DEPARTMENT OF
ECOLOGY
State of Washington

Addendum 2 to
Quality Assurance Project Plan

Skokomish River Basin
Fecal Coliform TMDL
Attainment Monitoring

December 2014

Publication No. 14-03-129

Publication Information

Addendum

This addendum is on the Department of Ecology's website at
https://fortress.wa.gov/ecy/publications/SummaryPages/1403129.html

This addendum is an addition to an original Quality Assurance Project Plan. It is not a correction (errata) to the original plan.

Data for this project will be available on Ecology's Environmental Information Management (EIM) website at www.ecy.wa.gov/eim/index.htm. Search Study ID scol001.

Activity Tracker code

Ecology's Activity Tracker code for this addendum is 15-018.

Original Publication

Quality Assurance Project Plan: Skokomish River Basin Fecal Coliform TMDL Attainment Monitoring

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Addendum 2 to Quality Assurance Project Plan

Skokomish River Basin Fecal Coliform TMDL Attainment Monitoring

December 2014

Approved by:

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Signatures are not available on the Internet version.
EAP: Environmental Assessment Program

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(The above chapter numbers coincide with chapter numbers in the current Quality Assurance Plan template. Not all chapter numbers were needed in this Addendum.)

3.0 Background

Ecology's 2007 water quality attainment monitoring report on the Skokomish River Basin concluded that all assessed sites, except Weaver Creek, met the 2001 TMDL target limits for fecal coliform (Sargeant et al., 2007, Seiders et al., 2001). Monitoring conducted in 2009 demonstrated that fecal coliform levels continue to exceed state water quality standards (Collyard, 2010).

After reviewing the collected data, Ecology determined that they needed more fecal coliform data to adequately determine the extent and source of fecal coliform pollution in Weaver Creek.

The primary objective of this additional sampling is to monitor fecal coliform concentrations at several locations within the Weaver Creek watershed. The resulting data will be used to decide how best to mitigate sources of fecal coliform entering the Weaver Creek watershed.

This addendum uses sampling designs and quality control procedures outlined in the original attainment monitoring QAPP (Batts, 2005) to develop a monitoring strategy for Weaver Creek. Ecology will follow the approved standard operation procedures in EAP030 to collect fecal coliform samples.

Tables 1 and 2 show the project schedule, budget, and funding for the monitoring.

5.0 Organization and Schedule

5.1 Key individuals and their responsibilities

Table 1. Organization of project staff and responsibilities.

Staff (all are EAP except client)	Title	Responsibilities
Lydia Wagner Water Quality Program SWRO Phone: 360-407-6329	EAP Client/Field Assistant	Clarifies scope of the project. Provides internal review of the QAPP and approves the final QAPP. Field assistant in-training
Paul Anderson/Scott Collyard DSU,WOS Phone: 360-407-7548	Project Manager	Writes the QAPP. Conducts QA review of data, analyzes and interprets data, and enters data into EIM. Writes the draft report and final report.
Betsy Dickes Water Quality Program SWRO Phone: 360-407-6296	Field Lead	Provides internal review of the QAPP. Responsible for collecting samples, getting the samples to MEL, and training field assistant.
Mike Herold Water Quality Program Phone: 360-407-6434	Quality Assurance Officer	Reviews and approves the draft QAPP and the final QAPP.
George Onwumere DSU,WOS Phone: 360-407-6730	Unit Supervisor for the Project Manager	Provides internal review of the QAPP, approves the budget, and approves the final QAPP.
Robert F. Cusimano WOS Phone: 360-407-6596	Section Manager for the Project Manager	Reviews the project scope and budget, tracks progress, reviews the draft QAPP, and approves the final QAPP.
Rich Doenges Water Quality Program SWRO Phone: (360) 407-6271	Section Manager for the Study Area	Reviews the project scope and budget, tracks progress, reviews the draft QAPP, and approves the final QAPP.
Joel Bird Manchester Environmental Laboratory Phone: 360-871-8801	Director	Reviews and approves the final QAPP.
William R. Kammin Phone: 360-407-6964	Ecology Quality Assurance Officer	Reviews and approves the draft QAPP and the final QAPP.

EAP: Environmental Assessment Program
SWRO: Southwest Regional Office
DSU: Directed Studies Unit
WOS: Western Operations Section

5.2 Special training and certifications

The field lead has over 10 years of experience collecting bacteria samples and coordinating with MEL. The field assistant will be in-training for sampling fecal coliform and completing the associated paperwork necessary for the lab. All field staff will follow EAP's current field standard operating procedures appropriate for this study.

