Idaho Water Resources Research Institute

IWRB Recharge Water Quality Monitoring

Environmental Resources Technical Working Group

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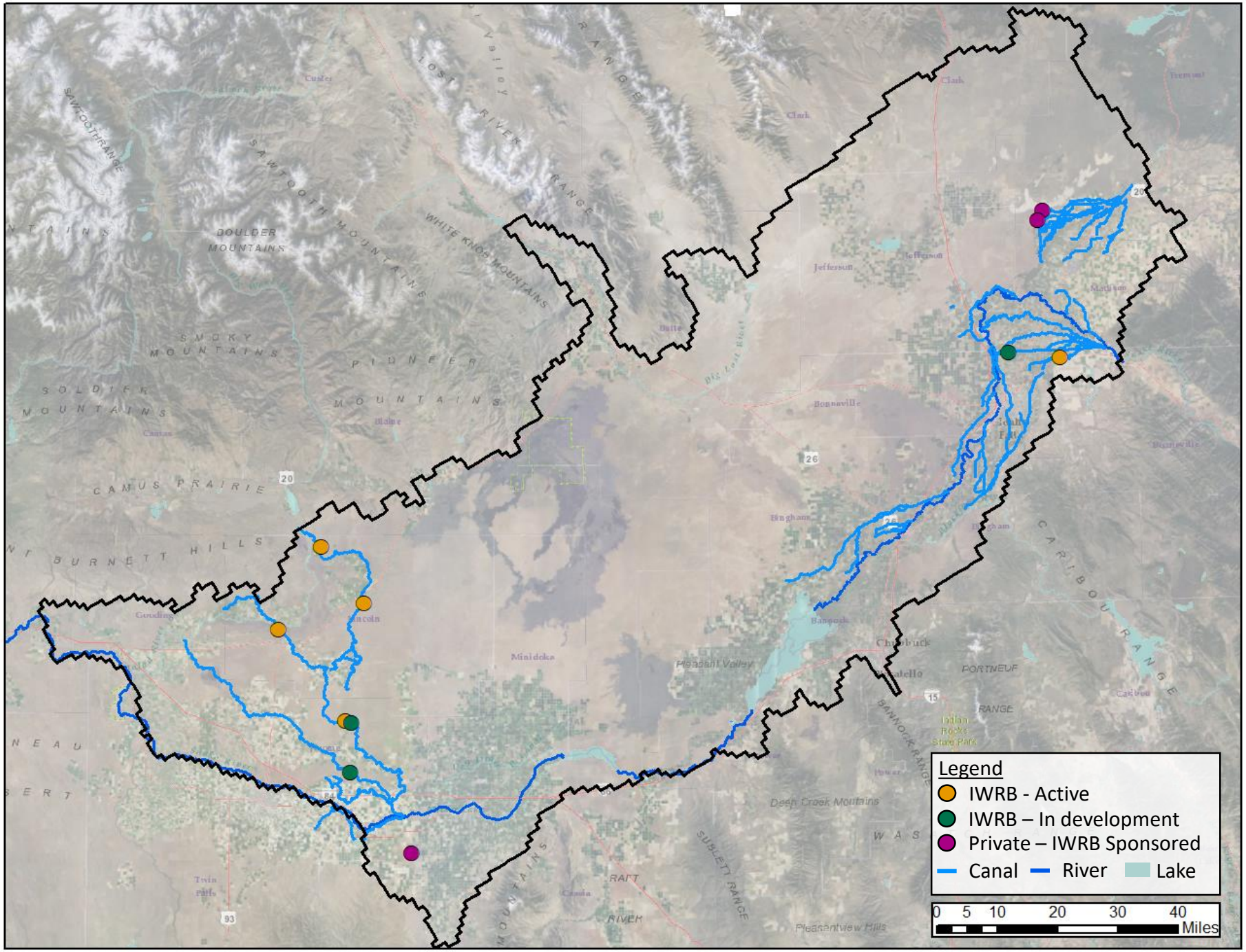
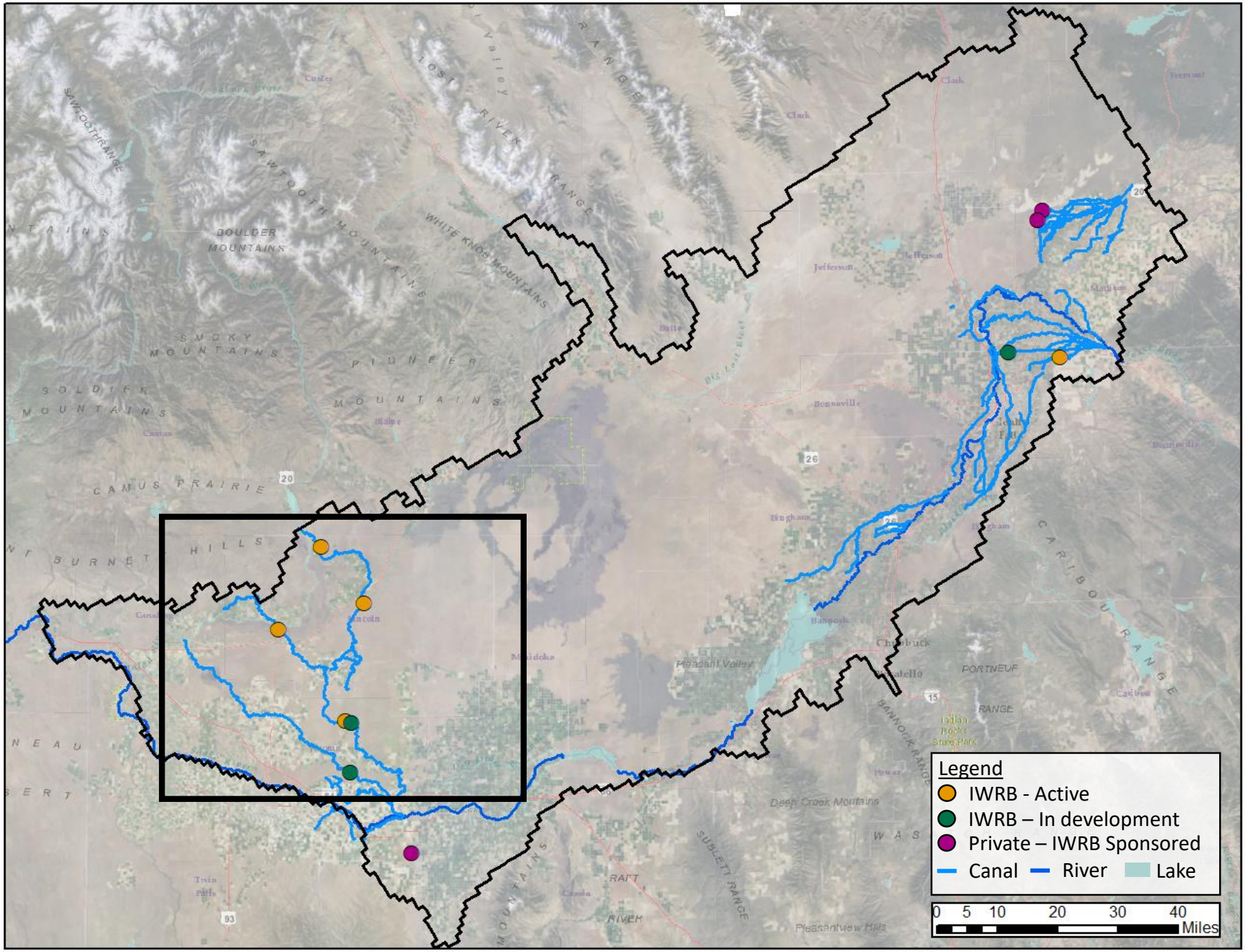
IWRB ESPA Water Quality Monitoring

