

Pesticide Monitoring in Alberta Surface Waters

Red Deer River Watershed Alliance

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Agenda



LTRN Surface Water Monitoring

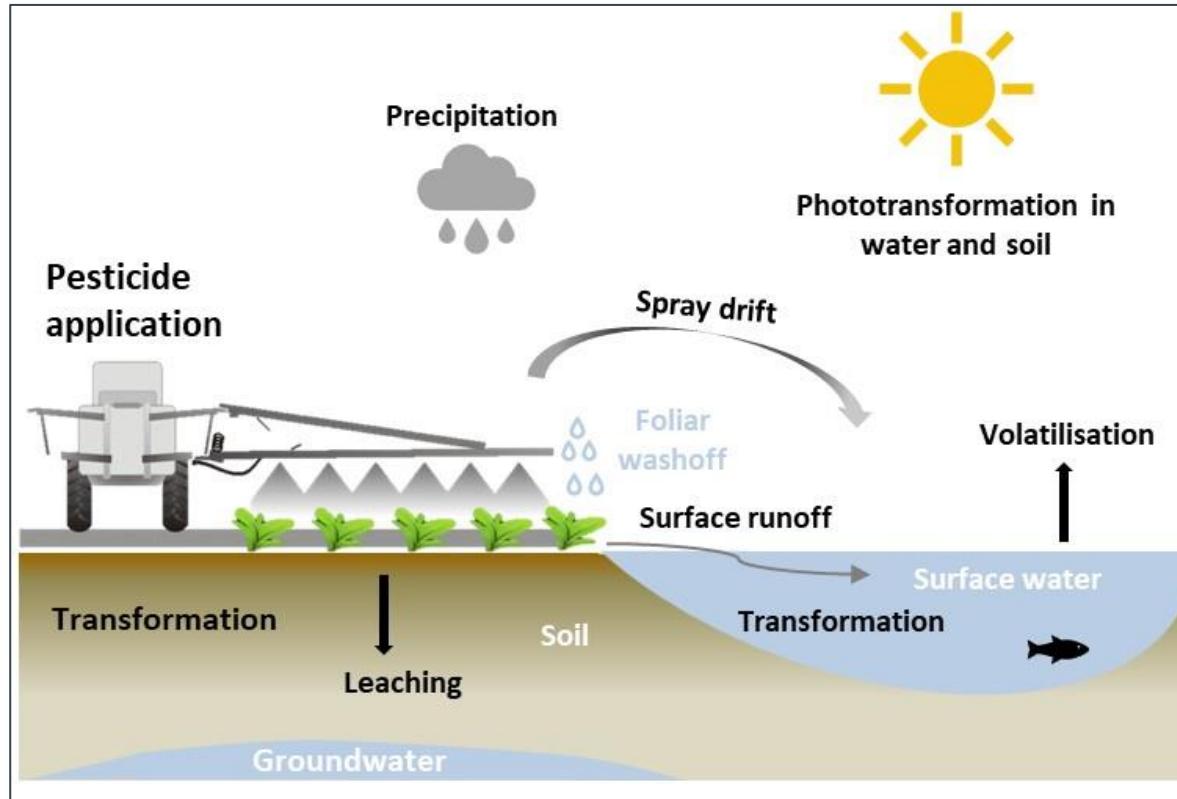


National Water Monitoring Pilot Program



Questions

How Pesticides Enter the Environment.



Protection of Sensitive Areas

- IPM
 - Only using pesticides when they are necessary
 - Choosing a pesticide with the least environmental risk (i.e. biologicals where possible)
 - Selecting formulations that could reduce risk of drift and runoff (i.e. granular)
- Provincial Legislation
 - Application to an open body of water not permitted
 - *Environmental Code of Practice for Pesticides* restrictions
- Label restrictions
 - Buffers
 - Vegetative filter strips
 - Environmental precautions
 - Nozzles/droplet sizes
 - Wind speeds

