



Frequently Asked Questions about Protecting Oxygen in the Spokane River

from Ecology's Water-Quality Program

Overview

Phosphorus and other nutrients and organic matter have polluted the Spokane River, causing it to violate water-quality standards.

These pollutants deplete dissolved oxygen in the river and Lake Spokane. Fish and other organisms need dissolved oxygen to survive.

To address the problem, a cleanup plan will set allocations for how much of the pollutants (such as phosphorus and ammonia) each of the major dischargers and other sources will be allowed to discharge at very low levels.

The amounts will be set to protect water quality and bring the river into compliance with state water-quality standards and the federal Clean Water Act.

The water quality cleanup plan

Q: What's the status of the water cleanup plan?

A: A draft cleanup plan for the Spokane River, also known as a total maximum daily load (TMDL), has been developed to determine acceptable amounts of phosphorus and other pollutants that major cities and industries can discharge into the Spokane River. The cleanup plan also will address ways to control other sources of pollution, such as polluted runoff, and will include pollution-load allocations for each tributary to the river. The cleanup plan was sent out for public comment in December 2004 and received much public input, both positive and negative. A responsiveness summary is being prepared to address the significant concerns identified during the public input process. Meanwhile, the Department of Ecology (Ecology) will convene a collaborative group to closely examine the options for implementing the cleanup plan. The goal is to work diligently on the cleanup plan during the next 90 days and to submit it to the U.S. Environmental Protection Agency (EPA), complete with broad-based support, before the end of calendar year 2005.

Q: What does "total maximum daily load" mean?

A: The total maximum daily load, or TMDL, is the amount of pollutants a body of water can receive and still meet water quality standards. It includes direct pollutants, such as from industries or municipal plants that discharge into the river and Lake Spokane. It also includes indirect pollution, such as from storm water and other runoff. The TMDL must account for all potential sources of pollution into the water body as well as seasonal fluctuations. The standards are set by the federal Clean Water Act.

Q: Why are nutrients like phosphorus a problem?

A: When the river contains too much phosphorus or other "nutrient" pollution, algae and other water plants thrive. The pollution acts like fertilizer, stimulating the growth of aquatic plants. When these plants die, their decomposition uses up the oxygen in the water. There's too much nutrient pollution in the river and, therefore, not enough oxygen. Oxygen levels in the river or Lake Spokane are currently too low for a healthy fish population.

Q: How do we know about the problem of low dissolved oxygen in the river and Lake Spokane?

A: A scientific report completed in early 2004, entitled *Spokane River and Lake Spokane Pollutant Loading Assessment for Protecting Dissolved Oxygen* (Publication #04-03-006), used monitoring data and computer modeling to evaluate how changing pollution discharges into the river might affect the concentrations of dissolved oxygen.



The report comes to four major conclusions:

- A cleanup plan for phosphorus, approved by the U.S. Environmental Protection Agency (EPA) in 1992, set pollutant-loading allocations that are not strict enough to protect water quality.
- Some parts of the Spokane River and Lake Spokane continue to be low in dissolved oxygen during the summer and violate water quality criteria.
- To solve the problem, the current loading of pollutants that affect dissolved oxygen would need to be significantly reduced or eliminated (if the concentrations can't be lowered enough) during crucial times of the year.
- The sources of the pollutants that deplete oxygen include the major direct sources to the river (industries or cities that discharge effluent to the river) and runoff sources, such as fertilizers, animal waste, and failing septic systems. They also include direct and runoff sources in the tributaries (such as Hangman Creek and the Little Spokane River), agricultural runoff, and stormwater runoff from small communities.

Q: Businesses have been discharging into the Spokane River for years, but now Ecology wants to change the rules. Is this fair to the businesses that have been established or to the residents who rely on the city for their water treatment?

