

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

SRRTTF TTWG Meeting

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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

Number of Stations	Number of Events per Year	Cost per Year
1	1	\$18,000
1	3	\$45,000
1	12	\$160,000
3	1	\$25,000
3	3	\$60,000
3	12	\$225,000



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