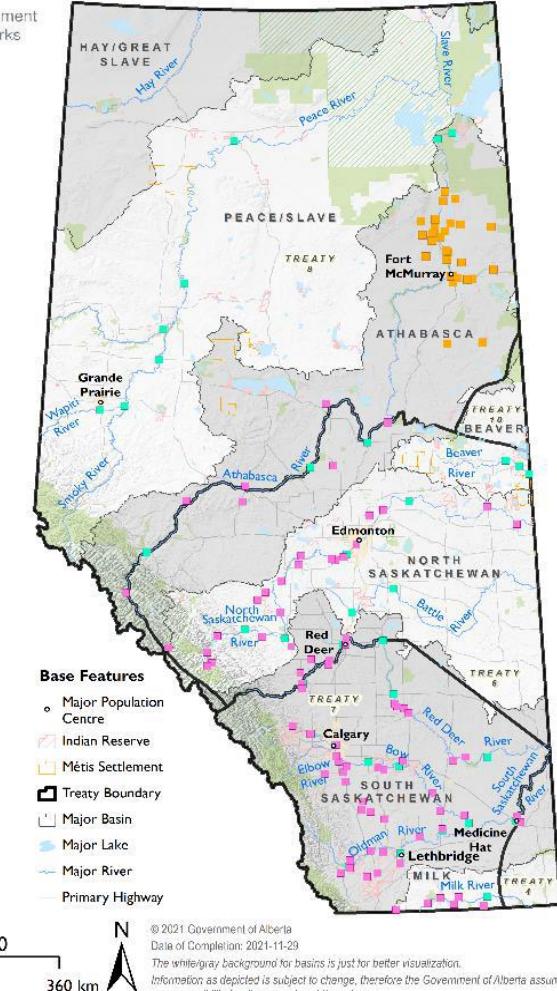
Long Term River Network Surface Water Monitoring

Long Term River Network

- 37 stations Total
 - 33 stations collect pesticide data
- Water quality parameters listed in Table A2 of “A Five-Year Provincial Water Quality Monitoring, Evaluation, and Reporting Plan for Lotic Systems”
 - Does not include a listing of pesticides
 - 92 pesticides/metabolites analysed for

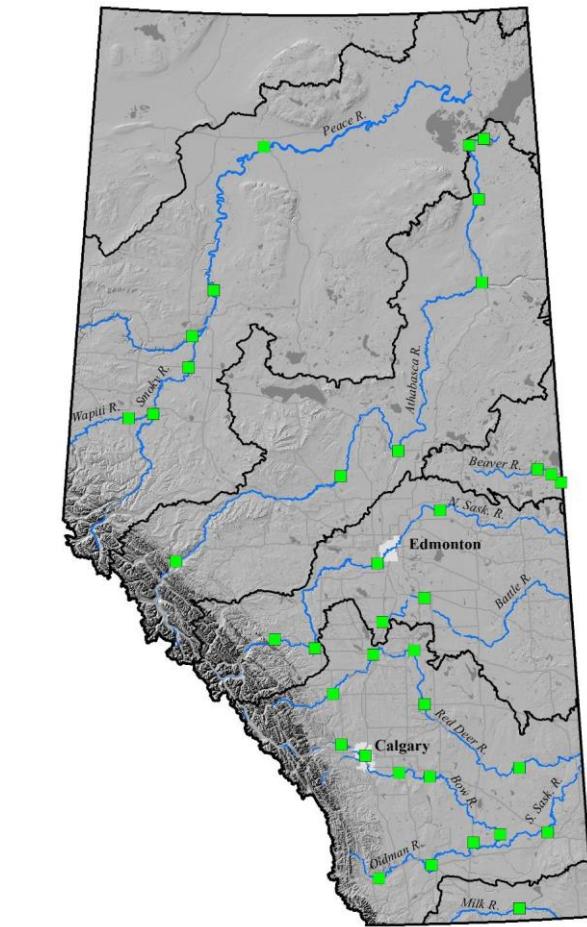
Alberta River and Tributary Water Quality Sites

- LTRN Site (AEP) [36]
- TMN Site (AEP) [80]
- TMN Site (OSM) [31]
- [n]



2,4-D	Aminopyralid	Clodinafop acid metabolite	Difenoconazol	Guthion	MCPP	Permethrin	Terbufos
2,4-DB	Atrazine	Clodinafop-propargyl	Dimethoate	Hexaconazole	Metalaxyl-M	Phorate	Thiamethoxam
2,4-Dichlorophenol	Azoxystrobin	Clopyralid	Disulfoton	Imazamethabenz-methyl	Metconazol	Picloram	Triallate
2,4-DP	Benomyl	Clothianidin	Diuron	Imazamox	Methomyl	Picoxystrobin	Triclopyr
4-Chloro-2-methylphenol	Bentazon	Cyanazine	EPTC	Imazethapyr	Metolachlor	Propiconazole	Trifloxystrobin
Aldicarb	Bromacil	Deltamethrin	Ethalfluralin	Imidacloprid	Metribuzin	Prothioconazole	Trifluralin
Aldicarb sulfone	Bromoxynil	Desethyl atrazine	Ethion	Iprodione	Monuron	Pyraclostrobin	Triticonazole
Aldicarb sulfoxide	Carbaryl	Desisopropyl atrazine	Ethofumesate	Lambda-Cyhalothrin	Napropamide	Pyridaben	Vinclozolin
Aldrin	Carbathiin	Diazinon	Fenoxaprop-P-ethyl	Linuron	OH-Carbofuran	Quinclorac	
alpha-BHC	Carbofuran	Dicamba	Fluazifop	Malathion	Oxycarboxin	Quizalofop	
alpha-Endosulfan	Chlorothalonil	Diclofop-methyl	Fluroxypyr	MCPA	p,p-Methoxychlor	Simazine	
Aminocarb	Chlorpyrifos	Dieldrin	gamma-BHC	MCPB	Parathion	Tebuconazole	

