



ESPA Managed Recharge Program Water Quality

IWUA 83rd Annual Convention

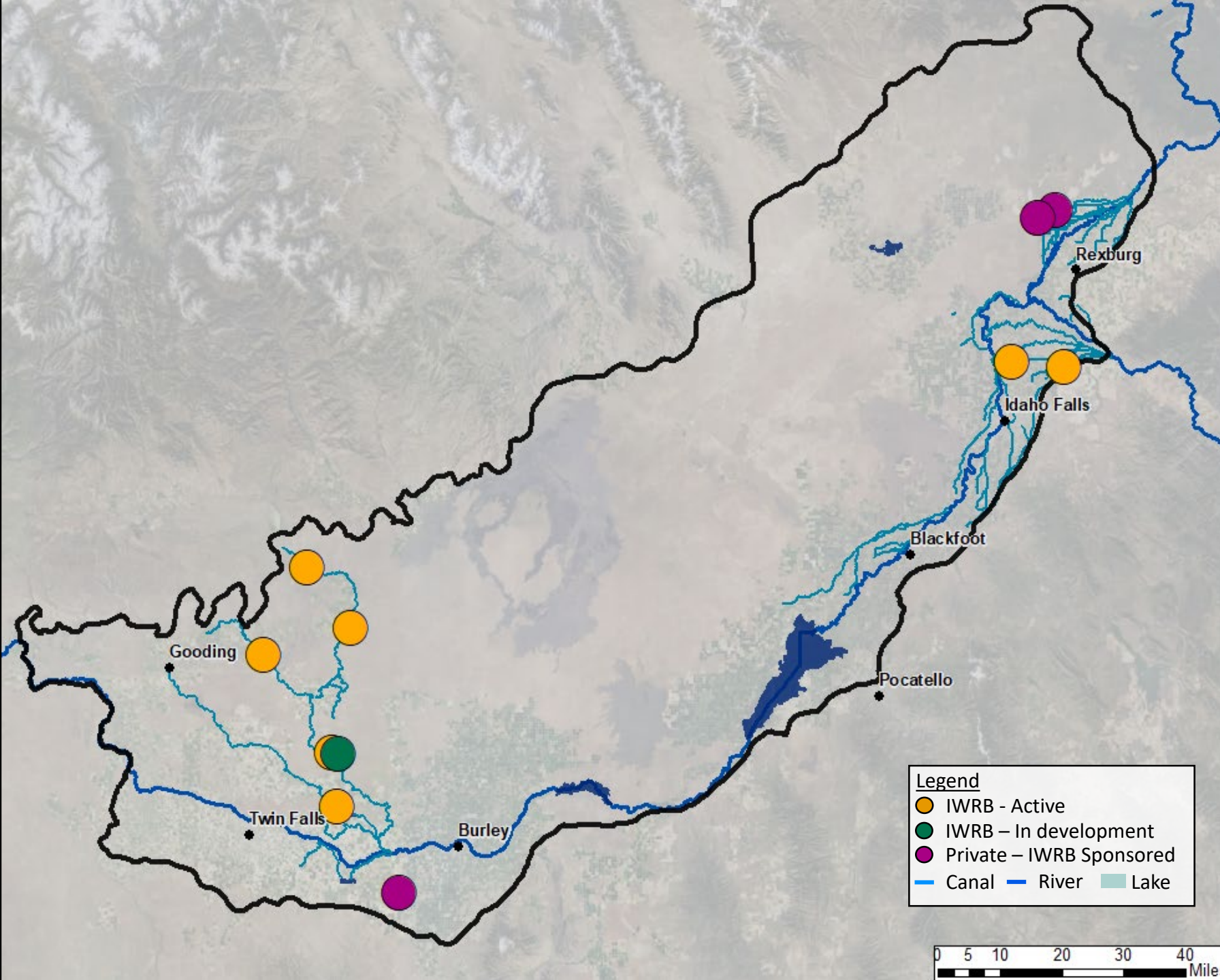
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IWRB Recharge Program Manager

January 21, 2020

IWRB ESPA Recharge Site Water Quality Monitoring

- 7 IWRB Sites
- 1 In development
- 3 Privately monitored sites



IWRB Groundwater Quality Monitoring

- IWRB collaborates with IDEQ to develop monitoring plans for recharge basins
- Active IWRB sites (basins) have IDEQ approved monitoring plans
- Privately monitored IWRB sponsored sites submit data to IDEQ and IWRB
- Injection wells follow IDWR UIC protocols



IWRB Groundwater Quality Monitoring

IWRB Monitoring Schedule

- Background
- During Recharge
- Post Recharge
- Random

What is sampled?

