

Focus on: Lower Duwamish Waterway Source Control Sufficiency



The Washington State Department of Ecology (Ecology) is lead agency for Source Control in the Lower Duwamish Waterway (LDW) Superfund Site and the U.S. Environmental Protection Agency (EPA) is lead for sediment cleanup according to the 2014 cleanup plan called the Record of Decision ([ROD¹](#)). Since the early 2000's, Ecology began identifying and controlling pollution sources using state regulatory authorities, reducing the likelihood of recontaminating sediments after the Superfund cleanup is completed. Now that EPA is approaching the start of sediment cleanup, Ecology is preparing our Source Control Sufficiency recommendations.

This document explains 'LDW Source Control,' 'LDW Source Control Sufficiency', and the Sufficiency evaluation process.

LDW Source Control

The LDW is a five-mile portion of the Duwamish River flowing through a primarily industrial area, from the "turning basin" near 102nd Street, Tukwila, to the southern tip of Harbor Island in Seattle (Figure 1). Legacy contamination from historical operations, like poor waste disposal practices, contaminated the bottom of the river (sediments) with a range of toxic chemicals. Current sources of pollution entering the river need to be identified and controlled.

The [LDW Source Control Strategy²](#) (Strategy) is Ecology's plan for finding potential sources of contaminants, both historical and current, then taking actions to stop or reduce them before they reach the LDW (known as LDW Source Control). That means we must control sources from more than 20,000 acres of land that drains into the Waterway (Figures 2 and 3).

LDW Source Control: Finding sources of contamination that are entering the LDW Superfund Site from lands surrounding the river, and then taking actions to stop or reduce them before they reach the LDW.



Figure 1: The Lower Duwamish Waterway (LDW) Superfund boundary for the river cleanup.