- **5** IWRB Sites in the ESPA
- 3 In development
- 3 Privately monitored sites



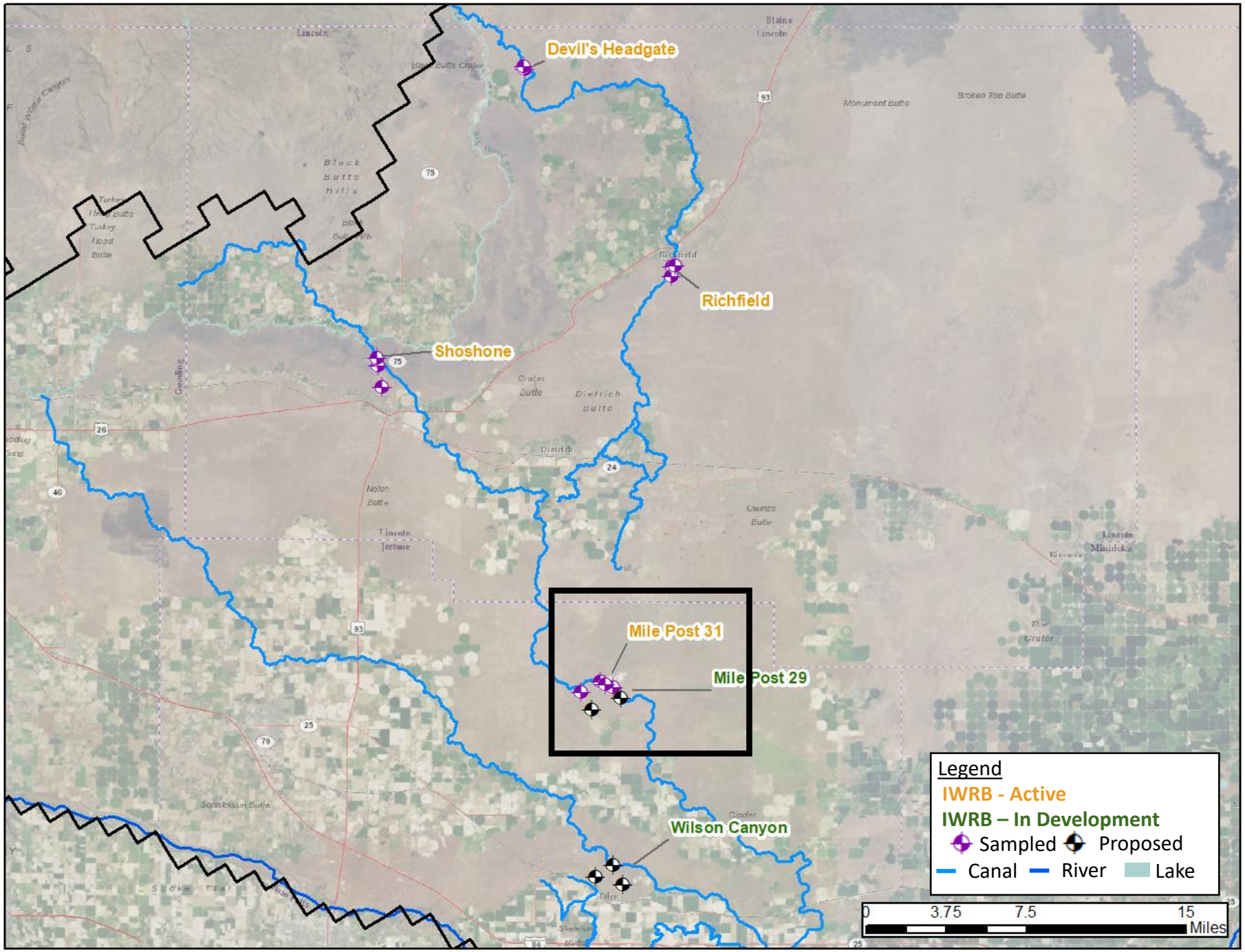


IWRB ESPA Recharge Sites

- **5** IWRB Sites in the ESPA
- 3 In development
- 3 Privately monitored sites

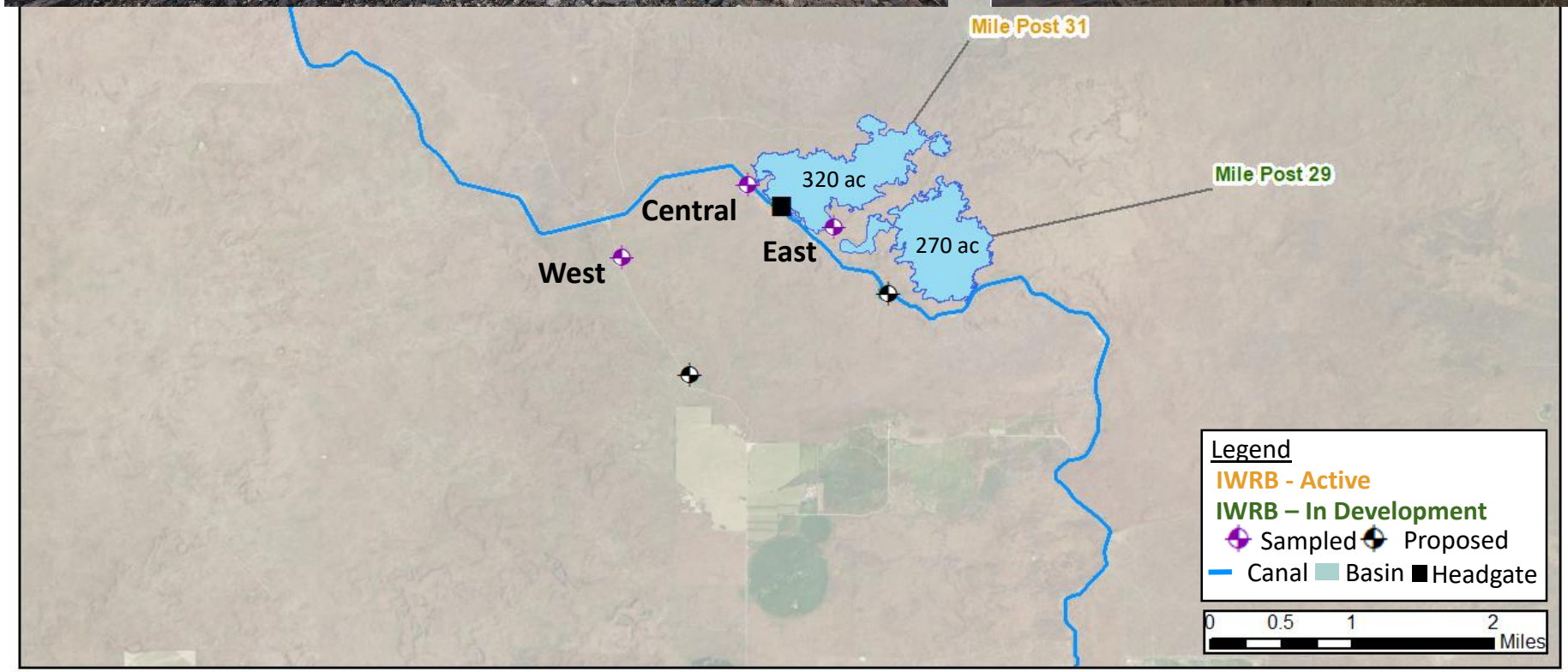
Groundwater Quality Monitoring

- IDEQ and IWRB collaborate on monitoring strategies to best protect the ESPA aquifer quality and quantity
- Privately monitored IWRB sponsored sites submit data to IDEQ and IWRB
- Injection wells follow IDWR UIC protocols



