



# FACT SHEET

## 2006 Surface Water Monitoring Program Report *July 2007*

### Introduction

**Background:** The Washington State Departments of Agriculture (WSDA) and Ecology are conducting a long-term monitoring study to characterize pesticide concentrations in surface water during the typical pesticide use season. This fact sheet provides a summary of the 2006 monitoring results and lists the changes to the sampling program that occurred during the year.

**Study Sites:** Pesticide concentrations were measured in three watersheds representing urban and agricultural land-use patterns. (See Figure 1.) The monitoring locations and watersheds that were chosen had a likely combination of off-site pesticide transport and use by salmonids.

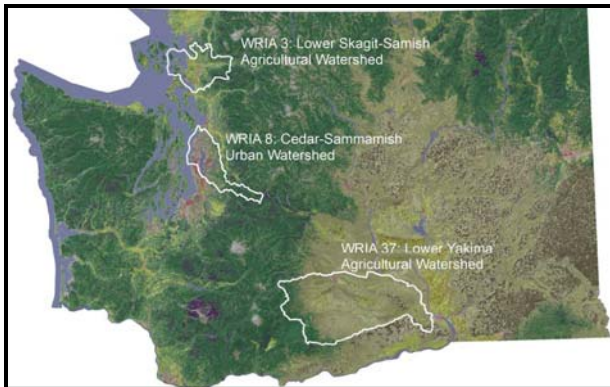


Figure 1. Locations of the 2006 study watersheds

Thornton Creek, located in Watershed Resource Inventory Area (WRIA) 8, was selected as the urban watershed due to listed species, prior salmonid habitat enhancements efforts, and the occurrence of pre-spawning mortality in Coho salmon.

WRIA 3, the Lower Skagit-Samish watershed, and WRIA 37, the Lower Yakima watershed, were selected to represent western and eastern agricultural land-use practices respectively. Study sites were located in four sub-basins of WRIA 3 (Samish River, Big Ditch Slough, Browns Slough and Indian Slough) and in three sub-basins of WRIA 37 (Marion Drain, Sulphur Creek Wasteway and Spring Creek).

Year 2006 is the first of a three-year study cycle to investigate pesticide occurrence in the Skagit-Samish watershed and the fourth in a six-year cycle to study pesticides in the Cedar-Sammamish and Lower Yakima watersheds.

**Sampling:** This study was designed to address pesticide occurrences in selected salmonid-bearing surface waters during typical pesticide-use periods. Sampling is typically conducted weekly from March through October, which is the highest application period for pesticides.

Laboratory analyses were conducted for 165 pesticide, herbicide, and degradate compounds. These compounds were selected based on the use of the pesticide, toxicity to non-target organisms, transport potential, and cost of analysis. Both registered and historical-use pesticides were analyzed, including organochlorine, organophosphorus, and carbamate pesticide groups.

Conventional water quality parameters – total suspended solids, pH, conductivity, temperature, and flow – were measured to better understand factors influencing pesticide toxicity, fate and transport, and general water quality.

## Sampling Results

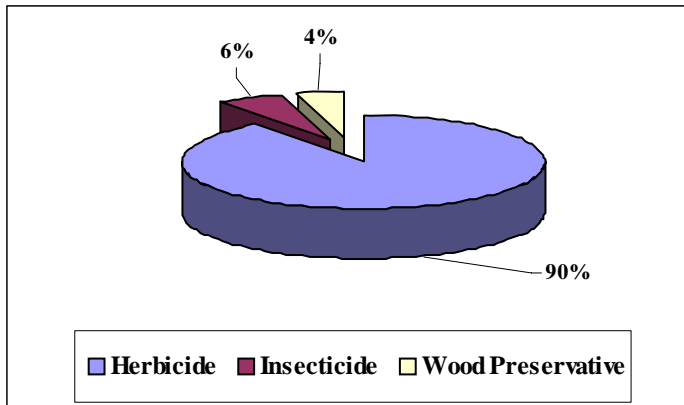


Figure 2. Pesticide detection by category - WRIA 8 (urban)

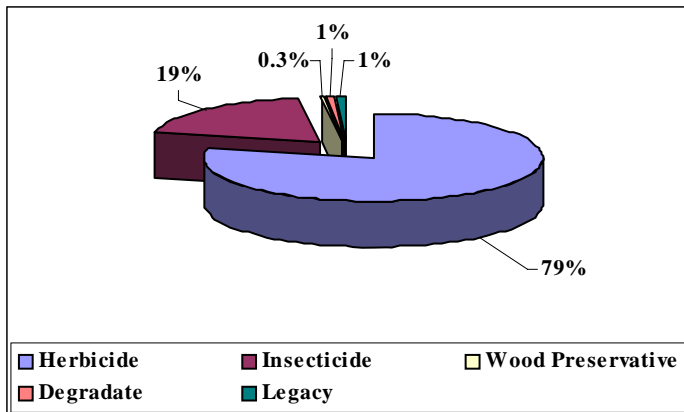


Figure 4. Pesticide detections by category-WRIA 37 (agriculture-east)

During the 2006 monitoring study, a total of 42 currently registered pesticides, historical-use pesticides, and/or degradates were detected in the urban and agricultural watersheds. The majority of pesticide detections were low and close to analytical detection limits.

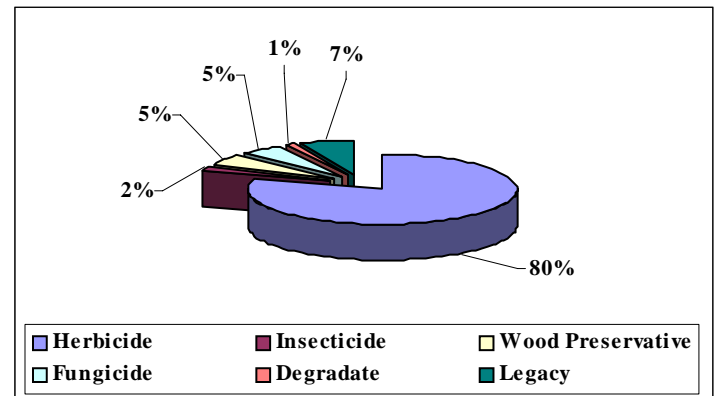


Figure 3. Pesticide detection by category-WRIA 3 (agriculture-west)

When pesticides were detected, the most commonly found general pesticide category for both the urban and agricultural basins was herbicides. (See Figures 2, 3 and 4.) Dichlobenil (Casoron®) was the most frequently detected compound in the urban watershed. Atrazine was the most frequently detected compound in the eastern agricultural basins while 2,4-D was the

most frequently detected compound in the western basins. Azinphos-methyl, chlorpyrifos, and DDE exceeded either a state water quality standard or a recommended water quality criteria at least once during 2006.

## Summary of Project Changes

During 2006, the following changes were made to the *Surface Water Monitoring Program for Pesticides in Salmonid-Bearing Streams*:

- 1) Five new sampling sites in the Skagit-Samish watershed were added.
- 2) Five new pesticide residues and degradate products and two new pesticide groups, pyrethroids and nicotinoids, were added for analysis.
- 3) The reporting limits of several target analytes were reduced.

The program consistently strives to improve pesticide detection limits and increase the breadth of analysis for currently registered products while retaining acceptable performance measures of accuracy, precision, and reproducibility.

## For More Information

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