# Data Integrity Work Group Meeting

## - July 18, 2019 @ CBL

A Self Evaluation Exercise (not to be mistaken for finger-pointing)

# Overview

**EPA Quality Systems recommend a PIE approach- Planning, Implementation, and Evaluation**

Environmental sampling programs include performance criteria into their sampling program planning and implementation. These involve collecting field replicates and blanks, analyzing numerous blanks, spike samples, and standards, as well as routine calibrations of analytical instruments. Individual labs review their QA results to ensure data quality.

A quantitative evaluation of the analytical results utilizes QA samples to report on the quality of data from across the watershed

*Proficiency Testing / External Quality Assessment*

- Blind Audit
- USGS Reference Samples (Breck has recent results)
- Coordinated Split Sample Program (Mike's section on current results)

*Internal Data Quality Indicators (Precision & Bias Plots)*

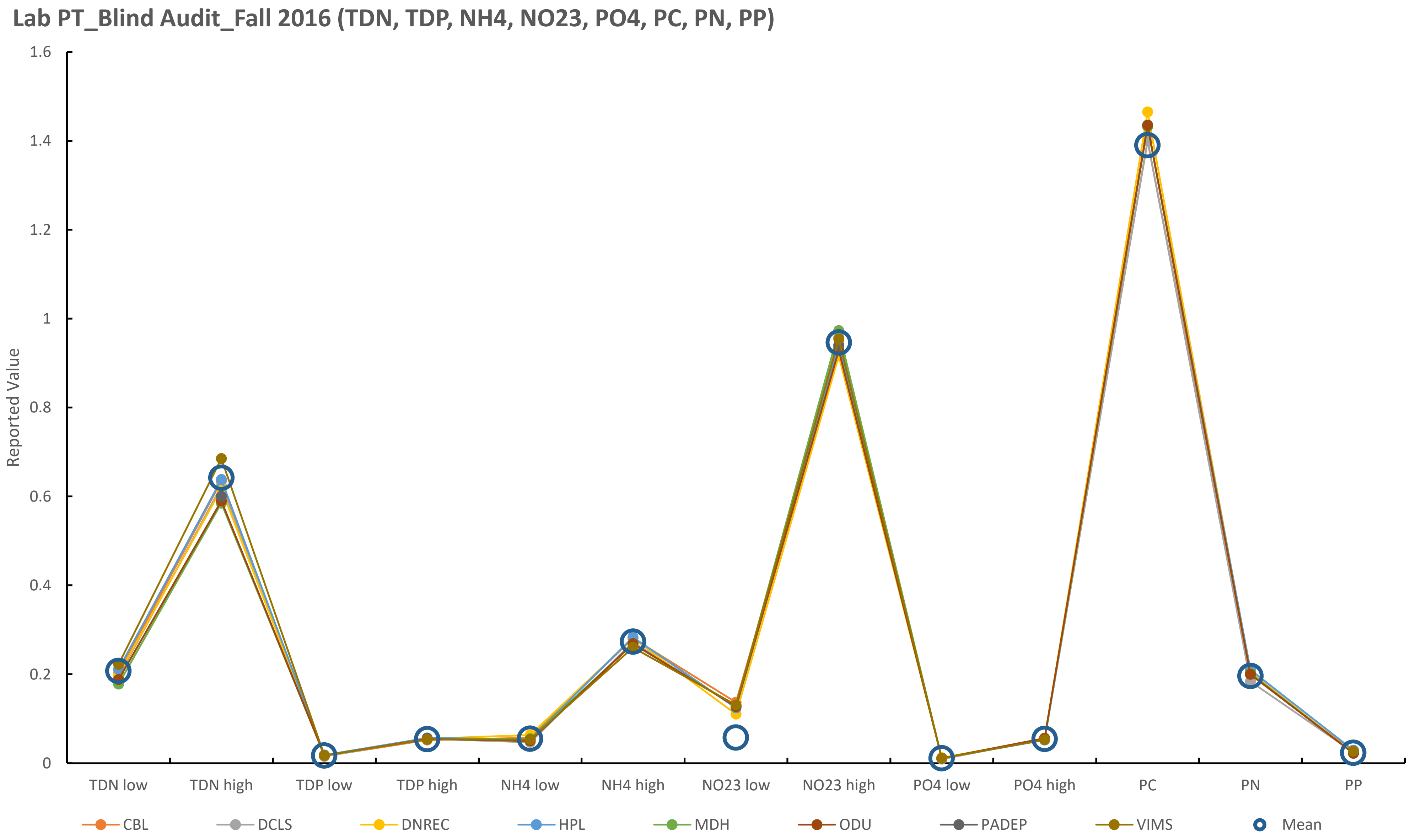
- Replicates/Duplicates
- Blanks

# Labs participating in Performance Testing Programs

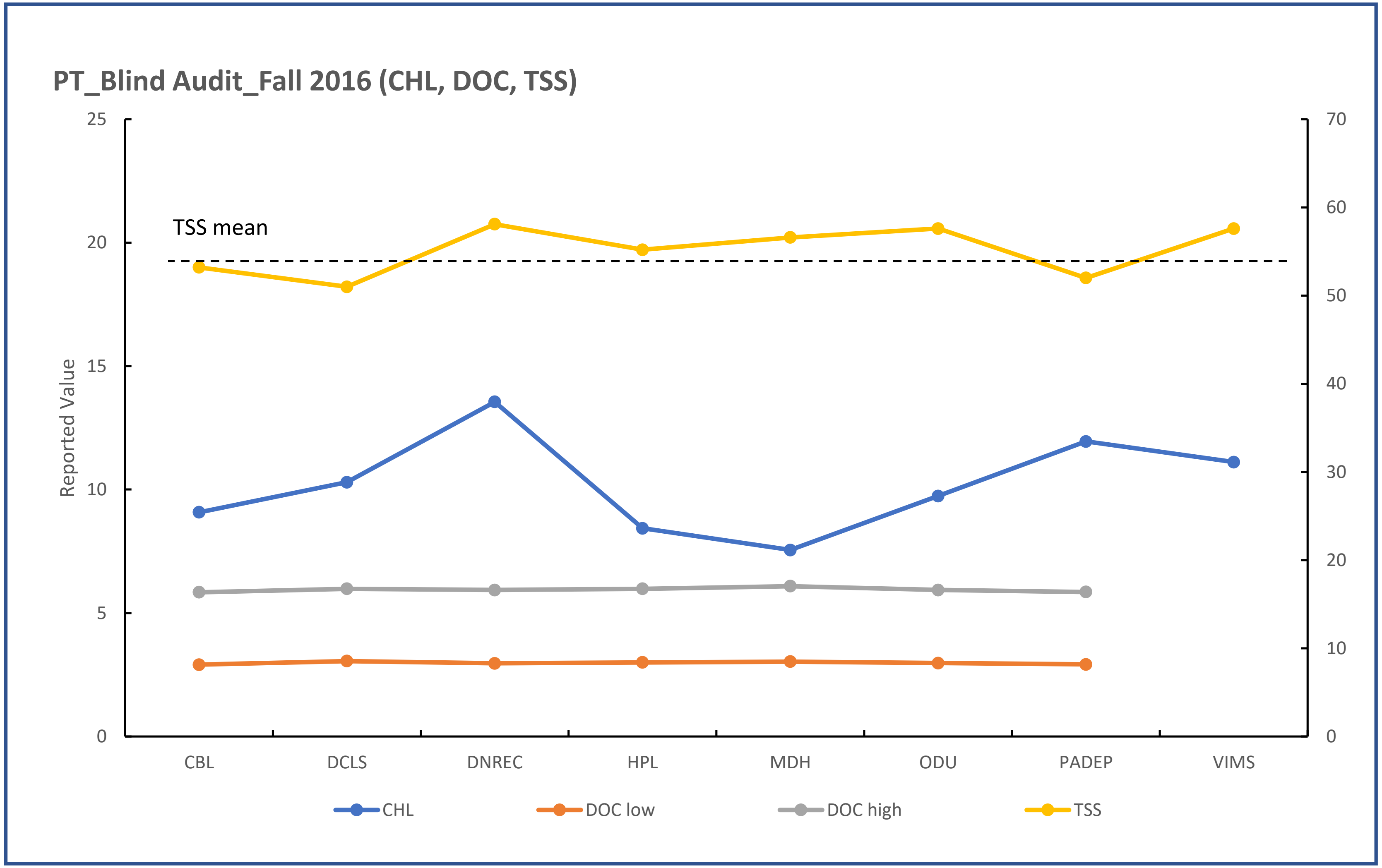
| Lab | Blind Audits | USGS Ref | CSSP |
|---|---|---|---|
| AACC | **Y** | **Y** | **Y** |
| CBL | **Y** | **Y** | **Y** |
| DCLS | **Y** | **Y** | **Y** |
| DNREC | **Y** | **Y** | **Y** |
| HPL | **Y** | **Y** | **Y** |
| NWQL | **Y** | **Y** | **Y** |
| MDH | **Y** | **Y** | **Y** |
| ★ Microbac/BWB | **? (some data)** | **?** | **?** |
| ODU | **Y** | **Y** | **Y** |
| PADEP | **Y** | **Y** | **Y** |
| VIMS | **Y** | **N** | **Y** |
| Nanticoke/CHLA | **Y** | **Y** | **Y** |
| HRSD | **Y** | **-** | **-** |
| OWML/VP1 | **Y** | **Y** | **-** |
| DDOE | **-** | **Y** | **Y** |
| Fairfax DPW | **-** | **Y** | **Y** |

