



**CLARK COUNTY WASHINGTON**

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November 24, 2020

**To:** Keunyea Song, SAM coordinator  
Washington State Department of Ecology, Olympia, WA

**From:** Chad Hoxeng  
Interim Monitoring and Assessment Supervisor, Clark County Public Works, Vancouver, WA

**Subject:** Deliverable D1.1: Semi-annual progress report

This memo summarizes and documents the setup of five trend and three status sites as well as the first round of site visits for the trend and status sites for the Lower Columbia River Urban Streams (LCUS) project. All trend and status sites were constructed, set up and were collecting continuous stage, stream temperature and conductivity data prior to September 30<sup>th</sup>, 2020. The first round of site visits to all monitoring sites took place during October 2020 by Clean Water Division (CWD) staff. CWD staff utilized the site visits as a training opportunity to familiarize all LCUS field staff with both trend and status site locations, housing and equipment. Sensors were located and maintained at all sites. Continuous data from all trend sites are transmitted daily to CWD. Continuous data from all status sites were downloaded during site visits. All continuous data for trend and status sites are housed in Aquarius Time-Series hydrological software.

Please feel free to contact me at any time with questions about this semi-annual progress report or any other LCUS project related issues.



 For other formats, contact  
the Clark County ADA Office

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February 4, 2021

To: Keunyea Song, SAM coordinator  
Washington State Department of Ecology, Olympia, WA

From: Marlena Milosevich  
Natural Resource Specialist III, Clark County Public Works, Vancouver, WA

Subject: Deliverable D1.2: Semi-annual progress report

**1. General Information**

Contract Agreement Number:	C2000179
Project Title:	Status and Trends Monitoring of Urban Streams in Clark and Cowlitz Counties in the Lower Columbia River Region (LCUS)
Organization:	Clark County Public Works Clean Water Division (CWD)
CWD Project Manager:	Chad Hoxeng, CWD Interim Monitoring and Assessment Supervisor
Ecology Project Manager:	Keunyea Song, Stormwater Action Monitoring (SAM) Scientist
Reporting Period:	2020 Q4
Date Form was Completed:	03FEB2021

**2. Task Achievements (This reporting period)**

**Task 1: Project Management**

Percent of Task Completed:	12.5% Completed (\$3,400.00 of \$32,328.00 of budget used)
Deliverable:	D1.1: Semi-annual progress report
Achievements:	2020 semi-annual progress report was submitted to and accepted by Ecology. The project and budget were managed. Field, laboratory, and reporting tasks were coordinated.



## Task 2: Station Set Up

Percent of Task Completed:	0% this period (50% Cumulative Completed) (\$75,131.07 of \$109,096.00 budget used)
Deliverable:	Task completed in 2020. (Past deliverables: D2.1: Copy of receipt for purchase of two conductivity probes D2.2: Confirmation email for equipment installation at five trend monitoring stations D2.3: Confirmation email for equipment installation at three status monitoring stations.)
Achievements:	2020 Deliverables completed for this task.

## Task 3: Continuous Datalogger Operation and Field Data Collection

Percent of Task Completed:	0% (\$0 of \$191,402 budget used)
Deliverable:	N/A
Achievements:	On target to meet deliverable D3.1 by operating and maintaining continuous monitoring equipment and performing field data collection per the Ecology-approved LCUS QAPP. Site visits were performed in October and December at all trend and status sites. Please see 3. Challenges and Issues for more information.

## Task 4: Data Management

Percent of Task Completed:	0.9% (4.5% of D4.1) (\$2,010.00 of \$63,721 budget used)
Deliverable:	D4.1: Upload continuous data to Aquarius, and send an excel file with graphs to the Ecology project manager
Achievements:	On target to meet deliverable by performing data management and submittal per the Ecology-approved QAPP. D4.1.1 (One of 22 targeted bi-monthly) excel file with graphs has been completed and accepted by Ecology.

## Task 5: Data Analysis and Annual Reporting

Percent of Task Completed:	0% (\$0 of \$73,131 budget used)
Deliverable:	N/A
Achievements:	On target to meet deliverable.

### **3. Challenges and Issues**

Status site, PCK010 (Packard Creek), was destroyed during a large rain event that occurred between bi-monthly field visits. The runoff caused a beaver dam upstream to fail. We believe that the debris from the failed beaver dam badly damaged the site, with both conductivity and stage probes being swept away and lost.

Clark County Public Works Clean Water Division (CWD) operates a Sontec IQ sensor approximately 100 ft upstream of the destroyed site that collects continuous stage, discharge, and temperature. The temperature is not NIST Certified nor QA/QC. These data will be substitute for the lost stage and temperature data. Conductivity data is lost for the time period of December 16<sup>th</sup>, 2020 12:30 onward until redeployment of a new Onset conductivity probe on February 4, 2021.

Beavers are expected to continue staying active at this site which may affect stage moving forward. There is little Clark County can do to mitigate beaver activity at this site given applicable Washington state laws. Evident in CWDs Sontec IQ sensor data and known literature, beaver dams can influence stage data.

Staffing challenges related to Covid-19 have limited site visits to bi-monthly as allowed in the Ecology approved LCUS QAPP.

