



DEPARTMENT OF  
**ECOLOGY**  
State of Washington

## **Addendum 6 to Quality Assurance Project Plan**

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### **Washington State Surface Water Monitoring Program for Pesticides in Salmonid Habitat for Two Index Watersheds**

February 2013

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## Publication Information

### Addendum

This addendum is on the Department of Ecology's website at <https://fortress.wa.gov/ecy/publications/SummaryPages/1303106.html>

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

### Activity Tracker Code

Ecology's Activity Tracker Code for this addendum is 03-501.

### Original Publication

Quality Assurance Project Plan: Washington State Surface Water Monitoring program for Pesticides in Salmonid Habitat for Two Index Watersheds

Publication No. 03-03-104

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**DEPARTMENT OF ECOLOGY**  
Environmental Assessment Program

February 15, 2013

**TO:** George Tuttle, Department of Agriculture  
Kirk Cook, Department of Agriculture

**THROUGH:** Dale Norton, Unit Supervisor, Environmental Assessment Program  
Department of Ecology

Will Kendra, Section Manager, Environmental Assessment Program  
Department of Ecology

**FROM:** Debby Sargeant, Environmental Assessment Program

**SUBJECT:** Addendum 6 to Quality Assurance Project Plan: Washington State Surface Water  
Monitoring Program for Pesticides in Salmonid Habitat for Two Index  
Watersheds

This addendum documents several changes planned for the Pesticides in Salmon Streams  
Monitoring Program for the 2013 sampling season. These planned changes include:

- Add two sample sites on Bertrand Creek, in the Nooksack basin to the program.
- Discontinue sampling the Entiat River sample site.
- Add a sample site in a tree-fruit agricultural area on Stemilt Creek.
- Reduce the sample season in Marion Drain by two weeks.
- Discontinue copper sampling.
- Add additional pesticides to the analyte list.

cc: Bill Kammin, Ecology Quality Assurance Officer, Dept. of Ecology  
Joel Bird, Manchester Environmental Laboratory, Dept of Ecology

## Purpose of This Addendum

The purpose of this addendum is to document changes to the Pesticides in Salmon Streams Monitoring Program for 2013. Changes include discontinuing a monitoring site and adding three new sites.

In 2012, copper and copper-related parameters were added to the sample regime. Copper and copper-related parameters will not be sampled in 2013. Four additional pesticide compounds will be added.

## Changes in Monitoring Site Locations

### Western Washington

#### Bertrand Creek, Nooksack Basin (WRIA 1)

Washington State Department of Agriculture (WSDA) is interested in adding a surface water pesticide monitoring site in an area that represents berry growing agricultural land-use. While berries are grown in the lower Skagit-Samish basin (another project monitoring area), WSDA is interested in capturing pesticide residues from a more intensely cultivated berry region.

Ecology and WSDA reviewed possible monitoring sites with a high percentage of agricultural area in berry production. Bertrand Creek in the Nooksack basin was chosen because a high percentage of the subbasin is in agricultural production (approximately 61% in the U.S. portion of the drainage). In addition, 20% of the U.S. portion of the basin is in berry production including blueberries, caneberries, strawberries, and grapes (WSDA, 2013).

Bertrand Creek is a lowland tributary that flows from southern British Columbia and drains into the mainstem Nooksack River at river mile 12.5. Approximately half of the subbasin is located in British Columbia, Canada. The Canadian region consists of urban land use; the U.S. portion is dominated by agriculture (Smith, 2002).

Bertrand Creek supports a variety of salmonid species including: spawning and rearing populations of fall chinook, coho, chum, steelhead, resident and sea run cutthroat trout, and possibly bull trout rearing (Seymour, 2013).

Two sites will be sampled on Bertrand Creek. An upstream site near the British Columbia/U.S. border will be sampled to capture water quality at the border. This site will be at the H Street Road bridge crossing on Bertrand Creek. The downstream site will be at the Rathbone Road bridge crossing, approximately 1.5 miles from the confluence with the mainstem Nooksack River. The downstream site is one of Ecology's ambient flow and temperature monitoring stations (station ID 01N060). Figure 1 shows the location of the Bertrand Creek sample sites, and Table 1 has the exact location and a description of each site.