# Interlaboratory Comparison: Blind Audit Program

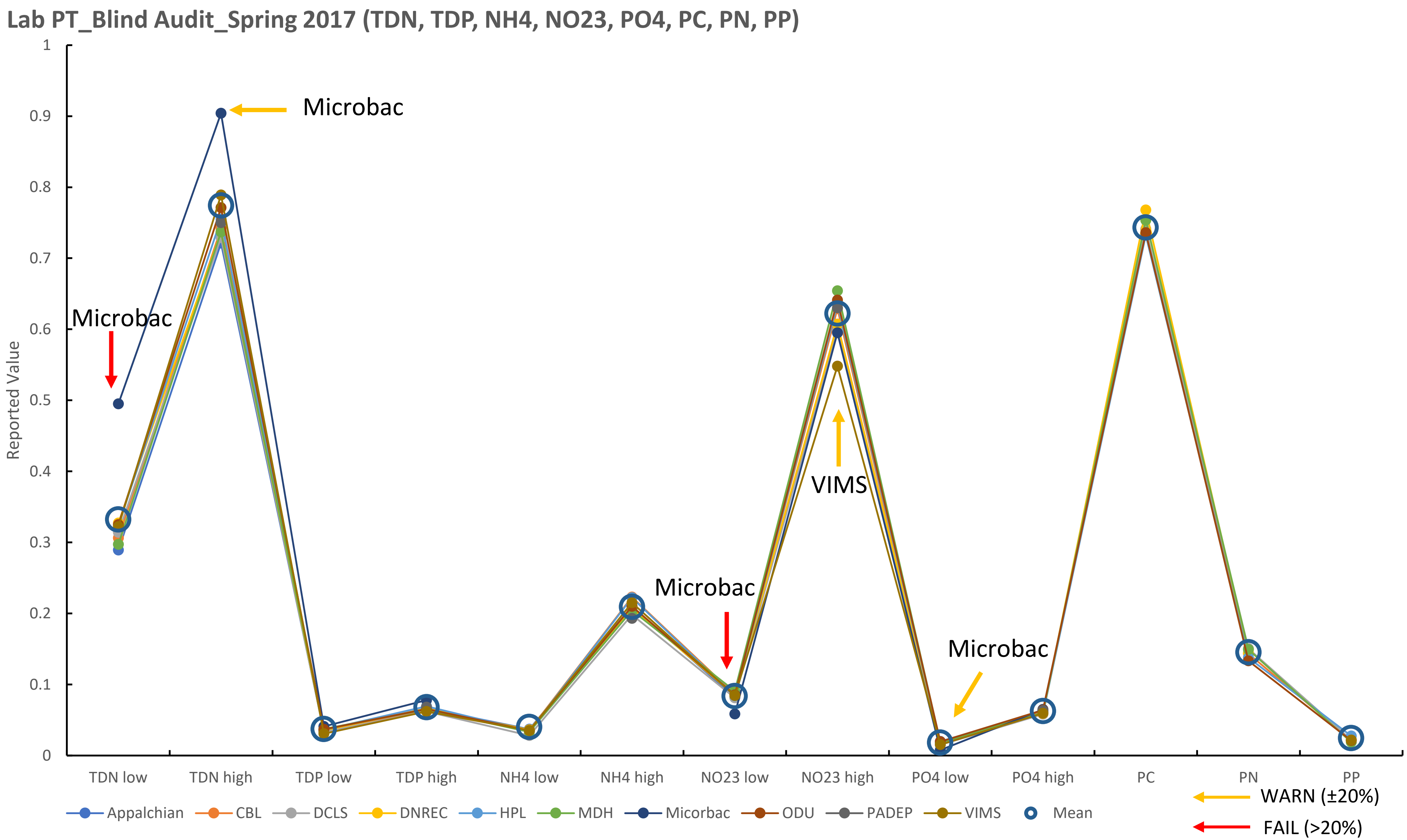
# Blind Audit Data Fall 2016



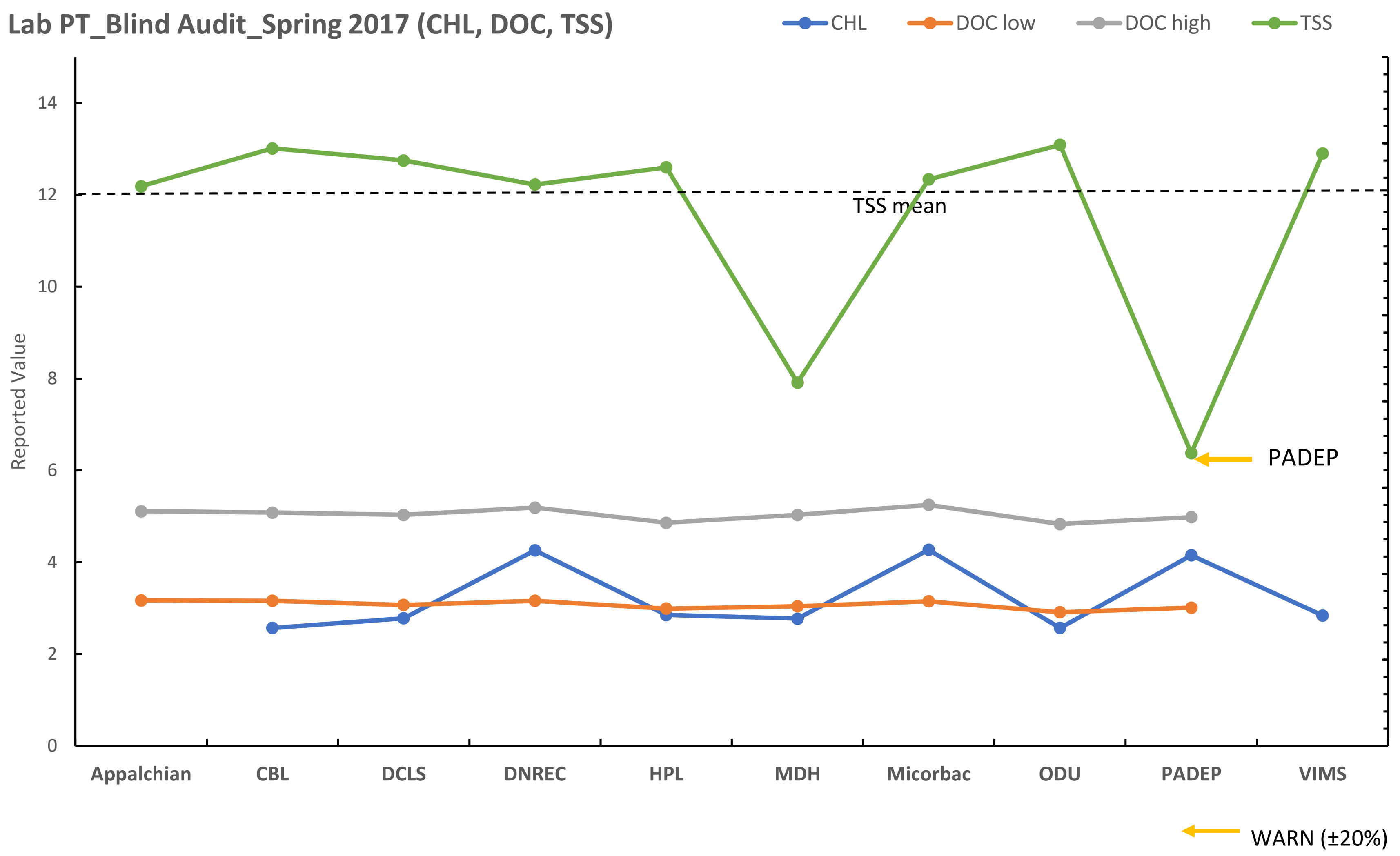

# Blind Audit Data Fall 2016




# Blind Audit Data Spring 2017

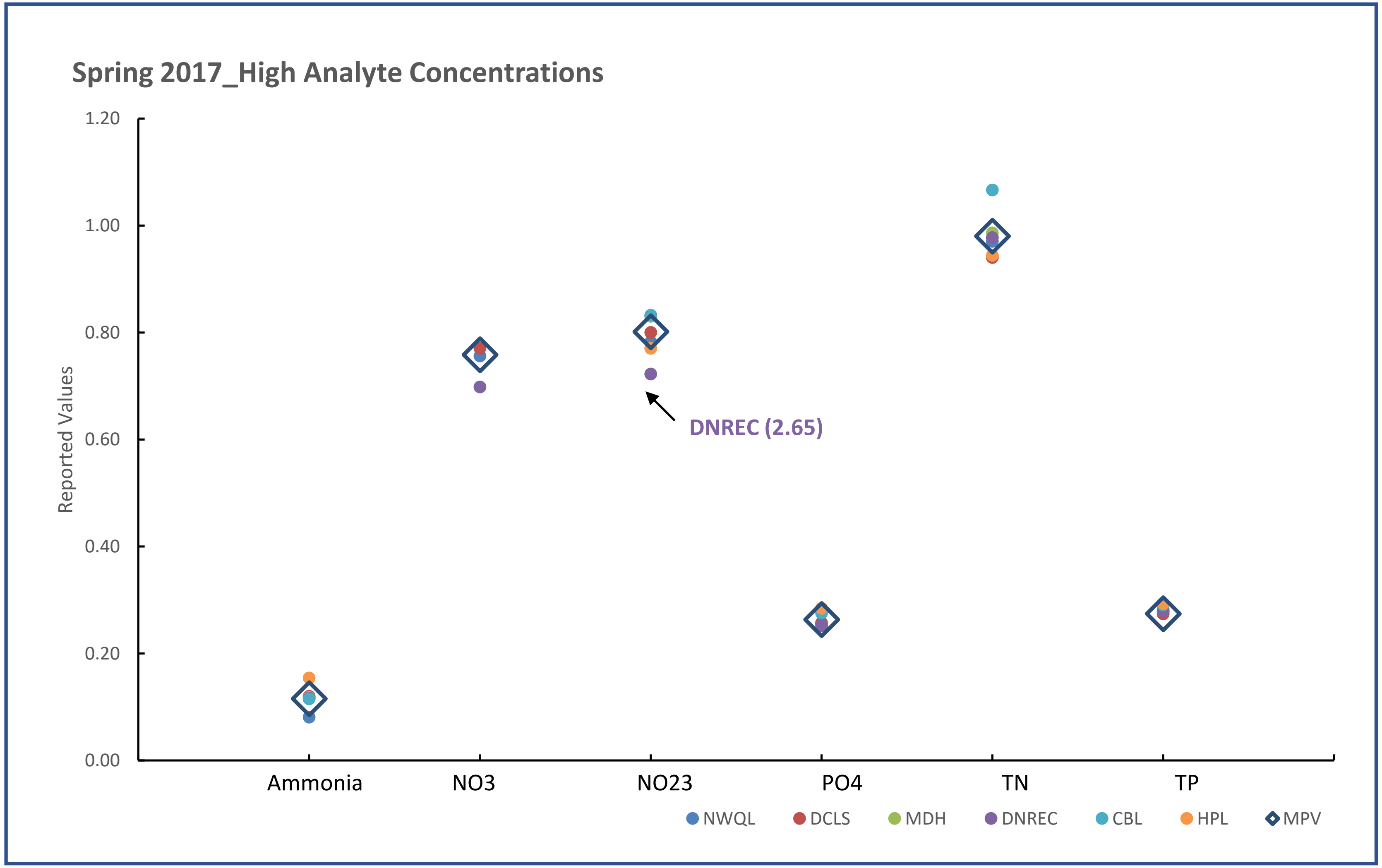


