Groundwater Protection Program

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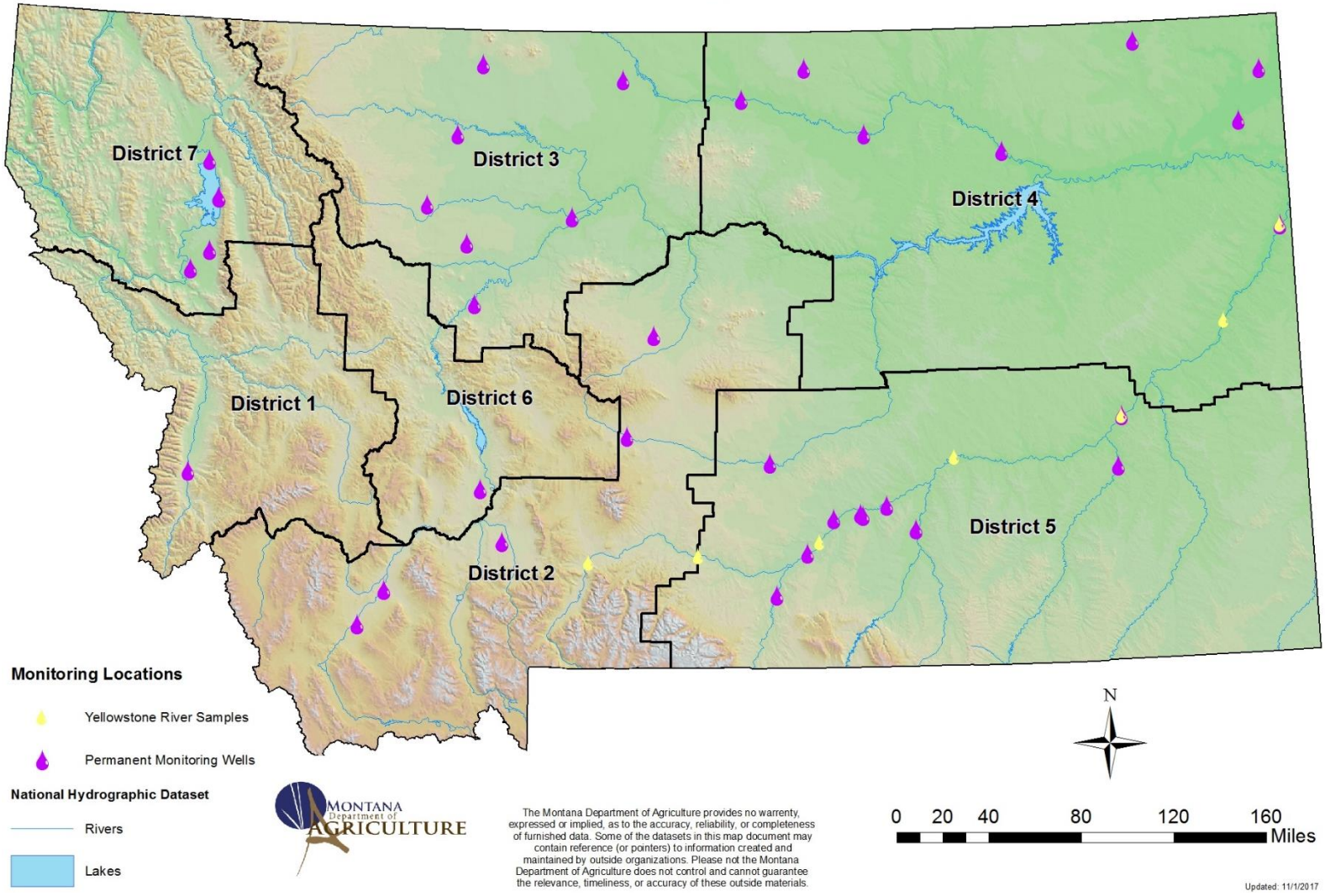
Montana Department Of Agriculture Groundwater Protection Program 2017 Monitoring Locations



During the 2017 sampling season, the Groundwater Protection Program (GWPP) collected water samples from 37 permanent groundwater monitoring wells, 5 Montana Salinity Control Association groundwater monitoring wells, and surface water samples from 7 locations on the Yellowstone River. All wells in Regions 4 and 5 and the eastern half of Regions 2 and 3 were sampled in May, June, August, and September. Wells in the western half of Regions 2 and 3 along with all wells in Regions 1, 6, and 7 were sampled in May and August. In total, 142 samples were collected and analyzed for up to 108 pesticides and pesticide metabolites. Results are summarized in the following tables by region. No detections exceeded the respective drinking water standard, or the action threshold of 50% of the respective drinking water standard. In general, most samples were < 1 % of the respective drinking water standard.

District 1

Analyte	Number of Detections	Average Detected Concentration (ppb)	Drinking Water Standard (ppb)
Aminopyralid	1	Q < 0.03	4,000

District 2

Analyte	Number of Detections	Average Detected Concentration (ppb)	Drinking Water Standard (ppb)
Prometon	3	0.0046	100
Clothianidin	2	Q < 0.001	650
Flucarbazone	2	0.0155	3,000
Imazamethabenz methyl ester	2	0.0012	1,700 (sum parent + metabolite)
Imazamethabenz methyl acid metabolite	1	Q < 0.0025	
Metsulfuron methyl	2	Q < 0.01	1,700
NOA 407854	2	Q < 0.0052	2,000
Sulfosulfuron	2	0.0056	1,600
2,4-D	1	Q < 0.009	10
Chlorsulfuron	1	Q < 0.0056	100