Sampling at this site will follow procedures from the original QA Project Plan and subsequent QA Project Plan addendums (Johnson and Cowles, 2003; Burke and Anderson, 2006; Dugger et al., 2007; Anderson and Sargeant, 2009; Anderson, 2011; and Anderson, 2012). Flow and temperature data will be obtained from Ecology’s ambient monitoring program.

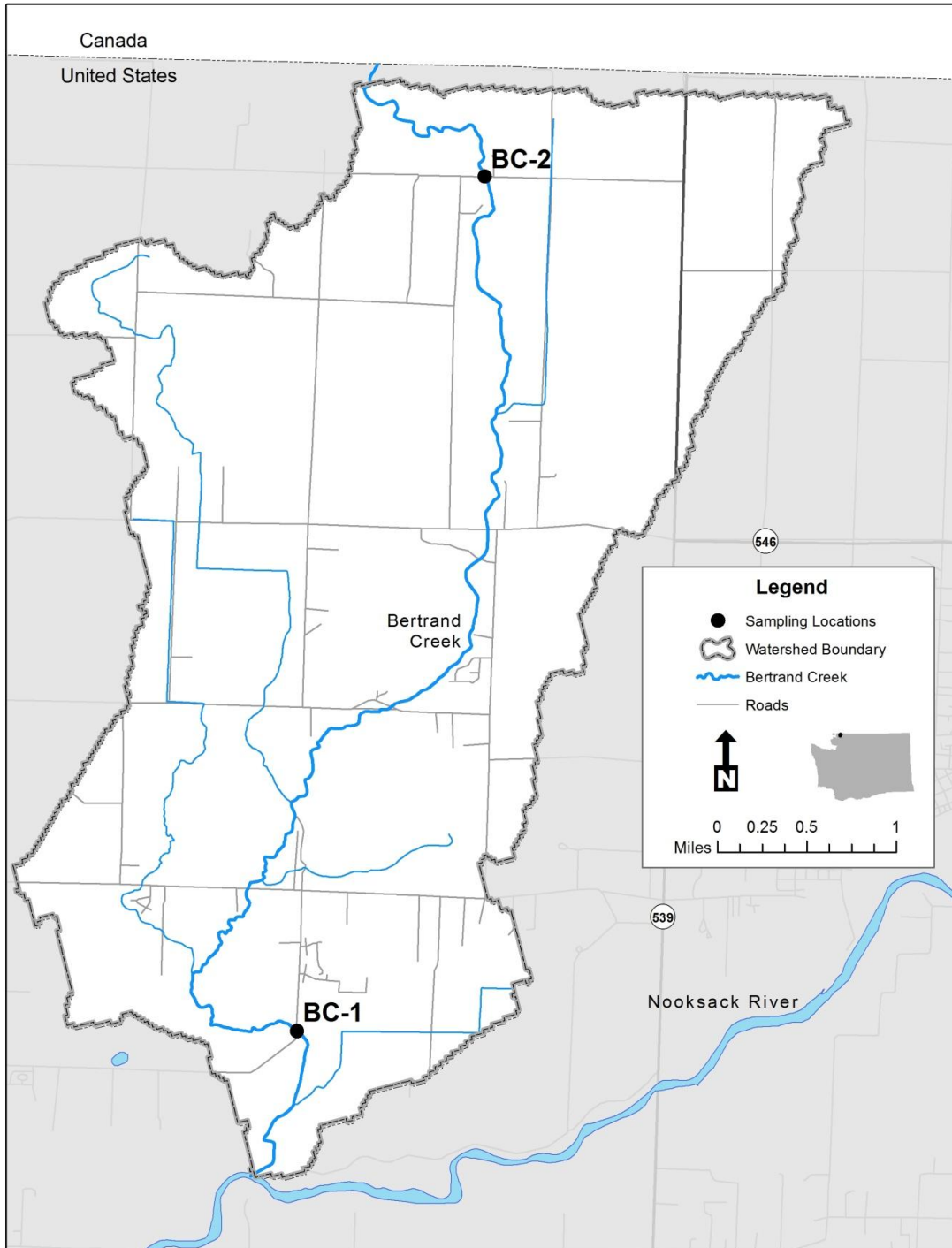


Figure 1. 2013 Bertrand Creek BC-1 sampling location in the Nooksack basin.