# Blind Audit Data Spring 2017

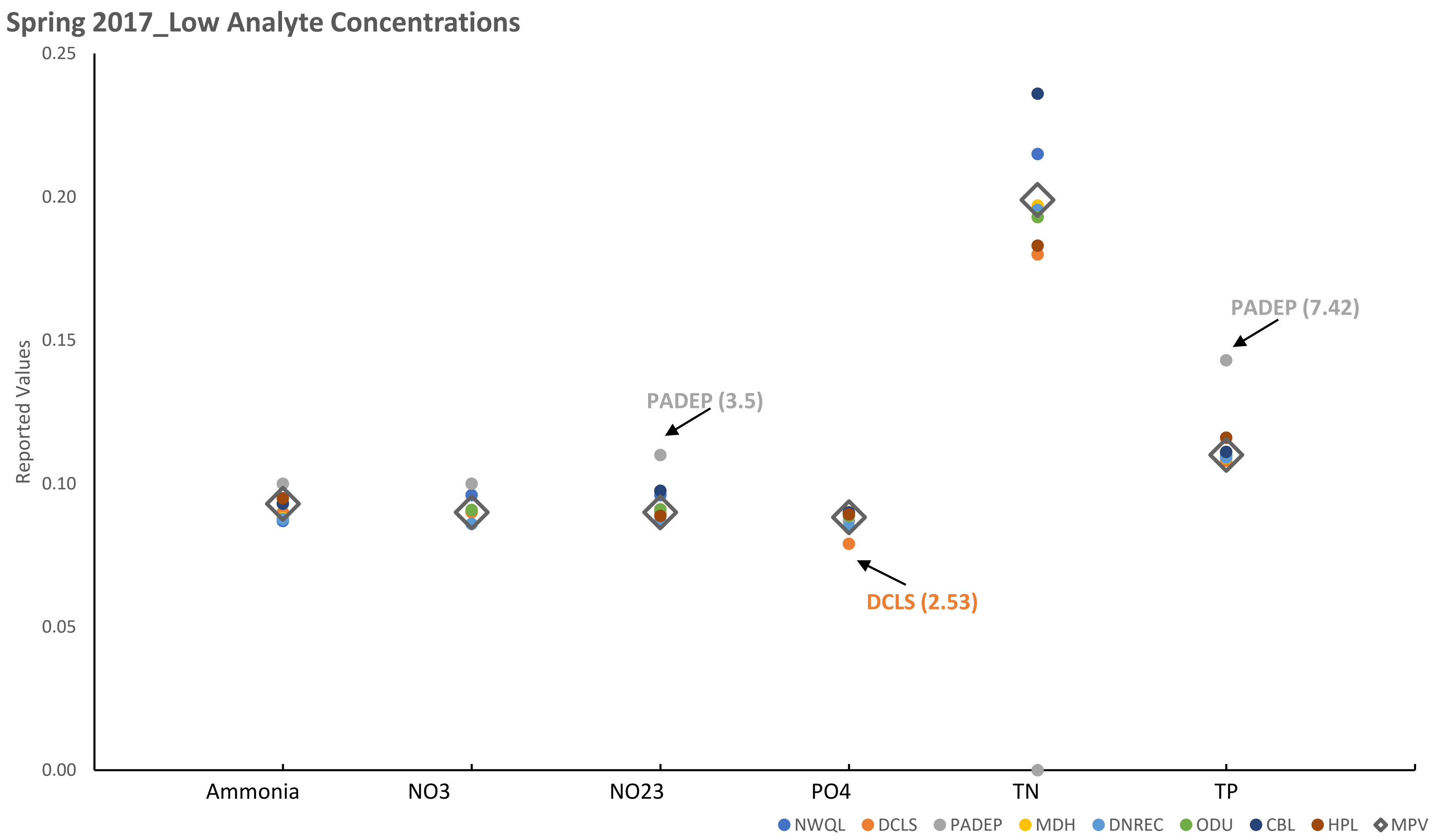


# Interlaboratory Comparison: USGS Standard Reference Sample Program

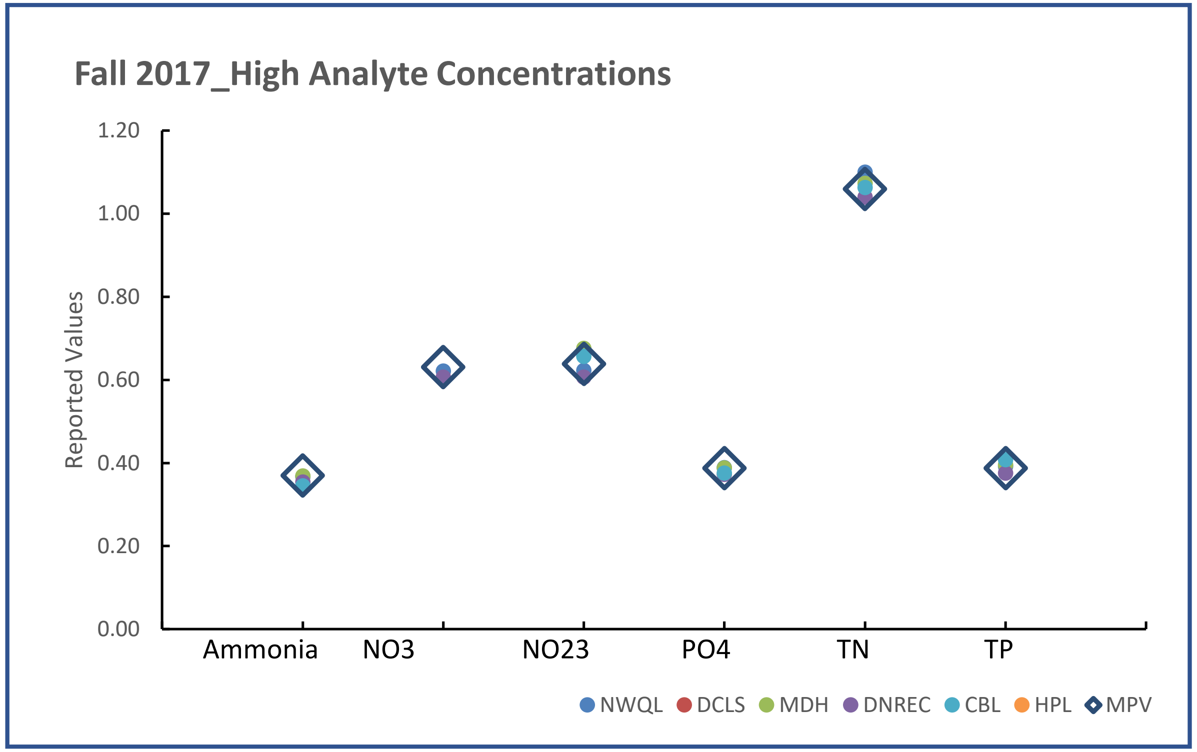
# USGS Reference Sample Data Spring 2017