A: The levels of pollution have reached the point where the health of the river is in jeopardy. Ecology's responsibility is to ensure that our water is healthy enough that people can drink from our aquifer; eat fish from the river; and continue to safely swim, boat, and enjoy the beauty of our river and lake. Allowing Lake Spokane and the Spokane River to deteriorate is neither wise nor legal.

Q: The cleanup plan seems to ask an awful lot of the city and area businesses. Isn't Ecology going to extremes?

A: The plan asks only as much as is needed to restore the river to safe levels of phosphorus and to comply with the federal Clean Water Act. We believe those levels can be achieved without imposing an unreasonable economic hardship on businesses or the city. A combination of strategies would achieve the necessary goals for far less money than some think. If we work together, openly and sincerely, we can have a safe river without unduly raising the cost of doing business along the river.

Q: That's easy for Ecology to say, when Ecology isn't paying the bills. What if cleaning the river costs Spokane its economic health?

A: A healthy river and a healthy economy aren't mutually exclusive. In fact, they go hand in hand. A healthy river will foster economic development, and an unhealthy river will jeopardize the economic health of the city and the surrounding region. A healthy river is in Spokane's best economic interests, plain and simple.

Q: When will the cleanup plan be done?

A: A draft of the plan was available late in the fall of 2004 for public review and comment. Now we are working with dischargers to come up with an implementation plan that works for everyone concerned. The package will be submitted to the EPA in 2005. The cleanup will occur over a period of up to 10 years, as allowed by state law.

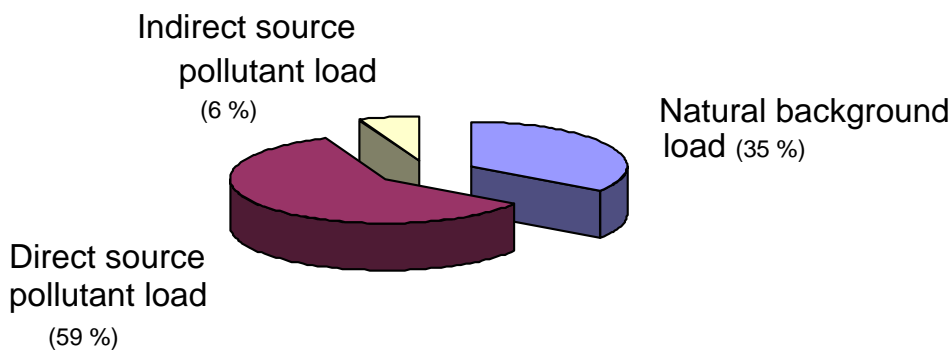
Q: Where are these pollutants coming from?

A: Facilities that discharge treated waste water directly into the main stem of the Spokane River include the city of Spokane wastewater treatment plant, Liberty Lake Sewer and Water District, Kaiser Aluminum in Trentwood, and Inland Empire Paper. In Idaho, dischargers include the cities of Post Falls and Coeur d’Alene and the Hayden Sewer District. Spokane River tributaries also carry wastewater discharges from smaller outlying point sources such as Rockford, Fairfield, Tekoa, Spangle, Cheney, Medical Lake, Spokane Fish Hatchery, and the Spokane County Colbert Landfill. The effluent from these dischargers contains varying amounts of phosphorus and other pollutants.

Some of the pollution from runoff comes from the sub-basins of the Little Spokane River, Latah Creek, and seasonally from Coulee Creek. Some typical runoff sources of pollution are storm water, agricultural runoff, timber harvesting, fertilizers, animal waste, and leaking septic systems.

The percentage of phosphorus coming from these sources varies with the time of year. For example, pollution from runoff represents a higher percentage of the total phosphorus load to Lake Spokane during the spring, when tributary and river flows are high and carry pollution caused by soil erosion; the pollution settles to the bottom and uses more oxygen. During summer, most of the pollution that causes algae blooms that deplete oxygen in the upper layers of the reservoir is from direct sources (large pipes).

Summer sources of phosphorus to Lake Spokane (2003)



Q: How will you control polluted runoff?