Groundwater Quality Monitoring

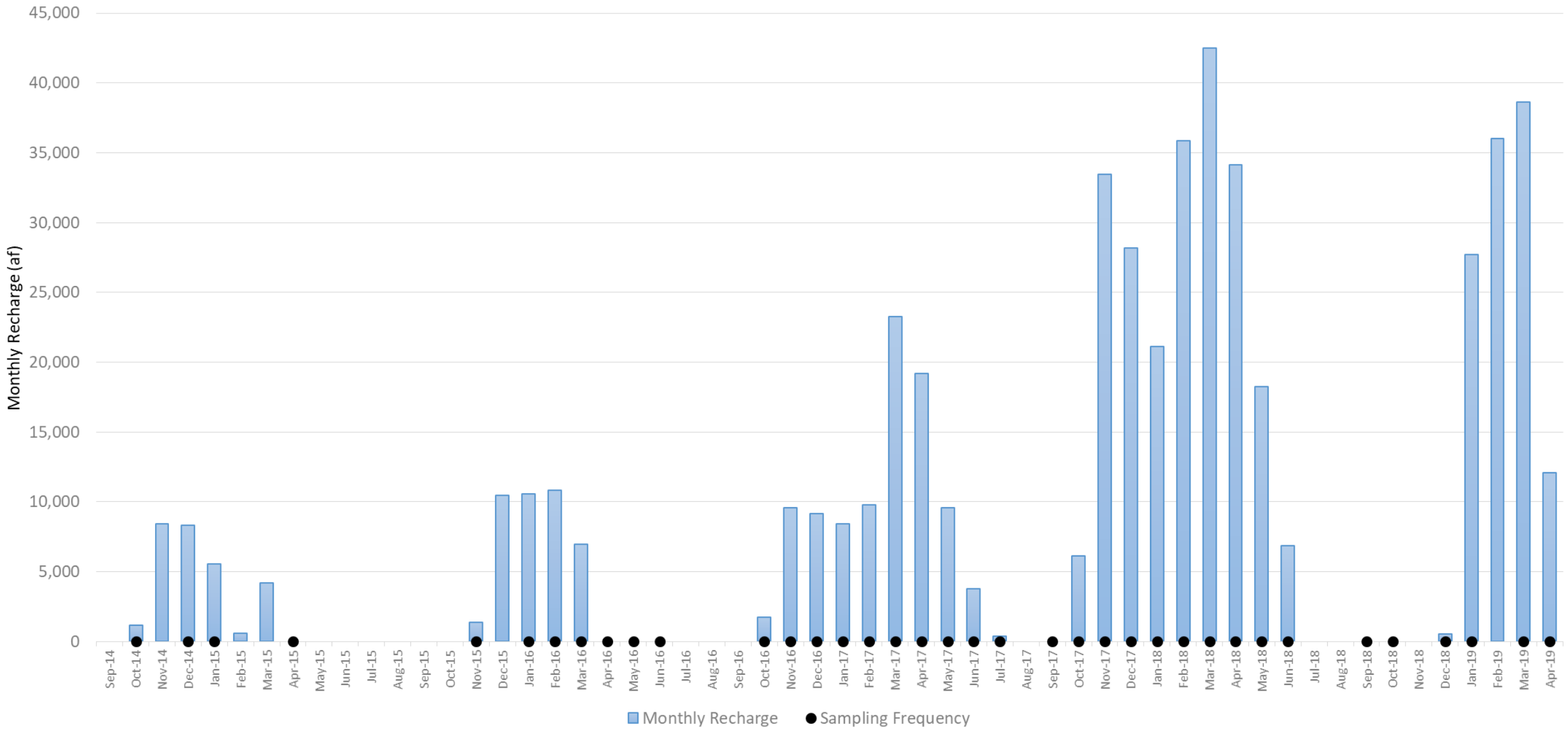
- IWRB Monitoring Schedule
  - Background
  - During Recharge
  - Post
- What is sampled?
  - Surface Water
  - Groundwater
    - Dedicated Monitor Well
    - Domestic
- Lower Valley
  - 9 Dedicated MW sampled
  - 4 Surface water locations at site headgates
  - 5 proposed MW for new sites
- Recharge Operating Schedule
  - Season runs between mid-October through mid-April
  - Some wet years off-canal sites are sampled year round