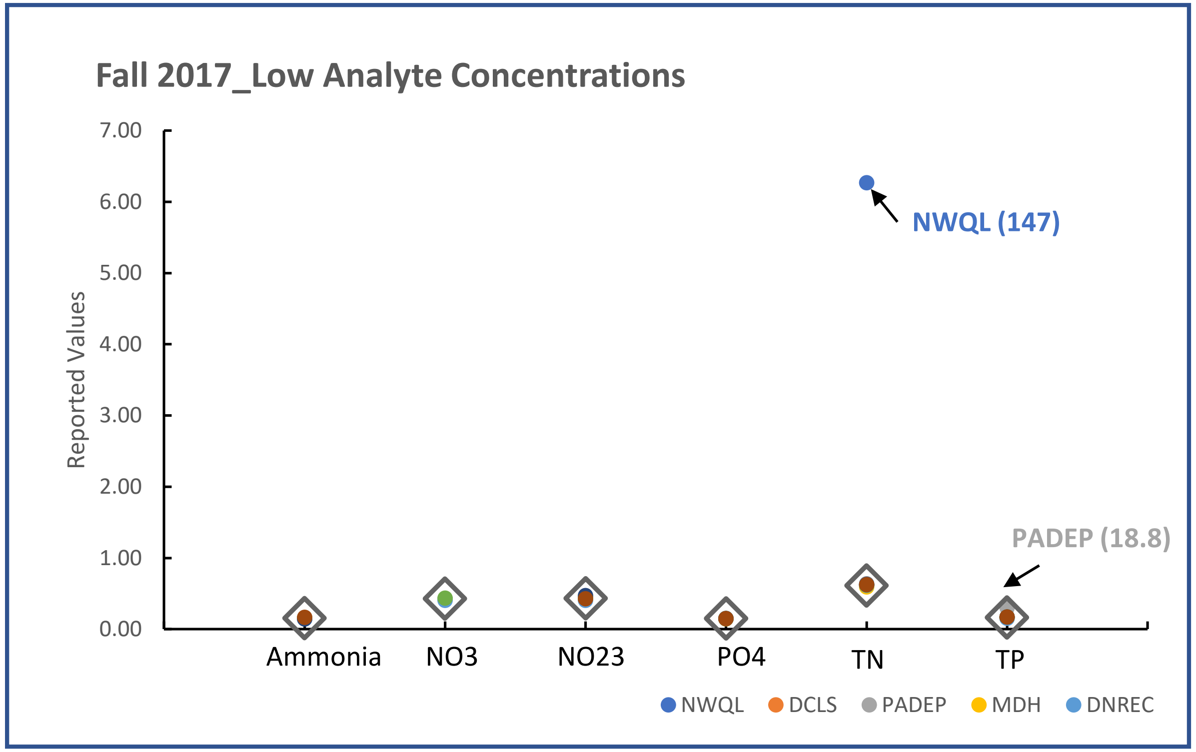


# USGS Reference Sample Data Spring 2017

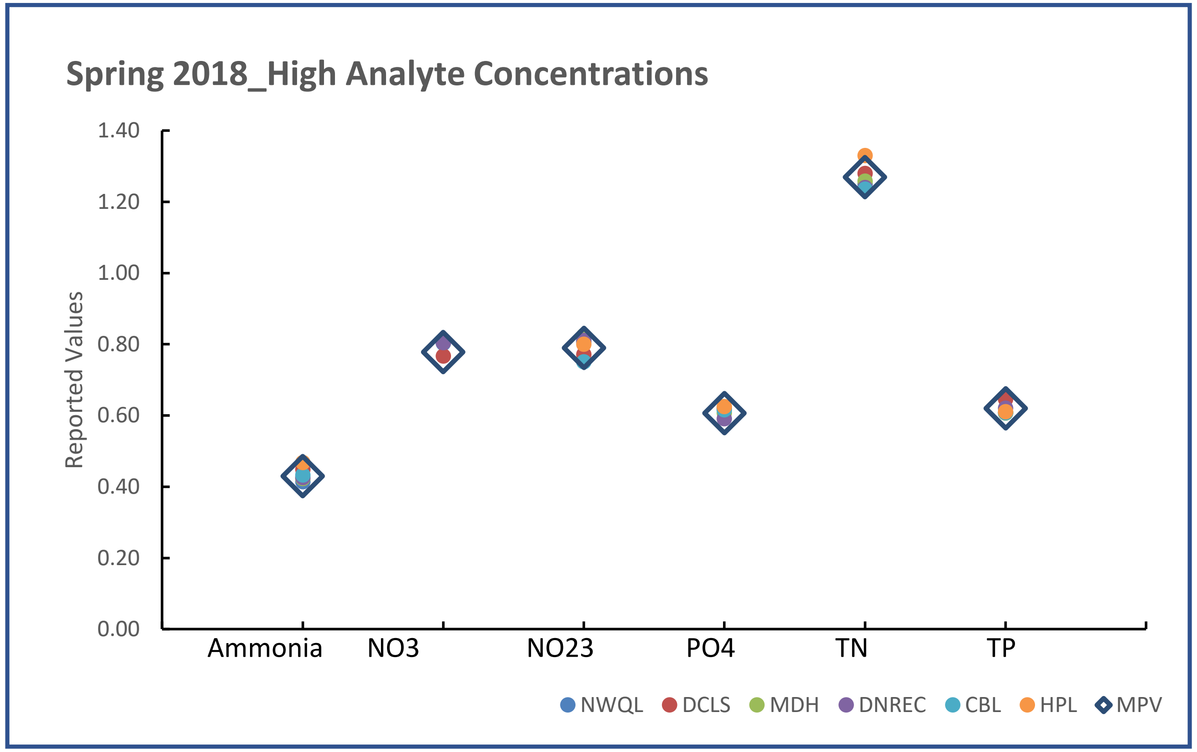


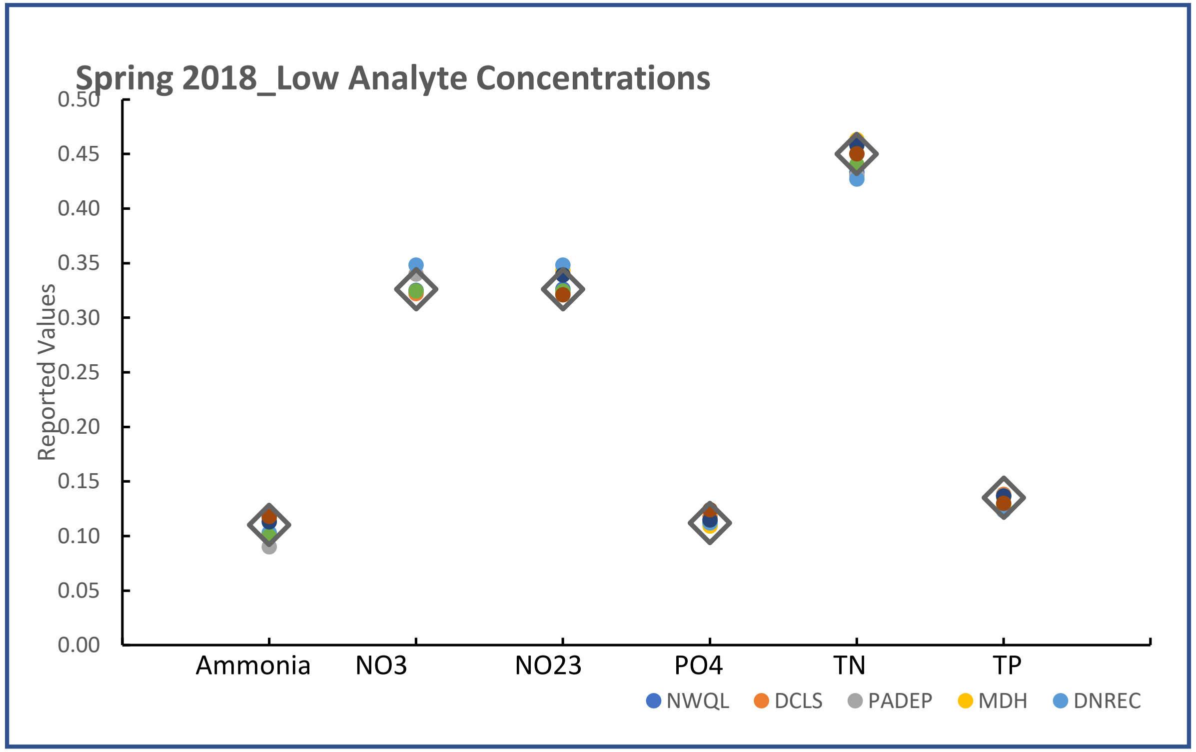
# USGS Reference Sample Data Fall 2017



