

Middle Rogue Pesticide Stewardship Partnership, 2020 Summary

Gordon Jones, Jennie Morgan, Kora Mousseaux, John Speece, & Karelia Ver Eecke, Members of the MRPSP Coordinating Council

Introduction

The Middle Rogue Pesticide Stewardship Partnership (MRPSP) was established in 2014 as part of the Oregon Department of Agriculture's statewide effort to monitor water quality, particularly in connection to agricultural practices. Each year the MRPSP team collects water samples, which are analyzed by the Oregon Department of Environmental Quality. The results are used to inform outreach and education efforts as they relate to water quality and pesticide use; assess the use of chemicals of greatest concern; and to develop communication tools and strategies to reach MRPSP's constituents. MRPSP's stakeholders include agricultural applicators; state and county agencies; irrigation districts; landscape contractors; public and private forestry managers; urban residents; and municipalities. The goal of the MRPSP is to reduce the frequency of detection and concentrations of pesticides within the monitored watersheds.

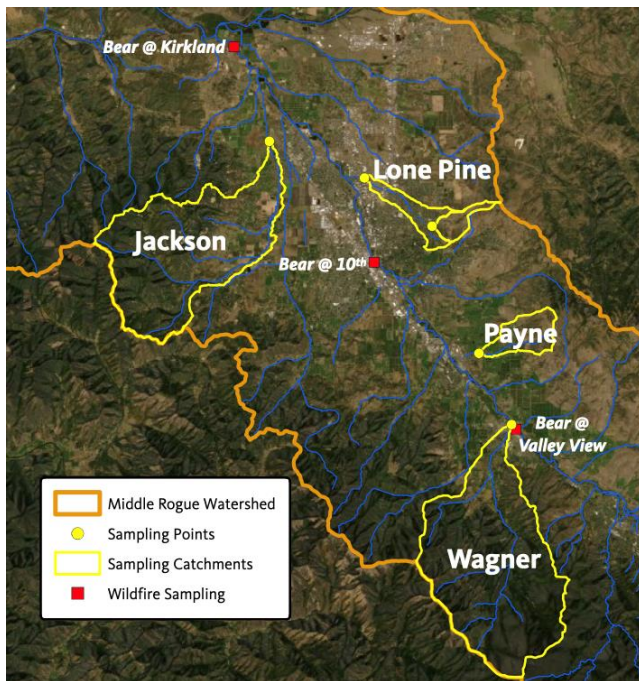


Figure 1: 2020 MRPSP sampling locations. Regular sampling occurred on 12 dates February-November. Wildfire response samples were collected in October and November.

Terms to Know

Aquatic Life Benchmark: a research-derived concentration of a given chemical which is found to be harmful to aquatic organisms. The aquatic life benchmarks used are developed by the Environmental Protection Agency (<https://bit.ly/EPAaqualife>).

Detection Frequency: the proportion of samples in which a given chemical was detected across all grab samples collected within a given year.

Pesticide of Interest: a pesticide identified to occur at concentrations approaching or exceeding Federal, State, or Tribal human health standards or aquatic life benchmarks. These pesticides are determined locally by the MRPSP using data from ODEQ.

Monitoring

In 2020 the MRPSP collected water samples from four tributaries of Bear Creek: Jackson Creek, Lone Pine Creek, Payne Creek, and Wagner Creek (Figure 1). In response to the Almeda fire and associated recovery efforts, additional sampling events took place on Bear Creek at three different locations (Figure 1). Water samples were collected February to November.

Results & Interpretation

During the regular 2020 sampling season, the MRPSP detected seventeen chemicals in four watersheds, for a total of 146 detections. Of those seventeen chemicals, most were detected infrequently and at less than 10% of the aquatic life benchmark. However, diuron remains a pesticide of concern because of its detection frequency as does imidacloprid because of benchmark exceedances. The frequency and concentration of metsulfuron-methyl detections in Lone Pine Creek cause that herbicide to be upgraded to a pesticide of concern for 2021.

Table 1: MRPSP pesticides of interest based on 2020 data

Compound	Selected Trade Names	# of Detections	Detection Frequency (%)	Aquatic Life Benchmark (µg/L)	Number of Benchmark Exceedances
Imidacloprid	<i>Admire, Gaucho</i>	11	17	0.01	11
Metsulfuron-Methyl	<i>Escort, Ally</i>	21	32	0.36	2
Diuron	<i>Karmex, Direx, Kovar</i>	23	35	2.4	0
Oxyfluorfen	<i>Goal, Goaltender, Galigan</i>	0	0	0.29	0

Oxyfluorfen and diuron are herbicides. Imidacloprid is an insecticide. All three of these pesticides can be used on a wide range of sites from home landscaping to commercial agriculture. Metsulfuron-methyl is an herbicide labeled for use on rights-of-way, industrial and forestry sites, and selected other areas. Many meetings with applicators of these compounds have been led by the MRPSP and application strategies that will result in reduced pesticide drift and runoff were discussed.

Diuron is used to control road-side vegetation and was found in Jackson, Lone Pine, and Bear creeks. The MRPSP is working with public works crews throughout the county to improve best management practices to minimize off-target movement of diuron.

There were *no* detections of oxyfluorfen during the 2020 sampling season. This reduction may be the result of MRPSP reconnaissance sampling and targeted outreach to landowners near Jackson Creek in 2019. Oxyfluorfen will remain a pesticide of concern until two years have elapsed without significant detections.

Of the four sampling watersheds, our newest, Lone Pine Creek accounted for 100% of benchmark exceedances, 89% of all chemical detections, and 40% of all samples collected in 2020. These rates highlight Lone Pine Creek as

an important watershed within which to better understand land-use and pesticide application as they relate to water quality.

Conclusion

As our dataset continues to grow, MRPSP partners have been able to identify the pesticides most common and of greatest concern in the Bear Creek Watershed, and in doing so are working to develop communication materials and strategies for the users of those chemicals. The intention of pesticide monitoring is that applicators, the general public, and research scientists will better understand how and why certain pesticides accumulate and move through our local watersheds. The MRPSP will continue to offer education, technical assistance, and incentives for the adoption of scientifically-based, best management practices to ensure appropriate pest control while reducing or eliminating pesticide contamination of surface waters.

For further information:

Kora Mousseaux, JSWCD, (541) 423-6181
Gordon Jones, OSU SOREC, (541) 776-7371
Kirk Cook, ODA, (541) 841-0074
Kevin Masterson, ODEQ, (541) 633-2005

Visit: <https://www.jswcd.org/the-middle-rogue-pesticide-stewardship-partnership>