

USGS Standard Reference Samples Fall 2012

Analytical Methods and Quality Assurance
Workgroup

Definition of Terms

- **Reported Value**: The reported concentration of Nutrient in mg/L
- **MPV**: Median Value (Most Probable Value)
- **Absolute Z Value**: The absolute value of $[(\text{reported value} - \text{MPV}) / F\text{-ps}]$
- **F-ps** = $(U_h - L_h) / 1.349$
 - U_h = median of the upper half of the reported values
 - L_h = median of the lower half of the reported values

**excluding less than (<) values*

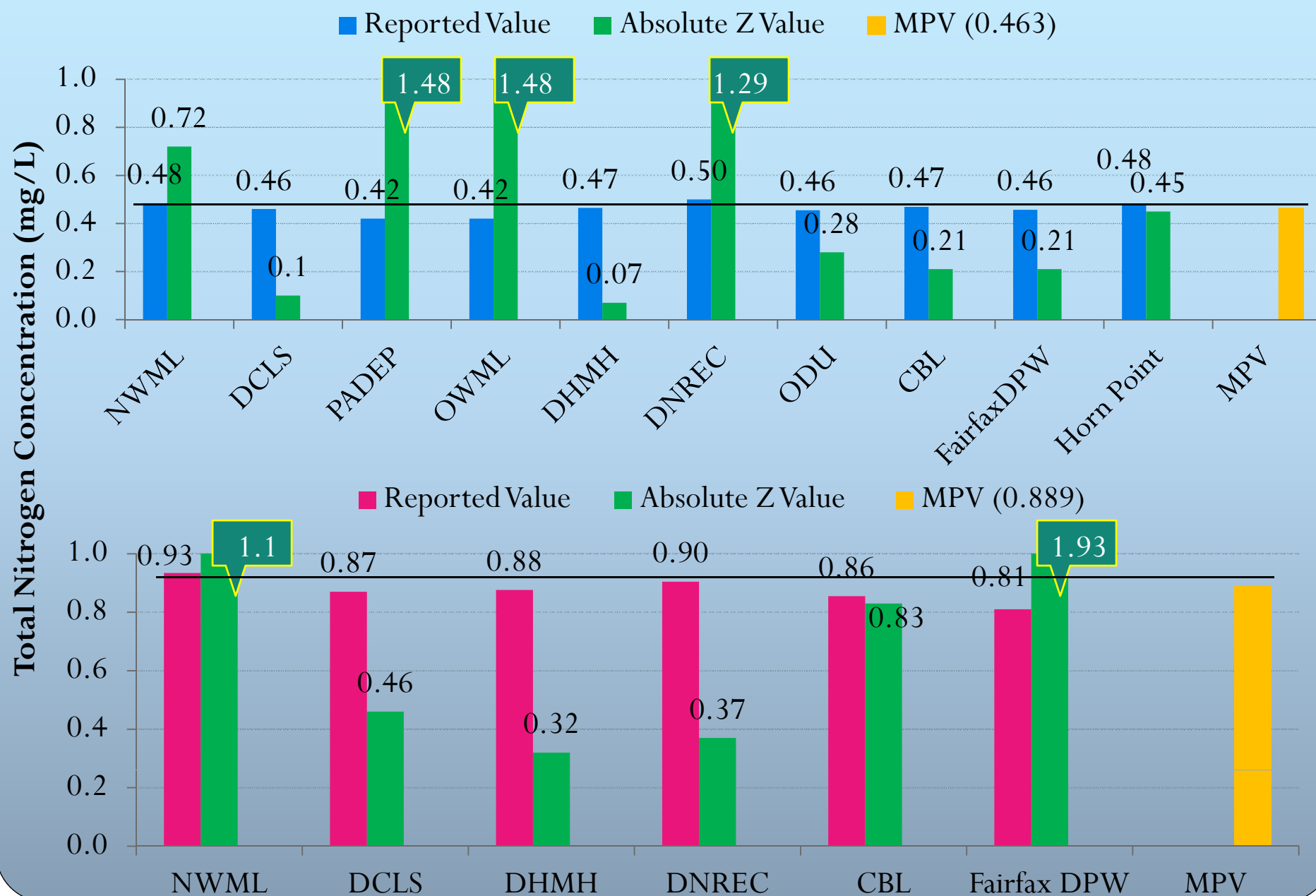
The USGS ratings are based on a z-values scale