A: The cleanup plan will require significant reductions in pollution from runoff, such as soil erosion, fertilizers, animal waste, and failing septic systems (often called “nonpoint” pollution). Plans are being developed for the Little Spokane River and for Hangman (or Latah) Creek to better define ways to control the sources of phosphorus in these tributaries. Those cleanup plans will have more specific strategies for reducing pollution.

In addition, Ecology is launching an educational program to inform residents who live near the river and lake about their role in the pollution problem and how they can contribute to the solution. Workshops will be planned for various communities along the river to educate the community about fertilizers and pesticides, natural vegetation along the shoreline, landscaping, and other issues that affect water quality. (Contact Allison Gray at 509-329-3448.)

Q: What about pollutants from Idaho? Why should Washington clean those up?

A: Part of the cleanup plan is to make sure water quality standards are met as the water comes across the border. The EPA and Idaho Department of Environmental Quality are working together to see that pollution is reduced to meet the requirements of the cleanup plan at the state line.

Q: How will the new cleanup plan affect the treatment-plant expansion proposed by Liberty Lake?

A: Liberty Lake has a permit to discharge up to 1 million gallons of treated waste water per day. Under the existing permit, the city could be put on a compliance schedule to meet the needs of the new cleanup plan within a defined amount of time (not longer than 10 years). Any addition to the facility that discharges more than 1 million gallons per day must meet water-quality based requirements immediately upon coming on line and must first receive a permit to do so from the Department of Ecology. This is all part of ongoing discussions. Ecology has approved the facilities plan for expanding the Liberty Lake plant, conditional on the outcome of the cleanup plan. We will not know how much discharge Liberty Lake is allowed until the plan is finished.

Q: Currently, what are the requirements that point sources must meet?

A: Each of the point sources to the Spokane River must have a water-quality permit, which is issued by the Department of Ecology. These permits restrict the amount of pollution that a municipality or an industry is allowed to discharge to the river.

Q: What level of treatment are dischargers likely to be expected to meet when the cleanup plan is finished?

A: In the future, when the water-quality cleanup plan is finished, it is likely that the current, commonly accepted wastewater management and end-of-pipe pollution controls will not be adequate to protect the river. Therefore, permitted point sources of pollution will need to achieve a higher level of treatment. These higher levels of treatment will be determined by the outcome of the cleanup plan and will be referred as “water-quality-based” effluent limits in the permits.

The engineering technologies, and other management options, available for effectively treating waste water, are changing from traditional to more innovative approaches. This is especially true in areas that have significant water quality and quantity challenges, such as the Spokane River. Preliminary indications are that the waste water will have to be treated to a very high level to meet upcoming requirements. A variety of alternatives are being considered for the Spokane River.

Q: What are alternatives to discharging to the river?

A: Because phosphorus is not a problem for drinking water, one option is to treat water to a very high standard and either let it sink back into the aquifer (recharge) or use it for irrigation. Waste water also can be treated to a high standard and used again in other ways, such as for industrial purposes. However, emerging treatment options that use more-intensive filtration may allow continued discharge to the river. This new technology allows water to reach very low levels of phosphorus and is currently being used in New York’s drinking-water system. It is too early to know which technologies or combination of technologies will be necessary to meet our future needs. These engineering options and alternatives will need to be identified, evaluated, and implemented as permits and facilities are upgraded. We also need to consider ways to generate less waste water in the first place.

Q: Is Ecology considering how the amount of water flowing in the river affects efforts to control pollution?

A: Yes. Numerous studies indicate that the amount of water (stream flow) is an important factor in maintaining a healthy stream, river, or lake. Some *loss* in flow might even be beneficial if the majority of pollution can be removed along with it. In the case of the Spokane River, 60 percent of the phosphorus that enters the river in the summer comes from only 10 percent of the flow contributed by waste water. Stream flows in the Spokane River are steadily decreasing over time. If this trend continues, it will limit our ability to use the river and to protect the uses of the river we've come to take for granted. Therefore, maintaining adequate flow in the river, including flow from highly treated waste water, and replacing water withdrawn from the aquifer with re-used waste water will be important considerations as we evaluate our options for sustainable water management.