River Name	# of Sites	# of Samples (2017-2020)	May	Jun	Jul	Aug	Sept
Athabasca	6	83					
Battle	2	34					
Bow	4	59					
Elbow	1	15					
Milk	1	14					
North Sask.	4	60					
Oldman	3	45					
Peace	3	46					
Red Deer	5	74					
Smoky	1	16					
South Sask.	1	14					
Wapiti	2	32					
Total	33	492					



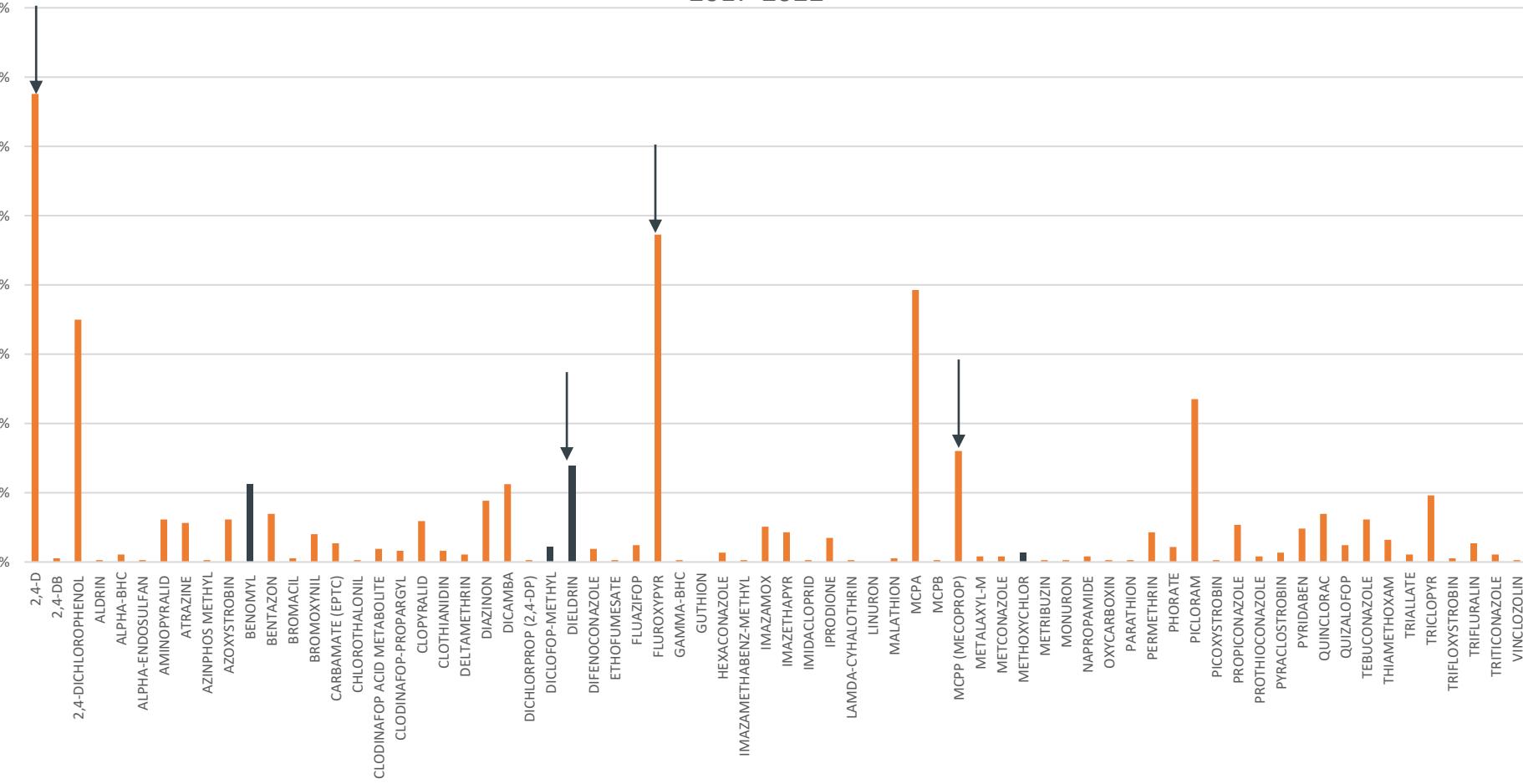
How to Interpret Surface Water Data

- Number/percentage of detections
- Average concentration of detections
- Registration status
- Pesticide chemistry and degradation
- Comparisons to other reference values
- Trends over time
- Regional differences