### **4. General Comments**

N/A



July 21, 2021

To: Keunyea Song, SAM coordinator  
Washington State Department of Ecology, Olympia, WA

From: Marlena Milosevich  
Natural Resource Specialist III, Clark County Public Works, Vancouver, WA

Subject: Deliverable D1.3: Semi-annual progress report

1. General Information

Contract Agreement Number:	C2000179
Project Title:	Status and Trends Monitoring of Urban Streams in Clark and Cowlitz Counties in the Lower Columbia River Region (LCUS)
Organization:	Clark County Public Works Clean Water Division (CWD)
CWD Project Manager:	Chad Hoxeng, CWD Interim Monitoring and Assessment Supervisor
Ecology Project Manager:	Keunyea Song, Stormwater Action Monitoring (SAM) Scientist
Reporting Period:	2021 Q1 and Q2 (January through June)
Date Form was Completed:	20JUL2021

2. Task Achievements (This reporting period)

Task 1: Project Management

Percent of Task Completed:	25% Completed \$11,054 of budget used (\$14,454 of \$32,328.00 of budget used total)
Deliverable:	D1.2: Semi-annual progress report
Achievements:	The 2020 Q4 D1.2: semi-annual progress report with target date January 31, 2021, was submitted to and accepted by Ecology. The project and budget were managed. Field, laboratory, and reporting tasks were coordinated.



## Task 2: Station Set Up

Percent of Task Completed:	0% this period (50% Cumulative Completed) \$98.56 of budget used (\$75,230 of \$109,096.00 budget used total)
Deliverable:	Task completed in 2020. (Past deliverables: D2.1: Copy of receipt for purchase of two conductivity probes D2.2: Confirmation email for equipment installation at five trend monitoring stations D2.3: Confirmation email for equipment installation at three status monitoring stations.)
Achievements:	2020 Deliverables completed for this task. Equipment was purchased to replace two destroyed status sites, PCK010 and MOR010.

## Task 3: Continuous Datalogger Operation and Field Data Collection

Percent of Task Completed:	17% \$30,542 of budget used (\$30,542 Of \$191,402 budget used total)
Deliverable:	
Achievements:	On target to meet deliverable D3.1 by operating and maintaining continuous monitoring equipment and performing field data collection per the Ecology-approved LCUS QAPP. Site visits were performed in February 2021, April 2021, and May 2021 at all trend and status sites. Reviewed and attended Ecology field training for habitat assessment. Please see 3. Challenges and Issues for more information.

## Task 4: Data Management

Percent of Task Completed:	2.7% (18% of D4.1) \$10,037 of budget used (\$12,047 of \$63,721 budget used)
Deliverable:	D4.1.2: Upload continuous data to Aquarius, and send an excel file with graphs to the Ecology project manager (Data through February 2021) D4.1.3: Upload continuous data to Aquarius, and send an excel file with graphs to the Ecology project manager (Data through April 2021) D4.1.4: Upload continuous data to Aquarius, and send an excel file with graphs to the Ecology project manager (Data through May 2021)
Achievements:	On target to meet deliverable by performing data management and submittal per the Ecology-approved QAPP. D4.1.2, D4.1.3, and D4.1.4 (Three of 22 targeted bi-monthly, four cumulative) excel files with graphs have been completed and accepted by Ecology.

## Task 5: Data Analysis and Annual Reporting

Percent of Task Completed:	0% \$289 of budget used (\$289 of \$73,131 budget used)
Deliverable:	N/A
Achievements:	On target to meet deliverable.

### 3. Challenges and Issues

There were a few challenges accomplishing Task 3: field data collection. Throughout the six-month time period (January through June 2021), coordinating field work during Covid-19 and making sure county staff can conduct work activity efficiently and safely has been a continuous challenge. There were also a few issues at status sites due to weather events or sensor malfunction.

Issues arose when status site, PCK010 (Packard Creek), was destroyed during a large rain event that occurred between the December 2020 and February 2021 bi-monthly field visits. Conductivity, stage, and temperature data were lost. A new conductivity/temperature probe was deployed to restart data collection. Clark County Public Works Clean Water Division (CWD) operates a Sontec IQ sensor approximately 100 ft upstream of the destroyed site that collects continuous stage which has been used in place of the lost stage data at this status site.

Additional challenges occurred at the status site, MOR010. The communication part of the stage sensor malfunctioned and lost data between February 26<sup>th</sup>, 2021 and March 2<sup>nd</sup>, 2021. We suspect the high flows that occurred in late February, over-topped the pipe containing the sensor and shorted out the Bluetooth enabled part of the sensor that allows for data download which is supposed to remain out of the water. The malfunction was discovered on 2/26/21 and replaced with a new sensor on 3/2/21.

A separate issue also occurred at MOR010. The conductivity and water temperature sensor stopped logging on March 13<sup>th</sup>, 2021 due to unknown sensor to malfunction. We are asking the manufacturer for a replacement sensor as this sensor is still under warranty. The malfunction was discovered during the site visit performed in April. A new sensor was placed at the site on April 20<sup>th</sup>, 2021. Data between March 13<sup>th</sup>, 2021 and April 20<sup>th</sup>, 2021 is lost.

There are a few potential budget challenges. Much of the cost is for Task 3: field data collection is related to WSH monitoring review, training, and equipment purchased for this type of monitoring. \$65,577 is budgeted for this year for the WSH. With training now complete, we are projected to be within the budgeted \$65,577 for this year for Task 3.

Task 1: project management and Task 4: data management are both over the budgeted amount for year but not the entire project. Project management cost is predicted be less in the future now that the project has started and is on target to meet all task goals which is now taking less time to manage. Task 4: data management costs are appropriate for the level of work needed to meet task deliverables. The CWD project manager will investigate the work involved with Task 4 to determine any way of bringing the existing expenditures in line with the predicted yearly budget.