Table 1. Sampling Locations and Descriptions for Bertrand Creek (Nooksack basin), and Stemilt Creek (Alkali-Squilchuck basin).

Site Name	Site ID	Latitude	Longitude	Location Description
Bertrand Creek 1	BC-1	48.9243	-122.5302	Rathbone Road bridge
Bertrand Creek 2	BC-2	48.9934	-122.5095	H Street Road bridge
Stemilt Creek 1	SC-1	47.3747	-120.2497	Upstream of Old West Malaga Rd bridge

## Eastern Washington

### Entiat River, Entiat Basin (WRIA 46)

The Entiat River has been sampled as a part of the Pesticides in Salmon Streams Monitoring Program from 2007-2012. Agricultural land-use in this area includes primarily tree-fruit agriculture. Approximately 0.35% of the basin is in agricultural production.

Pesticide detections at the Entiat River site are rare. In six years, 17 pesticides and 6 pesticide synergists have been detected. Due to the infrequency of pesticide detections and the low percentage of area in tree-fruit production, sampling of this site will be discontinued and a site with greater area in tree-fruit production will be added for 2013.

### Stemilt Creek, Alkali-Squilchuck Basin (WRIA 40)

A site at the mouth of Stemilt Creek will be added in 2013, replacing the Entiat River site. Ecology and WSDA reviewed possible monitoring sites with a high percentage of agricultural area in tree-fruit production. Stemilt Creek in the Alkali-Squilchuck basin was chosen because a high percentage of the subbasin is in agricultural production.

Stemilt subbasin covers about 40 square miles with the headwaters originating in the upper reaches of Naneum Ridge and Wenatchee Mountain. The Creek is approximately 12.4 miles long and enters the Columbia River at river mile 461.4.

There are four irrigation districts operating within the Stemilt basin, and numerous private water diversions. The Stemilt basin was adjudicated in 1926 with no provisions for maintaining instream flow. Existing conditions reduce the flow in the lower 2-3 miles of Stemilt Creek to a trickle each year (Andonaegui, 2001).

Fish use includes spring chinook rearing, and rainbow/steelhead spawning and rearing from the mouth upstream to about RM 1.0. Rainbow trout and brook trout are distributed throughout the basin where low flows, natural barriers, and human-made fish passage barriers do not limit access to habitat (Andonaegui, 2001).

The site will be located just upstream of the Old West Malaga Road bridge located approximately 0.4 miles upstream from the confluence with the Wenatchee River. This site is one of Ecology's historical ambient flow and temperature monitoring stations

(station ID 40B060). Ambient monitoring at this station was conducted from August 2008 to September 2012. Figure 2 shows the location of the Stemilt Creek sampling site, and Table 1 has the exact location and a description of the site.

