

WASHINGTON STATE
DEPARTMENT OF
E C O L O G Y

Spokane River



Water Quality Managed Implementation Plan Proposal

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1. Introduction and Overview

Background

Development of a Spokane River Dissolved Oxygen TMDL began in 1998. A draft study plan was presented to the Spokane River Phosphorus Technical Advisory Committee, a group established under a 1989 agreement to control phosphorus in the Spokane River (see Appendix 6.1). Ecology used an extensive public participation process to develop the Draft TMDL (see Appendix 6.2) that was circulated in October, 2004.

Following preparation of a Use Attainability Analysis, Spokane River NPDES Permit holders and other interested parties (the Petitioners) filed a Petition for Rule Making concerning the Washington State water quality standards being applied in development of the TMDL. Prior to Ecology acting on the petition, the Petitioners and Ecology entered into an agreement to collaborate and prepare a proposed implementation plan.

Starting in February, 2005, the Collaboration began. Through a series of public meetings and detailed investigation of issues and implementation opportunities the Collaboration agreed to prepare Implementation Plan scenarios. The Petitioners and the Sierra Club each offered independent scenarios describing Implementation Plan elements they favor. Both scenarios are characterized by multi-faceted, multi-jurisdictional coordinated efforts to create a healthier Spokane River.

Ecology's Approach

This document is Ecology's draft response to those scenarios. It takes the form of an expanded outline of Ecology's perspective on key Implementation Plan elements and processes. It is a draft document aimed at moving the Collaboration substantially closer to an agreed upon TMDL Implementation Plan.

Ecology's goal, a goal shared by the Collaboration, is to dramatically improve the amount of dissolved oxygen (DO) in the Spokane River and meet Washington State and Spokane Tribe of Indians water quality standards. There is agreement that phosphorus (P) is the primary limiting nutrient in the river which sets up conditions resulting in unacceptably low DO levels. Consequently, the Collaboration is concentrating on ways to reduce the amount of P in the river. The Draft TMDL also deals with C/BOD, ammonia, and TSS. Recognizing that strategies for managing P will likely result in reductions of these other important pollutants, the TMDL Implementation Plan focus on P is appropriate. This focus, however, should not be construed as an acceptance of current conditions for the other pollutants.

Years of water quality testing and development of an advanced water quality model convincingly demonstrate that improved point source control of phosphorus will significantly improve Spokane River DO levels. Similarly, it is clear that

re-directing highly treated wastewater to beneficial uses away from the river (re-use) will assist. Also, reducing the volume of waste water through indoor water conservation efforts will reduce phosphorus discharges, and aggressively managing non-point sources of phosphorus can bring further improvement to the river.

There is agreement about the need to act. There is also agreement that point source discharges are major contributors to the DO problem in the Spokane River. Prompt, productive, rational and manageable actions will unquestionably make significant improvements in the river’s health. We know more than enough to begin.

The best available science shows a concentration of 10µg/L P is the background concentration of P in the Spokane River. This is the target set in Ecology’s Draft Dissolved Oxygen TMDL. It is the target to which the Implementation Plan aspires. For clarity and action accountability, the Collaboration is expressing discharge goals in pounds of phosphorus (#P). This is P concentration multiplied by water volume. Ecology proposes to supplement the Draft Spokane River TMDL to make #P more obvious.

In the Draft TMDL, permittee #P discharge goals are assigned as presented in the table below. Because Spokane County currently sends its wastewater to the City of Spokane for treatment, the County and City goals are combined. The County is proposing to construct a new treatment plant that will divert flows from the City plant. The goal needs to be divided to accommodate a County plant assuming some portion of the diverted flow is discharged in the Spokane River. Ecology is ready to assist the County and City in this effort should they require.

<i>Permittee</i>	<i>Goal #P</i>
City/County of Spokane	2.90
Liberty Lake	0.03
Inland Empire Paper	0.20
Kaiser	1.30
<i>Idaho</i>	<i>0.20</i>
Total	4.83

Ecology expects that permittees will work to achieve equivalent reductions of their assigned #P during the first ten years of the Implementation Plan. Once a permittee achieves the #P goal, or the river in general is at 10 µg/L P, concentration measurements will apply. #P will no longer be used to express the permittee’s target.