5.4 Project Schedule

Table 2. Weaver Creek project schedule.

Field and laboratory work	Due date	Lead staff
Field work completed	12/31/2015	Betsy Dickes
Laboratory analyses completed	01/31/2016	
Environmental Information System (EIM) database		
EIM Study ID	scol001	
Product	Due date	Lead staff
EIM data loaded	02/28/2016	Paul Anderson
EIM QA	03/31/2016	Scott Collyard
EIM complete	04/30/2016	Paul Anderson
Technical Memo		
Author lead / support staff	Paul Anderson	
Schedule		
Draft due to supervisor	06/30/2016	
Draft due to client/peer reviewer	07/31/2016	
Draft due to external reviewer(s)	08/31/2016	
Final (all reviews done) due to publications coordinator	09/30/2016	
Final report due on web	10/31/2016	

5.6 Budget and funding

Table 3. Weaver Creek project budget.

Parameter	Number of Samples	Number of QA Samples	Total Number of Samples	Cost Per Sample	MEL Subtotal
Fecal coliform MPN	120	24	144	$46.60	6710.40
+ 10% for additional source tracking samples as needed					671.04
Total for study					7381.44

7.1.2 Sampling location and frequency

Table 4 and Figure 1 show sampling locations for the project.

Table 4. Weaver Creek sampling locations.

Location ID	Station Description	Latitude	Longitude
16-TRBWEAV-1.0	Weaver Cr at W Skokomish Bridge	47.30872	-123.18575
16-TRBWEAV-1.38	Weaver Cr at Mason Courthouse Property	47.31099	-123.19199
16-TRBWEAV-1.8	Weaver Cr at W Deyette Rd	47.30882	-123.19782
16-WEAV-0.45	Weaver Cr at W Skokomish Valley Rd	47.31281	-123.20317
16-WEAV-1.72	Weaver Cr at Private Bridge	47.31104	-123.22306

Sampling Schedule

The tentative field sampling schedule is listed below. Some dates will likely change, due to unanticipated circumstances.

1/13/2015	7/28/2015
1/27/2015	8/11/2015
2/10/2015	8/25/2015
2/24/2015	9/8/2015
3/09/2015	9/22/2015
3/24/2015	10/06/2015
4/6/2015	10/20/2015
4/21/2015	11/03/2015
5/5/2015	11/17/2015
5/19/2015	12/1/2015
6/16/2015	12/15/2015
6/30/2015	
7/14/2015	