Detection ≠ adverse effect or risk of adverse effect
No Exceedances of CCME Guidelines

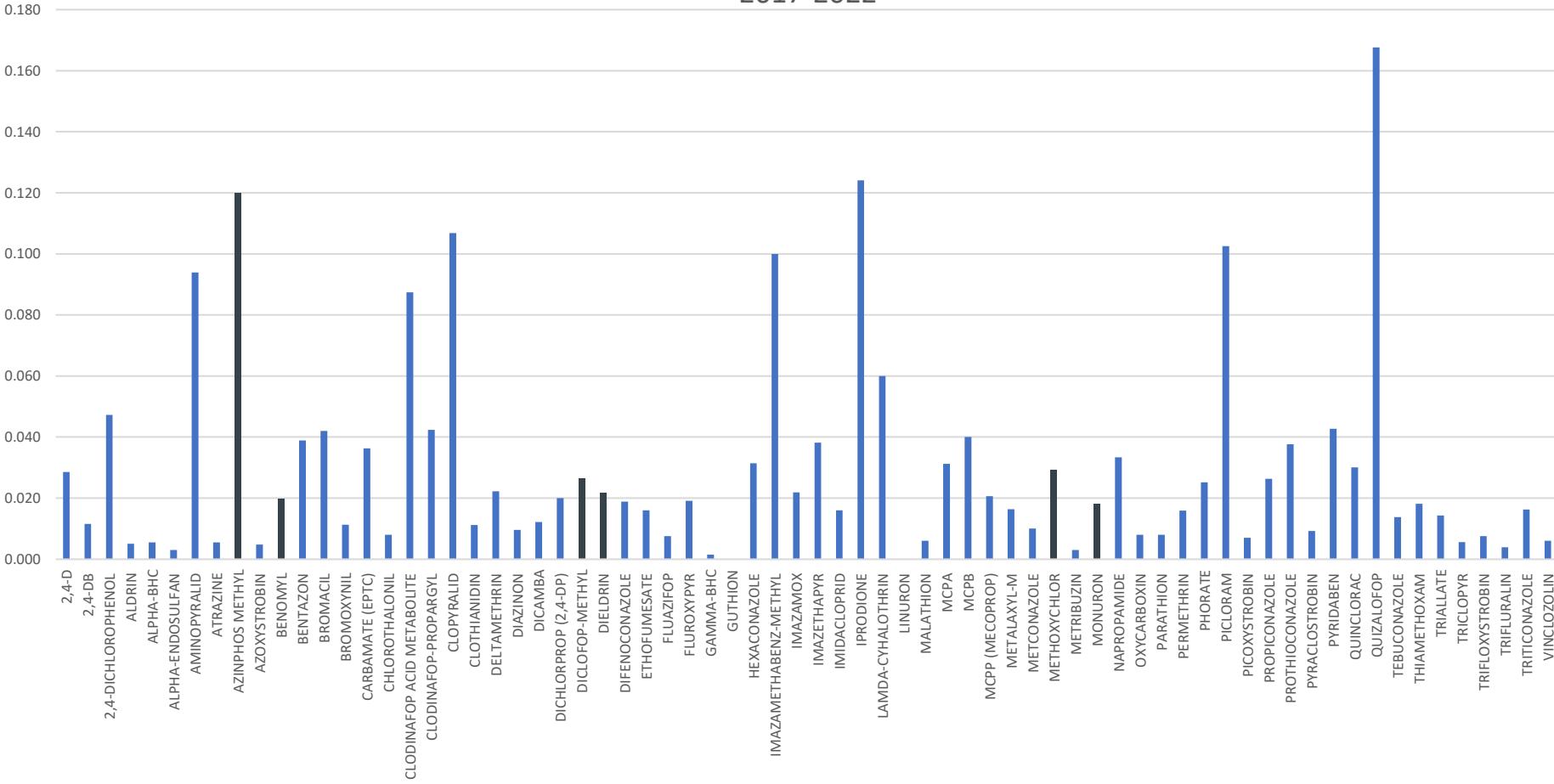