Q: Water-quality criteria (or standards) for dissolved oxygen in Lake Spokane are based on "natural conditions." How did you determine what that means?

A: First, natural levels of phosphorus and other nutrients were estimated for the tributaries and the river based on data collected in the 1980s in the west branch of the Little Spokane River, upstream from Eloika Lake. The "natural condition" of water quality in the Spokane River was estimated using water samples from the outlet of Lake Coeur D'Alene. Scientists then created a separate computer model for the Idaho portion of the river from the outlet of Lake Coeur D'Alene to the state line to estimate the background levels of phosphorus there.

Ecology's review of the geological characteristics of the area supports the low nutrient values used as estimates of natural conditions. The values are fairly typical of what is found in less disturbed watersheds in eastern Washington.

Q: How can Washington's water quality standards require Lake Spokane reservoir to meet natural water conditions when the lake isn't even natural in the first place?

A: Damming the river was not a natural occurrence and it significantly changes the character of the river and the way it responds to pollution. The TMDL process regulates pollution based on the physical characteristics and the climate of the watershed. The presence or absence of a dam is not considered justification for the presence of pollution. If Lake Spokane's dam did not exist, the same pollution problems would manifest themselves downstream in the next lake-like spot in the river, such as those that occur near the river's mouth (Porcupine Bay). Violations of the dissolved-oxygen standards occur in this area because of excessive algae growth. That problem might have been worse if Lake Spokane were eliminated from the river system.

Use-attainability analysis

Q: What is a use-attainability analysis (UAA) and why are we pursuing one?

A: A UAA is a scientific and technical examination of the human and natural factors influencing the river's water quality and watershed health. A UAA is intended to determine a river's existing and attainable uses and may be used as a basis for revising the state's water quality standards so that the correct uses are targeted for protection. The process of doing a UAA is provided for in federal regulations governing state water-quality standards. The process includes evaluating economic and social implications of changing water-quality standards.

The dischargers along the Spokane River have decided to pursue a UAA to revisit whether the “designated beneficial uses” (e.g., fishing, swimming, aquatic life, wildlife habitat) listed for the river are realistically attainable.

Q: Who is actually doing the work for the UAA?

A: The dischargers hired the environmental consulting firm CH2M Hill to conduct the UAA.

Q: What is the status of the UAA?

A: The UAA was submitted to Ecology in December 2004 along with a petition to change regulations based on the UAA findings. Ecology and the dischargers decided in late February to set the UAA aside while we work together to develop an agreed to implementation strategy for the cleanup plan. The information in the UAA may be used, in part, in the future. Or, the dischargers may opt to re-submit the UAA at any time. For now, the focus of cleaning up the Spokane River will be to develop a feasible cleanup plan, rather than to continue with an effort to change the water quality standards.

Spokane County’s wastewater treatment plant

Q: How does developing a cleanup plan affect the proposed treatment plant for Spokane County?

A: The river is not meeting water-quality standards, so we don’t want to add more phosphorus. If and when a new county plant comes on line, it would need to be in compliance immediately. (Existing sources can be put on a compliance schedule to reduce pollutants.)

Q: What are the county’s options now?

A: The county can redesign its facility so that the amount of pollution would be further reduced; or the county could pursue other alternatives besides discharging to the river, such as water re-use. We don’t know exactly what will be necessary until we finish the cleanup plan that will be designed to increase the amount of dissolved oxygen in the river and Lake Spokane.

Information on this topic can be accessed through Ecology’s Web site. The address is:
http://www.ecy.wa.gov/geographic/spokane/spokane_river_basin.htm

If you need this information in an alternate format, please contact us at 509-329-3400. If you are a person with a speech or hearing impairment, call 711 or 800-833-6388 for TTY.