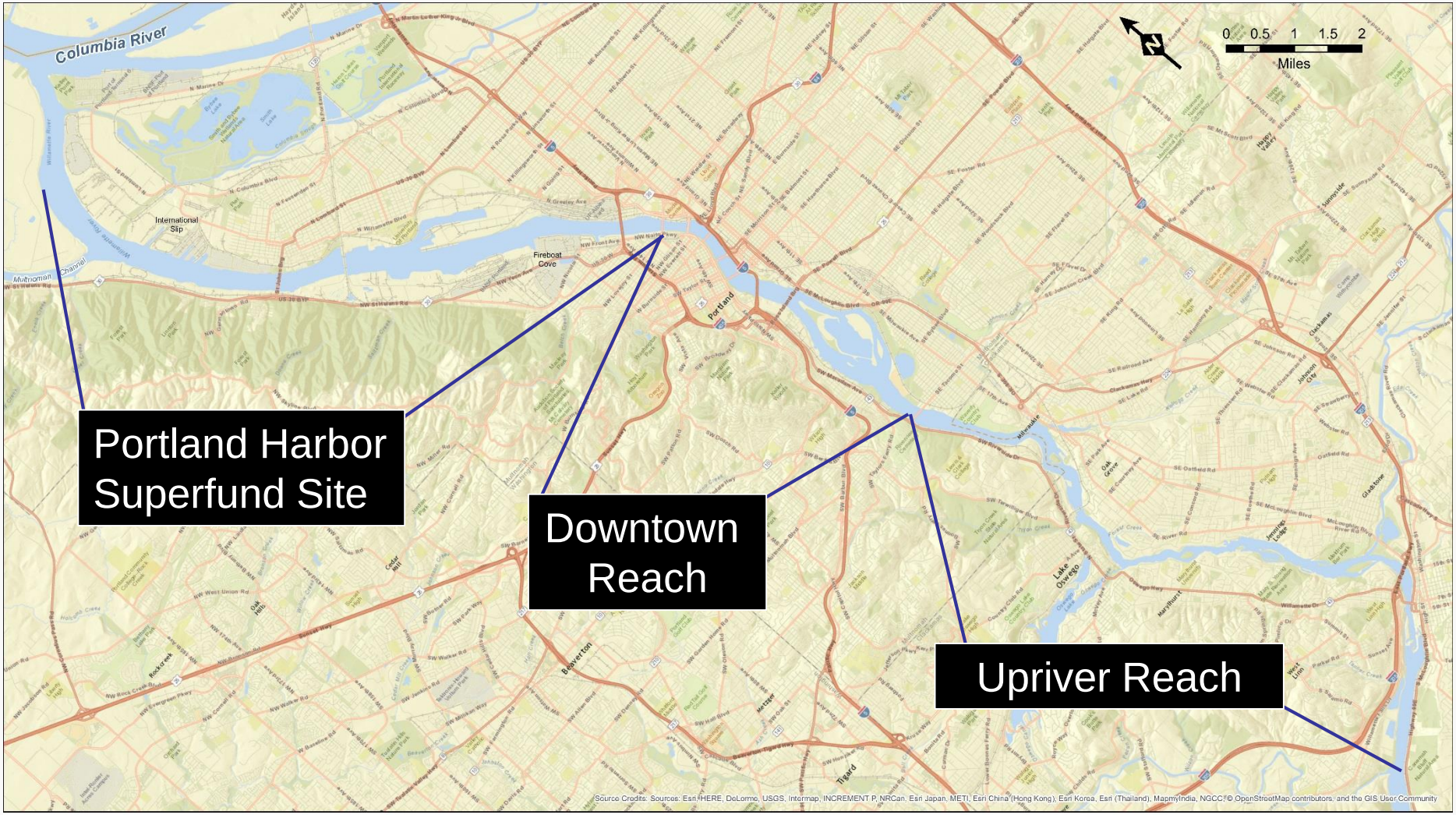
Sampling and Monitoring Types

- **Baseline sampling** (near term)
  - Develop a baseline for evaluating remedy performance
- **Preliminary sampling** (near term)
  - Targeted sampling to refine depth and extent of contamination
- **Remedial design sampling** (intermediate)
  - Detailed characterization to support remedial design
- **Construction monitoring** (intermediate to long-term)
- **Performance monitoring** (intermediate to long-term)
  - Evaluate whether the remedy is functioning as intended
- **Long-term monitoring** (long-term)
  - Remedial goal monitoring - evaluate progress towards achieving objectives