### 4. General Comments





January 25, 2022

To: Keunyea Song, SAM coordinator  
Washington State Department of Ecology, Olympia, WA

From: Marlena Milosevich  
Natural Resource Specialist III, Clark County Public Works, Vancouver, WA

Subject: Deliverable D1.4: Semi-annual progress report

1. General Information

Contract Agreement Number:	C2000179
Project Title:	Status and Trends Monitoring of Urban Streams in Clark and Cowlitz Counties in the Lower Columbia River Region (LCUS)
Organization:	Clark County Public Works Clean Water Division (CWD)
CWD Project Manager:	Chad Hoxeng, CWD Natural Resource Specialist III
Ecology Project Manager:	Keunyea Song, Stormwater Action Monitoring (SAM) Scientist
Reporting Period:	2021 Q3 and Q4 (July through December)
Date Form was Completed:	25JAN2022

2. Task Achievements (This reporting period)

Task 1: Project Management

Percent of Task Completed:	13% this period (38% Cumulative Completed) \$5,456 of budget used (\$19,910 of \$32,328.00 of budget used total)
Deliverable:	D1.3: Semi-annual progress report
Achievements:	The 2021 Q1 and Q2 D1.3: semi-annual progress report with target date July 31, 2021, was submitted to and accepted by Ecology. The project and budget were managed. Field, laboratory, and reporting tasks were coordinated.



## Task 2: Station Set Up

Percent of Task Completed:	20% this period (80% Cumulative Completed) \$6,809 of budget used (\$82,039 of \$109,096.00 budget used total)
Deliverable:	D2.4: Confirmation email for equipment installation at three status monitoring stations; target September 30, 2021
Achievements:	D2.4: Confirmation email for equipment installation at three status monitoring stations was submitted to and accepted by Ecology. Three status sites are installed and collecting data for WY2022.

## Task 3: Continuous Datalogger Operation and Field Data Collection

Percent of Task Completed:	33% \$42,315 of budget used (\$72,857 of \$191,402 budget used total)
Deliverable:	D3.1: Email for monitoring completeness WY2021, confirming submission of the data collection event (DCE) file for each site compiled by the WHM e-forms and all required data and sample collection
Achievements:	D3.1: Email for monitoring completeness WY2021, confirming submission of the data collection event (DCE) file for each site compiled by the WHM e-forms and all required data and sample collection was submitted to Ecology. A total of eight e-forms were sent to Ecology. This deliverable was also met by operating and maintaining continuous monitoring equipment and performing field data collection per the Ecology-approved LCUS QAPP. Please see 3. Challenges and Issues for more information.

## Task 4: Data Management

Percent of Task Completed:	2.7% (32% Cumulative Completed of D4.1; 6.4% Cumulative Completed for Task 4) \$7,802 of budget used (\$19,848 of \$63,721 budget used)
Deliverable:	D4.1.5: Upload continuous data to Aquarius, and send an excel file with graphs to the Ecology project manager (Data through July 2021) D4.1.6: Upload continuous data to Aquarius, and send an excel file with graphs to the Ecology project manager (Data through September 2021) D4.1.7: Upload continuous data to Aquarius, and send an excel file with graphs to the Ecology project manager (Data October 1 <sup>st</sup> 2021 through November).
Achievements:	On target to meet deliverable by performing data management and submittal per the Ecology-approved QAPP. D4.1.5, D4.1.6, and D4.1.7 (Three of 22 targeted bi-monthly, seven cumulative) excel files with graphs have been completed and accepted by Ecology.

## Task 5: Data Analysis and Annual Reporting

Percent of Task Completed:	14% \$3,395 of budget used (\$3,684 of \$73,131 budget used)
Deliverable:	D5.1: Flow metrics calculation from continuous data for each site up to date
Achievements:	Deliverable D5.1 was submitted to and approved by Ecology.

### 3. Challenges and Issues

There were a few challenges accomplishing Task 3: field data collection. Throughout the six-month time period (July through December 2021), coordinating field work during Covid-19 and making sure county staff can conduct work activity efficiently and safely has been a continuous challenge. There were also a few issues at status sites due to weather events or sensor malfunction.

Issues arose for continuous conductivity data at status site MOR010. From 7/27/2021 through 9/27/2021 conductivity data is missing. The reason for the missing data is unknown and Clean Water staff is still investigating. During the July maintenance visit all field SOPs were followed. It is possible the datalogger failed to redeploy after data download during the maintenance visit or a corrupt data file.

### 4. General Comments

Project is on task to meet IAA deliverables.



July 26, 2022

To: Keunyea Song, SAM coordinator  
Washington State Department of Ecology, Olympia, WA

From: Marlena Milosevich  
Natural Resource Specialist III, Clark County Public Works, Vancouver, WA

Subject: Deliverable D1.5: Semi-annual progress report

**1. General Information**

Contract Agreement Number:	C2000179
Project Title:	Status and Trends Monitoring of Urban Streams in Clark and Cowlitz Counties in the Lower Columbia River Region (LCUS)
Organization:	Clark County Public Works Clean Water Division (CWD)
CWD Project Manager:	Chad Hoxeng, CWD Natural Resource Specialist III
Ecology Project Manager:	Keunyea Song, Stormwater Action Monitoring (SAM) Scientist
Reporting Period:	2022 Q1 and Q2 (January through June)
Date Form was Completed:	26July2022

**2. Task Achievements (This reporting period)**

**Task 1: Project Management**

Percent of Task Completed:	13% this period (50% Cumulative Completed) \$4,844 of budget used (\$24,755 of \$32,328.00 of budget used total)
Deliverable:	D1.4: Semi-annual progress report
Achievements:	The 2021 Q3 and Q4 D1.4: semi-annual progress report with target date January 31, 2022, was submitted to and accepted by Ecology. The project and budget were managed. Field, laboratory, and reporting tasks were coordinated.



## Task 2: Station Set Up

Percent of Task Completed:	0% this period (80% Cumulative Completed) \$334 of budget used (\$82,373 of \$109,096.00 budget used total)
Deliverable:	Task completed in 2021. (Past Deliverables: D2.4: Confirmation email for equipment installation at three status monitoring stations; target September 30, 2021)
Achievements:	2021 Deliverables completed for this task. D2.4: Confirmation email for equipment installation at three status monitoring stations was submitted to and accepted by Ecology. Three status sites are installed and collecting continuous data for WY2022.