% Detection by Active Ingredient

2017-2022



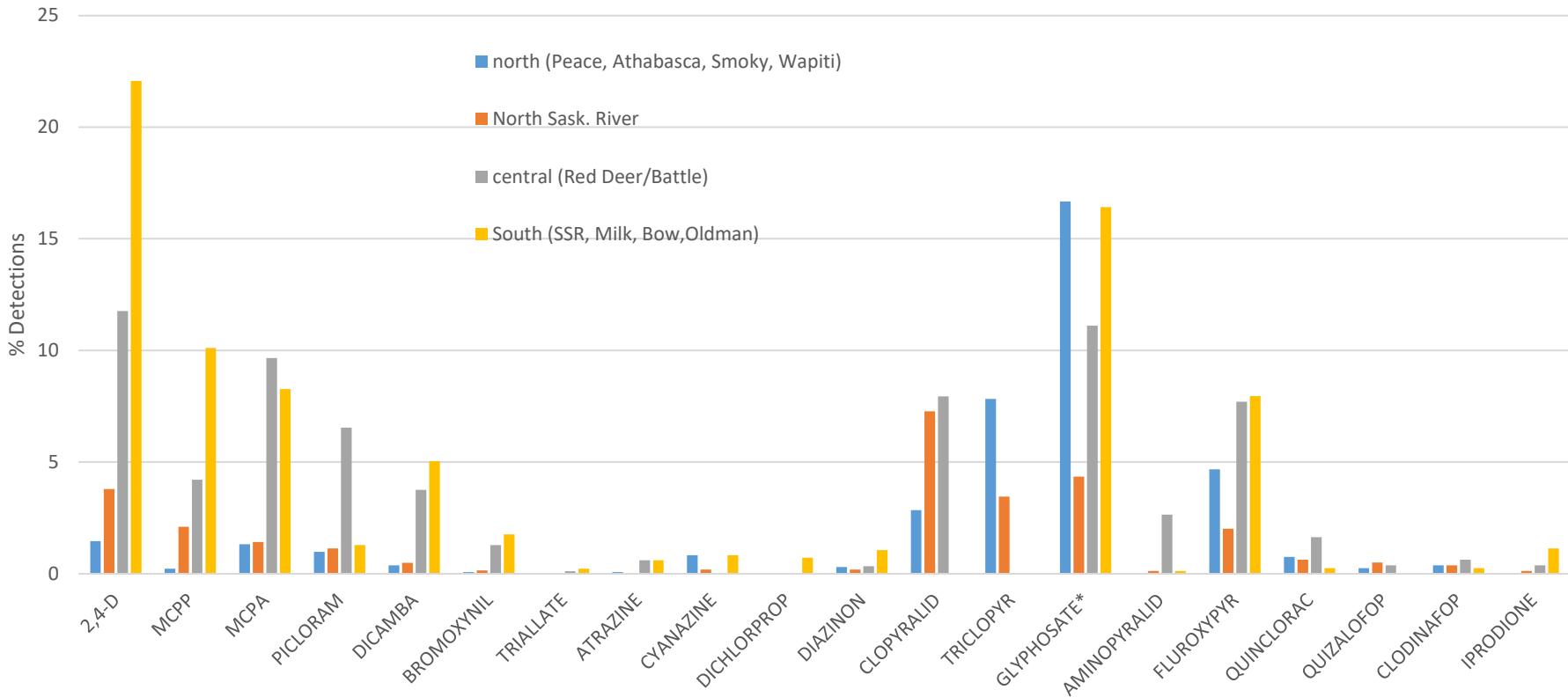
Average Concentration (ug/L) by Active Ingredient