Estimated Timeline



Lower Willamette River



Baseline Sampling

- **Location:** Site Wide, Upriver Reach, Downtown Reach and Downstream
- **Objectives:**
  - Baseline to evaluate progress towards achieving Remedial Action Objectives
  - Starting point for evaluating the effectiveness of Monitored Natural Recovery
  - Starting point for evaluating the effectiveness of source control measures
  - Develop background data set for evaluating remedy performance
- **Media:** Surface Water, sediment, biota tissue and sediment traps
- **Timing:** Prior to implementation of remedial activities. *Tentative plan* is to begin in late 2017 and continue through 2018.
- **Current Status:** *Draft* baseline sampling plan under development

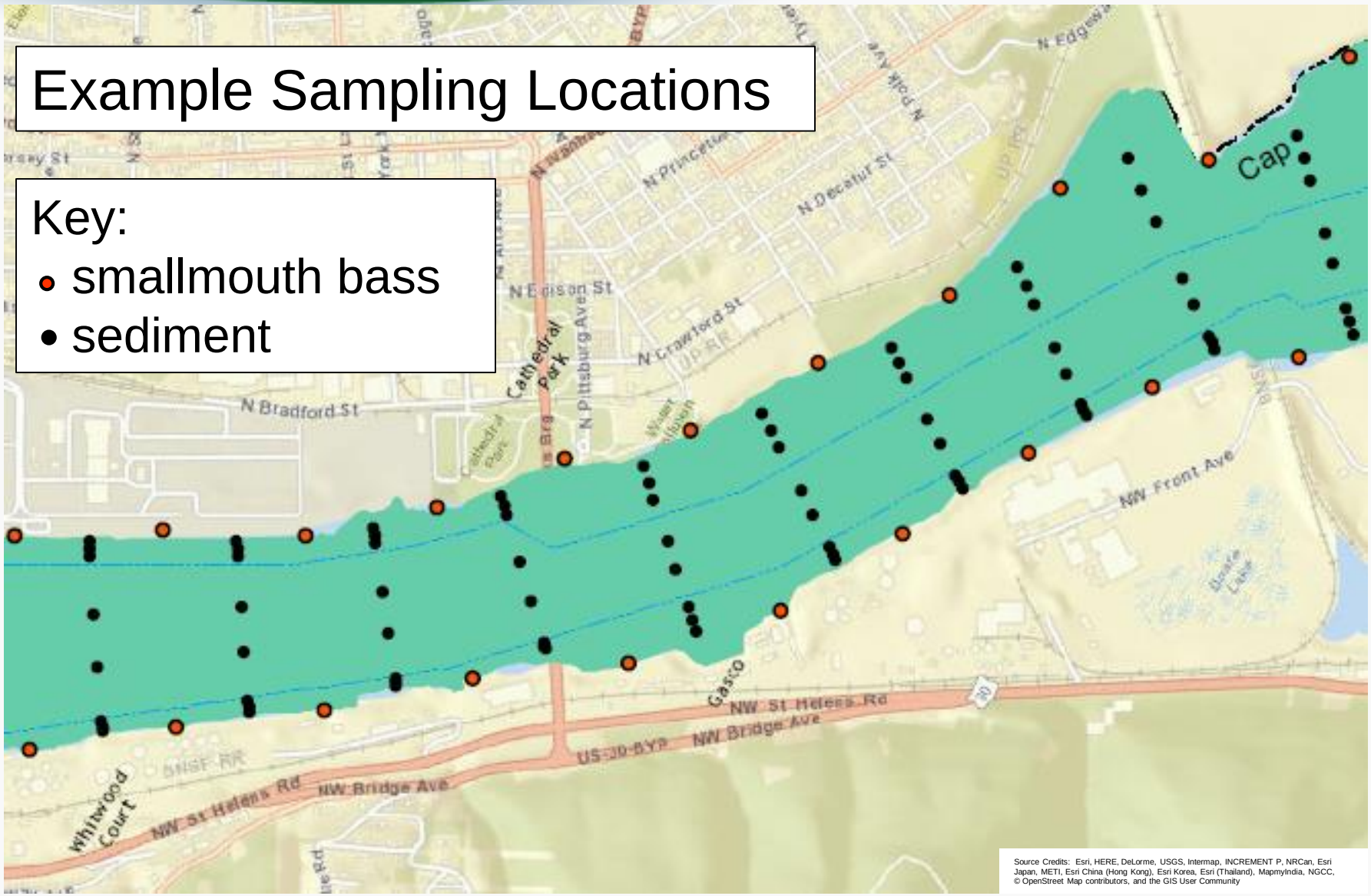
Preliminary Sampling for Depth and Extent for Active Cleanup