## Task 3: Continuous Datalogger Operation and Field Data Collection

Percent of Task Completed:	17% (50% Cumulative Completed) \$8,679 of budget used (\$81,536 of \$191,402 budget used total)
Deliverable:	
Achievements:	On Target to meet deliverable D3.2 Email for monitoring completeness WY2022, confirming submission of the data collection event (DCE) file for each site compiled by the WHM e-forms and all required data and sample collection was submitted to Ecology by operating and maintaining continuous monitoring equipment and performing field data collection per the Ecology-approved LCUS QAPP. Site visits were performed in January 2022, March 2022, and May 2022 at all trend and status sites. Reviewed and attended Ecology field training for habitat assessment.

## Task 4: Data Management

Percent of Task Completed:	25% (45% Cumulative Completed of D4.1; 30% Cumulative Completed for Task 4) \$12,587 of budget used (\$32,436 of \$63,721 budget used)
Deliverable:	D4.1.8: Upload continuous data to Aquarius, and send an excel file with graphs to the Ecology project manager (Data October 1 <sup>st</sup> 2021 through January 2022) D4.1.9: Upload continuous data to Aquarius, and send an excel file with graphs to the Ecology project manager (Data October 1 <sup>st</sup> 2021 through March 2022) D4.1.10: Upload continuous data to Aquarius, and send an excel file with graphs to the Ecology project manager (Data October 1 <sup>st</sup> 2021 through May 2022). D4.2 Upload data from sampling WY2021 to EIM
Achievements:	On target to meet deliverable by performing data management and submittal per the Ecology-approved QAPP. D4.1.8, D4.1.9, and D4.1.10 (Three of 22 targeted bi-monthly, 10 cumulative) excel files with graphs have been completed and accepted by Ecology. D4.2 WY2021 data was uploaded to EIM and accepted by Ecology.

## Task 5: Data Analysis and Annual Reporting

Percent of Task Completed:	14% (28% Cumulative Completed \$23,695 of budget used (\$27,379 of \$73,131 budget used)
Deliverable:	D5.2 Annual report (WY2021) draft
Achievements:	Deliverable D5.2 was submitted to Ecology June 30 <sup>th</sup> , 2022. We are awaiting comments / approval.

### 3. Challenges and Issues

There were a few challenges accomplishing Task 3: field data collection. Throughout the six-month time period (January through June 2022), coordinating field work during Covid-19 and making sure county staff can conduct work activity efficiently and safely has been a continuous challenge.

Two specific conductivity data spikes occurred during quarter one.

The high conductivity value in February at Suds creek was most likely an erroneous data spike. When the data is finalized, that data point will be removed. I make this judgement based on that both the data point before and after the single data spike being back to the “normal background” range. In other words, I don’t see the conductivity increasing or decreasing with the single data point spike so it is most likely not a real data point.

The increased conductivity at WDB creek lasted about an hour and a half in the middle of the night. This could be from something that got in the way of the sensor, but then dislodged after an hour. From previous experience, readings can be thrown off by cray fish in front of the sensor. The stage did not change before or after this conductivity increase which is more indicative of a sensor malfunction or error than picking up real conductivity readings. Also, there was no increase or rapid decrease in temperature during the increased conductivity. Again, this is indicative of sensor error.

High conductivity data points could be an indicator of illicit discharge however other indicators such as change in temperature and/or stage would also occur. In both instances temperature and stage remained consistently the same as before or after the specific conductivity increased and returned to background levels.

Another challenge was in meeting target dates for Task 5 Deliverable D5.3 Annual report final (WY2021). BIBI data was not received until after the target date for Deliverable D5.2 Annual report (WY2021) draft. This data is integral to the report and thus the report draft could not be completed without it. Habitat metric results were also delayed and a very important part of the annual report. The annual report draft has been completed (D5.2) and submitted to Ecology. Once Ecology approves of the draft annual report the final annual report (D5.3) can be accomplished.

### 4. General Comments

Project is on task to meet IAA deliverables.



January 19, 2023

To: Chelsea Morris, SAM coordinator  
Washington State Department of Ecology, Olympia, WA

From: Marlena Milosevich  
Natural Resource Specialist III, Clark County Public Works, Vancouver, WA

Subject: Deliverable D1.6: Semi-annual progress report

**1. General Information**

Contract Agreement Number:	C2000179
Project Title:	Status and Trends Monitoring of Urban Streams in Clark and Cowlitz Counties in the Lower Columbia River Region (LCUS)
Organization:	Clark County Public Works Clean Water Division (CWD)
CWD Project Manager:	Chad Hoxeng, CWD Natural Resource Specialist III
Ecology Project Manager:	Chelsea Morris, Stormwater Action Monitoring (SAM) Scientist
Reporting Period:	2022 Q3 and Q4 (July through December)
Date Form was Completed:	19January2023

**2. Task Achievements (This reporting period)**

**Task 1: Project Management**

Percent of Task Completed:	13% this period (63% Cumulative Completed) \$10,889 of budget used (\$35,643 of \$32,328.00 of budget used total)
Deliverable:	D1.4: Semi-annual progress report
Achievements:	The 2022 Q1 and Q2 D1.5: semi-annual progress report with target date July 31, 2022, was submitted to and accepted by Ecology. The project and budget were managed. Field, laboratory, and reporting tasks were coordinated.



## Task 2: Station Set Up

Percent of Task Completed:	17% this period (85% Cumulative Completed) \$3,376 of budget used (\$85,749 of \$109,096.00 budget used total)
Deliverable:	D2.5: Confirmation email for equipment installation at three status monitoring stations; target September 30, 2022
Achievements:	D2.5: Confirmation email for equipment installation at three status monitoring stations was submitted to and accepted by Ecology. Three status sites are installed and collecting data for WY2023.