- Surface Water
- Headgate
- Groundwater
 - Dedicated Monitoring Wells
 - Domestic Wells



Arsenic	Picloram	Atrazine	Diphenamid	Fenarimaol
Cadmium	Acifluorfen	Propazine	Heptachlor epoxi	Permethrin
Chromium	Isophorone	beta-BHC	2,2',3',4,6-Pentachlorobiphenyl	Benzo(b)fluoranthene
Lead	Hexachlorocyclopentadiene	Pentachlorophenol	alpha-Chlordane	Benzo(k)fluoranthene
Selenium	EPTC	gamma-BHC (Linda)	Tetrachlorvinphos	Benzo(a)pyrene
Uranium	Mevinphos	Pronamide	Pyrene	Fluridone
Total Phosphorus	Dichlorovos	Diazinon	Butachlor	Indeno(1,2,3-cd)pyrene
Fluoride	Butylate	Phenanthrene	Endosulfan I	Dibenz(a,h)anthracene
Nitrite as N	Vernolate	Anthracene	g-Chlordane	Benzo(g,h,i)perylene
Nitrate as N	Dimethyl-phthalate	Methyl Paraoxon	trans-Nonachlor-chlordane	
Sulfate	Pebulate	Terbacil	Napropamide(Devrinol)	
Chloride	Etridiazole	delta-BHC	Tricyclazole (Beam)	
Calcium	2,6-Dinitrotoluene	Chlorothalonil	4,4'-DDE	
Magnesium	Chloroneb	2,4,5-Trichlorobiphenyl	Dieldrin	
Potassium	Acenaphthylene	Metribuzin	2,2',4,4',5,6'-Hexachlorobiphenyl	
Silica as SiO2	2-Chlorobiphenyl	Simetryn	Endrin	
Sodium	Tebuthiuron	Ametryn	Chlorobenzilate	
Alkalinity, Bicarbonate	2,4-Dinitrotoluene	Alachlor	Endosulfan II	
Total Coliform	Molinate	Prometryn	4,4'-DDD	
E. coli	Diethylphthalate	Heptachlor	Endrin aldehyde	
Dalapon	Fluorene	Terbutryn	Norflurazon	
3,5-Dichlorobenzoic acid	Propachlor	Di-n-butylphthalate	Endosulfan Sulfate	
Dicamba	Ethoprop	Bromacil	Butylbenzylphthalate	
Dichloroprop	Cycloate	Malathion	4,4'-DDT	
2,4-D	Chlorpropham	2,2',4,4'-Tetrachlorobiphenyl	Hexazinone (Velpar)	
Pentachlorophenol	Trifluralin (Treflan)	Aldrin	Di(2-ethylhexyl)adipate	
2,4,5-TP (Silvex)	2,3-Dichlorobiphenyl	Metolachlor	Benzo(a)anthracene	
2,4,5-T	alpha-BHC	Cyanazine	Chrysene	
2,4-DB	Atraton	Chloropyrifos (Dursban)	2,2',3,3',4,4',6-Heptachlorobip	
Dinoseb	Prometon	Triadimefon	Methoxychlor	
Bentazon	Hexachlorobenzene	DCPA	2,2',3,3',4,5',6,6'-Octachlorob	
DCPA	Simazine (Princep)	MGK-264	bis(2-ethylhexyl)phthalate	

Sampled Analytes

- **Avg 130 analytes per sample**
 - Bacteria
 - Metals
 - Common Ions
 - Herbicides / Pesticides
 - VOCs / SVOCs
 - Field Parameters
 - Temp
 - DO
 - Specific Conductivity
 - pH