The federal Environmental Protection Agency (EPA) issues and administers NPDES permits in Idaho. The Collaboration includes EPA in an “ex officio” role (EPA approves the Spokane River TMDL and reviews the TMDL implementation plan) and it includes Post Falls, Hayden and Coeur d’Alene, the upstream cities discharging treated effluent to the Spokane River. Currently EPA is preparing to

issue revised NPDES permits to these Idaho municipalities. EPA is determining the maximum pollutant loadings from those permits that will not cause or contribute to a violation of Washington's water quality standards.

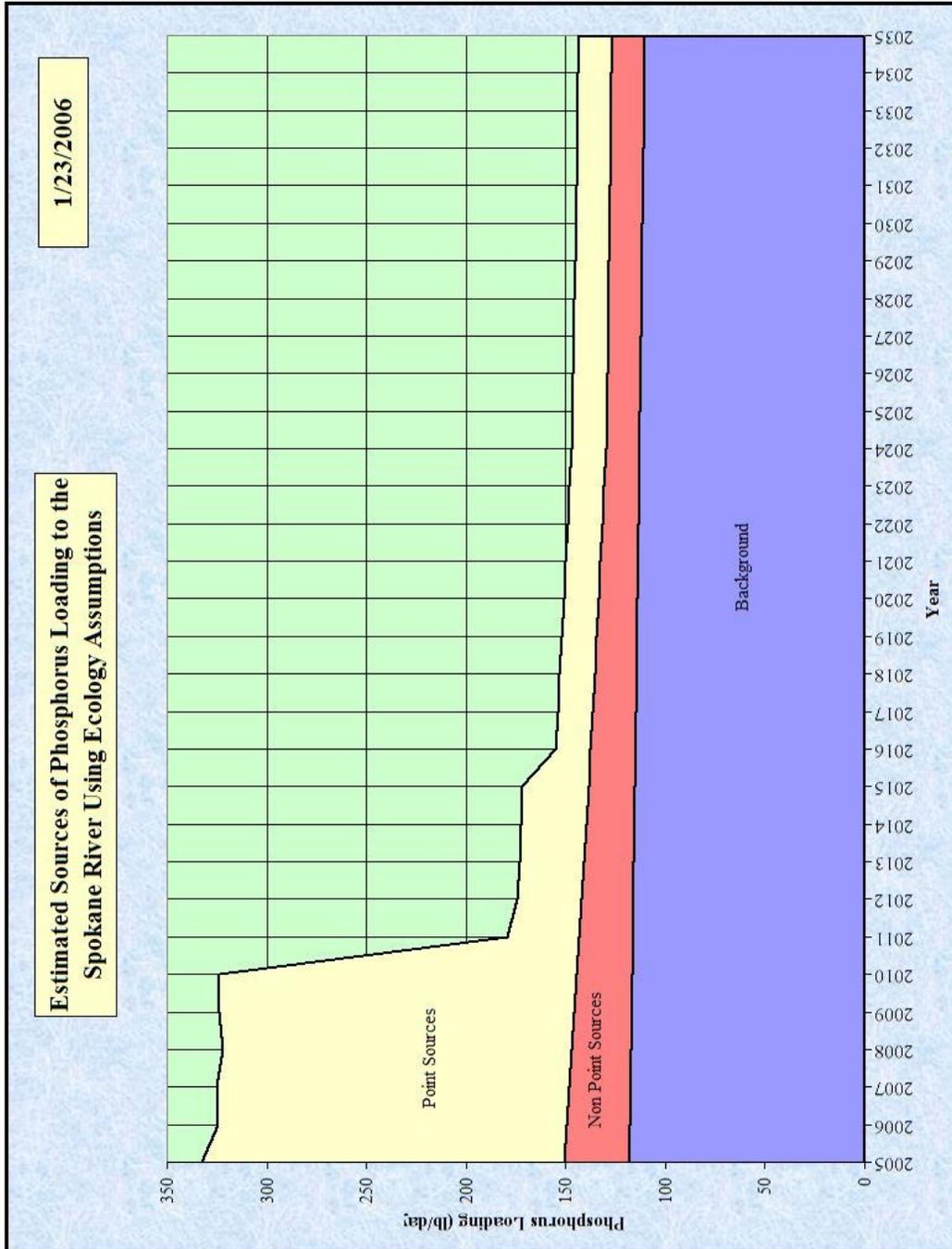
When the new Idaho permit limits are determined, there may need to be some reconsideration of such on Washington's Draft TMDL. EPA has agreed that at some appropriate time it will adjust the Idaho NPDES permits if the Idaho discharges are problematic in reaching the TMDL goal. Meanwhile, it is expected that the impact of the planned new permits is not sufficient to delay the Collaboration's effort or the start of treatment technology upgrades and implementation of other toolbox measures in Washington.