## Task 3: Continuous Datalogger Operation and Field Data Collection

Percent of Task Completed:	17% (66% Cumulative Completed) \$42,807 of budget used (\$124,344 Of \$191,402 budget used total)
Deliverable:	D3.2: Email for monitoring completeness WY2022, confirming submission of the data collection event (DCE) file for each site compiled by the WHM e-forms and all required data and sample collection
Achievements:	D3.2: Email for monitoring completeness WY2022, confirming submission of the data collection event (DCE) file for each site compiled by the WHM e-forms and all required data and sample collection was submitted to Ecology. A total of eight e-forms were sent to Ecology. This deliverable was also met by operating and maintaining continuous monitoring equipment and performing field data collection per the Ecology-approved LCUS QAPP. Please see 3. Challenges and Issues for more information.

## Task 4: Data Management

Percent of Task Completed:	2.7% (57% Cumulative Completed of D4.1; 33% Cumulative Completed for Task 4) \$9,850 of budget used (\$42,285 of \$63,721 budget used)
Deliverable:	D4.1.11: Upload continuous data to Aquarius, and send an excel file with graphs to the Ecology project manager (Data through July 2022) D4.1.12: Upload continuous data to Aquarius, and send an excel file with graphs to the Ecology project manager (Data through September 2022) D4.1.13: Upload continuous data to Aquarius, and send an excel file with graphs to the Ecology project manager (Data October 1 <sup>st</sup> 2022 through November.
Achievements:	On target to meet deliverable by performing data management and submittal per the Ecology-approved QAPP. D4.1.11, D4.1.12, and D4.1.13 (Three of 22 targeted bi-monthly, 13 cumulative) excel files with graphs have been completed and accepted by Ecology.



## Task 5: Data Analysis and Annual Reporting

Percent of Task Completed:	14% (42% Cumulative Completed) \$6,069 of budget used (\$33,448 of \$73,131 budget used)
Deliverable:	D5.3 Annual report (WY2021) Final
Achievements:	Deliverable D5.3 was submitted to Ecology and accepted.

### 3. Challenges and Issues

There were a few challenges accomplishing Task 3: field data collection. Throughout the six-month time period (July through December 2022).

Another challenge was in meeting target dates for Task 5 Deliverable D5.3 Annual report final (WY2021). BIBI data was not received until after the target date for Deliverable D5.2 Annual report (WY2021) draft. This data is integral to the report and thus the report draft could not be completed without it. Habitat metric results were also delayed and a very important part of the annual report. The annual report draft has been completed (D5.2) and submitted to Ecology. Once Ecology approved of the draft annual report the final annual report (D5.3) was submitted and accepted.

After the November 2022 field visits, Clark County staff realized that the conductivity meter used to check deployed conductivity measurements was reading inaccurately. A follow up visit with a rechecked conductivity meter, verified that deployed conductivity sensors were and are reading accurately. This incidence affects drift corrections for fouling for the time period of the initial field visit and cleaning in November 2022 back to the last field visit in late September of 2022. Best professional judgment used by Marlena Milosevich and knowledge of the continuous sites will be used to apply drift corrections to these data. Low flows during the summer months also lead to sediment accumulations of continuous conductivity sensors. Greater drift corrections will need to be applied to the finalized data set.

### 4. General Comments

Project is on task to meet IAA deliverables.



August 3rd, 2023

To: Chelsea Morris, SAM coordinator  
Washington State Department of Ecology, Olympia, WA

From: Marlena Milosevich  
Natural Resource Specialist III, Clark County Public Works, Vancouver, WA

Subject: Deliverable D1.7: Semi-annual progress reports

1. General Information

Contract Agreement Number:	C2000179
Project Title:	Status and Trends Monitoring of Urban Streams in Clark and Cowlitz Counties in the Lower Columbia River Region (LCUS)
Organization:	Clark County Public Works Clean Water Division (CWD)
CWD Project Manager:	Chad Hoxeng, CWD Interim Monitoring and Assessment Supervisor
Ecology Project Manager:	Chelsea Morris, Stormwater Action Monitoring (SAM) Scientist
Reporting Period:	2023 Q1 and Q2 (January through June)
Date Form was Completed:	03August2023

2. Task Achievements (This reporting period)

Task 1: Project Management

Percent of Task Completed:	13% this period (75% Cumulative Completed) \$6,648.91 of budget used (\$42,292 of \$32,328.00 of budget used total)
Deliverable:	D1.6: Semi-annual progress report
Achievements:	The 2022 Q3 and Q4 D1.6: semi-annual progress report with target date January 31, 2023, was submitted to and accepted by Ecology. The project and budget were managed. Field, laboratory, and reporting tasks were coordinated.



## Task 2: Station Set Up

Percent of Task Completed:	5% this period (85% Cumulative Completed) \$2,302.46 of budget used (\$88,052 of \$109,096.00 budget used total)
Deliverable:	Task completed in 2022. (Past Deliverables: D2.5: Confirmation email for equipment installation at three status monitoring stations; target September 30, 2022)
Achievements:	2022 Deliverables completed for this task. D2.5: Confirmation email for equipment installation at three status monitoring stations was submitted to and accepted by Ecology. Three status sites are installed and collecting continuous data for WY2023.

## Task 3: Continuous Datalogger Operation and Field Data Collection

Percent of Task Completed:	17% (82% Cumulative Completed) \$14091.11 of budget used (\$138,435 of \$191,402 budget used total)
Deliverable:	
Achievements:	On Target to meet deliverable D3.3 Email for monitoring completeness WY2023, confirming submission of the data collection event (DCE) file for each site compiled by the WHM e-forms and all required data and sample collection was submitted to Ecology by operating and maintaining continuous monitoring equipment and performing field data collection per the Ecology-approved LCUS QAPP. Site visits were performed in January 2023, March 2023, and June 2023 at all trend and status sites. Reviewed and attended Ecology field training for habitat assessment.