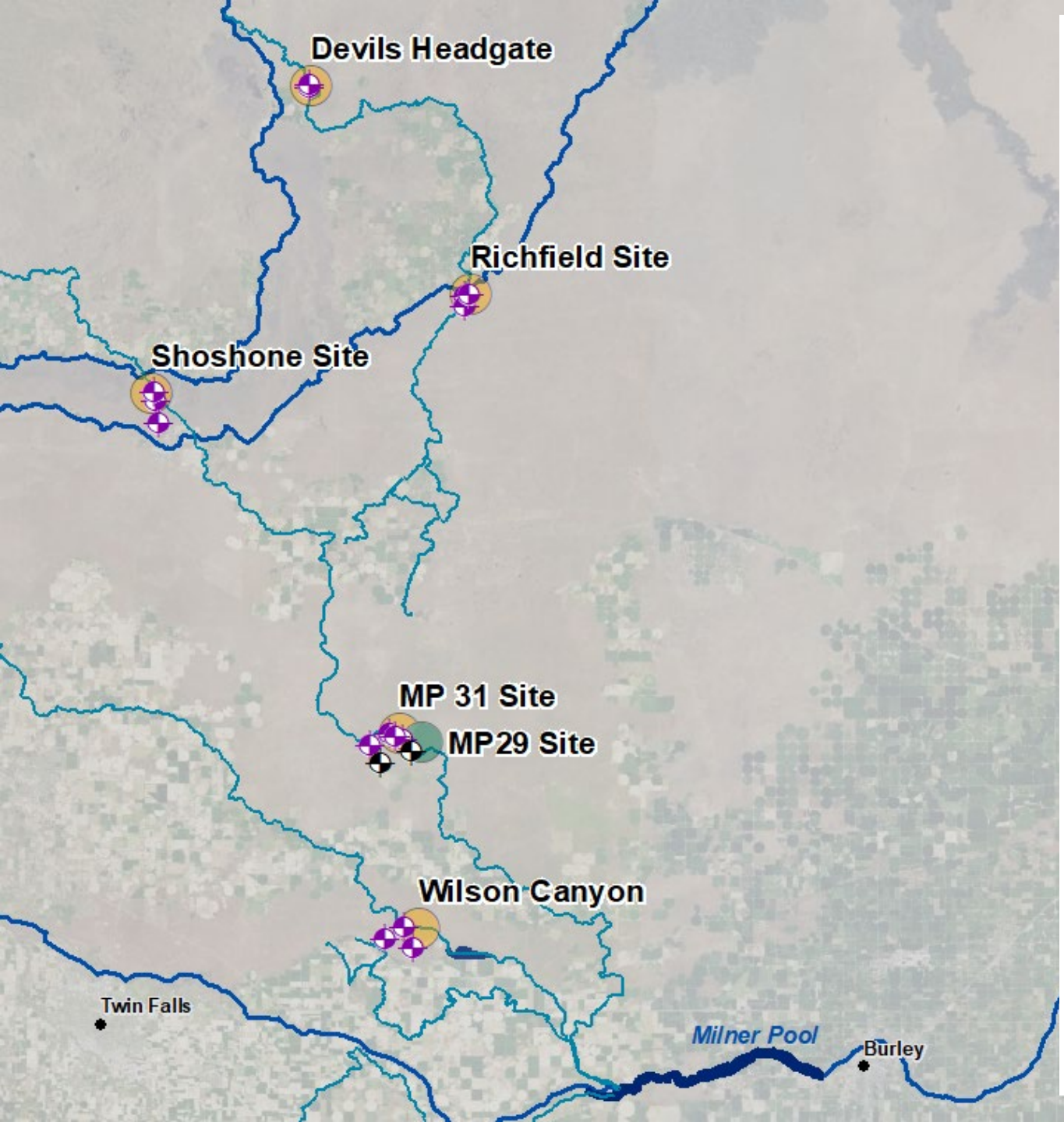
IWRB Groundwater Quality Monitoring

Lower Valley

- 12 Dedicated MW sampled
- 5 Surface Water locations at site headgates
- 2 proposed MW for a new site

- **Recharge Operating Schedule**

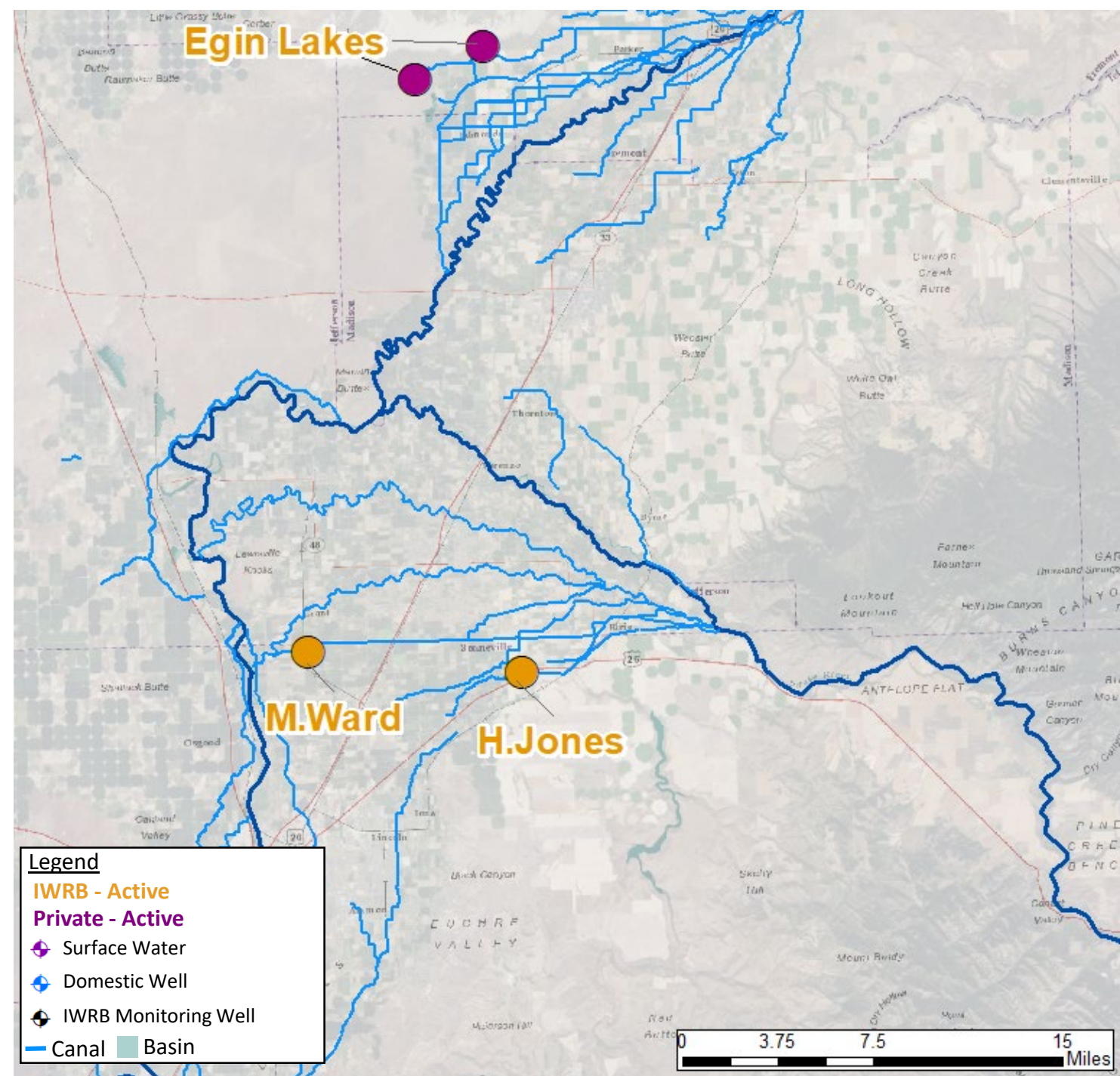
- Season runs between mid-October through mid-April
- Some wet years off-canal sites are sampled year round