The exact beneficial results of improved point source treatment, treated water re-use, conservation and aggressive non-point source control can only be estimated. The results of these efforts cannot be precisely predicted or known until there is actual experience. The challenge is to devise a suite of action commitments that offer reasonable assurance of meeting the TMDL goal while clearly recognizing that exact outcomes, at this time, cannot be precisely predicted.

Resources for pursuing an improved Spokane River are limited to what can be afforded by those using the river and whatever assistance the state and federal governments can provide. Fiscal responsibility requires some degree of predictability and confidence that dollars spent to improve the river will be effective and have long-term value. The quality of the river cannot be unreasonably compromised, nor can the ability of the people to fund and perform the necessary improvements be unreasonable. Consequently, both the Petitioner and the Sierra Club TMDL Implementation Plan scenarios envision a suite of concurrent, monitored actions over time that unfold in a planned manner with opportunities to re-direct the plan as experience, cost effectiveness and improved river understanding dictate. Ecology embraces this multi-faceted, adaptive approach and calls it the Managed Implementation Plan.

The graph titled "Estimated Sources of Phosphorus Loading to the Spokane River Using Ecology Assumptions" is an approximate illustration of how Ecology foresees a suite of concurrent actions resulting in fewer and fewer #P in the river. The largest #P reductions are because of point source technology improvements (for this illustration the graph assumes most discharges at 50µg/L by years 2011 and 2012). Other point source reductions result from assumptions about re-use of highly treated wastewater that is no longer discharged to the river.

As time progresses across the chart, experience with various P reduction strategies grows, the ability to predict results grows, familiarity with cost effectiveness grows and uncertainty is lowered. Exercising scheduled opportunities to revise and refine the TMDL Implementation Plan as it progresses assures maximum advantage from experience, improvements in science and known cost efficiency.