## Task 4: Data Management

Percent of Task Completed:	23% (70% Cumulative Completed of D4.1; 56% Cumulative Completed for Task 4) \$23,553.37 of budget used (\$65,839 of \$63,721 budget used)
Deliverable:	D4.1.14: Upload continuous data to Aquarius, and send an excel file with graphs to the Ecology project manager (Data October 1 <sup>st</sup> 2021 through January 2023) D4.1.15: Upload continuous data to Aquarius, and send an excel file with graphs to the Ecology project manager (Data October 1 <sup>st</sup> 2021 through March 2023) D4.1.16: Upload continuous data to Aquarius, and send an excel file with graphs to the Ecology project manager (Data October 1 <sup>st</sup> 2021 through June 2023). D4.3 Upload data from sampling WY2022 to EIM

Achievements:	On target to meet deliverable by performing data management and submittal per the Ecology-approved QAPP. D4.1.14, D4.1.15, and D4.1.16 (Three of 22 targeted bi-monthly, 16 cumulative) excel files with graphs have been completed and accepted by Ecology. D4.3 WY2022 data was uploaded to EIM.
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### Task 5: Data Analysis and Annual Reporting

Percent of Task Completed:	8% (50% Cumulative Completed) \$3,729 of budget used (\$37,178 of \$73,131 budget used)
Deliverable:	D5.4 Annual report (WY2022) Final
Achievements:	Deliverable D5.4 in progress

### 3. Challenges and Issues

There were a few challenges accomplishing Task 3: field data collection. Throughout the six-month time period (January through June 2023).

Water temperature data for WPL050 is using pressure transducer temperature data due to the loss/theft of the conductivity sensor. The beaver dam at BRZ010 remains mostly in place and continues to affect stage measurements. A beaver dam at CMP010 is affecting stage measurements starting at 2/26/2023.

The stage sensor at BRZ010 was damaged sometime between the April and June site visits. The data logger was not able to be turned on and therefore data cannot be retrieved at this time. We are continuing to try to retrieve the data, but for now, stage data are considered missing. A replacement sensor was installed on 6/15/23.

Another challenge was in meeting target dates for Task 5 Deliverable D5.4 Annual report final (WY2022). BIBI data was not received until after the target date for Deliverable D5.3 Annual report (WY2022) draft. These data are integral to the report and thus the report draft could not be completed without it. Habitat metric results were also delayed and a very important part of the annual report. The annual report is still in progress.

No Budget issues to be reported.

### 4. General Comments

Project is on task to meet IAA deliverables.



January 23rd, 2024

To: Chelsea Morris, SAM coordinator  
Washington State Department of Ecology, Olympia, WA

From: Marlena Milosevich  
Natural Resource Specialist III, Clark County Public Works, Vancouver, WA

Subject: Deliverable D1.8: Semi-annual progress reports

**1. General Information**

Contract Agreement Number:	C2000179
Project Title:	Status and Trends Monitoring of Urban Streams in Clark and Cowlitz Counties in the Lower Columbia River Region (LCUS)
Organization:	Clark County Public Works Clean Water Division (CWD)
CWD Project Manager:	Chad Hoxeng, CWD Interim Monitoring and Assessment Supervisor
Ecology Project Manager:	Chelsea Morris, Stormwater Action Monitoring (SAM) Scientist
Reporting Period:	2023 Q3 and Q4 (July through December)
Date Form was Completed:	23January2024

**2. Task Achievements (This reporting period)**

**Task 1: Project Management**

Percent of Task Completed:	13% this period (88% Cumulative Completed) \$3167.18 of budget used (\$45,459 of \$32,328.00 of budget used total)
Deliverable:	D1.7: Semi-annual progress report
Achievements:	The 2023 Q1 and Q2 D1.7: semi-annual progress report with target date July 30, 2023, was submitted to and accepted by Ecology. The project and budget were managed. Field, laboratory, and reporting tasks were coordinated.



## Task 2: Station Set Up

Percent of Task Completed:	15% this period (100% Cumulative Completed) \$7129.55 of budget used (\$95,181 of \$109,096.00 budget used total)
Deliverable:	Deliverables: D2.6: Confirmation email for equipment installation at four status monitoring stations; target September 30, 2023)
Achievements:	D2.6: Confirmation email for equipment installation at four status monitoring stations was submitted to and accepted by Ecology. Four status sites are installed and collecting continuous data for WY2024.

## Task 3: Continuous Datalogger Operation and Field Data Collection

Percent of Task Completed:	13% (95% Cumulative Completed) \$53,311.94 of budget used (\$191,747 of \$191,402 budget used total)
Deliverable:	D3.3: Email for monitoring completeness WY2023, confirming submission of the data collection event (DCE) file for each site compiled by the WHM e-forms and all required data and sample collection
Achievements:	D3.3: Email for monitoring completeness WY2023, confirming submission of the data collection event (DCE) file for each site compiled by the WHM e-forms and all required data and sample collection was submitted to Ecology. A total of eight e-forms were sent to Ecology. This deliverable was also met by operating and maintaining continuous monitoring equipment and performing field data collection per the Ecology-approved LCUS QAPP. Please see 3. Challenges and Issues for more information.