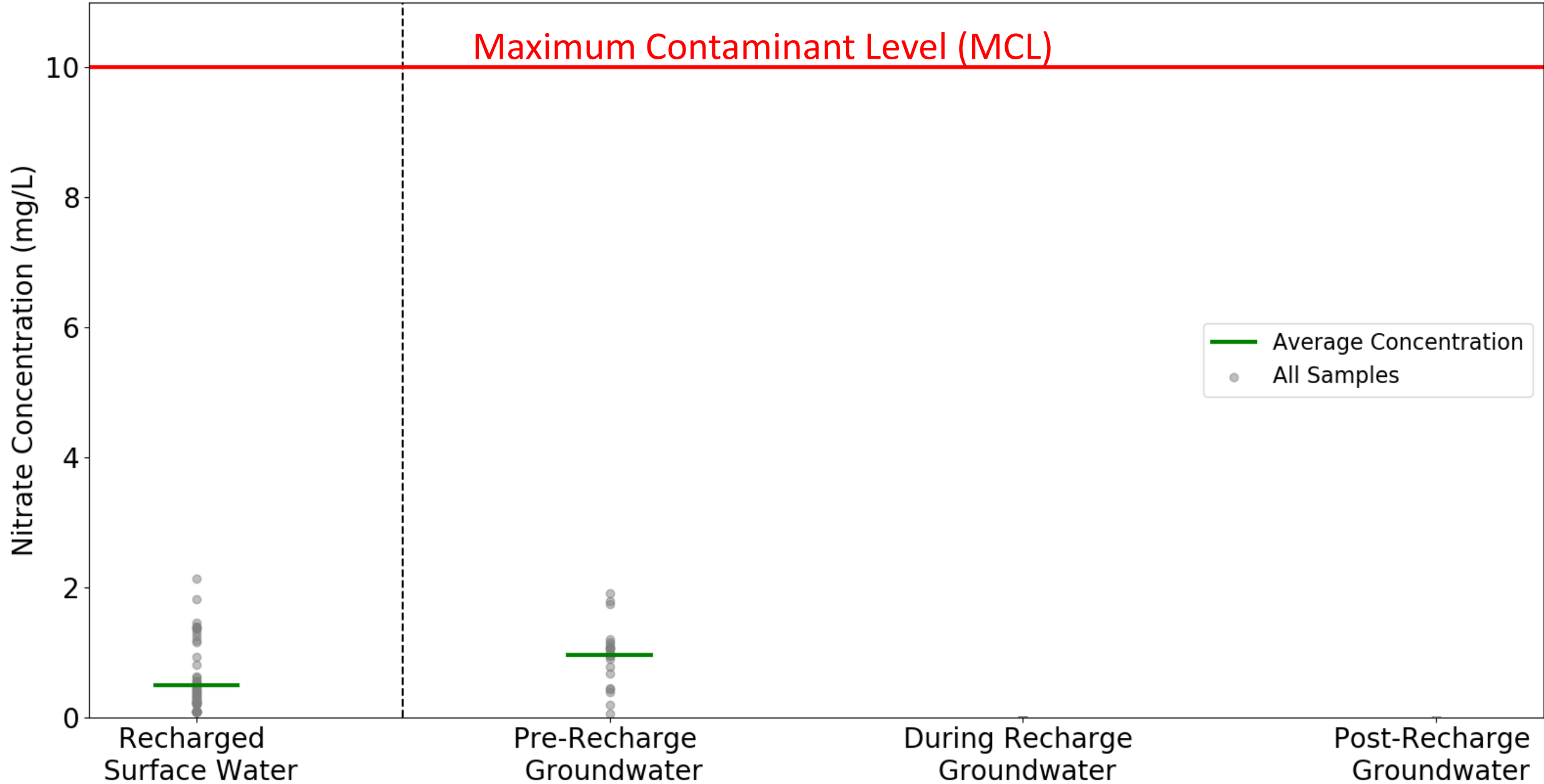
IWRB Groundwater Quality Monitoring

Upper Valley

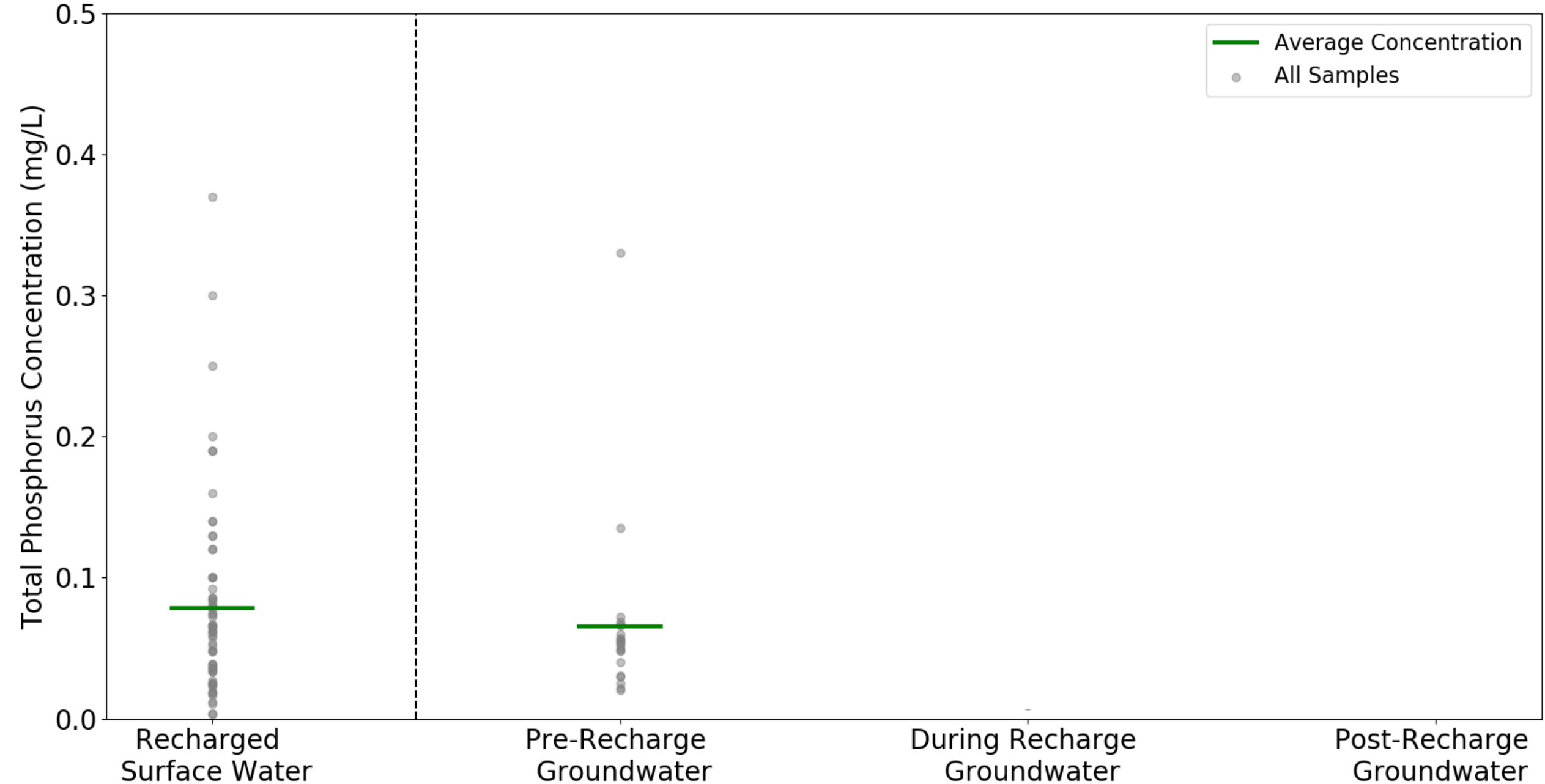
- Two IWRB managed recharge sites
- Two off-canal recharge sites through canal partners (FMID)
- **Jones & Ward Sampling**
 - Surface water at headgate
 - Three domestic wells at each site
 - One dedicated monitoring well
 - Full sample suite once a month
 - Microbiology
 - Jones weekly
 - Ward twice monthly