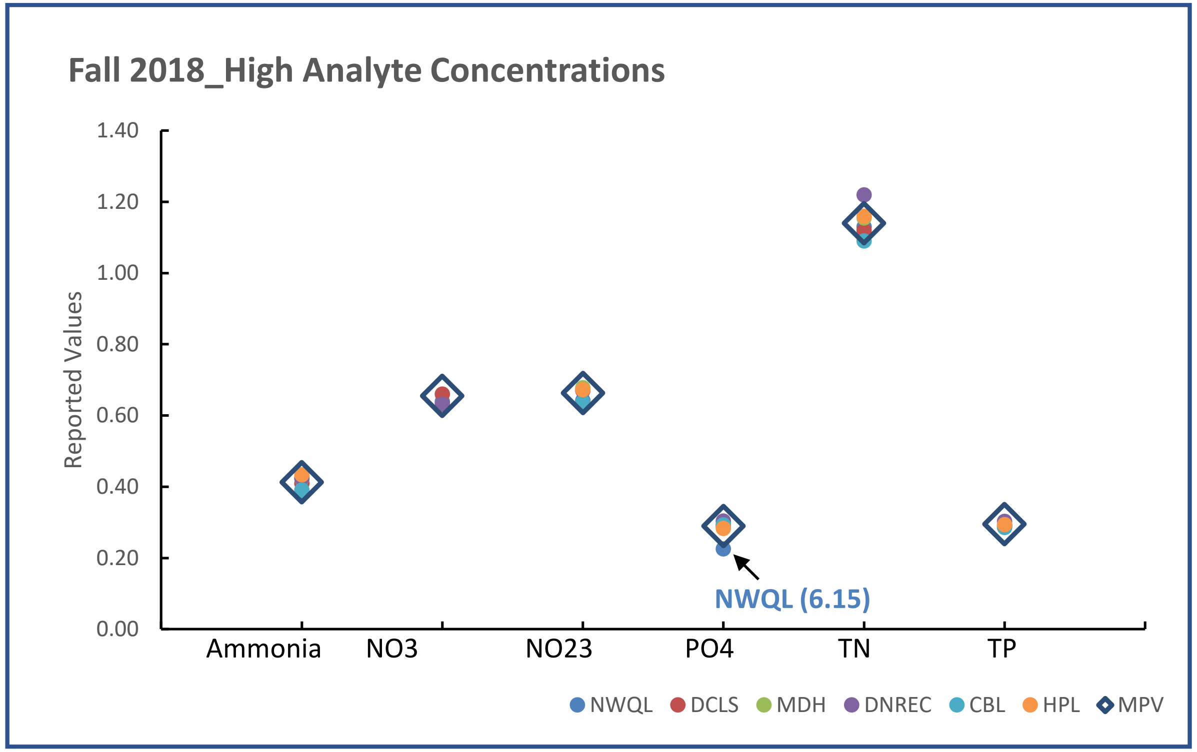



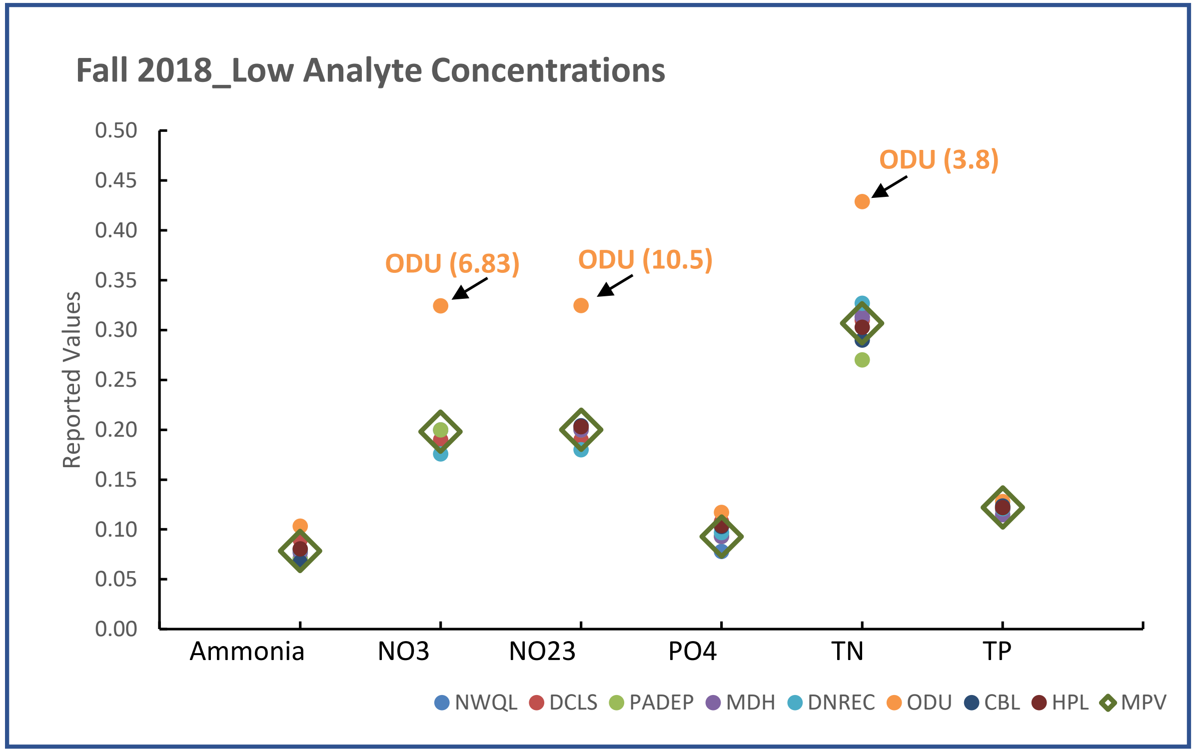

# USGS Reference Sample Data Spring 2018



# USGS Reference Sample Data Fall 2018

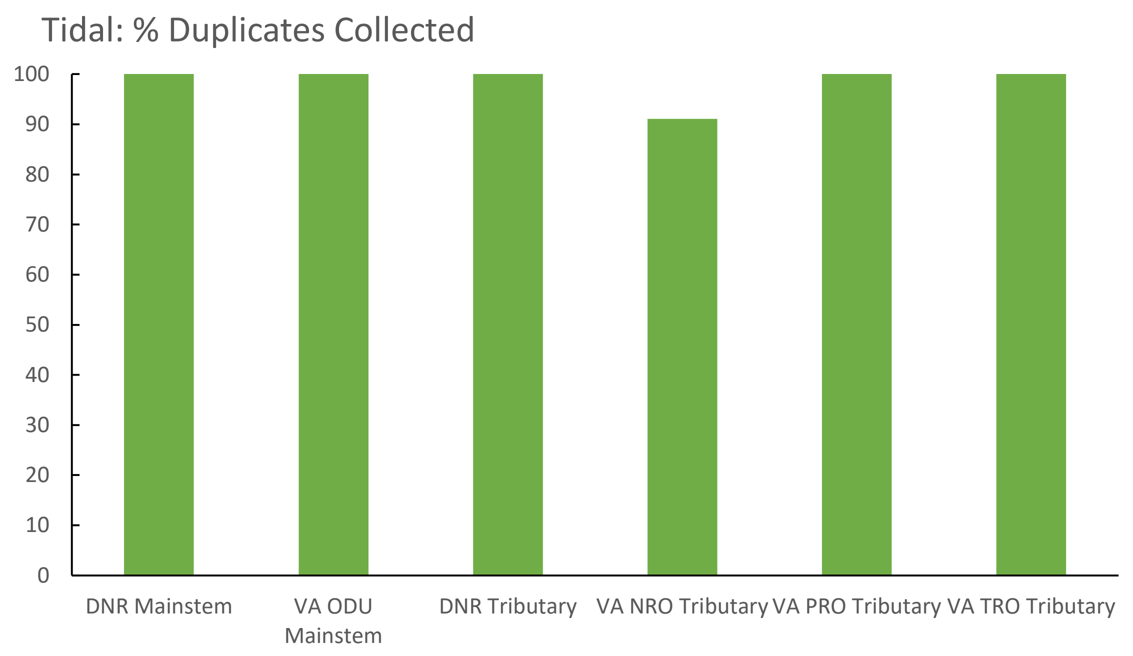