## Task 4: Data Management

Percent of Task Completed:	3% (80% Cumulative Completed of D4.1; 56% Cumulative Completed for Task 4) \$ 17,572.64 of budget used (\$83,411 of \$63,721 budget used)
Deliverable:	D4.1.17: Upload continuous data to Aquarius, and send an Excel file with graphs to the Ecology project manager (October 1 <sup>st</sup> , 2023 through September 17th, 2023) D4.1.18: Upload continuous data to Aquarius, and send an Excel file with graphs to the Ecology project manager (Data October 1 <sup>st</sup> , 2023 through November 1st, 2023 for trend sites and status sites.)
Achievements:	On target to meet deliverable by performing data management and submittal per the Ecology-approved QAPP. D4.1.17 and D4.1.18, (Two of 22 targeted bi-monthly, 18 cumulative) excel files with graphs have been completed and accepted by Ecology.

## Task 5: Data Analysis and Annual Reporting

Percent of Task Completed:	21% (71% Cumulative Completed) \$ 7,052.45 of budget used (\$44,230 of \$73,131 budget used)
Deliverable:	D5.4 Annual report (WY2022) Draft D5.5 Annual report (WY2022) Final
Achievements:	Deliverable D5.4 Annual report (WY2022) Draft submitted to Ecology and accepted. Deliverable D5.5 was submitted to Ecology and accepted.

### 3. Challenges and Issues

There were a few challenges accomplishing Task 3: field data collection. Throughout the six-month time period (July through December 2023).

Water temperature data for WPL050 is using pressure transducer temperature data due to the loss/theft of the conductivity sensor. The beaver dam at BRZ010 remains mostly in place and continues to affect stage measurements. A beaver dam at CMP010 is affecting stage measurements starting at 2/26/2023.

Another challenge was in meeting target dates for Task 5 Deliverable D5.4 Annual report final (WY2022). BIBI data was not received until after the target date for Deliverable D5.3 Annual report (WY2022) draft. These data are integral to the report and thus the report draft could not be completed without it. Habitat metric results were also delayed and a very important part of the annual report. The annual report has now been completed.

### 4. General Comments

Project is on task to meet IAA deliverables.



August 20, 2024

To: Chelsea Morris, SAM coordinator  
Washington State Department of Ecology, Olympia, WA

From: Bob Hutton  
Natural Resource Specialist III, Clark County Public Works, Vancouver, WA

Subject: Deliverable D1.9 Semi-annual progress report

1. General Information

Contract Agreement Number:	C2000179
Project Title:	Status and Trends Monitoring of Urban Streams in Clark and Cowlitz Counties in the Lower Columbia River Region (LCUS)
Organization:	Clark County Public Works Clean Water Division (CWD)
CWD Project Manager:	Chad Hoxeng, CWD Interim Monitoring and Assessment Supervisor
Ecology Project Manager:	Chelsea Morris, Stormwater Action Monitoring (SAM) Scientist
Reporting Period:	2024 Q1 and Q2 (January through June)
Date Form was Completed:	August 20, 2024

2. Task Achievements (This reporting period)

Task 1: Project Management

Percent of Task Completed:	4% this period (88% Cumulative Completed) \$2,244.00 of budget used (\$45,459 of \$63,247 of budget used total)
Deliverable:	D1.8: Semi-annual progress report. 2024 Q1/Q2 LCUS Billing Submitted.
Achievements:	The 2023 Q3 and Q4 D1.8: semi-annual progress report with target date December 31, 2023, was submitted to and accepted by Ecology. The project and budget were managed. Field, laboratory, and reporting tasks were coordinated.





## Task 2: Station Set Up

Percent of Task Completed:	0% this period (100% Cumulative Completed) (\$99,178 of \$125,598.00 budget used total)
Deliverable:	Deliverables: D2.6: Confirmation email for equipment installation at four status monitoring stations; target September 30, 2023)
Achievements:	D2.6: Confirmation email for equipment installation at four status monitoring stations was submitted to and accepted by Ecology. Four status sites are installed and collecting continuous data for WY2024.

## Task 3: Continuous Datalogger Operation and Field Data Collection

Percent of Task Completed:	5% (95% Cumulative Completed) \$10,298 of budget used (\$191,747 of \$243,711 budget used total)
Deliverable:	D3.3: Email for monitoring completeness WY2023, confirming submission of the data collection event (DCE) file for each site compiled by the WHM e-forms and all required data and sample collection site
Achievements:	D3.3: Communicated with Ecology WHM staff to update latest e-forms for new sites. Email for monitoring completeness WY2023, confirming submission of the data collection event (DCE) file for each site compiled by the WHM e-forms and all required data and sample collection was submitted to Ecology. A total of eight e-forms were sent to Ecology. This deliverable was also met by operating and maintaining continuous monitoring equipment and performing field data collection per the Ecology-approved LCUS QAPP. Please see 3. Challenges and Issues for more information.

## Task 4: Data Management

Percent of Task Completed:	13% (98% Cumulative Completed) \$ 10,331 of budget used (\$93,742 of \$76,617 budget used)
Deliverable:	D4.1.4: Upload continuous data to Aquarius, and send an Excel file with graphs to the Ecology project manager (January 1 <sup>st</sup> , 2024 through April 2, 2024). All WY2023 data have been submitted to EIM and WHM. Waiting on EIM Coordinator position to be filled to accept submitted data.
Achievements:	On target to meet deliverable by performing data management and submittal per the Ecology-approved QAPP. D4.1.20 and D4.1.21, (Two of 22 targeted bi-monthly, 21 cumulative) excel files with graphs have been completed and accepted by Ecology. Bi-monthly data will be available upon request moving forward per LCUS Project Manager and Ecology.

## Task 5: Data Analysis and Annual Reporting

Percent of Task Completed:	8% (71% Cumulative Completed) \$ 6,096 of budget used (\$50,326 of \$73,681 budget used)
Deliverable:	D5.4 Annual report (WY2022) Draft D5.5 Annual report (WY2022) Final D5.5 <del>6</del> Annual report (WY2023) Draft D5.6 <del>7</del> Annual report (WY2023) Final
Achievements:	Deliverable D5.4 Annual report (WY2022) Draft submitted to Ecology and accepted. Deliverable D5.5 was submitted to Ecology and accepted. D5.7 was submitted to Ecology and is waiting approval.