Nitrate Concentration at IWRB Locations for Past 5 Years



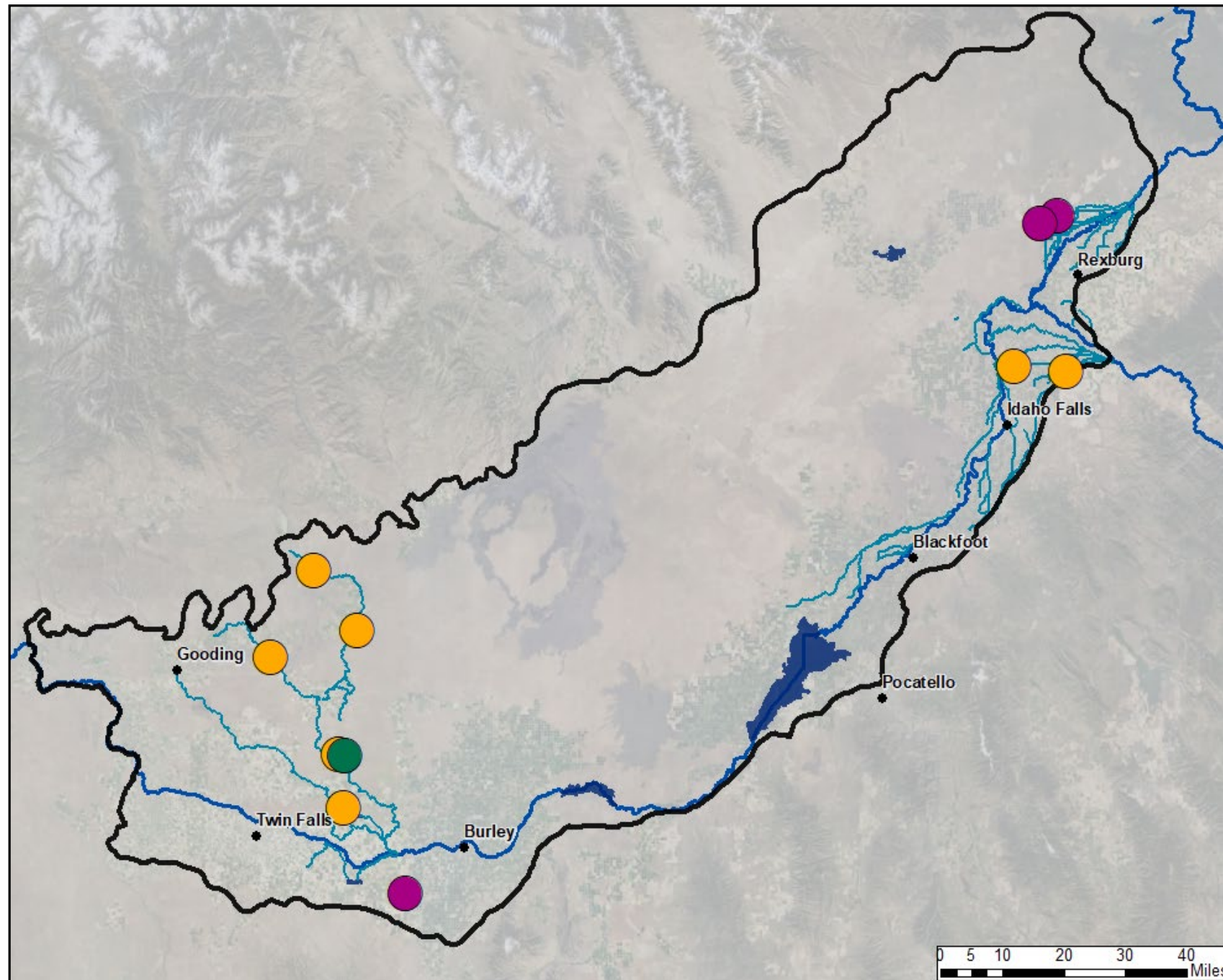
Total Phosphorous Concentrations at IWRB Locations for Past 5 Years