2017-2022



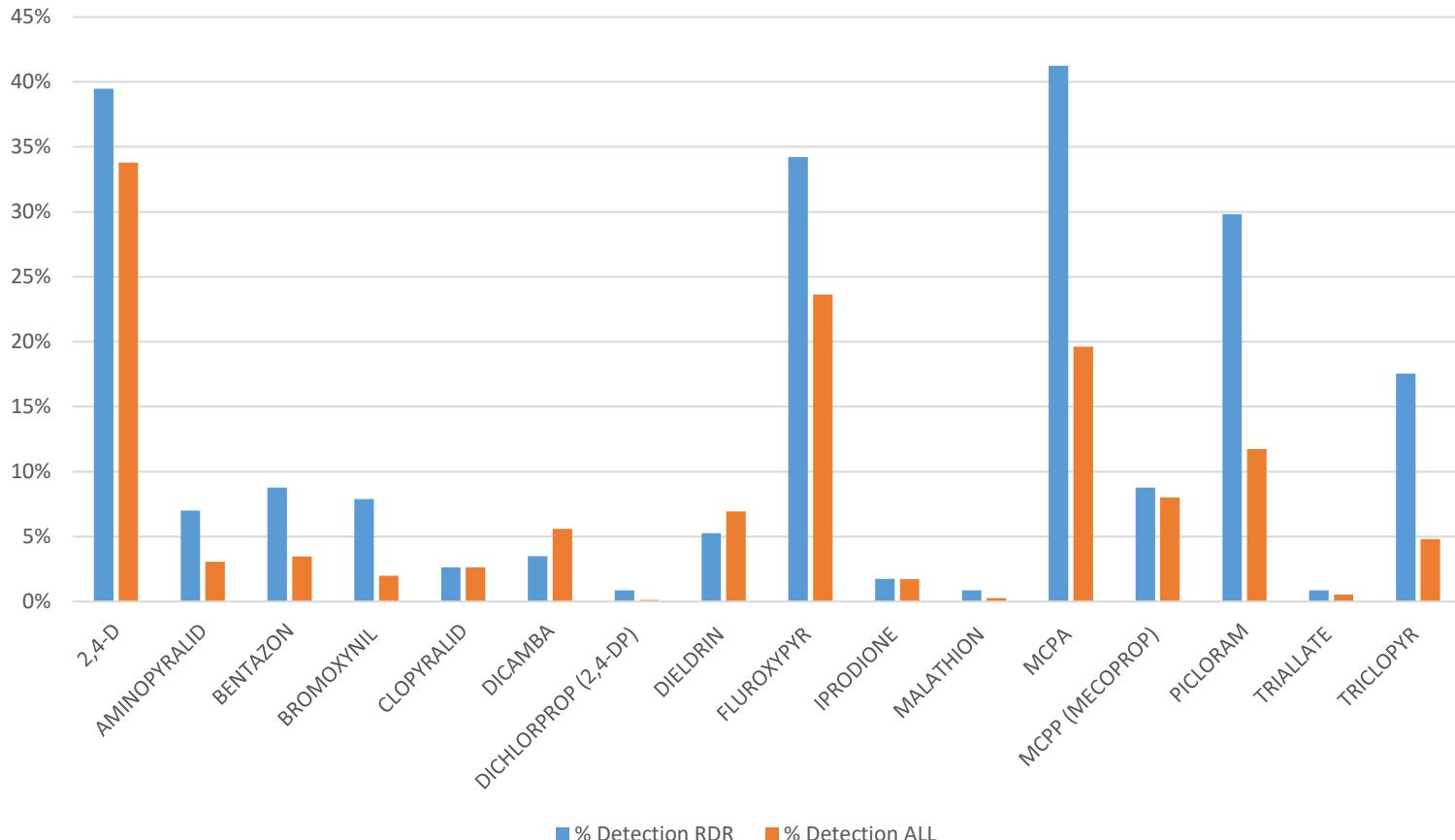
% Detections/Region

1995-2022



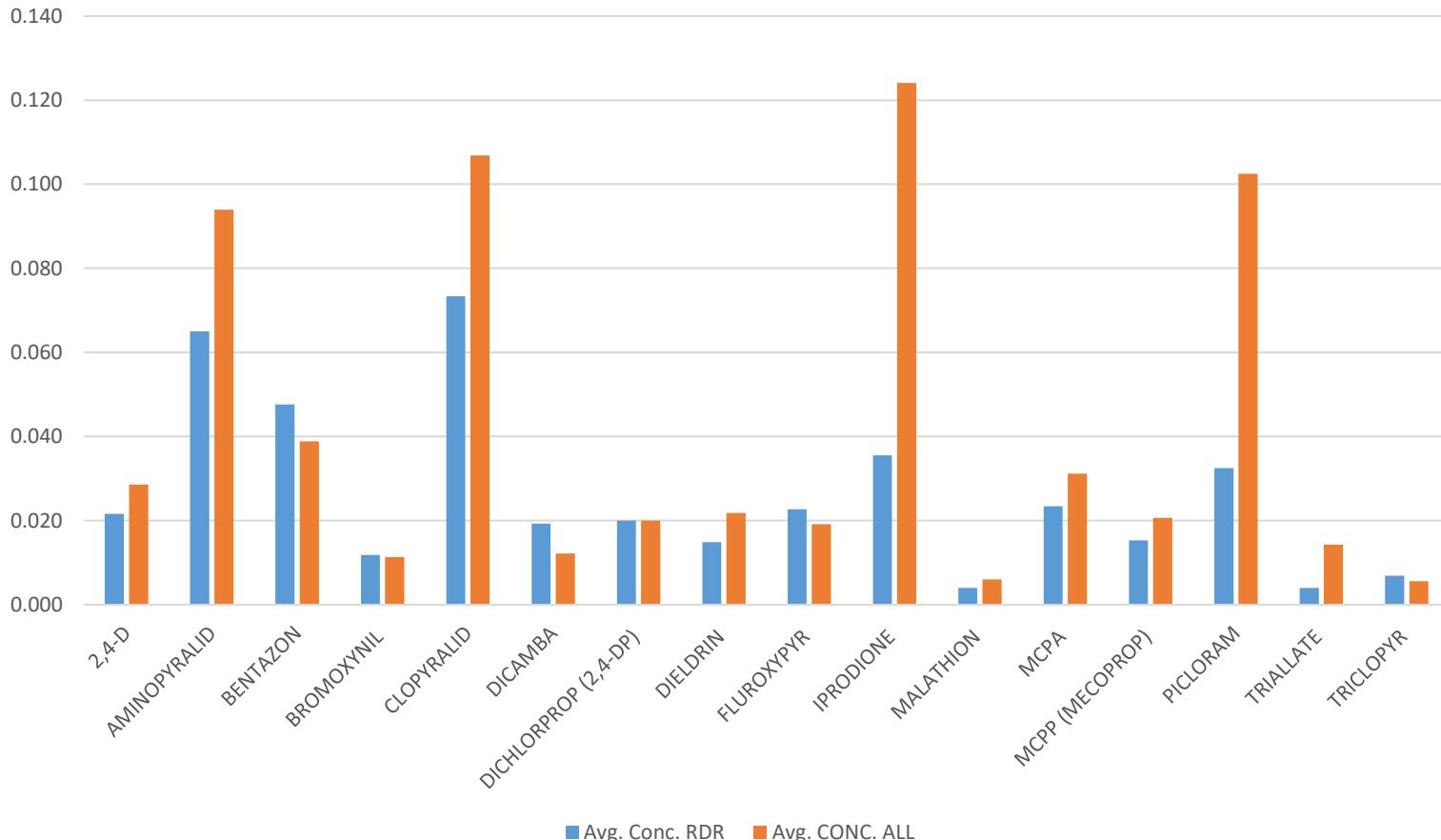
% Detection

2017-2022



Avg. Conc. ug/L

2017-2022

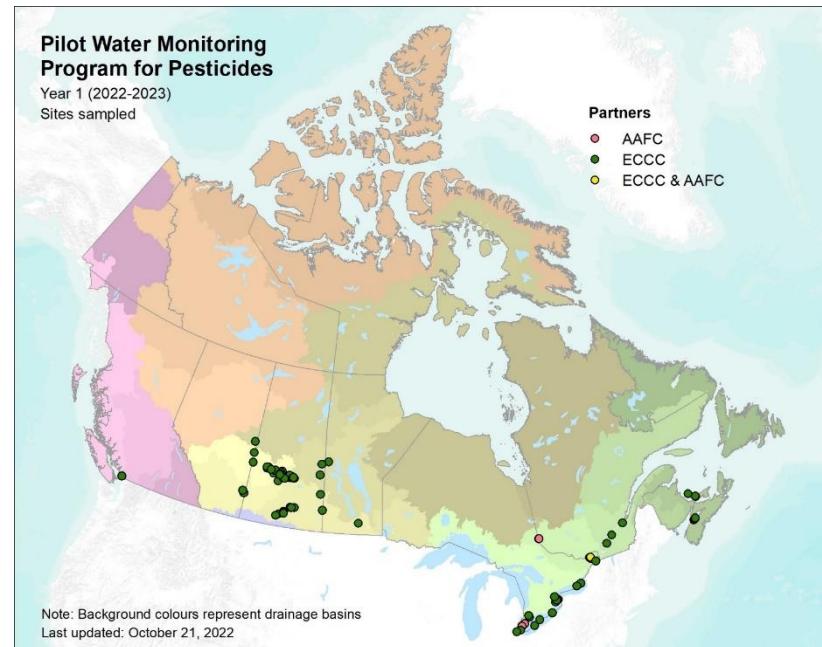


National Water Monitoring Pilot Program

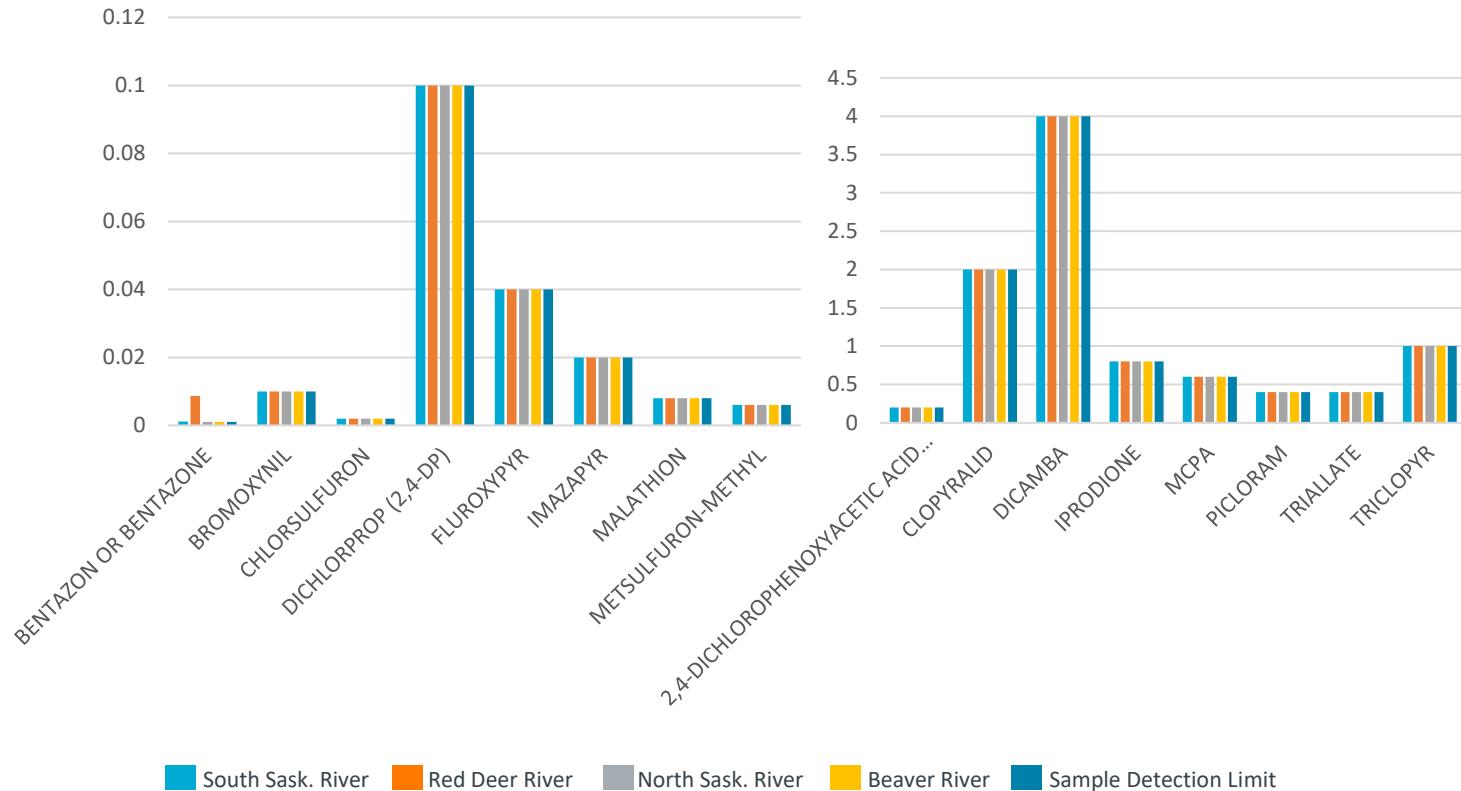
National Water Monitoring Pilot Program (NWMPP)

- 2-year pilot program lead by Health Canada's Pest Management Regulaotry Agency (PMRA) in collaboration with Environment and Climate Change Canada (ECCC) and Agriculture and Agri-Food Canada (AAFC)
- Goals of NWMPP
 1. inform development of a larger national program
 2. inform development of a water monitoring framework
 3. generate data to better inform future pesticide re-evaluations and special reviews by the PMRA
- Staff from Alberta Environment and Protected Areas and Alberta Agriculture & Irrigation site on a national working group

- Year 1 (2022)
 - 1400 water samples collected from 89 surface water sites across Canada
 - Health Canada's Pesticide Laboratory analyzed for 185 currently registered pesticides
 - Data available publicly;
<https://www.canada.ca/en/health-canada/services/consumer-product-safety/pesticides-pest-management/public/protecting-your-health-environment/programs-initiatives/water-monitoring-pesticides.html>



Average Concentration (ug/L) of Active Ingredient 2022



NWMPP Conclusion

- PMRA is closely reviews the data as they are received to identify any possible risks and if any further action is required.
- Although pesticides were detected, the concentrations are below PMRA's short- and long-term thresholds for both human health and the aquatic environment.
- Therefore, currently no concerns for human health or the aquatic environment have been identified by PMRA's scientists with respect to the water samples collected in Alberta.

Reporting an Incident/Complaint

Alberta Environmental and Dangerous Goods Emergencies (EDGE) operates 24 hours a day and 7 days a week.

1-800-222-6514

Questions?

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