

Oregon's Pesticide Stewardship Partnership Evaluation of Pesticides of High Concern

Created 10/2020

The 2013 Memorandum of Understanding for Oregon Pesticide Water Quality Protection requires that pesticides detected in the State of Oregon be assessed as to their level of concern on an annual basis.

In 2018 the States of Idaho, Oregon, and Washington agreed to a procedure to conduct that assessment. The assessment methodology uses water quality data collected throughout the state as part of the Pesticide Stewardship Partnership. This

data is analyzed using the frequency of detection for a pesticide coupled with both the acute and chronic aquatic life benchmark developed by the U.S. Environment Protection Agency (EPA).

In order to easily employ this methodology, the states have developed the following matrix which specifies when a pesticide is considered a high, moderate, or low level of concern. This matrix allows for determinations at both the watershed and statewide level.

Decision Matrix Based on Water Monitoring Data (2019)

Detected concentration relative to aquatic life benchmarks (ALB) and frequency of detection

REFERENCE LEVEL CRITERIA

| FREQUENCY OF DETECTION IN % LAST 3 YEARS | REFERENCE LEVEL CRITERIA | | | | |
|---|---|---|---|--------------------------------------|---------------------------|
| | ≥1 detection at or above 50% of an acute ALB | ≥3 detections at or above 50% of a chronic ALB | 1 to 2 detections at or above 50% of a chronic ALB | No detections over 50% of any ALB | |
| | 100 to 65.1 | High Level of Concern | High Level of Concern | High Level of Concern | Moderate Level of Concern |
| | 65 to 35.1 | High Level of Concern | High Level of Concern | Moderate Level of Concern | Moderate Level of Concern |
| 35 to 0 | High Level of Concern | High Level of Concern | Moderate Level of Concern | Low Level of Concern | |

Each Pesticide Stewardship Partnership area will determine the level of concern for detected pesticides. Pesticides that are deemed of high concern in over 30% of the PSP areas will be designated as statewide pesticides of high concern or statewide Pesticides of Concern (POCs).

Each year data is evaluated for the previous three years. This is done to capture both positive and negative trends in the data over the most recent three years. This allows for the most recent and pertinent data to be used in the evaluation thus providing the most realistic picture of the status of pesticides in watersheds monitored by the Pesticide Stewardship Partnership.

The states have chosen to use 50% of EPA’s aquatic life benchmark to address uncertainties arising from the use of grab sampling to collect water quality samples and gaps caused from periodic sampling (generally every two weeks March-June and again September- November) rather than continuous or more frequent sampling.

The aquatic life benchmarks developed by EPA

generally contain six levels for each pesticide. These are acute and chronic benchmarks for fish, acute and chronic benchmarks for aquatic invertebrates, acute benchmarks for vascular plants (conifers, ferns, flowering, and non-flowering plants) and acute benchmarks for non-vascular plants (mosses, hornworts and liverworts, and some algae). In assessing the water quality results, the Water Quality Pesticide Management Team (WQPMT) uses to lowest value of the six benchmarks.

The following are the results of the 2020 assessment on watershed level. Pesticides highlighted in red are designated as Pesticides of High Concern (PHC). Those highlighted in yellow are designated as Pesticides of Moderate Concern (PMC).

AMAZON PSP (EUGENE AREA)

| Pesticide | Pesticide Type | Detection Frequency | Detections Above 50% Acute ALB | Detections Above 50% Chronic ALB |
|-----------------------|----------------|---------------------|--------------------------------|----------------------------------|
| Diuron | Herbicide | 67% | 1 | |
| Imidacloprid | Insecticide | 5% | | 9 |
| Mecoprop-p (MCCP-p) | Herbicide | 3% | 1 | |
| 2,4-D | Herbicide | 41% | | |
| 2,6-Dichlorobenzamide | Metabolite | 77% | | |
| AMPA | Metabolite | 95% | | |
| Glyphosate | Herbicide | 79% | | |

HOOD RIVER PSP (MID-COLUMBIA RIVER)

| Pesticide | Pesticide Type | Detection Frequency | Detections Above 50% Acute ALB | Detections Above 50% Chronic ALB |
|-----------------------|----------------|---------------------|--------------------------------|----------------------------------|
| Imidacloprid | Insecticide | 0.8% | 1 | |
| 2,6-Dichlorobenzamide | Metabolite | 73% | | |
| Deisopropyltarazine | Metabolite | 36% | | |
| Diuron | Herbicide | 47% | | |