# Standard Reference Samples Spring 2019 Results- Breck

# Interlaboratory Comparison: Precision & Bias Completeness

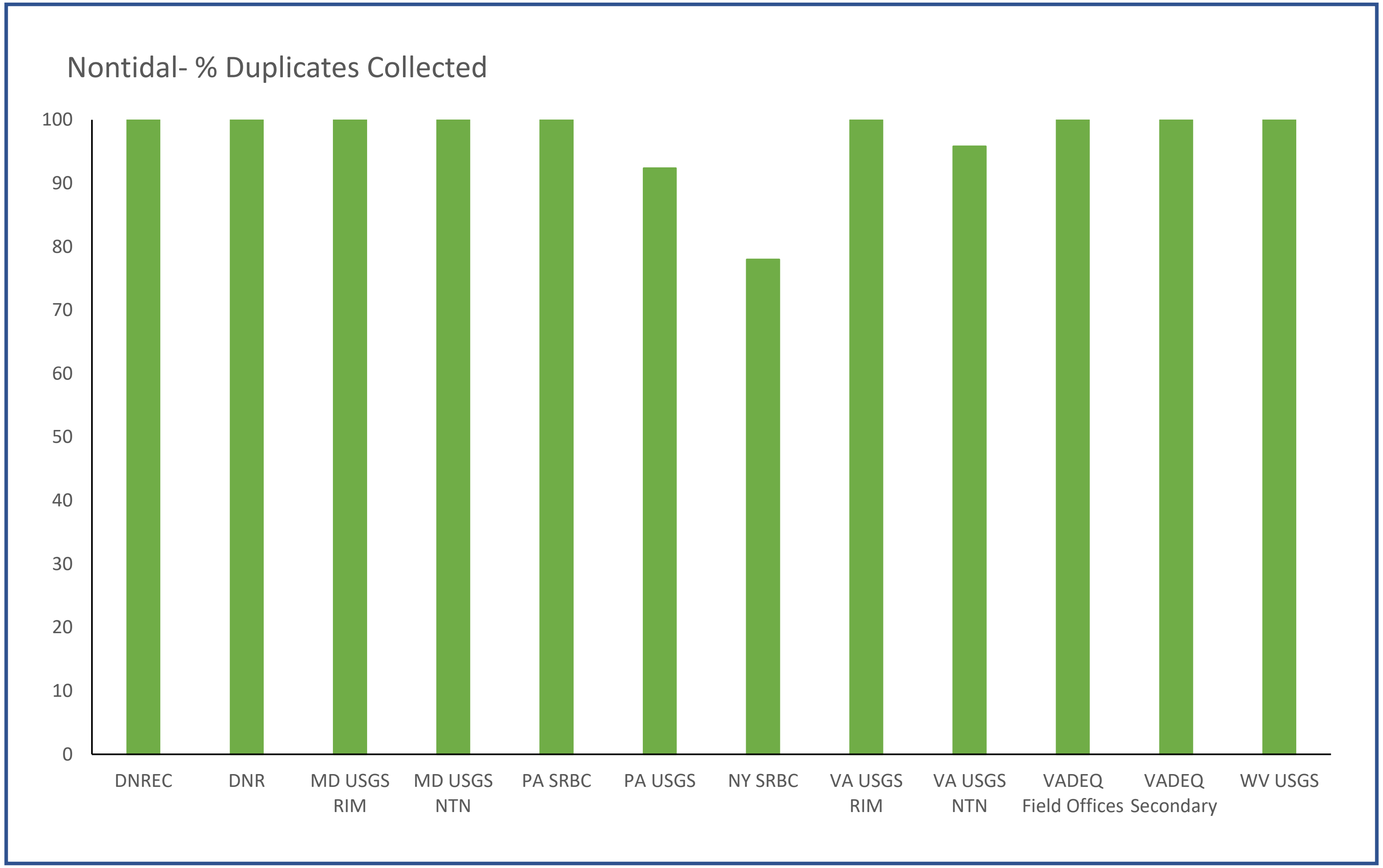
# Tidal: Duplicate Collected (Completeness)