¹ <https://sempub.epa.gov/work/10/715975.pdf>

² <https://apps.ecology.wa.gov/cleanupsearch/document/56204>

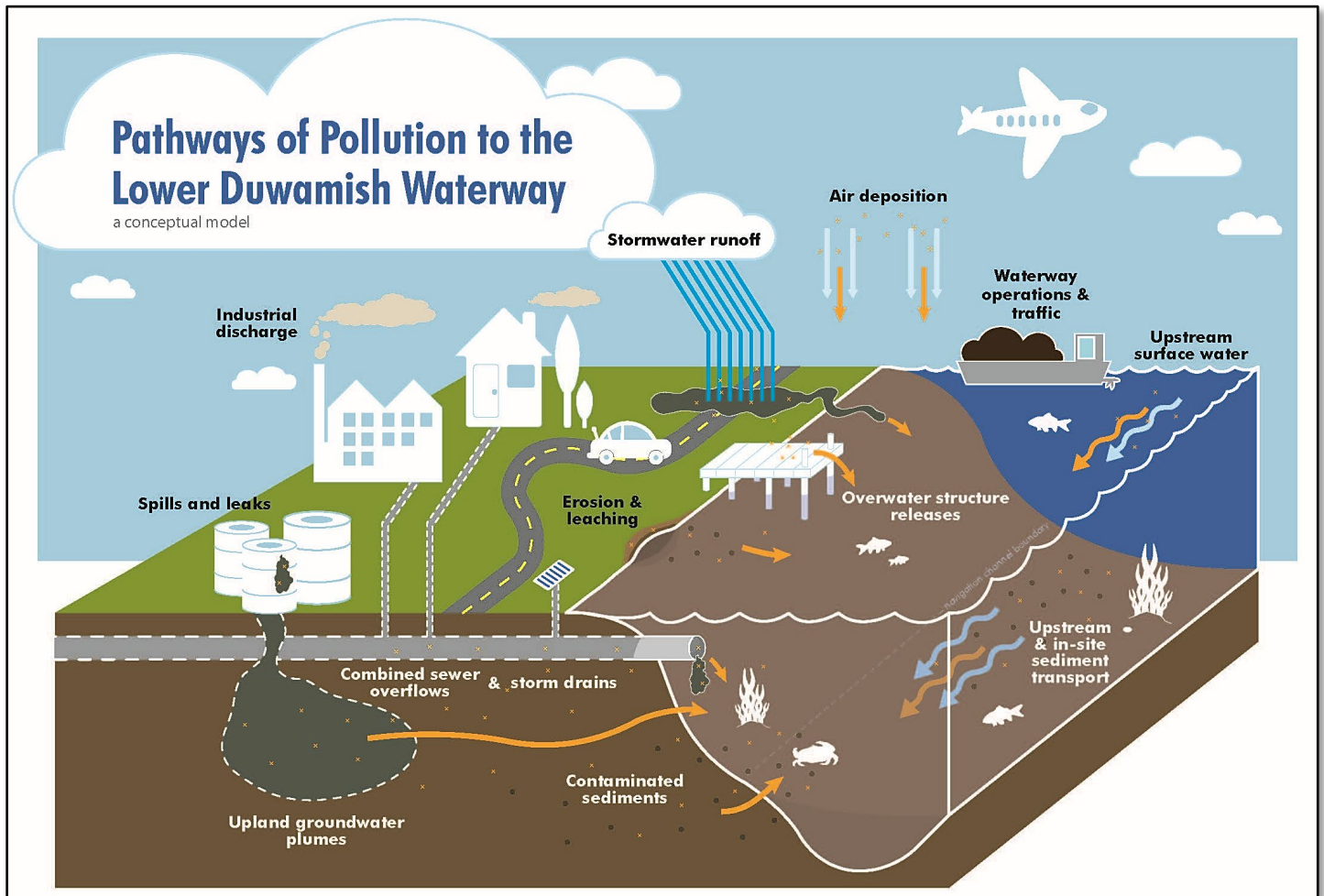


Figure 2: Conceptual Site Model of sources to the LDW

The Strategy describes the roles of Ecology and other LDW Source Control partners, and describes the regulatory framework for how sources are controlled. The Strategy defines **two goals for LDW Source Control**:

1. **Near-Term Goal:** address current sources of pollution to the LDW to the best extent possible, so that EPA can begin their river cleanup work with low risk of recontaminating of the sediments.
2. **Long-Term Goal:** minimize recontamination of the river sediments after the Superfund cleanup and to restore water quality in the river.

LDW Source Control efforts and Strategy represents a coordinated, decades-long, team effort to protect the LDW from sources of pollution - work that will continue after the Superfund sediment cleanup is complete.

Achieving the near-term goal: LDW Source Control Sufficiency

The process and information needed to support Sufficiency evaluations is outlined in Section 6 of the Strategy. EPA is using an ‘upstream to downstream’ approach to the cleanup, adopted from Ecology’s Strategy (Figure 3). To evaluate whether LDW Source Control is sufficient, we follow a ‘lines of evidence’ approach where we use many types of information to make conclusions about sediment recontamination risk (Figure 4), starting first in the Upper Reach (Figure 3). Ecology will evaluate Source Control Areas (SCAs) for two types of information to make our conclusions:

1. **Principal Criteria:** Information on our progress of finding and eliminating or minimizing sources of pollution to the river. We review how industries comply with water quality regulations, how the risk from contaminated land surrounding the river is mitigated or cleaned, and the status of action items identified in the Ecology’s Source Control Action Plans ([LDW Electronic Site Documents](#)³) for SCAs draining to the LDW. Ecology reviews and updates Principal Criteria information annually in Ecology’s Source Control Status Reports, and this information will be reviewed again as part of the LDW Source Control Sufficiency evaluations.

2. **Available and Relevant Environmental Data:**

In addition to sediment data, we review and analyze soil, stormwater drainage system, and groundwater data that represent what could enter the waterway. These include samples taken to compare the chemical levels in solid particles and groundwater to levels protective of organisms living in and around the sediment, people who eat fish and shellfish, or people involved in recreational activities in the river. Ecology will compare the chemical concentrations to:

- levels defined by EPA as Remedial Action Levels in the ROD, or
- levels identified by Ecology in the LDW Preliminary Cleanup Levels Workbook (PCULs workbook, [LDW Electronic Site Documents](#)³).