7.2 Maps or diagram

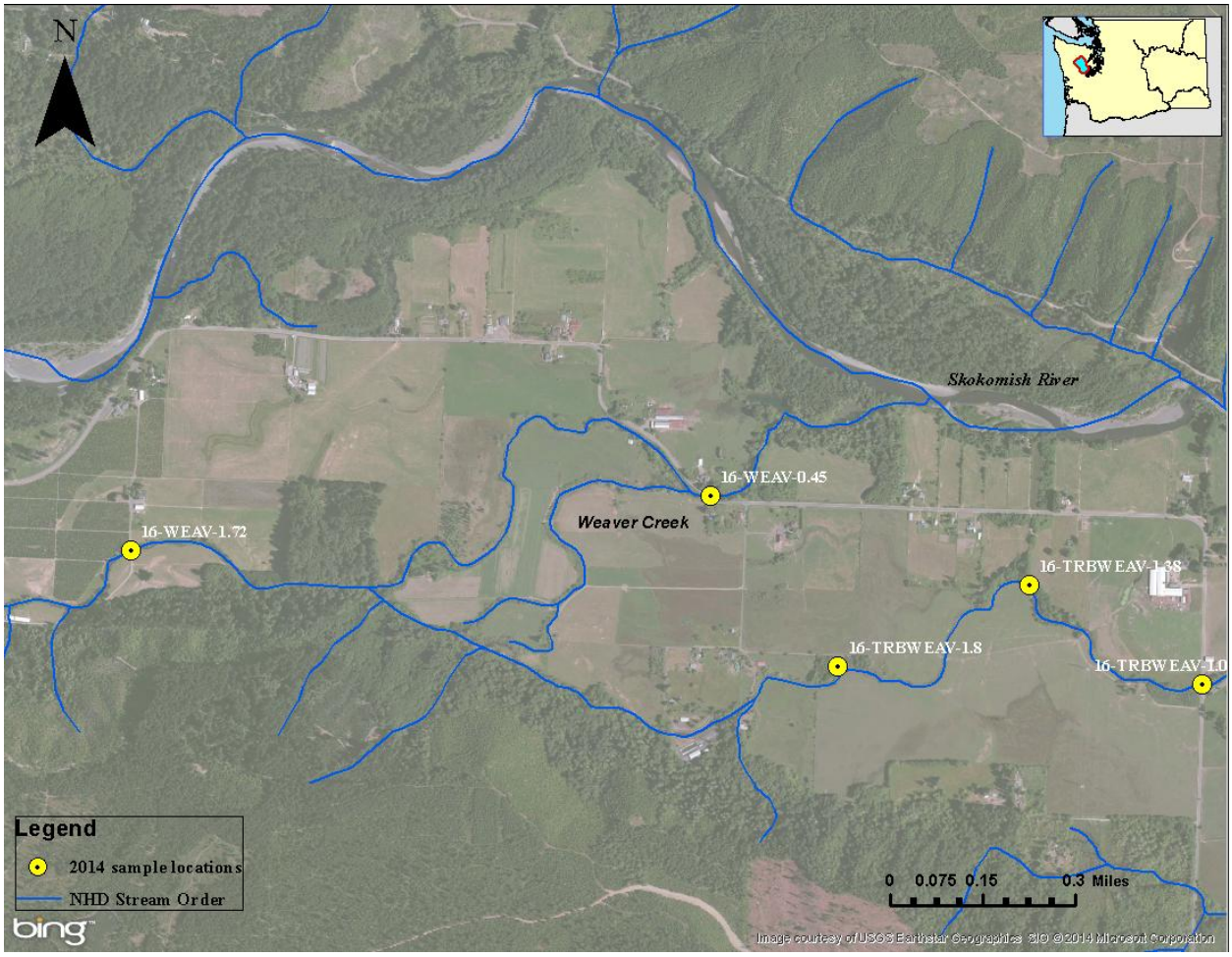

Figure 1. Map of Weaver Creek watershed sampling locations.

8.3 Invasive species evaluation

Field staff will follow EAP's SOP070 on minimizing the spread of invasive species (Parsons et al., 2012). The Weaver Creek study area is not in an area of extreme concern. Areas of extreme concern may have or do have invasive species like New Zealand mud snails that are particularly hard to clean off equipment and are especially disruptive to native ecological communities. For more information, please see Ecology's website on minimizing the spread of invasive species at www.ecy.wa.gov/programs/eap/InvasiveSpecies/AIS-PublicVersion.html.

8.4 Equipment decontamination

At the end of each field visit, field staff will follow procedures specified in SOP070 for *Areas of Moderate Concern* to minimize the risk of spreading aquatic invasive species. If stations are located in *Areas of Extreme Concern*, staff will follow procedures to prevent accidental introductions of aquatic organisms, as outlined in the SOP (Parsons, 2012).

9.0 Measurement Methods

Ecology will adhere to quality control procedures outlined in the 2005 QAPP (Batts, 2005). Likewise, Ecology will use the measurement quality objectives defined in the 2005 QAPP to assess quality/usability of the collected data. Unlike the project in the 2005 QAPP, flow will not be taken and there will be no formal side-by-side sampling with Mason Conservation District.

The 2005 QAPP covers quality procedures for FC data that will be collected during the 2015 study period.

Sampling will be conducted upstream to downstream.

15.0 References

Batts, D., 2005. Quality Assurance Project Plan: Skokomish River Basin Fecal Coliform TMDL Attainment Monitoring. Washington State Department of Ecology, Olympia, WA. Publication No. 05-03-201. https://fortress.wa.gov/ecy/publications/SummaryPages/0503201.html

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Sargeant, D., and C. Hempleman, 2007. Skokomish River Basin Fecal Coliform Bacteria Total Maximum Daily Load Study Water Quality Attainment Monitoring Report. Washington State Department of Ecology, Olympia, WA. Publication No. 07-03-054. https://fortress.wa.gov/ecy/publications/summarypages/0703054.html

Seiders, K., G. Hoyle-Dodson, and P. Pickett, 2001. Skokomish River Basin Fecal Coliform Bacteria Total Maximum Daily Load Study. Washington State Department of Ecology, Olympia, WA. Publication No. 01-03-014. https://fortress.wa.gov/ecy/publications/SummaryPages/0103014.html

Ward, W. and N. Mathieu, 2011. Standard Operation Procedures for the Collection of Fecal Coliform Bacteria Samples in Surface water, Version 2.1. Washington State Department of Ecology, Olympia, WA. SOP Number EAP030.
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