- Ideal Scenario- collected dups = 90-95%
- Excellent values for all agencies

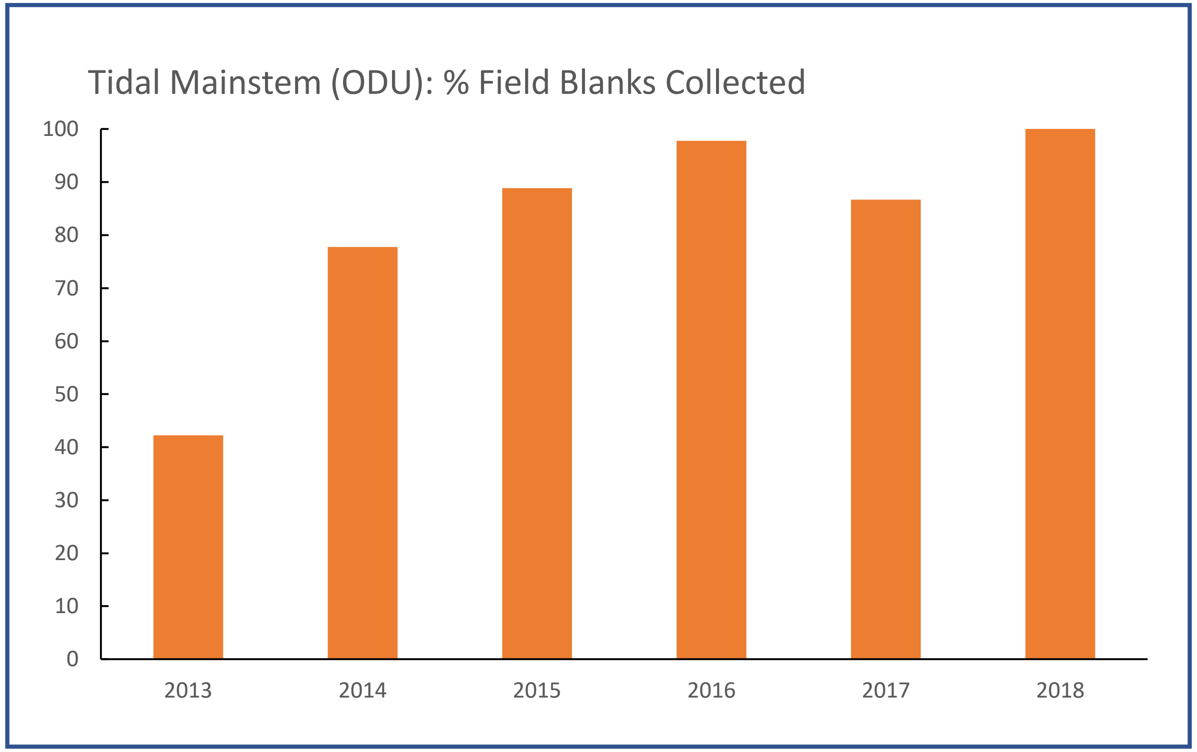
☺

# Nontidal: Duplicates Collected (Completeness)

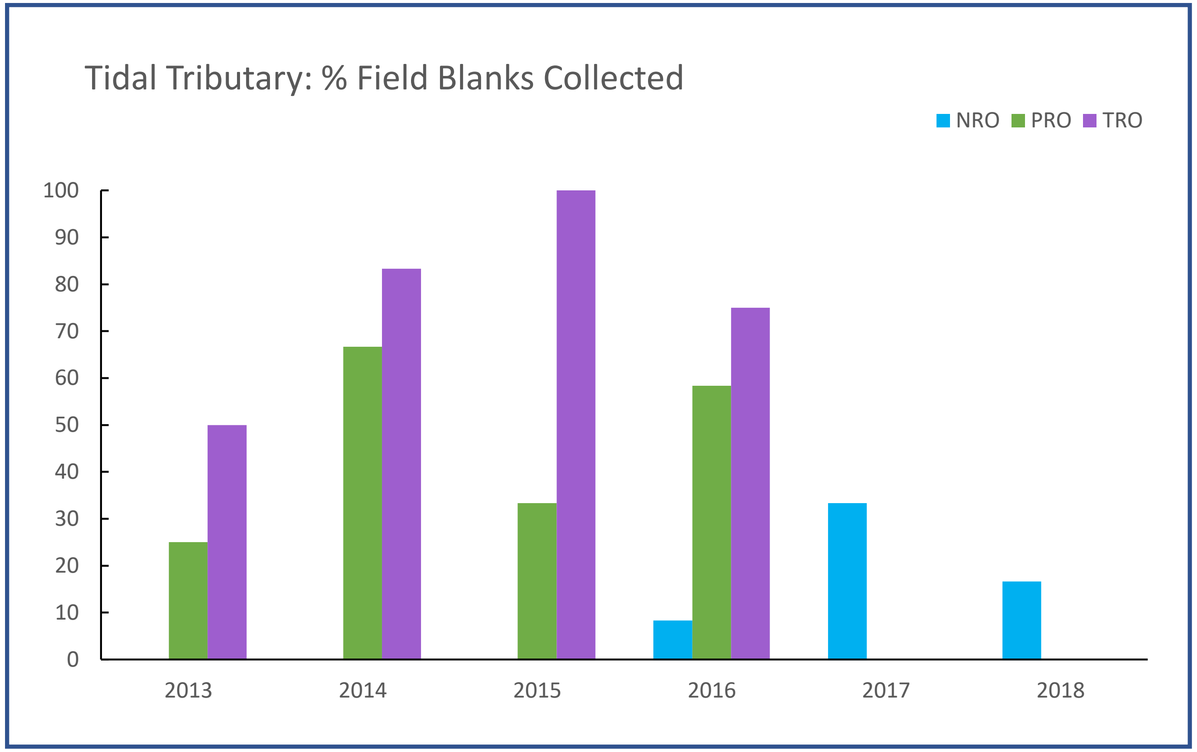



- Ideal Scenario- collected dups = 90-95%
- Almost all agencies have good numbers ☺
- SRBC NY stations?

# Tidal: Blanks Collected (Completeness)




1 blank/day, 3-day cruise = 3x15=45/yr

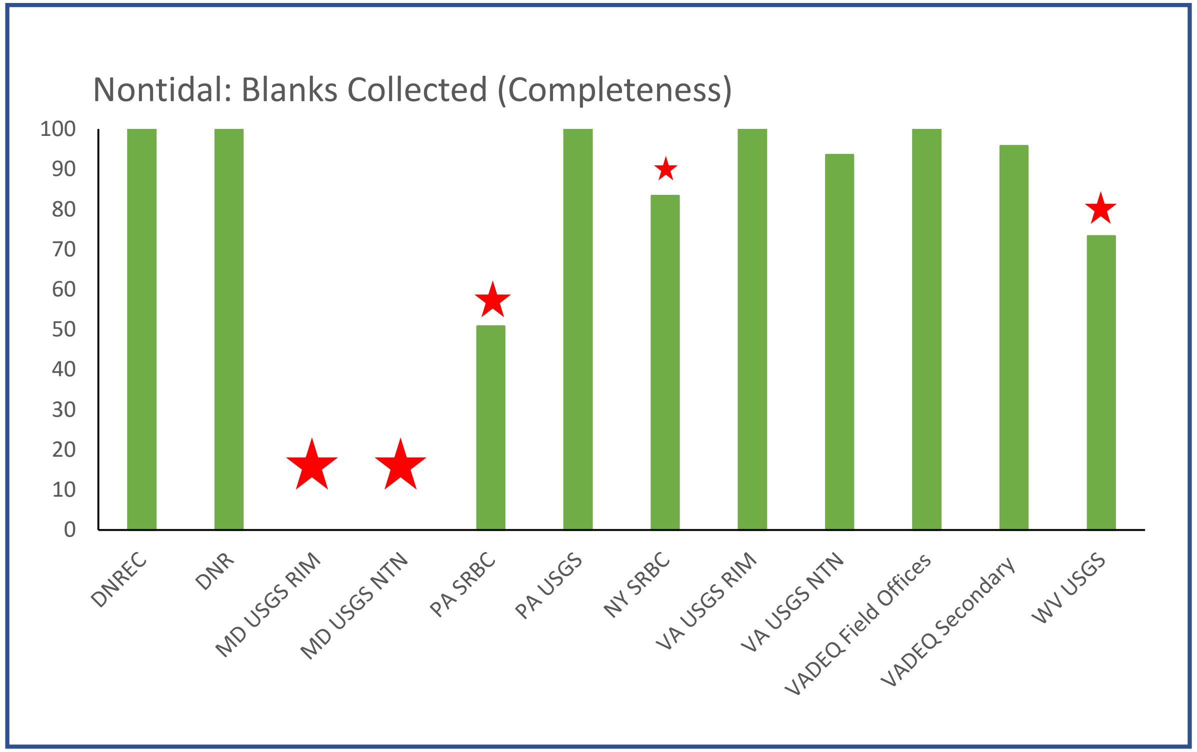



1 month = 12/yr

- Mainstem ODU numbers look very good ☺
- No data for DNR- Mainstem or Trib- please upload
- All three field office data appears incomplete – blank info not uploaded? /not collected?

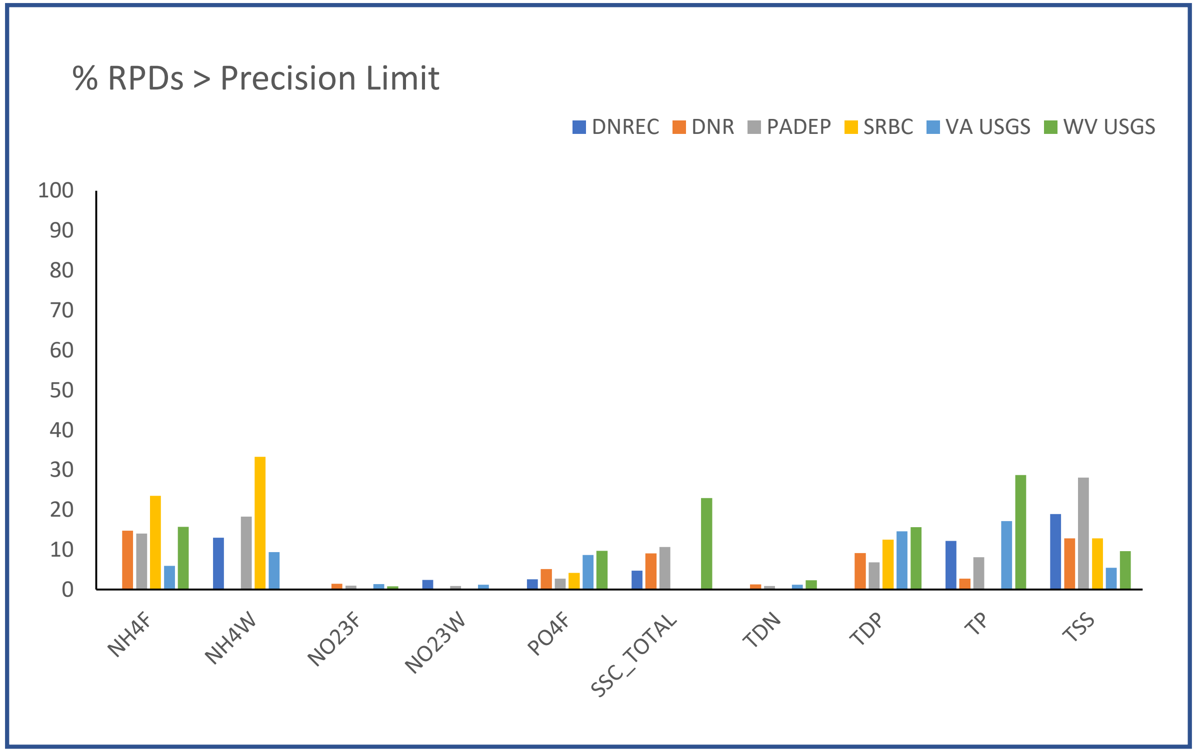
# Interlaboratory Comparison: Precision Data Plots