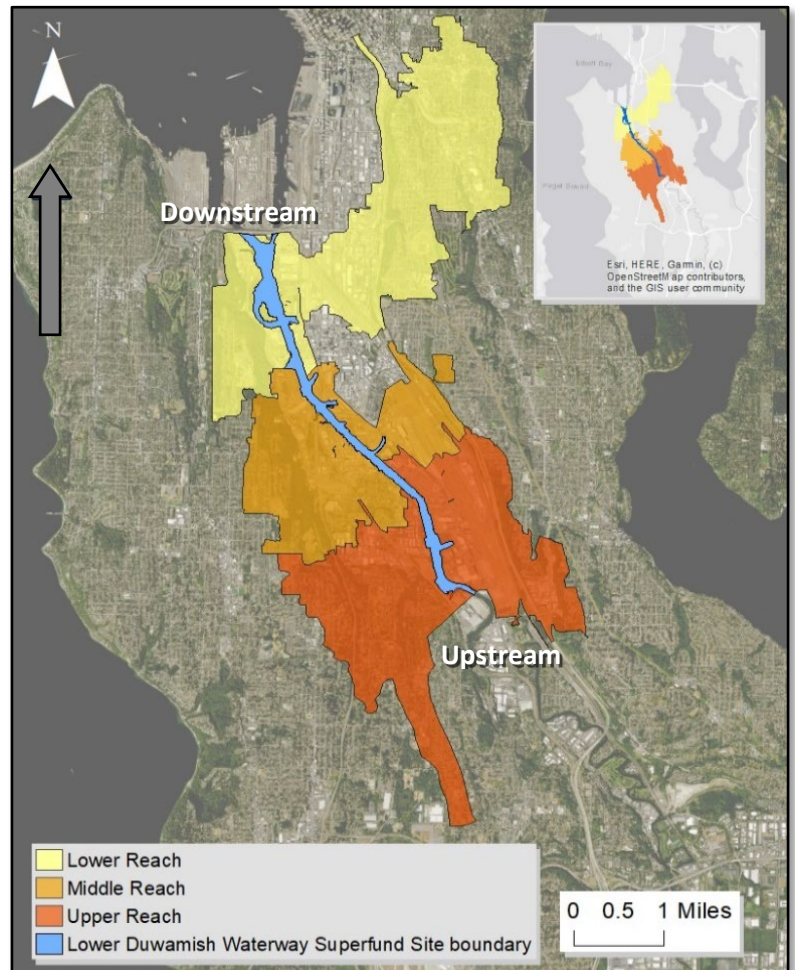


Figure 3: LDW reaches are collections of SCAs. Ecology’s and EPA’s ‘upstream-to-downstream’ approach makes sure that source control and cleanup are done for the Upper Reach first, followed by the Middle and Lower reaches.

³ <https://apps.ecology.wa.gov/cleanupsearch/site/1643#site-documents>



Figure 4: Process for LDW Source Control Sufficiency evaluations and possible recommendations for EPA.

Sufficiency Evaluations – What information does Ecology consider?

To achieve the near term goal of LDW Source Control (that is, *sufficient* controls and progress to proceed with Waterway sediment cleanup), we will evaluate the following:

- Contaminants of Concern (COCs) identified by EPA that lead to unacceptable risk to people and the environment. These COCs are described in the ROD, and include arsenic, polycyclic aromatic hydrocarbons (PAHs), dioxins/furans, and polychlorinated biphenyls (PCBs).
- Source Control Areas that correspond to parts of the river that EPA plans to “actively” clean up. “Active cleanup” technologies were defined in the ROD as dredging, capping, and enhanced natural recovery.
- Contaminants traveling to the river through the following pathways: direct discharges from storm system flowing out of a pipe into the river, groundwater discharging into the river, and bank erosion of soil (materials on the river’s bank that may fall into the river). Ecology will evaluate these pathways for Sufficiency because they represent the largest threats to sediment recontamination.

Sufficiency Evaluations – What information does Ecology not consider?

Some pollution pathways will not be considered for Sufficiency evaluations (Strategy section 6.3.1). Deposition of contaminants resulting from regional air quality issues, in-water sediment transport (sediment redistribution and upstream sediment sources), and potential spills from waterway operations (vessel traffic, navigation channel maintenance) are beyond the scope of the LDW Source Control efforts. Coordinated spill response authorities address spills. Ecology will consider local air deposition (emissions from a permitted industrial facility) if the contamination to soil or groundwater is identified as coming from a local air emission source.

While the LDW Superfund site is the lower 5 miles of the Duwamish River, not all parts of the LDW will undergo active cleanup. There are parts of the river that will not be dredged, capped, or monitored for enhanced natural recovery because there is low concentrations of contaminants, or the areas have already been remediated during previous “Early Action Area” work. Ecology will not conduct LDW Source Control Sufficiency evaluations where no active cleanup work will occur.

