Future Monitoring in Support of the Comprehensive Plan: Costs for Various Options

SRRTTF TTWG Meeting

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July 12, 2017
Summary

• Comprehensive Plan states that monitoring will be conducted to assess trends in PCB loads and concentrations

• Range of monitoring options are provided
  – Costs range from $18,000 to $225,000/year depending on objectives

• It is going to take a long time to demonstrate a decreasing trend in river concentrations
Task Description

• Provide a range of monitoring options (and associated costs) to meet the requirements of the Comprehensive Plan

• Assumes water column monitoring only
  – All that is required by the Plan, all that has been done by SRRTTF to date
  – Monitoring of biota or sediment could be added, if desired
Comprehensive Plan Requirements

• The Task Force will, within five years, assess:
  – PCB loads to the river, and changes in loading over the evaluation period
    • These data needs are addressed by existing programs
  – Spokane River PCB concentrations, and changes in concentration over the evaluation period
    • In-river concentrations will be assessed via review of data to be collected by the Task Force and/or Ecology

• Statistical tests will be applied to determine if significant reductions have occurred
Objectives (& Budget) Dictate Monitoring Details

• Objective Questions
  – Dry weather conditions only, or annual averages?
  – Do we want any spatial detail?
  – How quickly does a trend in river concentrations need to be detected?
Objectives: Dry Weather vs. Annual

- Simplest temporal approach is to focus on summer low flow conditions
  - Concentrations will generally be higher (and easier to measure accurately) and more stable
- But
  - Sampling only in summer won’t detect changes due to wet weather/snowmelt loading reductions
Objectives: Spatial Detail

- Single downstream station should be sufficient for overall temporal trend detection purposes
  - Multiple stations provide some indication of where load reductions are occurring
- Nine Mile Dam most likely candidate
  - Encompasses large majority of urban sources
  - USGS Spokane Gage is a secondary candidate
Objectives: Trend Detection

• How long does it take to demonstrate a trend with statistical certainty?
  – With monthly monitoring:
    • If concentrations decrease at 1% per year
      – 25 to 34 years of monitoring required to verify trend
    • If concentrations decrease at 5% per year
      – 8 to 11 years of monitoring required to verify trend
  – Even longer as monitoring frequency decreases
• Will likely need to rely on observed loads to determine if significant reductions have occurred
Cost Estimates for Various Options

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