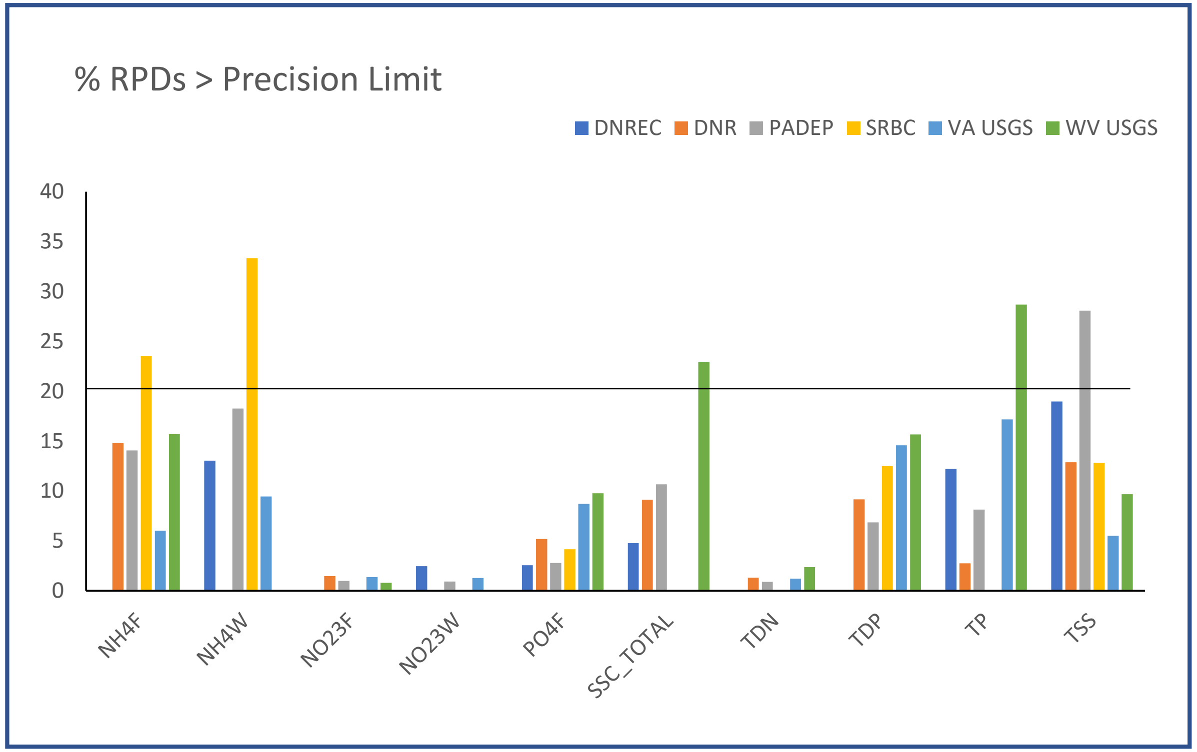
# Nontidal: Blanks Collected (Completeness)




- Ideal Scenario- collected blanks = 90-95%
- USGS RIM and USGS Primary data uploads to be completed in the near future
- PA SRBC numbers very low?
- NY SRBC & WV numbers are on the low end

# Nontidal Precision (RPD) Plots



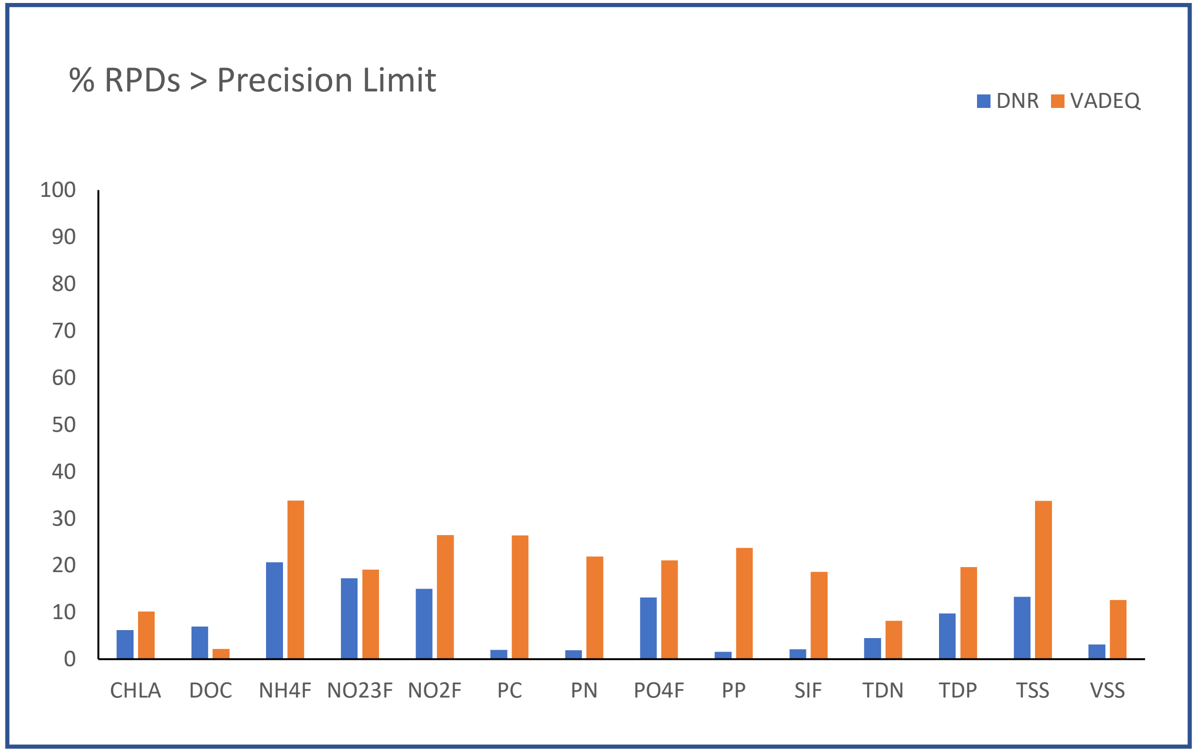



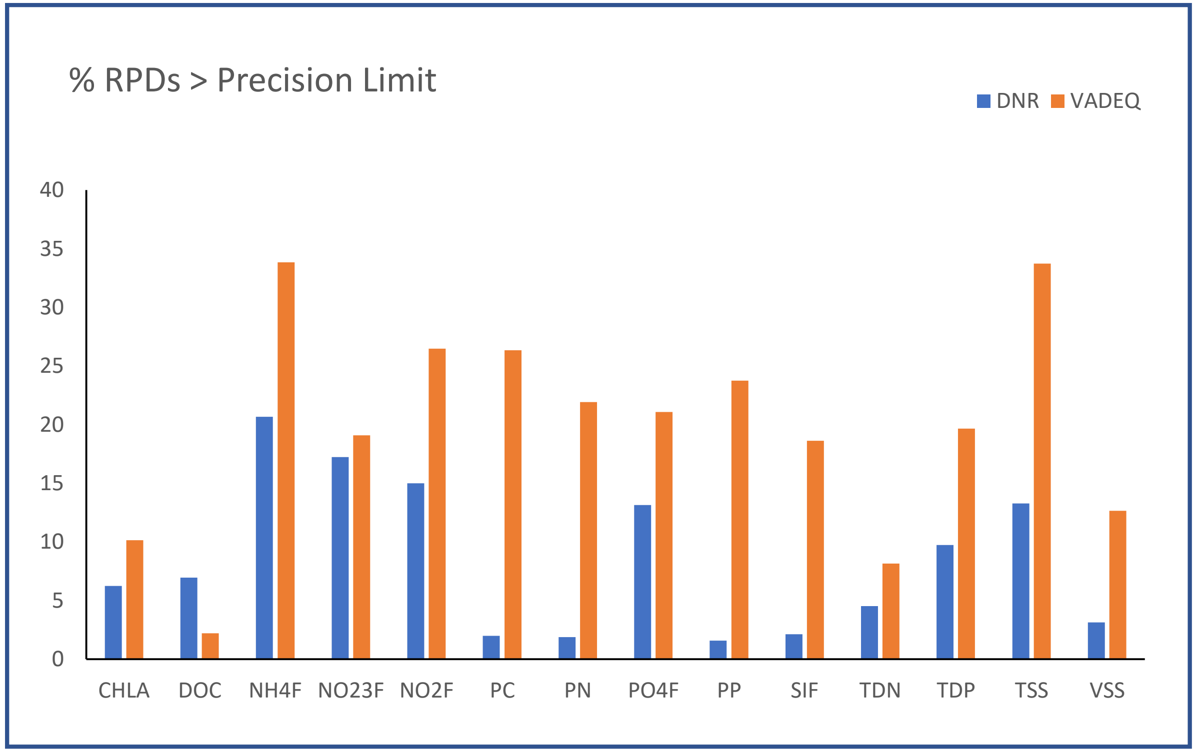

In almost all cases less than 15% of the data is qualified

Exceptions include- ammonia data (SRBC-NY sites), TP data (WV USGS)

*Note: For SRBC ~30% of data was qualified with code 'NQ'- this may result in bias seen above*

# Tidal Precision (RPD) Plots_DNR & VADEQ




In general variability in duplicate data is within acceptable limits

VADEQ data appears to be more variable for Particulates- any thoughts?

Was this Useful?