LDW Source Control Sufficiency recommendations

Ecology is responsible for conducting LDW Source Control Sufficiency evaluations and providing **recommendations** to EPA about whether sources are sufficiently controlled to move forward with active in-water cleanup. Our LDW Source Control Sufficiency evaluations can lead to **one of four** recommendations to EPA (Figure 4):

1. **“sources are sufficiently controlled”** meaning Ecology recommends proceeding with cleanup
 - For example, permitted facilities in the area are in compliance, source control action items are complete, sources of contaminants to the river from upland contaminated sites are controlled, and the environmental data support these findings.
2. **“sources are conditionally controlled”** meaning Ecology recommends proceeding with cleanup as long as additional controls or oversight are implemented in the near-future
 - For example, most permitted entities in the area are in compliance, source control action items are near completion, the cleanups in the area are minimizing ongoing sources of contaminants to the river, and the environmental data supports these findings. EPA should proceed with cleanup, while additional controls and oversight continue to be implemented.
3. **“sources are controlled with qualifications”** meaning Ecology recommends proceeding with cleanup while noting information gaps that might impact cleanup work
 - For example, permitted facilities in the area are in compliance, source control action items are complete, the cleanups in the area are minimizing ongoing sources of contaminants to the river, but there are information gaps for EPA to consider. Depending on the sources evaluated and the information gaps, proceeding with cleanup would be recommended.
4. **“sources are not sufficiently controlled”** meaning Ecology does not recommend that cleanup proceed until additional controls have been implemented and determined to be effective
 - For example, an area that is being evaluated does not meet all appropriate permitting requirements, source control action items are incomplete, the upland cleanups in the area are still addressing sources of contamination, and the environmental data or lack thereof supports these findings. Proceeding with cleanup is not recommended until sources are better controlled.

EPA will make the outcome determination to proceed with cleanup or not, taking the Sufficiency evaluation recommendation and other considerations into account.

Where are we in the process?

Our schedule for conducting LDW Source Control sufficiency evaluations and providing recommendations is driven by [EPA’s current work and sediment cleanup design schedule](#)⁴. Currently, EPA is scheduled to finish sediment cleanup “design” (for where active cleanup is required) for the Upper Reach portion of the LDW by in late 2023. Ecology will complete Sufficiency evaluations for areas of planned active cleanup in the Upper Reach in early 2023. We will continue working with EPA to prioritize Sufficiency evaluations in a way that supports the sediment cleanup schedule.

⁴ <https://ldwg.org/our-work/current-work/>

Related Information

- Ecology's LDW page: <https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Cleanup-sites/Lower-Duwamish-Waterway>
- Ecology's Source Control page: <https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Cleanup-sites/Lower-Duwamish-Waterway/Source-control>
- Ecology's LDW Electronic Documents page: <https://apps.ecology.wa.gov/cleanupsearch/site/1643#site-documents>
- EPA's LDW website: www.epa.gov/superfund/lower-duwamish
 - You may also find **EPA's LDW Site Documents & Data** on this website: <https://go.usa.gov/xueUs>
 - To sign up for **EPA's LDW E-mail List**: Please send an e-mail to knudsen.laura@epa.gov
- Lower Duwamish Waterway Group (LDWG) page: <https://ldwg.org/>
- LDWG's LDW Document Library page: <https://ldwg.org/project-library/>

Join our Ecology email list for regular updates!

https://public.govdelivery.com/accounts/WAECY/subscriber/new?topic_id=WAECY_37

Información sobre la limpieza ambiental del Lower Duwamish Waterway:

Si le gustaría obtener este documento en español, favor de comunicarse al 360-407-6097 o preguntas@ecy.wa.gov.

Thông tin về công tác làm sạch môi trường Duwamish:

Nếu quý vị muốn nhận tài liệu này bằng tiếng Việt hoặc cần thêm thông tin, xin liên hệ ông Liêm Nguyễn: 360-407-6955, điện thư: Lngu461@ecy.wa.gov.

有關 Duwamish 河清理信息:

如需此文件的中文版, 請聯繫 Sunny Becker, 聯繫方式 425-649-7187 : sunny.becker@ecy.wa.gov.

Want to get more involved with efforts to clean up the Duwamish River?

Contact the Duwamish River Community Coalition/Technical Advisory Group at contact@duwamishcleanup.org, (206) 251-2038, or visit <https://www.drcc.org/>



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To request an ADA accommodation, contact Ecology by phone at 360-407-6831 or email at ecyadacoordinator@ecy.wa.gov, or visit <https://ecology.wa.gov/accessibility>. For Relay Service or TTY call 711 or 877-833-6341.