### 3. Challenges and Issues

There were a few challenges accomplishing Task 3: field data collection. Throughout the six-month time period (January through June 2024).

Water temperature data for WPL050 is using pressure transducer temperature data due to the loss/theft of the conductivity sensor. The beaver dam at BRZ010 remains mostly in place and continues to affect stage measurements. A beaver dam at CMP010 is affecting stage measurements starting at 2/26/2023.

Another challenge was in meeting target dates for Task 5 Deliverable D5.4 Annual report final (WY2023). BIBI data was not received until after the target date for Deliverable D5.3 Annual report (WY2023) draft. These data are integral to the report and thus the report draft could not be completed without it. Habitat metric results were also delayed and are a very important part of the annual report. The annual report has now been completed.

### 4. General Comments

Project is on task to meet IAA deliverables.



April 10, 2025

To: Chelsea Morris, SAM coordinator  
Washington State Department of Ecology, Olympia, WA

From: Ben Joner  
Natural Resource Specialist III, Clark County Public Works, Vancouver, WA

Subject: Deliverable D1.10 Semi-annual progress report

**1. General Information**

Contract Agreement Number:	C2000179
Project Title:	Status and Trends Monitoring of Urban Streams in Clark and Cowlitz Counties in the Lower Columbia River Region (LCUS)
Organization:	Clark County Public Works Clean Water Division (CWD)
CWD Project Manager:	Chad Hoxeng, CWD Monitoring and Assessment Section Manager
Ecology Project Manager:	Chelsea Morris, Stormwater Action Monitoring (SAM) Scientist
Reporting Period:	2024 Q3 and Q4 (July through December)
Date Form was Completed:	April 10, 2025

**2. Task Achievements (This reporting period)**

**Task 1: Project Management**

Percent of Task Completed:	5% this period (88% Cumulative Completed) \$7,760.00 of budget used (\$55,464 of \$190,535 of budget used total)
Deliverable:	D1.9: Semi-annual progress report. 2024 Q1/Q2 LCUS Billing Submitted.
Achievements:	The 2024 Q1 and Q2 D1.9: semi-annual progress report with target date July 31, 2024, was submitted to and accepted by Ecology. The project and budget were managed. Field, laboratory, and reporting tasks were coordinated.



## Task 2: Station Set Up

Percent of Task Completed:	100% this period (50% Cumulative Completed) \$7,979 of budget used (\$103,160 of \$168,862 budget used total)
Deliverable:	Deliverables: D2.7: Draft QAPP amendment with new status sites were sent to SAM manager. D2.8: Confirmation email for equipment installation at four status monitoring stations was sent to SAM manager.
Achievements:	D2.8: Confirmation email for equipment installation at four status monitoring stations was submitted to and accepted by Ecology. Four status sites are installed and collecting continuous data for WY2025.

## Task 3: Continuous Datalogger Operation and Field Data Collection

Percent of Task Completed:	5% (50% Cumulative Completed) \$38,230 of budget used (\$240,274 of \$483,934 budget used total)
Deliverable:	D3.3.4: Email for monitoring completeness WY2024, confirming submission of the data collection event (DCE) file for each site compiled by the WHM e-forms and all required data and sample collection site
Achievements:	D3.3.4: Communicated with Ecology WHM staff to update latest e-forms for new sites. Email for monitoring completeness WY2024, confirming submission of the data collection event (DCE) file for each site compiled by the WHM e-forms and all required data and sample collection was submitted to Ecology. A total of three e-forms were sent to Ecology. This deliverable was also met by operating and maintaining continuous monitoring equipment and performing field data collection per the Ecology-approved LCUS QAPP. Please see 3. Challenges and Issues for more information.

## Task 4: Data Management

Percent of Task Completed:	100% (50% Cumulative Completed) \$ 10,668 of budget used (\$104,410 of \$235,967 budget used)
Deliverable:	D4.1.4: Upload continuous data to Aquarius, and send an Excel file with graphs to the Ecology project manager (January 1 <sup>st</sup> , 2024 through April 2, 2024). All WY2024 data have been submitted to EIM and WHM. EIM Coordinator has been hired and has checked submitted data. EIM data corrections are being addressed and will be resubmitted.
Achievements:	On target to meet deliverable by performing data management and submittal per the Ecology-approved QAPP. Bi-monthly data will be available upon request moving forward per LCUS Project Manager and Ecology.

## Task 5: Data Analysis and Annual Reporting

Percent of Task Completed:	25% (40% Cumulative Completed) \$ 8,391 of budget used (\$58,717 of \$206,620 budget used)
Deliverable:	D5.5 Annual report (WY2023) Draft D5.6 Annual report (WY2023) Final
Achievements:	On Target for draft WY2024 Annual report. Deliverable D5.8 will be incorporated into Amendment No. 2.

### 3. Challenges and Issues

There were a few challenges accomplishing Task 3: field data collection throughout the six-month period (July through December 2024).

Barometric pressure data used to convert absolute pressure to water level (ft.) was compromised at Currie Creek (CRE010) resulting in a gap in the stage (ft.) dataset from 2024-11-21 13:30:00 to 2024-12-03 11:30:00. Efforts are underway to recover the data using barometric pressure from a nearby monitoring location.

In 2024, multiple staff were working out of class and staff was stretched thin to perform the work. At the same time, we hired one additional project employee who required training. These factors combined made it challenging to complete habitat and site setup work, which pushed out data management, stage and temperature analysis, and EIM submittal. Additionally, benthic macroinvertebrate results from the contracted lab were received later than anticipated.

### 4. General Comments

Project is on task to meet IAA deliverables.