Groundwater Quality Monitoring at Mile Post 31

- Full scale activity started during the 2014-2015 recharge season
- 51 sampling events since start of full scale operations

Mile Post 31 Recharge and Sampling Summary



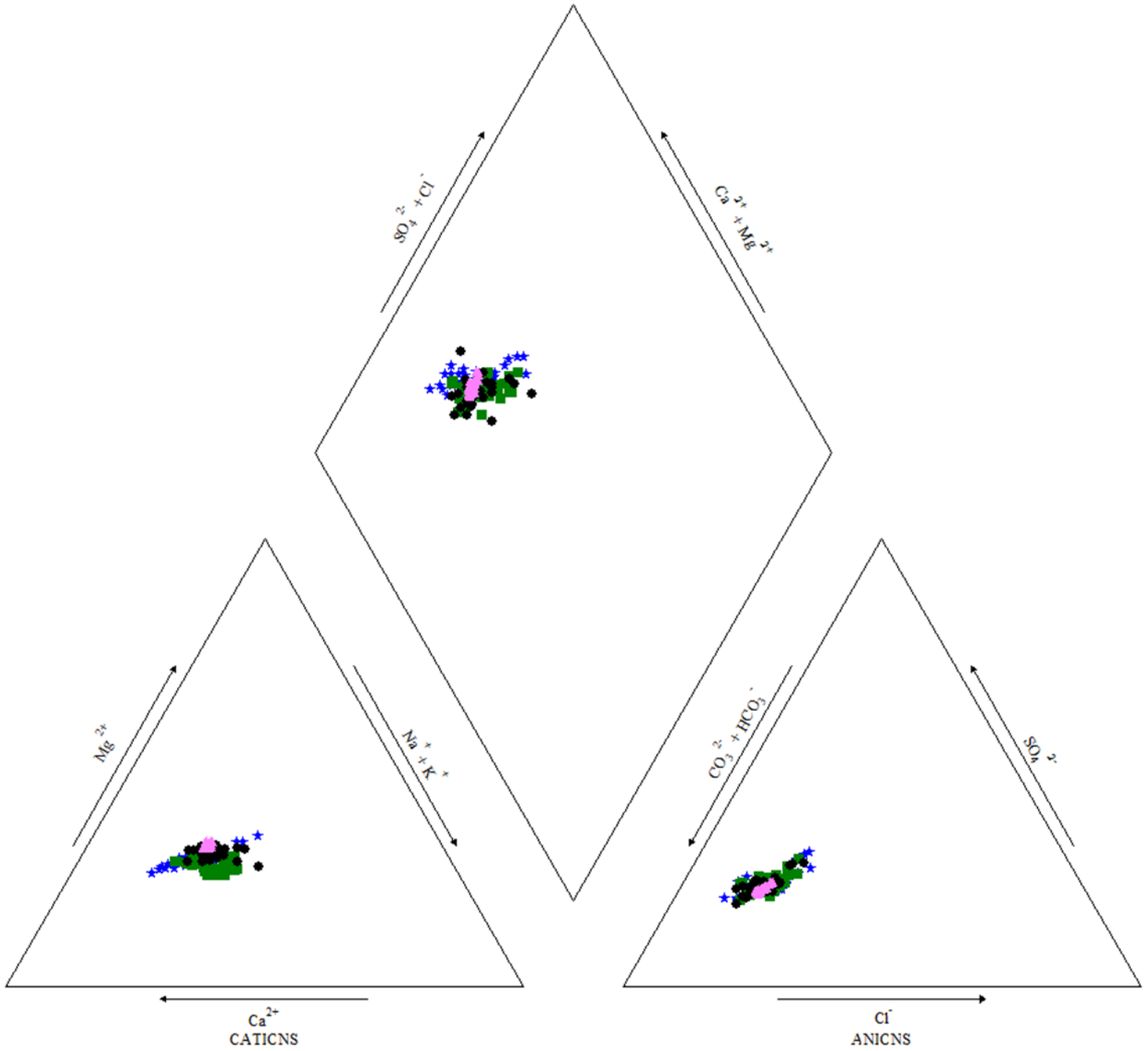
MP31 Water Chemistry

Surface Water

East Well

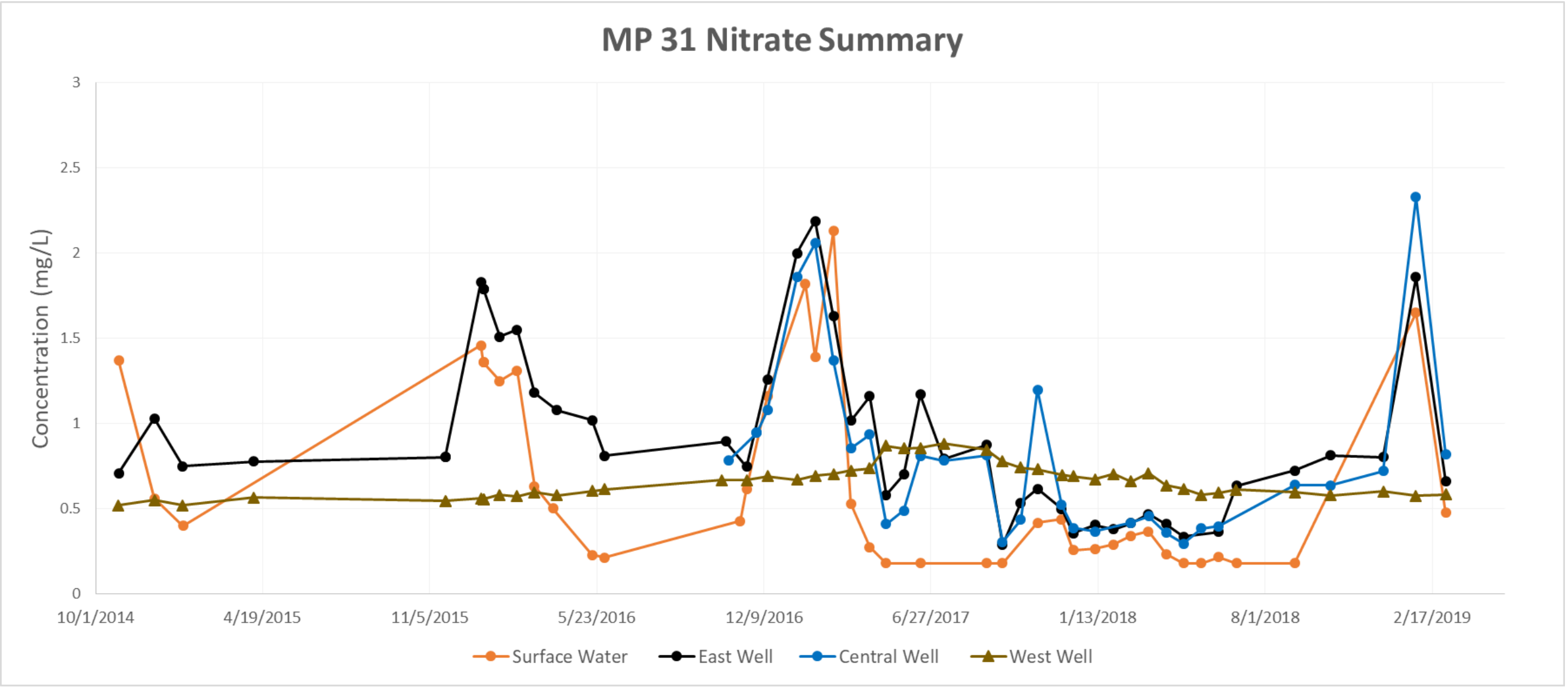
Central Well

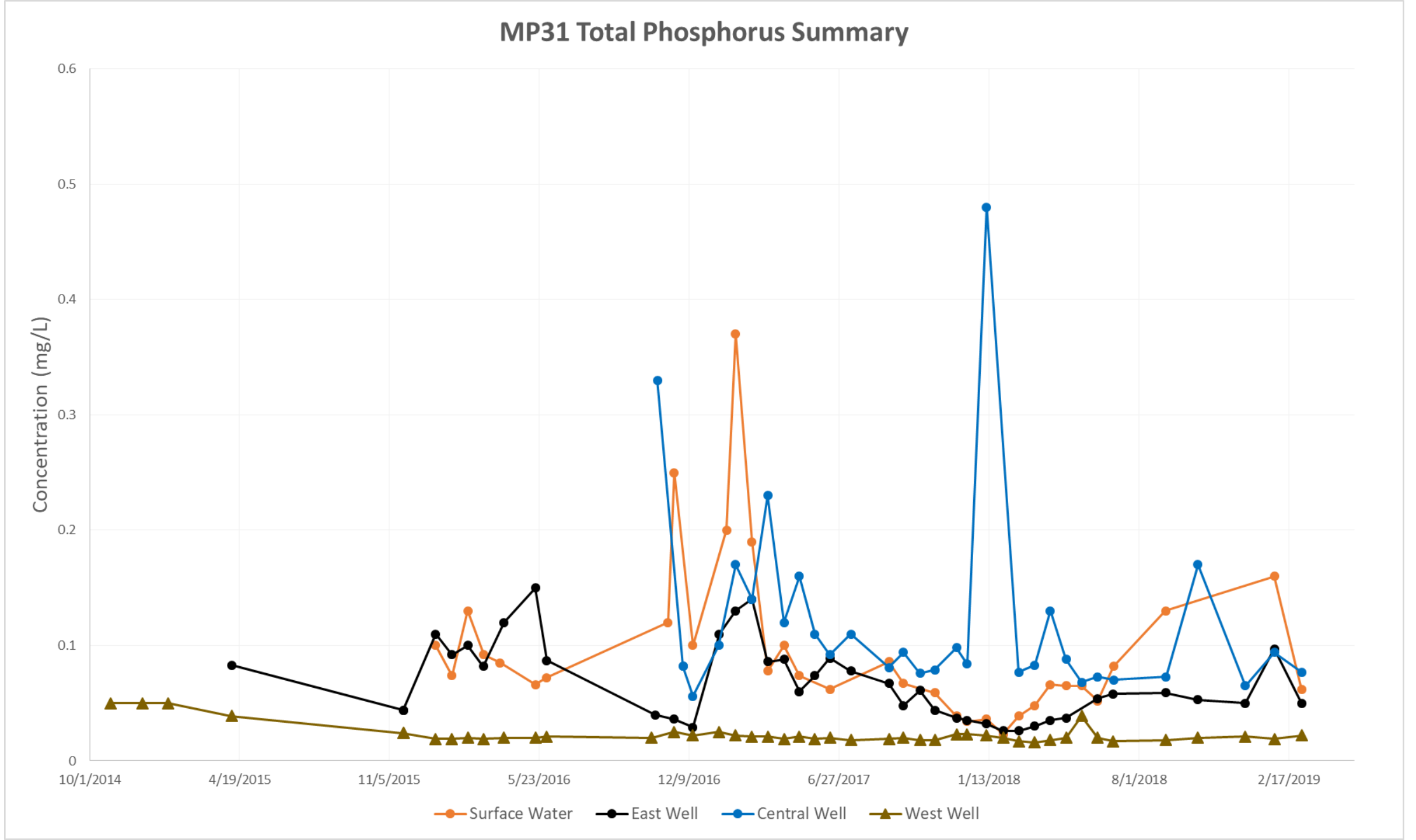
West Well