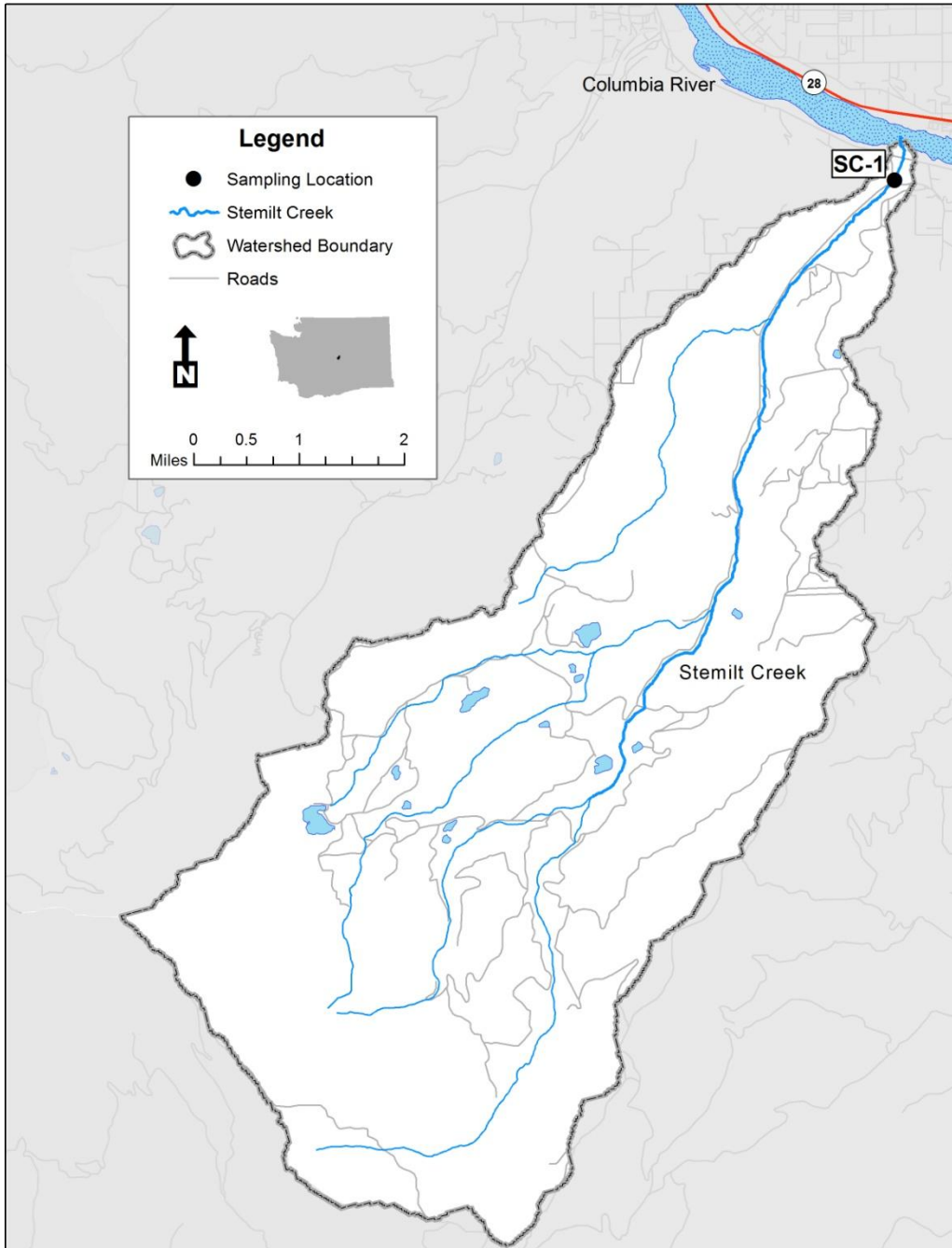


Figure 2. 2013 Stemilt Creek sampling location in the Alkali-Squilchuck basin.

Sampling at this site will follow procedures from the original QA Project Plan and subsequent QA Project Plan addendums (Johnson and Cowles, 2003; Burke and Anderson, 2006; Dugger et al., 2007; Anderson and Sargeant, 2009; Anderson, 2011; and Anderson, 2012). If the creek has no water at the sample site, an alternate, upstream site will be sampled.

## Changes in Monitoring Parameters

A 2011 report (Norton et al., 2011) identified urban lawn and garden use of copper as the potentially largest source of copper in the Puget Sound basin. In 2012, copper sampling and ancillary parameters were added to the suite of laboratory analysis to determine if elevated concentrations of copper are present in urban and agricultural settings. Ancillary parameters included: total and dissolved copper, hardness, DOC, Ca, Mg, Na, K, sulfate, chloride, and alkalinity (Anderson, 2012). Copper and the associated ancillary parameters will be discontinued for the 2013 monitoring season. A report of copper monitoring results from 2012 will be published in 2013.

For 2013, added pesticide parameters include the insecticide cypermethrin and the fungicides cyprodinil, pyraclostrobin, and boscalid, as described in Table 2.

Table 2. 2013 Added Pesticides and Laboratory Methods.

Pesticide	Type	Analytical Method <sup>1</sup>		
		Extraction	Analysis	Reference
Cypermethrin (including alpha, beta, and zeta isomers)	Pyrethroid Insecticide	3535	GC/MS	8270
Cyprodinil	Fungicide	n/a	HPLC/MS/MS	8321B
Pyraclostrobin	Fungicide	n/a	HPLC/MS/MS	8321B
Boscalid	Fungicide	3535	GC/MS	8270

<sup>1</sup>All analytical methods refer to EPA SW 846, unless otherwise noted.

n/a: not applicable

GC/MS: gas chromatography/mass spectrometry

HPLC/MS/MS: high performance liquid chromatography/triple quadrupole mass spectrometry

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