- **Location:** Sediment Management Areas ("hot spots")
  - Some sediment management areas (SMAs) may be addressed directly into remedial design (e.g., GASCO/Siltronic)
- **Objective:**
  - Define/Refine remedial footprint of active remediation areas
  - Evaluate enhanced natural recovery (ENR) and monitored natural recovery (MNR) within Swan Island Lagoon
  - Can be used to support remedial design sampling
- **Media:** Surface and shallow subsurface sampling
- **Timing:** In conjunction with baseline monitoring program. *Tentative plan* is to begin in late 2017 and continue through 2018.
- **Current Status:** Incorporated into the *draft* baseline sampling plan that is currently under development

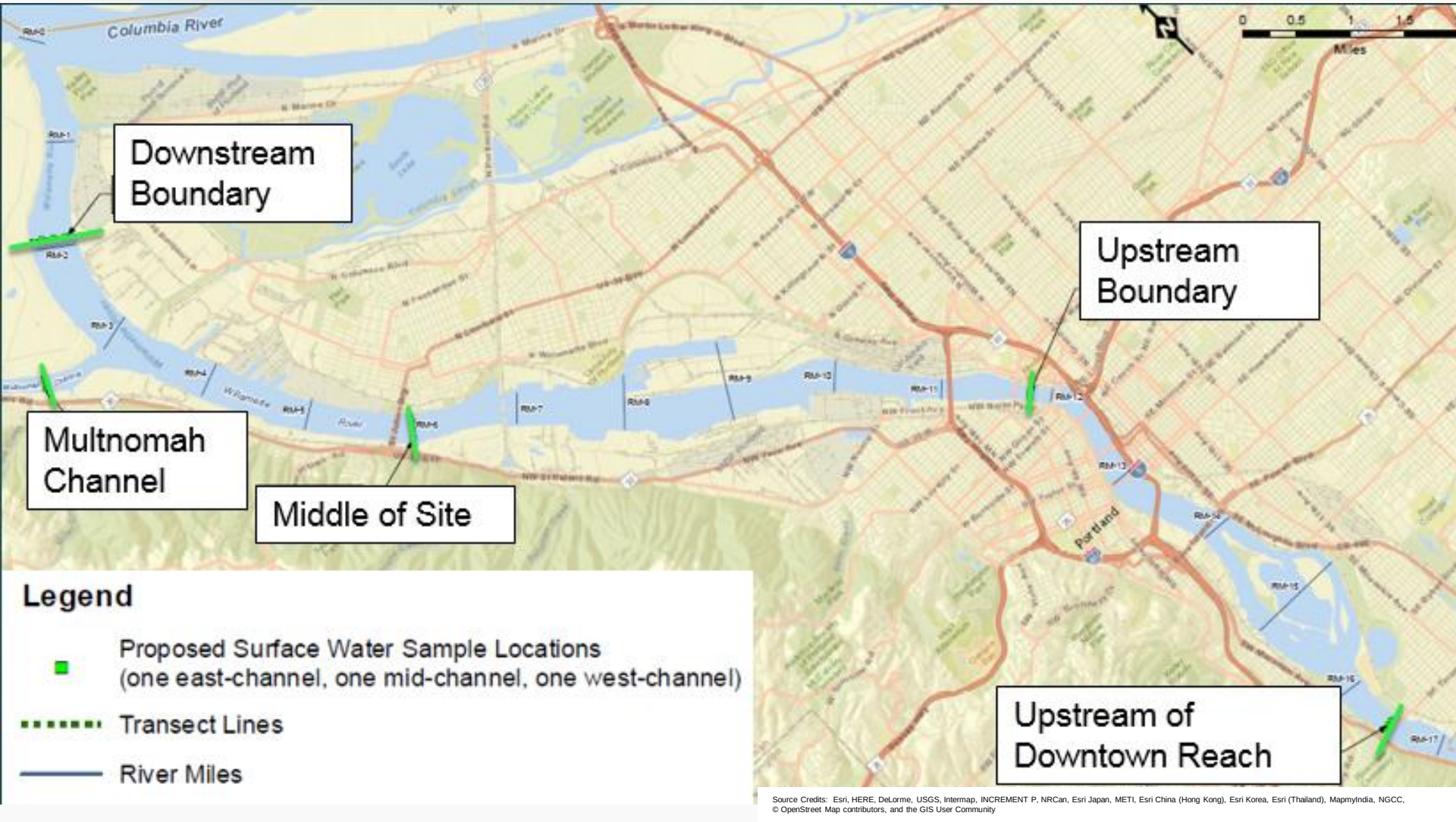
Example Sampling Locations

Key:

- smallmouth bass
- sediment



Surface Water & Sediment Trap Monitoring Locations



Remedial Design Sampling

- **Location:** Sediment management areas
- **Objectives:**
  - Detailed delineation of remedial footprint
  - Update sediment management area-specific conceptual site model (CSM)
  - Support remedial technology implementation
  - Groundwater characterization for cap design
  - Waste disposal characterization
  - Habitat assessment for the Endangered Species Act (ESA) and Clean Water Act (CWA) mitigation efforts
- **Media:** Sediment, groundwater, pore water, river banks
- **Timing:** During and prior to remedial design activities
- **Current Status:** Not started harbor-wide, but some sampling has occurred in early action areas

Construction Monitoring

- **Location:** Sediment management areas
- **Objectives:**
  - Evaluate releases during construction
  - Comply with water quality and air quality monitoring requirements