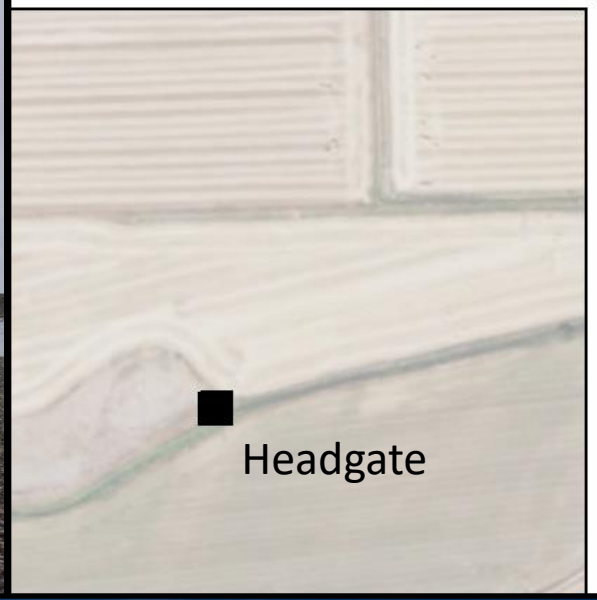


E. Coli Sampling Result Summary

0 0.5 1 2
Miles


MP 31 Nitrate Summary
Concentration (mg/L)
3
2.5
2
1.5
1
0.5
0
10/1/2014
4/19/2015
11/5/2015
5/23/2016
12/9/2016
6/27/2017
1/13/2018
8/1/2018
2/17/2019
Surface Water
East Well
Central Well
West Well

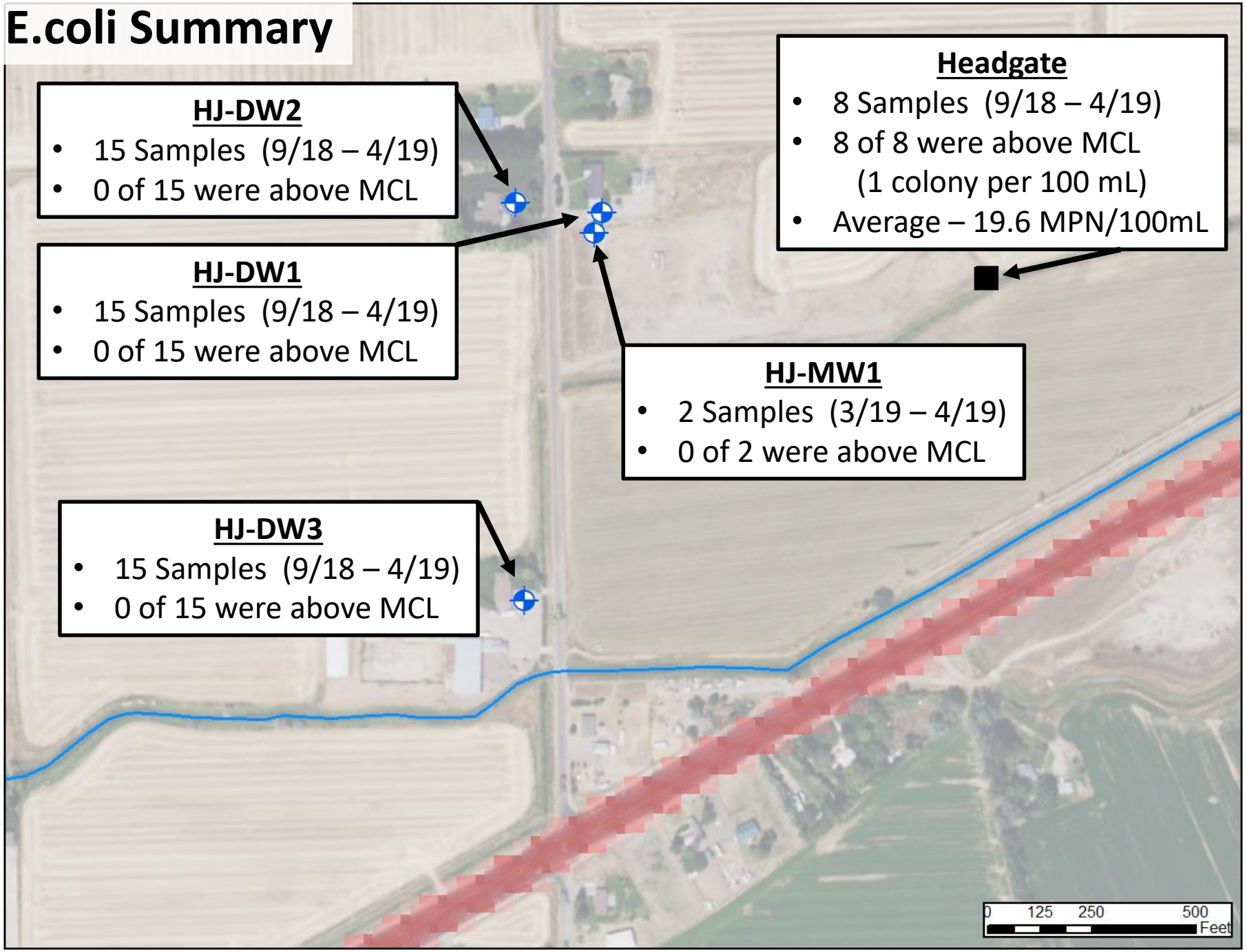

MP31 Total Phosphorus Summary
Concentration (mg/L)
0.6
0.5
0.4
0.3
0.2
0.1
0
10/1/2014
4/19/2015
11/5/2015
5/23/2016
12/9/2016
6/27/2017
1/13/2018
8/1/2018
2/17/2019
Surface Water
East Well
Central Well
West Well



Upper Valley IWRB Managed Recharge Site

- **Jones Site**
  - **Basin is ~5 acres**
  - **Site takes 20 cfs**
  - **Old gravel pit**
- **Dedicated monitor well constructed to mimic domestic design with additional perforations**
- **Weekly bacteria sampling during recharge**
- **3 proximal domestic wells sampling along with MW**

