02/14/2023

Amendment to Quality Assurance Project Plan

Quality Assurance Project Plan for Status and Trends Monitoring of Urban Streams in Clark and Cowlitz Counties in the Lower Columbia River Region

Clark County, Lead Implementing Entity

Quality Assurance Project Plan (QAPP) for Status and Trends Monitoring of Urban Streams in Clark and Cowlitz Counties in the Lower Columbia River Region

February 2023

Approved by:

Signature:	Date: 02/14/23
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Signatures are not available on the Internet version.

Clark County Public Works, Clean Water Division (CWD) is amending the Washington State Department of Ecology (Ecology) approved September 2020 Status and Trends Monitoring of Urban Streams in Clark and Cowlitz Counties in the Lower Columbia River region (LCUS) QAPP to better align the Stormwater Action Monitoring (SAM) LCUS study with the SAM Puget Sound Small Streams (PSS) study. To better align the LCUS and PSS studies, continuous conductivity will be discontinued from the LCUS study and will be replaced with the collection of annual extended water quality parameters for each LCUS site.

The decision to remove continuous conductivity and add annual water quality parameters came after a discussion via meeting between the LCUS Project Manager and Ecology SAM Scientists. This change is beneficial and will allow data comparison of the SAM LCUS study with the SAM PSS study and is supported by permittees funding SAM LCUS and regional partners including Lower Columbia Fish Recovery Board, Pacific Northwest Aquatic Monitoring Partnership and the United States Geological Survey.

Extended water quality parameters will be collected annually during Watershed Health Monitoring efforts and uploaded to Ecology's Environmental management database (EIM) https://ecology.wa.gov/Research-Data/Data-resources/Environmental-Information-Management-database

Each water year for the remainder of the implementation of the LCUS 2020 QAPP will include the following major small stream tasks:

Water Year 2023: February 1st, 2023 to September 30th, 2023

- Conduct periodic data downloads and maintenance for all level loggers for the rest of the water year.
- Complete a one-time watershed health measure (WHM), macroinvertebrate, water and sediment chemistry sampling in the summer (July through September) at all LCUS sites applicable to the water year.
- Complete set up for water year 2024 status sites.
- Provide an annual status report to DOE and stakeholders.

Water Year 2024: October 1st, 2023 to September 30th, 2024

- Conduct periodic data downloads and maintenance for all level loggers for the rest of the water year.
- Complete set up for water year 2025 status sites.
- Process and finalize continuous records (water level and temperature) from water year 2023 sites and upload data to EIM.
- Complete a one-time watershed health measure (WHM) and macroinvertebrate, water and sediment chemistry sampling in the summer (July through September) at all LCUS sites applicable to the water year.
- Provide an annual status report to DOE and stakeholders.

Water Year 2025: October 1st, 2024 to June 30th, 2025

- Conduct periodic data downloads and maintenance for all level loggers until the new permit is implemented.
- Complete set up for water year 2026 status sites.
- Process and finalize continuous records (water level and temperature) from water year 2024 sites and upload data to EIM.
- Process and finalize water and sediment chemistry data from water year 2024 sites and upload data to EIM.

Water quality chemistry parameters that are to be included in this addendum are in the table below and will replace continuous conductivity monitoring.

Table 1. Parameters and sampling frequency at active status and trend sites **for the base and extended monitoring programs. (Amended from 2020 LCUS QAPP page 22).**

Indicator/Parameter	Indicator Type	Sampling Frequency at Active Status and Trend Sites
Base Program		
Temperature	Water Quality	Continuous (15 - Minute)
Stage	Hydrology	
Benthic macroinvertebrates	Watershed Health	Once every year of sampling (July-Sep)
Sediment Metals (As, Cd, Cr, Cu, Pb, Zn)	Sediment Quality	Once every year of sampling (July-Sep)
Grain size		
Total Organic Carbon		
Total Solids		
Sediment Polynuclear aromatic hydrocabons (PAHs)[1]		
Watershed Health Indicators	Physical Habitat	Every year of sampling (July-Sep) using Washington State Department of Ecology WMH eforms
Extended Water Quality Program		
pH	Water Quality	In-situ annually as part of the Watershed Health Monitoring
Turbidity		
Dissolved Oxygen		
Total Suspended Solids (TSS)		Annually as part of the Watershed Health Monitoring
Nitrate + Nitrite		
Total Phosphorus		
Ammonia as N		
E. coli		
Dissolved Metals (As, Cd, Cr, Cu, Pb, Zn)		
Total Metals (As, Cd, Cr, Cu, Pb, Zn)		
Hardness (as $CaCO_3$)		
Dissolved Organic Carbon		
Chloride		
Total Nitrogen		
Chlorophyll-a		
OrthoPhosphorous (PO_4^{3-})		

[1] PAH compounds include: 2-methylnaphthalene, acenaphthylene, acenaphthene anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b,k) fluoranthene, benzo(ghi)perylene, dibenzo(a,h)anthracene, chrysene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, pyrene, and retene.

Water chemistry samples will be collected following the Standard Operating Procedure for collection of water samples for watershed health monitoring Standard Operating Procedure EAP095, Version 1.2: Collecting Water Samples for Watershed Health Monitoring.