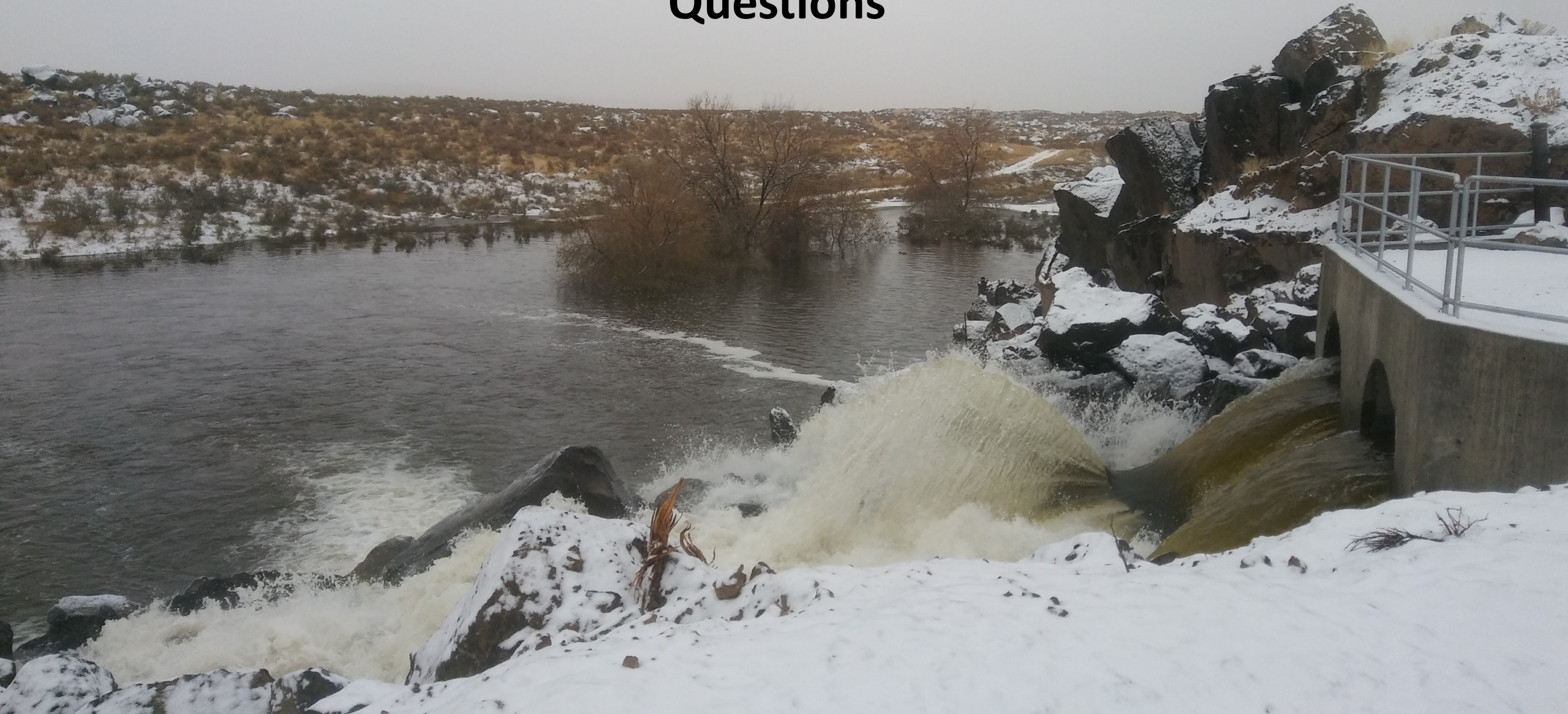
IWRB Groundwater Quality Monitoring

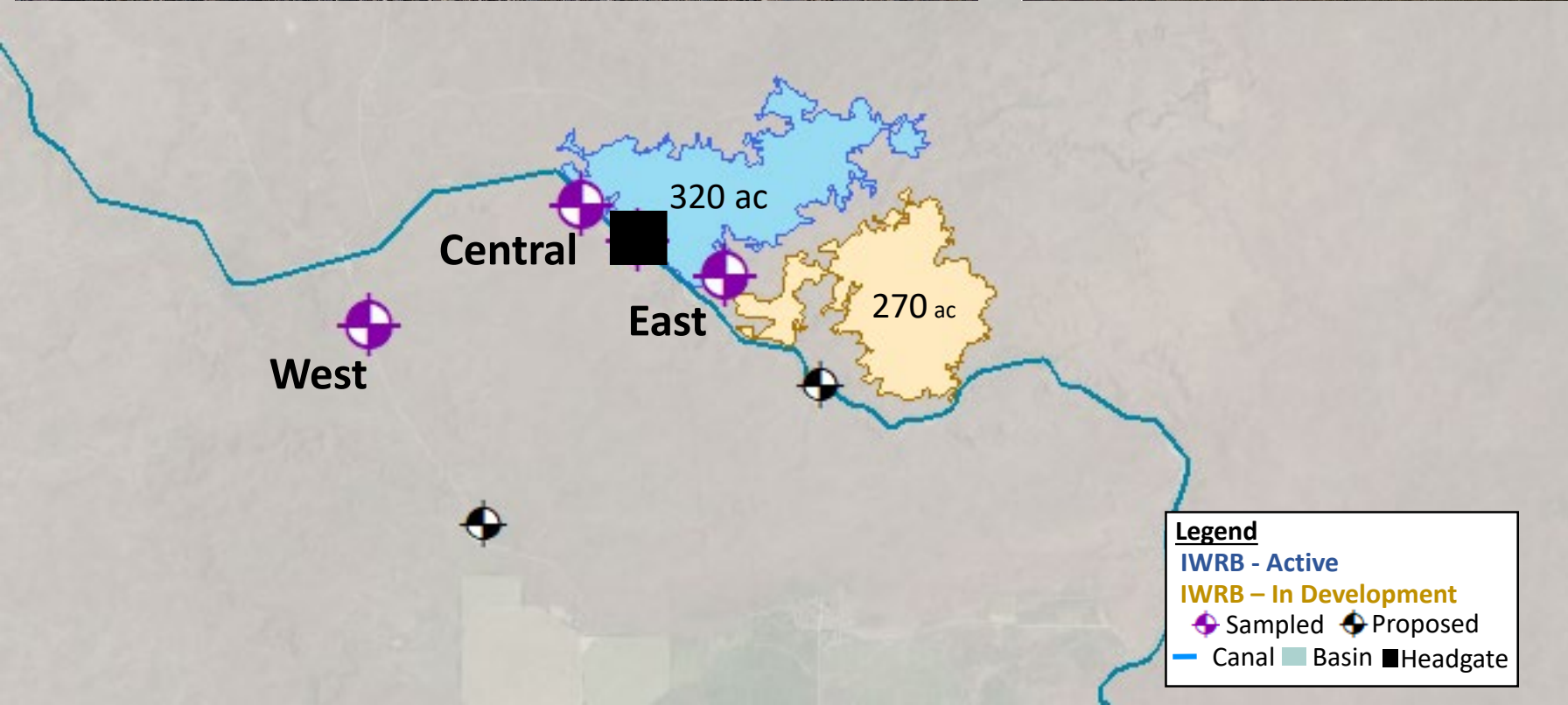
Results Summary:

- No correlation from surface water bacteria to groundwater quality at any IWRB recharge sites
- To date, no detection of contaminants above MCL



Questions

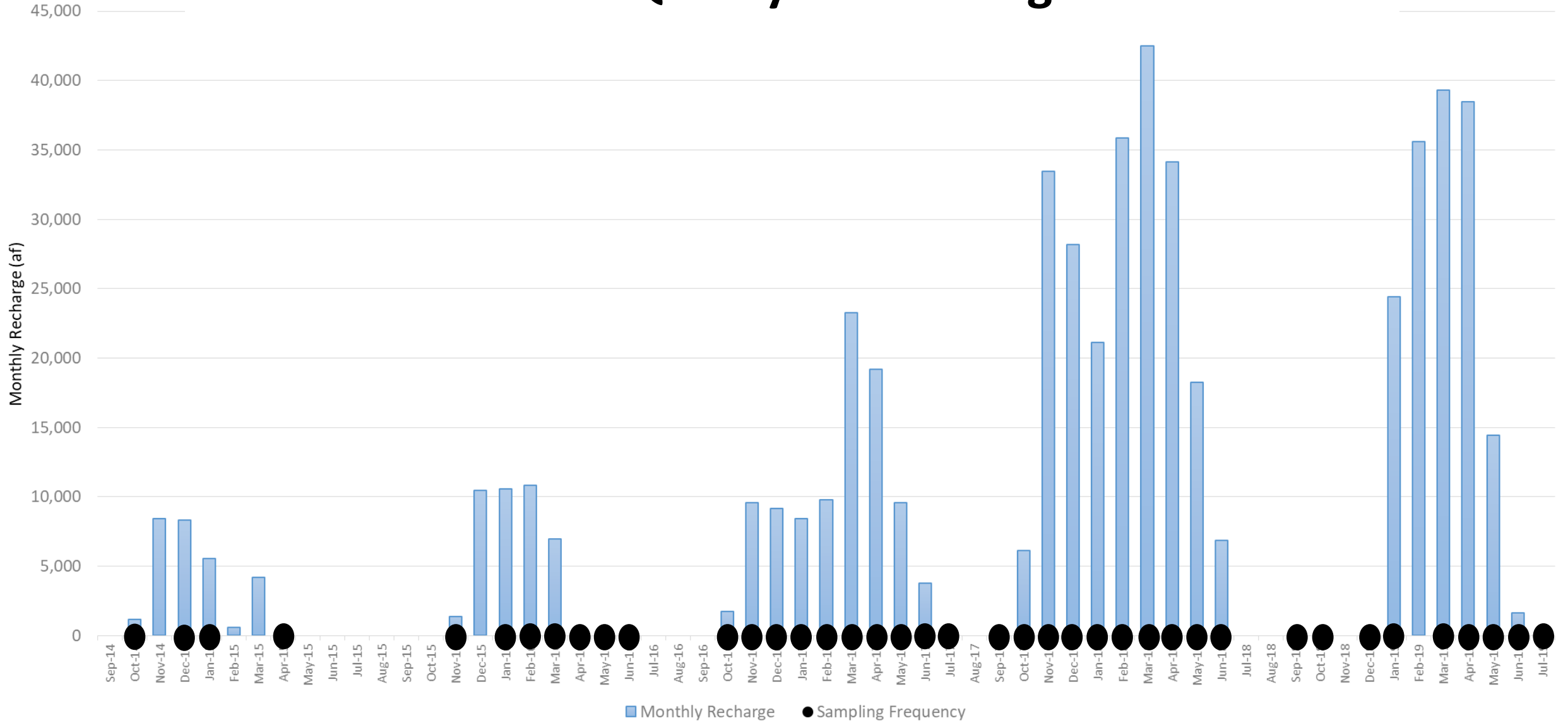




Mile Post 31

- Full scale activity started fall 2014
- 57 sampling events since start of full scale operations

IWRB Water Quality Monitoring – MP 31



ESPA Upper Valley GW Quality Monitoring

H. Jones Site

- Three domestic wells
 - Full sample suite once a month
 - Microbiology weekly
- Surface water at headgate
- One dedicated monitoring well

M. Ward Site

- Three domestic Wells
 - Full sample suite once a month
 - Microbio 2x a month
- Surface water at headgate
- One dedicated monitoring well