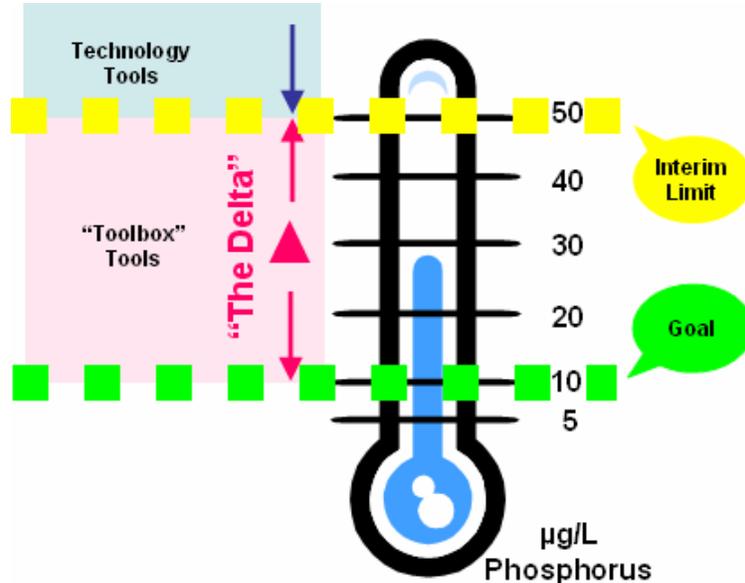
See Appendix 6.3 for Spreadsheet

How the Implementation Plan Works

The Implementation Plan begins with the selection of improved point source (wastewater treatment plant discharge) treatment technology. The chart on the preceding page shows a dramatic drop in #P from point sources in 2011. This illustration assumes most technology improvements result in discharges of 50 $\mu\text{g/L}$ P concentrations. Although not at the goal of 10 $\mu\text{g/L}$, this change results in significant P reductions for the Spokane River. By far, selecting, installing and aggressively operating improved treatment technologies are the largest contributors to a better river.

Ecology proposes each NPDES permittee use a vigorous, open, well-documented technology selection process that includes pilot testing. Since technology standards for P removal are not available, primary reliance is placed on “the best technology and the best operation possible”^{*} to achieve the greatest P reduction.

There is disagreement on whether it is reasonable or even possible for current technology to reliably achieve 10 $\mu\text{g/L}$, the basis for the #P goal the Draft TMDL assigned each NPDES permittee. Consequently, the Implementation Plan offers options if a permittee selects a technology that results in more than the target #P being discharged to the river. The difference between the #P discharged from plants using improved technology and the goal #P is called “The Delta.”



Options for eliminating the Delta are collectively called “the Toolbox.” The “tools” include water re-use (and infiltration recharge), conservation and other influent management approaches (I/I reduction, pre-treatment for P, general reductions

^{*} City of Spokane Deputy Mayor Jack Lynch, circa April, 2005

or elimination of high P dishwashing detergent) and non-point source management including septic tank elimination.

An additional tool is sharing #P goal allocations. For example, suppose a permittee can, through a combination of tools, achieve P reduction beyond the assigned goal. That extra reduction may be shared among other permittees. Ecology's interest is achieving the aggregate goal for all permittees, and that goal may be achieved through use of all the tools in the Toolbox. The primary P reduction, however, is improved treatment technology that reduces #P to the river and opens the opportunity for re-use/infiltration recharge.

As part of the technology selection process, each Permittee, with Ecology's involvement, will determine an initial Delta and an accompanying commitment to Delta reduction actions using the Toolbox. Recognizing that the Delta and associated action commitments may need to be modified to some degree based on actual performance once a selected technology is installed, use of the tools will start as soon as the initial commitments are made and later adjusted as appropriate.

There are different degrees of risk and return for each tool, and perceptions of those risks and returns will likely vary among permittees. It is important, therefore, that each permittee select a technology and make Delta reduction commitments for their particular circumstance. Some of the tools, however, involve both individual and multi-jurisdictional actions. For example, indoor conservation from the standpoint of fixture replacement has greater potential in areas where structures were built prior to reduced-flow plumbing codes. Individual actions are in order. It is also possible to achieve better indoor conservation regionally through improved, wide-spread attention to fixture maintenance regardless of the age of plumbing equipment (fixing leaky faucets and toilet valves). Similar regional/local issues apply to reclaimed water, dishwasher detergent and fertilizer management, and non-point source programs. There is potential for reduced risk and higher return if there is a regional capability to support the Toolbox.

Investments in technology are significant and the risk becomes substantially higher if discharge requirements are changed frequently. Ecology sees the technology selection process for each Permittee as extremely significant, and Ecology expects to be closely involved. Ecology will view these technology decisions in light of a probable 20 year pay-back time. Presuming the technology improvements are intelligently designed to allow foreseeable "add-on" processes, permittees installing new technology under this Implementation Plan can expect no wholesale scrapping of that technology unless there is compelling financial reason to change it.

