Nonpoint Source Workgroup

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Report to Full Group

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Outline

This presentation will:

- Explain what the NPS group has done and is doing
- Suggest some preliminary estimates to give an idea of where the group is headed
- Describe in some detail what the group knows about various sources
- Summarize the take-away messages and define next steps

NPS Workgroup Approach

- Looked at all sources categorized in the draft Lake Spokane TMDL as either nonpoint or background
- Started with the presumption that all sources under consideration are potentially controllable
- Used the matrix (discussed at the July Full Group meeting) as a guide to help communicate
- Used information from the draft Lake Spokane TMDL unless more detailed information was available from other sources

Workgroup Progress Since Last Meeting

- Assigned ‘champions’ to particular geographies or categories of sources (such as Hangman Creek or septic tanks)
- Each champion summarized what is currently known from local data and literature or studies from elsewhere
- Synthesized the information from each of the champions into a consolidated matrix
- Developed preliminary estimates and understandings about potential controls and the range of effectiveness of those controls

Sources Considered

Source
Valley Aquifer
Little Spokane River
Hangman Creek
Lake Spokane
Lake CDA
Stormwater and CSO/Storm

- Includes all sources (nonpoint, background, and stormwater sources) from the draft TMDL
- In addition, the workgroup added sources directly to Lake Spokane
- The draft TMDL identifies approximately 173 total lbs/day from the sources above and targets reduction of 46 lbs/day

Preliminary Load and Control Estimates
* Do not quote or cite these numbers *

- Initial information from the champions helped create a first-cut DRAFT estimate of loads and potential control

NPS Workgroup Load and Control Estimates			
Source	**Current Load (lbs./day)**	**Controlled (Low) in lbs.**	**Controlled (High) in lbs.**
Valley Aquifer	41	2	10
Little Spokane River	82	18	50
Hangman Creek	22	11	17
Lake Spokane	13	3	5
Lake CDA	22	0	4
Stormwater and CSO/Storm	16	8	16
Total	**196**	**42**	**103**

- Low estimate of total reduction is approximately 20%
- High estimate of total reduction is about 50%

Variation in the Estimates

- The variation in the estimates is due to a wide range of potentially controllable nonpoint sources in the watersheds; from individual residences to livestock and agricultural operations
- The variation and certainty in load reduction depends on the type of source and method of treatment; for example:
  - The effect of sediment basins for cropland runoff are relatively certain and can be very effective (65% or better)
  - The effect of removing septic tanks is more uncertain due to particular soil and hydrological characteristics

Valley Aquifer

- Most difficult category to assess because of complicated hydrology
- Believe that the most significant controllable source is septic tanks
- Currently working to refine an estimate of what leaches from the septic tanks to the aquifer and makes it to the lake
- Control options could include connecting systems to the sewer lines, banning phosphates in dish detergents, or initiating a septic maintenance program

Little Spokane River

- A significant source of phosphorus under consideration by the NPS workgroup
- Significant contributions from septic tanks and non-agriculture fertilizer in connection with residential growth in the area
- Secondary contributions from cropland and livestock operations

Hangman Creek

- Some members of the NPS Group believe that the Hangman Creek loads are underestimated
- Significant loading is probably from cropland and livestock operations
- Control options for cropland and livestock operations utilize established Best Management Practices (BMPs)
- Prone to late winter and early spring runoff events which can contribute high loadings (daily loads can exceed 10,000 pounds)
  - Difficult to capture this load in a daily average
  - Control options for large runoff events require large-scale BMP adoption and implementation

Lake Spokane

- Primary sources to Lake Spokane include atmospheric deposition, shoreside septic tanks, and non-agriculture fertilizer from homes around the lake
- Control options could include:
  - Sewering the systems
  - Installing a small local treatment facility
  - Banning phosphate in non-commercial fertilizer
  - Lake aeration
- There also is a potential relevant load from a relatively new invasive species of macrophyte, the Eurasian Milfoil, that appears to release phosphorus in the growing season

Lake Coeur D'Alene

- Appears to be a difference between ambient phosphorus concentration in the lake and the concentration of water at the outlet of the lake
- Suggests there is a phosphorus source near the outlet (such as logs or other organic material in the "tub basin" near the outlet)
- Control options in the lake are constrained by the heavy metals contained in the sediments

Stormwater and CSO

- Primary contributions to stormwater are likely residential fertilizers and yard waste
- Control options could include:
  - Banning phosphate in non-commercial fertilizer
  - Behavior changes to prevent phosphorus from entering the stormwater system

Summary

- The workgroup has an estimation of the nonpoint, background, and stormwater source contributions
- Control options have often been successfully implemented elsewhere
- The load reduction will have a range of effectiveness dependent upon site conditions and extent of implementation
- Knowledge of specific load contributions would require further study

Next Steps

- Refine the range of potential reductions
- Explain any assumptions behind the estimates
- Evaluate potential “wild cards,” such as significant runoff events in Hangman Creek
- Deliverables to the Full Group:
  - Information sources cited and assumptions explained
  - A report with a section on each source