  - Confirm construction meets design requirements
  - Confirm reduction in sediment concentrations
- **Media:**
  - Sediment, surface water
  - Other metrics dependent on scope of remedy
- **Timing:** During construction
- **Current Status:** Not started

Performance Monitoring

- **Location:** Sediment management areas
- **Objectives:**
  - Monitor cap integrity
  - Monitor cap performance
  - Monitor source control performance
  - Monitor habitat measures (e.g., benthic community improvement, mitigation measures)
- **Media:**
  - Sediment, pore water
  - Other metrics dependent on scope of remedy
- **Timing:** Following construction
- **Current Status:** Not started

Long-Term Monitoring

- **Location:** Location: Site-Wide, Upriver Reach, Downtown Reach and Downstream
- **Objectives:**
  - Evaluate progress toward achieving remedial action objectives (RAOs)
  - Evaluate source control effectiveness
  - Evaluate difference between background and site populations on a local scale and site-wide scale basis
- **Media:** Surface water, sediment, fish tissue, pore water, groundwater, physical inspections
- **Timing:** Every two to five years
- **Current Status:** Not started

Status and Summary

- EPA and responsible parties are developing a Sampling Plan for pre-remedial design characterization and baseline sampling and long-term monitoring
- Pre-remedial design characterization and baseline sampling expected to begin in late 2017 and continue through 2018
- Remedial design studies will be on a specific Sediment Management Area basis
- Monitoring is ongoing through construction
- Performance monitoring will take place concurrent with long-term monitoring
- Long-term monitoring will mimic baseline sampling