The Draft TMDL assigned #P goals to Permittees assuming a 20% reduction in the #P associated with non-point and background sources combined[†]. The non-point tool may be employed by a Permittee as part of the Permittee's Delta elimination commitment. Ecology recognizes #P reductions achieved at Permittee expense as the Permittee's Delta reduction. The Delta elimination #P are not dependent on, and do not contribute to the assumed 20% non-point/background reduction. The assumed 20% non-point/background reduction is critical to successful TMDL and a healthy river, but that assumed reduction is separate from the Delta elimination reductions.

The Managed Implementation Plan, while relying on individual permittee action commitments, is a regional effort. It addresses a watershed problem. Many elements of the MIP call for some form of local entity to act as a clearing house or transaction facilitator or center for tracking and accounting. A regional entity, assuming it has financial capability, could serve as an investment center for #P removal from non-point sources that could be funded by jurisdictions lacking viable non-point projects within their own boundaries. The monitoring program necessary for measurement and reporting need a regional steering group. As noted above, non-point efforts for Delta reduction would need to be separately accounted from #P reductions aimed at the assumed 20% cut in non-point/background. A regional entity may be able to track such things as well as other multi-jurisdictional efforts on behalf of the participating jurisdictions and Ecology. The Collaboration is urged to consider a regional entity, its role and its authorities and responsibilities.

Accounting for #P reduction becomes extremely important by the end of the first ten year period of the Implementation Plan. At that point, the monitoring effort, the best available science, and the tracking of Delta reduction action commitments made and kept will all be reviewed and the Managed Implementation Plan re-examined in light of actual experience.

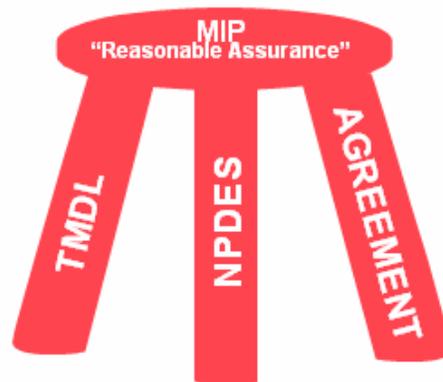
Prior to the ten year review, Ecology would like annual reviews of the status of action commitments and bi-annual river status reports. These should all be major, public reporting opportunities, and minor "course corrections" (dropping un-productive efforts, adding and enhancing productive ones) should be determined and executed as part of MIP adaptive management.

The ten year review, however, is a very complete, data-based, objective review. This is the major opportunity to test whether "reasonable assurance" has become certain and what changes are needed. After 10 years, planning and implementation of technology and use of the Toolbox will have produced several years of actual experience. It is this experience and the associated changes in the Spokane River plus other changes not anticipated as well as improved science and modeling that give cause and justification for re-examining the

[†] This reduction amounts to 80-85% of the controllable non-point sources described in the Draft TMDL.

Managed Implementation Plan, the TMDL goals, and whether or not the goals have been, could be, or can be achieved. Ecology is committed to this thorough and objective examination. Ecology is also committed to an additional ten years of vigorous effort under the revised MIP using all rational tools to achieve a healthy river.

This Managed Implementation Plan is distinguished by its multi-faceted approach and its water quality based NPDES permits instead of technology based permits. It stands on three foundations: a Spokane River Dissolved Oxygen TMDL, coordinated NPDES permits, and some form of strong, binding regional agreement.



The permits and the agreement create assurance of action. Ecology has the burden to decide whether these combinations of actions, each being more likely than not to produce desirable results, provide reasonable assurance that the TMDL goal will be achieved. While reduction of #P in the river is clearly necessary, while improved technology will make a tremendous difference, while re-use/infiltration recharge will make a large and desirable contribution, while conservation will surely help, there is no absolute certainty the goal will be met. All involved face risk. The greatest risk is to do nothing.

The sections that follow are an outline for a Managed Implementation Plan. There are varying degrees of detail as we collectively reach closure on the path ahead. Ecology is ready to discuss each point. The Collaboration provides clear evidence for strong commitment to a healthy Spokane River and security that our course, while imprecise, is sound in response to the river's calls for action.