CLACKAMAS PSP

| Pesticide | Pesticide Type | Detection Frequency | Detections Above 50% Acute ALB | Detections Above 50% Chronic ALB |
|-----------------------|----------------|---------------------|--------------------------------|----------------------------------|
| Chlorpyrifos | Insecticide | 7% | 11 | |
| Diazinon | Insecticide | 5% | 7 | |
| Dimethenamid | Herbicide | 30% | 1 | |
| Diuron | Herbicide | 58% | 1 | |
| Imidacloprid | Insecticide | 19% | 33 | 35 |
| Metsulfuron-methyl | Herbicide | 9% | 1 | |
| Oxyfluorfen | Herbicide | 20% | 1 | |
| 2,6-Dichlorobenzamide | Metabolite | 91% | | |
| AMPA | Metabolite | 100% | | |
| Glyphosate | Herbicide | 69% | | |
| Simazine | Herbicide | 56% | | |

MIDDLE DESCHUTES PSP (MADRAS AREA)

| Pesticide | Pesticide Type | Detection Frequency | Detections Above 50% Acute ALB | Detections Above 50% Chronic ALB |
|---------------|----------------|---------------------|--------------------------------|----------------------------------|
| Chlorpyrifos | Insecticide | 12% | 13 | |
| Dimethenamid | Herbicide | 45% | 1 | |
| Dimethoate | Insecticide | 26% | | 13 |
| Diuron | Herbicide | 74% | 4 | |
| Imidacloprid | Insecticide | 8% | | 9 |
| Linuron | Herbicide | 67% | 3 | 50 |
| Oxyfluorfen | Herbicide | 26% | 5 | |
| Pendimethalin | Herbicide | 51% | 1 | |
| Prometryn | Herbicide | 52% | 3 | |
| AMPA | Metabolite | 67% | | |
| Azoxystrobin | Fungicide | 50% | | |
| Glyphosate | Herbicide | 51% | | |
| Simazine | Herbicide | 56% | | |

MIDDLE ROGUE PSP (MEDFORD AREA)

| Pesticide | Pesticide Type | Detection Frequency | Detections Above 50% Acute ALB | Detections Above 50% Chronic ALB |
|--------------------|----------------|---------------------|--------------------------------|----------------------------------|
| Imidacloprid | Insecticide | 7% | | 15 |
| Metsulfuron-methyl | Herbicide | 10% | 2 | |
| Oxyfluorfen | Herbicide | 8% | 3 | |
| AMPA | Metabolite | 55% | | |
| Diuron | Herbicide | 47% | | |
| Glyphosate | Herbicide | 39% | | |

PUDDING PSP (SILVERTON AREA)

| Pesticide | Pesticide Type | Detection Frequency | Detections Above 50% Acute ALB | Detections Above 50% Chronic ALB |
|-----------------------|----------------|---------------------|--------------------------------|----------------------------------|
| Atrazine | Herbicide | 27% | 1 | |
| Chlorpyrifos | Insecticide | 4% | 4 | |
| Diazinon | Insecticide | 2% | 2 | |
| Dimethenamid | Herbicide | 56% | 1 | |
| Diuron | Herbicide | 77% | 4 | |
| Ethoprop | Insecticide | 12% | 2 | |
| Imidacloprid | Insecticide | 8% | 9 | 9 |
| Oxyfluorfen | Herbicide | 14% | 1 | |
| Pendimethalin | Herbicide | 51% | 1 | |
| Prometryn | Herbicide | 52% | 3 | |
| 2,4-D | Herbicide | 37% | | |
| 2,6-Dichlorobenzamide | Metabolite | 62% | | |
| AMPA | Metabolite | 100% | | |
| Deisopropylatrazine | Metabolite | 45% | | |
| Metolachlor | Herbicide | 54% | | 1 |
| Simazine | Herbicide | 64% | | |

SOUTH UMPQUA PSP (ROSEBURG AREA)

| Pesticide | Pesticide Type | Detection Frequency | Detections Above 50% Acute ALB | Detections Above 50% Chronic ALB |
|-----------|----------------|---------------------|--------------------------------|----------------------------------|
| Atrazine | Herbicide | 51% | | |