Jones Site E.coli Summary



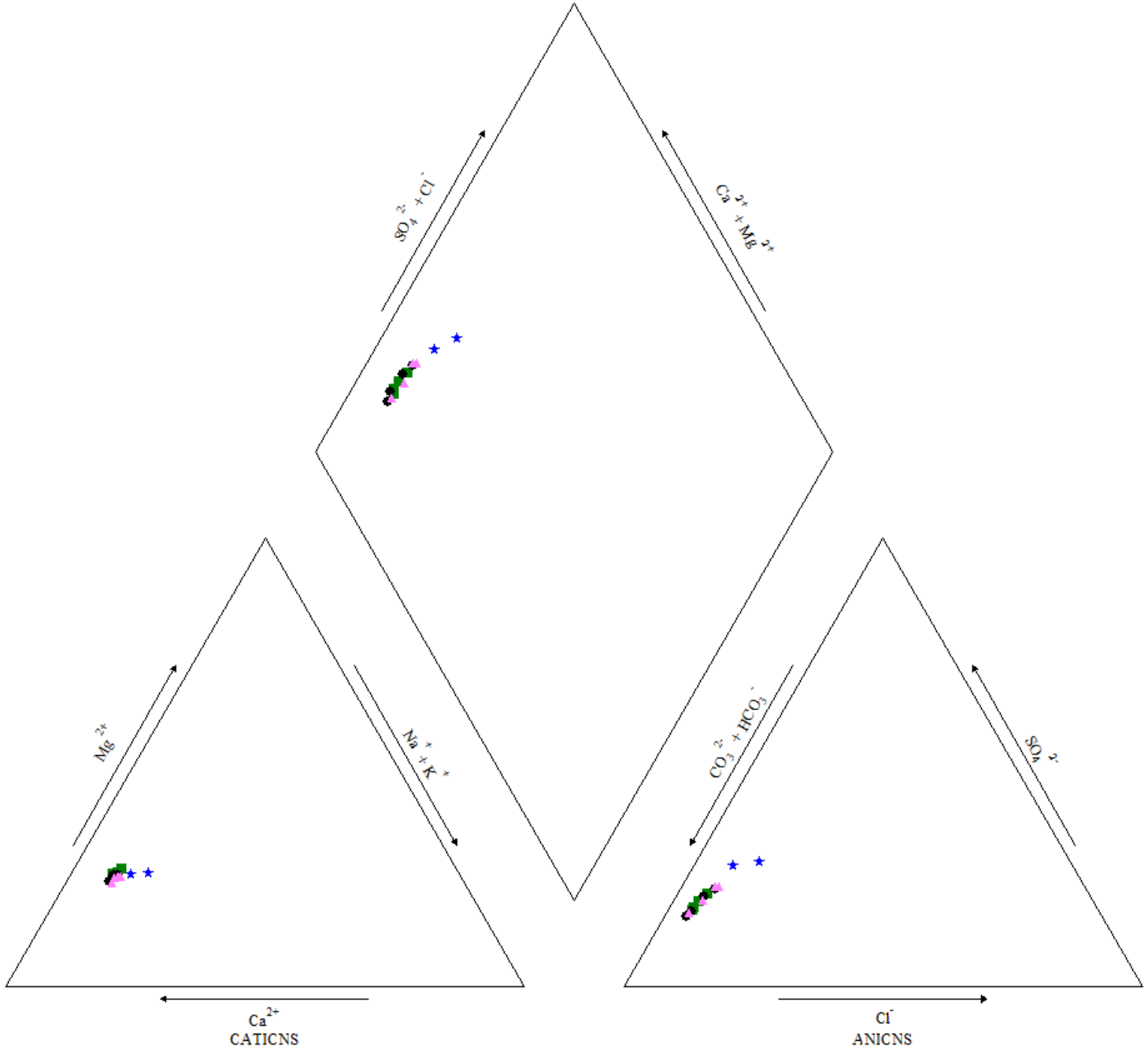
Jones Site Water Chemistry

Surface Water

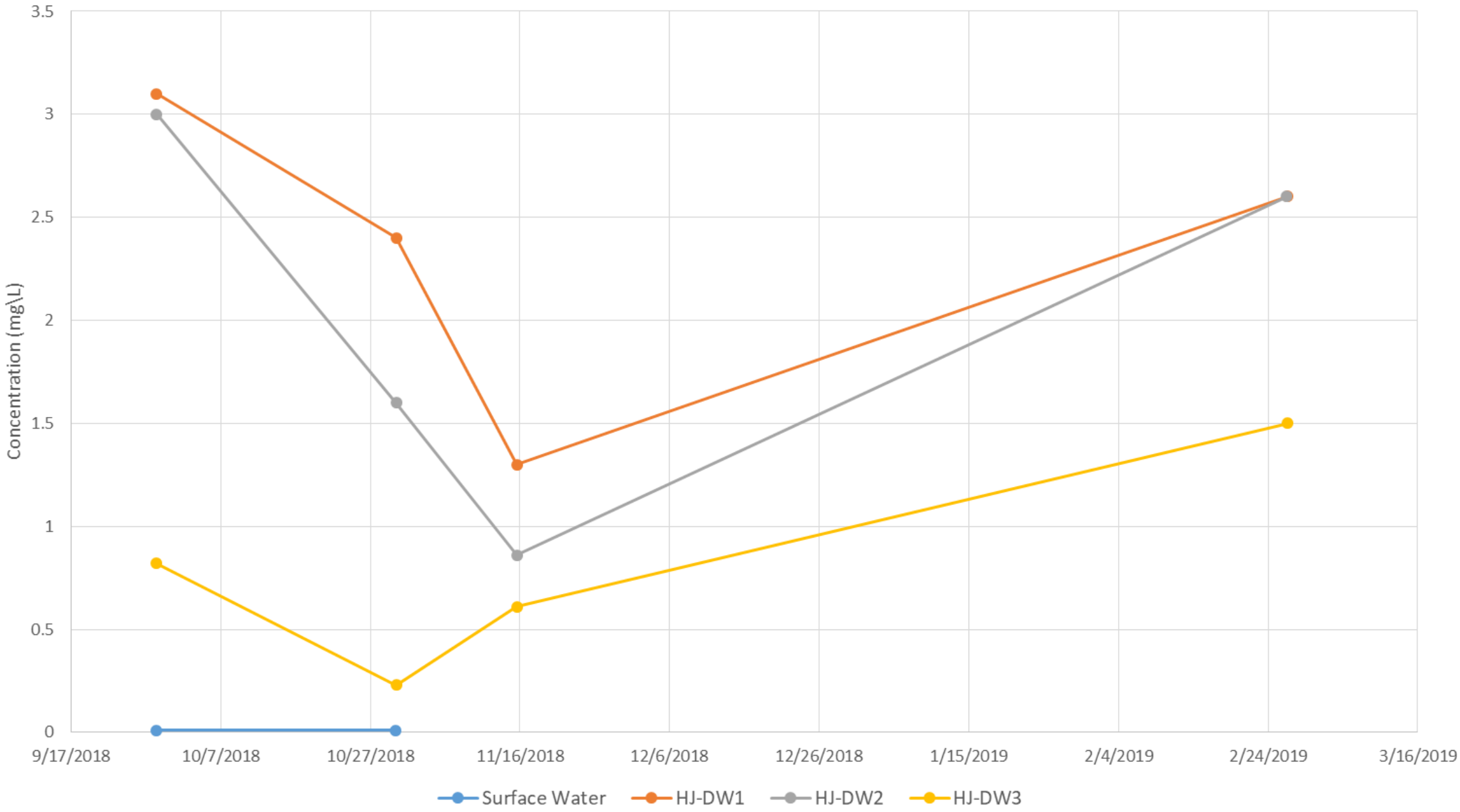
HJ-DW1

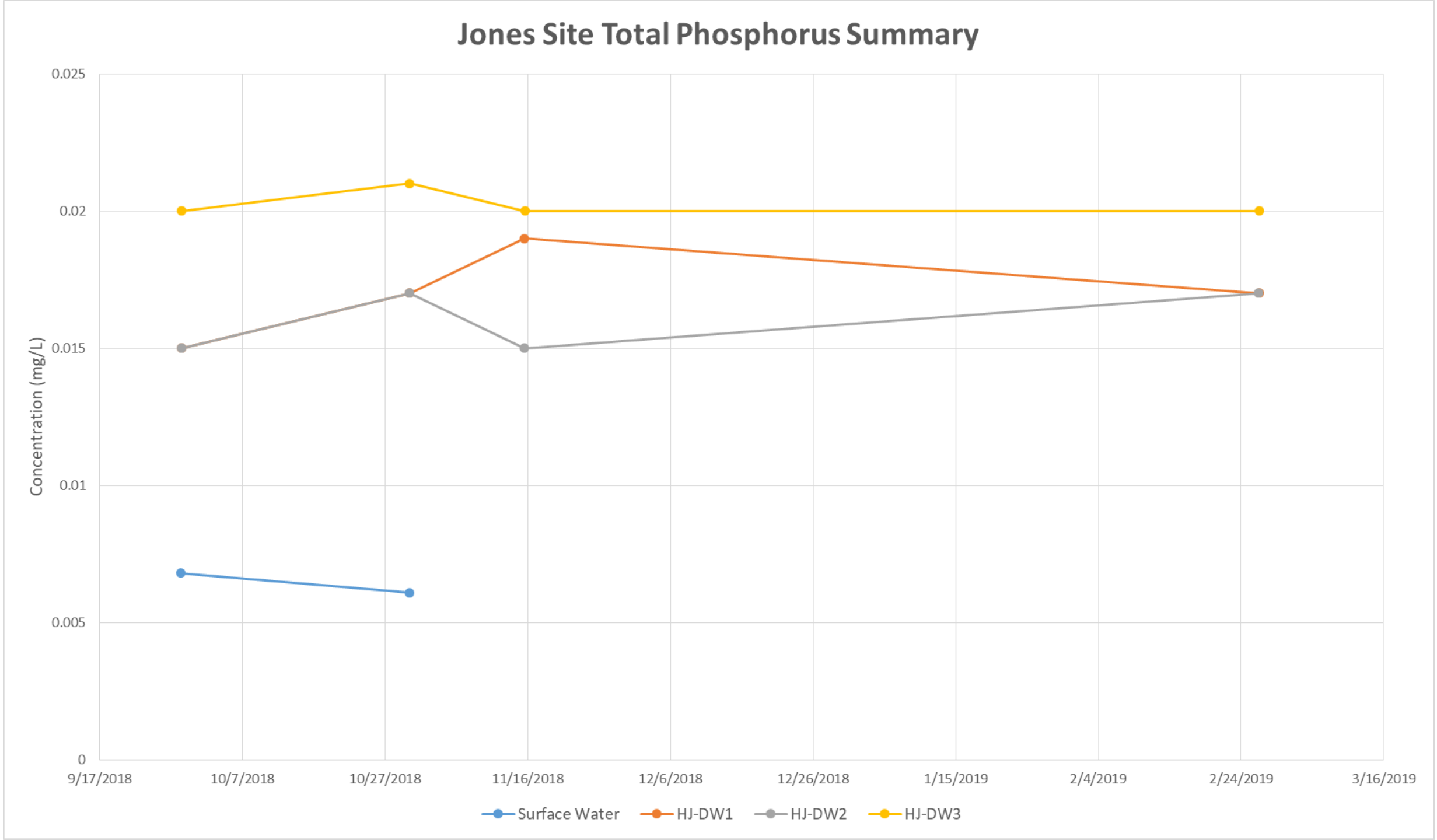
HJ-DW2

HJ-DW3



Jones Site Total Nitrogen Summary




Jones Site Total Phosphorus Summary
0.025
0.02
0.015
0.01
0.005
0
Concentration (mg/L)
9/17/2018
10/7/2018
10/27/2018
11/16/2018
12/6/2018
12/26/2018
1/15/2019
2/4/2019
2/24/2019
3/16/2019
Surface Water
HJ-DW1
HJ-DW2
HJ-DW3

Groundwater Quality Summary

- No correlation from surface water bacteria to groundwater quality at any IWRB site
- To date, no detection of contaminates above MCL
- Full scale activities have been operational for just under 5 years. More data is needed to fully understand groundwater quality and quantity proximal to sites in the ESPA

Continuous Groundwater Monitoring in the ESPA

- Pressure transducers used to record depth to water
  - Hourly reporting
- Approx. 230 located within the ESPA
- Plan to add 10-15 more in the South Fork, Egin Bench, and Mud Lake areas.
- Gather data to assist in answering the question, “Where does recharge water flow?”