District 3

Analyte	Number of Detections	Average Detected Concentration (ppb)	Drinking Water Standard (ppb)
Imazamethabenz methyl acid metabolite	4	0.0039	1,700 (sum parent + metabolite)
Imazamethabenz methyl ester	4	0.0043	
NOA 407854	4	0.1566	2,000 (sum parent + metabolite)
NOA 447204	1	0.054	
Aminopyralid	2	Q < 0.03	4,000
Hexazinone	2	Q < 0.0015	300
Imidacloprid	2	0.0035	380
Prometon	2	0.0053	100
Pyrasulfotole	2	0.63	70
2,4-D	1	Q < 0.009	10
Bromacil	1	0.021	700
Bromoxynil	1	0.073	3.2
Clopyralid	1	0.12	1,000
Clothianidin	1	Q < 0.001	650
Imazamox	1	Q < 0.0057	20,000
Imazapic	1	Q < 0.003	3,000
Metalaxyl	1	Q < 0.0035	400
Picloram	1	Q < 0.28	500

"Q" represents samples detected at below the respective analytical reporting limit. For statistical calculations, the respective analytical reporting limits values were used to quantify results.

District 4

Analyte	Number of Detections	Average Detected Concentration (ppb)	Drinking Water Standard (ppb)
Flucarbazone	10	0.0026	3,000
Aminopyralid	4	0.04	4,000
Sulfentrazone	4	Q < 0.035	700
2,4-D	3	Q < 0.009	10
NOA 407854	3	Q < 0.0052	2,000
Imazamethabenz methyl acid metabolite	2	Q < 0.0025	1,700
Bentazon	1	Q < 0.0022	210
Metolachlor ESA	1	Q < 0.005	1,000
Picloram	1	Q < 0.28	500
Prometon	1	Q < 0.001	100
Saflufenacil	1	Q < 0.01	310

District 5

Analyte	Number of Detections	Average Detected Concentration (ppb)	Drinking Water Standard (ppb)
Metolachlor ESA	27	0.0298	1,000
Clothianidin	9	0.1369	650
NOA 407854	9	0.0162	2,000
Alachlor ESA	8	0.075	2
Bentazon	8	0.0514	210
Atrazine	5	0.0031	3 (sum parent + metabolites)
Deethyl atrazine	5	0.0021	
DEDIA	1	Q < 0.1	
Hydroxy atrazine	5	0.0288	70
Prometon	5	Q < 0.001	100
Imazethapyr	4	0.0042	17,000
Pyrasulfotole	4	0.0363	70
Thiamethoxam	4	0.0235	80
Simazine	3	0.0057	4
Clopyralid	2	0.200	1,000
Dimethenamid OA	2	0.0077	300
2,4-D	1	Q < 0.009	10
Azoxystrobin	1	0.0061	1,200
Chlorsulfuron	1	Q < 0.0056	100

"Q" represents samples detected at below the respective analytical reporting limit. For statistical calculations, the respective analytical reporting limits values were used to quantify results.

District 6

Analyte	Number of Detections	Average Detected Concentration (ppb)	Drinking Water Standard (ppb)
Atrazine	1	0.0051	3 (sum parent + metabolites)
Deethyl atrazine	1	0.0085	
Bentazon	1	Q < 0.0022	210
Imazamethabenz methyl acid metabolite	1	0.0053	1,700 (sum parent + metabolite)
Imazamethabenz methyl ester	1	Q < 0.0025	
Imazamox	1	Q < 0.0057	20,000
NOA 407854	1	Q < 0.0052	2,000

District 7

Analyte	Number of Detections	Average Detected Concentration (ppb)	Drinking Water Standard (ppb)
Prometon	3	0.0518	100
Aminopyralid	2	2.955	4,000
Imidacloprid	2	0.011	380
Simazine	2	Q < 0.0026	4
2,4-D	1	Q < 0.009	10
Deethyl atrazine	1	Q < 0.0017	3
Imazamethabenz methyl acid metabolite	1	0.011	1,700 (sum parent + metabolite)
Imazamethabenz methyl ester	1	0.0017	
Imazapyr	1	0.0086	17,000
Metolachlor ESA	1	3.3	1,000 (sum parent + metabolite)
Metolachlor OA	1	0.3	

"Q" represents samples detected at below the respective analytical reporting limit. For statistical calculations, the respective analytical reporting limits values were used to quantify results.

Yellowstone River

Analyte	Number of Detections	Average Detected Concentration (ppb)	Drinking Water Standard (ppb)
2,4-D	19	0.0129	10
MCPA	14	0.0099	3
Prometon	13	0.0016	100
Bentazon	12	0.0022	210
Triclopyr	10	0.0416	300
Imazapyr	9	Q < 0.0035	17,000
Azoxystrobin	6	Q < 0.0052	1,200
Metolachlor ESA	6	Q < 0.005	1,000
Bromoxynil	5	Q < 0.012	3.2
Tetraconazole	5	Q < 0.0039	*
Fluroxypyr	4	Q < 0.035	7,000
Propioconazole	4	Q < 0.01	700
Tebuthiuron	4	Q < 0.0011	500
Bromacil	3	0.0044	700
Diuron	3	0.0065	10
NOA 407854	3	Q < 0.0052	2,000
Clothianidin	2	Q < 0.016	650
Atrazine	1	Q < 0.0022	3
Glyphosate	1	Q < 1	700
Hydroxy atrazine	1	Q < 0.004	70
MCPP	1	Q < 0.0044	300

"Q" represents samples detected at below the respective analytical reporting limit. For statistical calculations, the respective analytical reporting limits values were used to quantify results.

*Tetraconazole currently does not have a numerical water quality standard in Montana DEQ Circular 7. An interim numerical water quality standard is under develop at this time.