WALLA WALLA PSP (MEDFORD AREA)

| Pesticide | Pesticide Type | Detection Frequency | Detections Above 50% Acute ALB | Detections Above 50% Chronic ALB |
|--------------|----------------|---------------------|--------------------------------|----------------------------------|
| Carbaryl | Insecticide | 8% | 1 | |
| Chlorpyrifos | Herbicide | 12% | 22 | |
| Pyriproxyfen | Herbicide | 1% | 1 | |
| Glyphosate | Herbicide | 36% | | |

WASCO PSP (THE DALLES AREA)

| Pesticide | Pesticide Type | Detection Frequency | Detections Above 50% Acute ALB | Detections Above 50% Chronic ALB |
|--------------|----------------|---------------------|--------------------------------|----------------------------------|
| Malathion | Insecticide | 11% | 4 | |
| AMPA | Metabolite | 38% | | |
| Imidacloprid | Insecticide | 1% | | 2 |

PUDDING PSP (SILVERTON AREA)

| Pesticide | Pesticide Type | Detection Frequency | Detections Above 50% Acute ALB | Detections Above 50% Chronic ALB |
|--|----------------|---------------------|--------------------------------|----------------------------------|
| Atrazine | Herbicide | 52% | 2 | |
| Bifenthrin | Insecticide | 3% | | 6 |
| Chlorothalonil | Fungicide | 2% | 1 | 1 |
| Chlorpyrifos | Insecticide | 10% | 20 | |
| Diazinon | Insecticide | 7% | 4 | |
| Diuron | Herbicide | 99% | 5 | |
| Ethoprop | Insecticide | 8% | | 3 |
| Imidacloprid | Insecticide | 60% | | 123 |
| Malathion | Insecticide | 51% | 1 | |
| Metolachlor | Herbicide | 70% | | 6 |
| Oxyfluorfen | Herbicide | 17% | 1 | |
| Simazine | Herbicide | 65% | 2 | |
| Sulfometuron-methyl | Herbicide | 46% | 4 | |
| 2-Chloro-4-isopropylamino-6-amino-s-triazine | Metabolite | 44% | | |
| 2,6-Dichlorobenzamide | Metabolite | 85% | | |
| AMPA | Metabolite | 97% | | |
| Azoxystrobin | Fungicide | 40% | | |
| Deisopropylatrazine | Metabolite | 68% | | |
| Glyphosate | Herbicide | 80% | | |
| Metribuzin | Herbicide | 46% | | |
| Metsulfuron-methyl | Herbicide | 29% | | 2 |
| Propiconazole | Fungicide | 56% | | |
| Simazine | Herbicide | 56% | | |

An analysis of the individual results from the watersheds is used to determine the statewide PHC. In order to be designated as a statewide PHC a pesticide must have been detected at a level either above an acute or chronic aquatic life benchmark at a frequency prescribed in the decision matrix in at least 30% of the monitored watersheds. Pesticides that fall under this threshold but are detected at a PHC level in less than 30% of the watersheds or detected

at a high frequency are designated as a PMC. These pesticides should be monitored to ensure that they do not rise to the level of a PHC in the future.

The following table presents the current statewide PHC and PMC's. Those indicated in red are designated as a statewide PHC. Those designated as either orange or yellow are the current list of PMC's.

STATEWIDE SUMMARY

| Pesticide | Pesticide Type | Watersheds Designated as PHC | Watersheds Designated as PMC |
|-----------------------|----------------|------------------------------|------------------------------|
| Imidacloprid | Insecticide | 7 | 1 |
| Chlorpyrifos | Insecticide | 5 | |
| Diuron | Herbicide | 5 | 2 |
| Oxyfluorfen | Herbicide | 5 | |
| Diazinon | Insecticide | 3 | |
| Dimethenamid | Herbicide | 3 | |
| Atrazine | Herbicide | 2 | |
| Ethoprop | Insecticide | 2 | |
| Metsulfuron-methyl | Herbicide | 2 | 1 |
| Bifenthrin | Insecticide | 1 | |
| Carbaryl | Insecticide | 1 | |
| Dimethoate | Insecticide | 1 | |
| Linuron | Herbicide | 1 | |
| Mecoprop-p (MCP-p) | Herbicide | 1 | |
| Metolachlor | Herbicide | 1 | 2 |
| Pendimethalin | Herbicide | 1 | |
| AMPA | Metabolite | | 7 |
| Glyphosate | Herbicide | | 6 |
| 2,6-Dichlorobenzamide | Metabolite | | 5 |
| Deisopropylatrazine | Metabolite | | 3 |