- $Z < 0.5$ is rated as “excellent”
- 0.51 - 1.0 is rated “good”
- 1.01 - 1.50 is “satisfactory”
- 1.51 - 2.0 is “marginal”
- $Z > 2.0$ is “unsatisfactory”

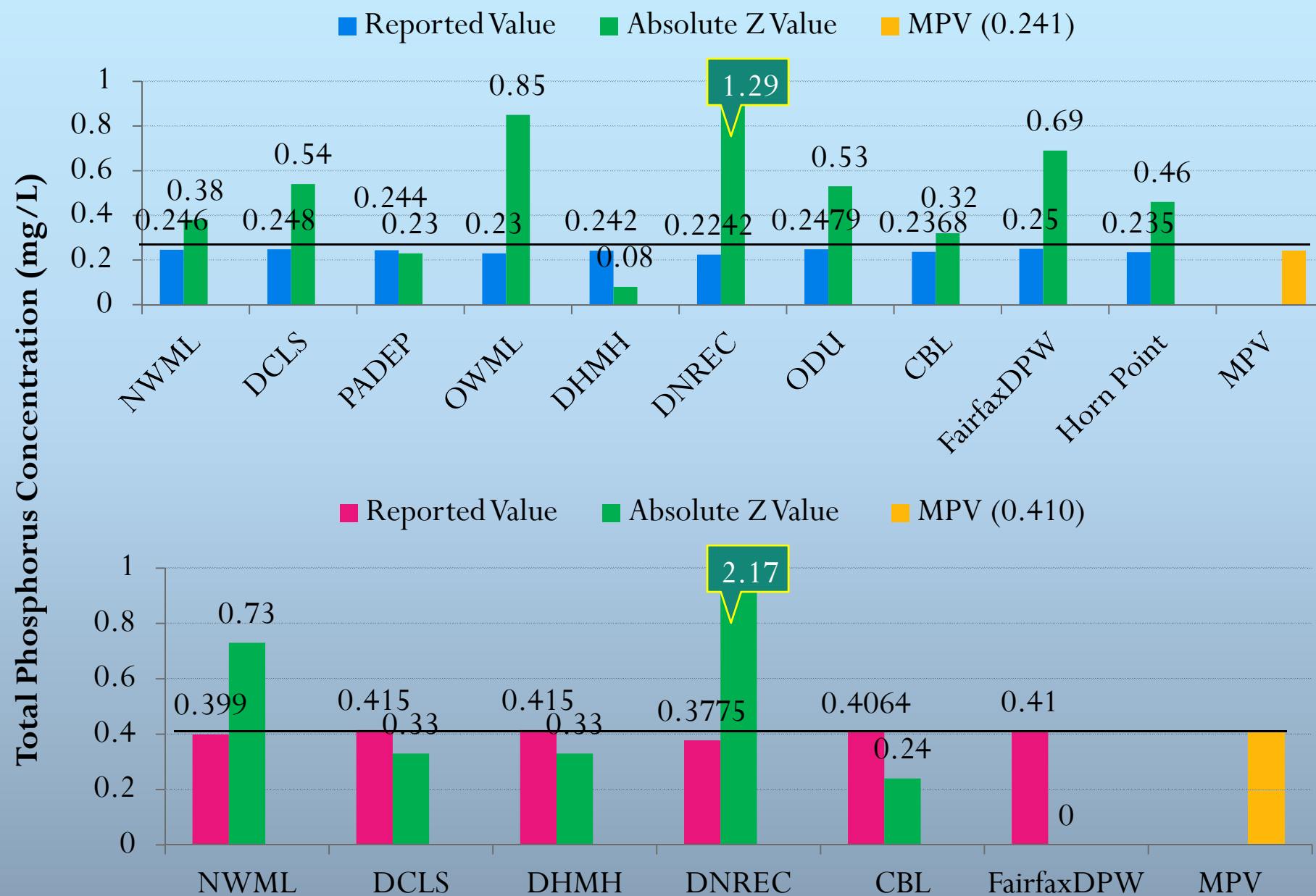
Nutrients Analyzed

- Total Nitrogen (TN)
- Total Phosphorus (TP)
- Ammonia + Organic Nitrogen (TKN)
- Ammonia (NH_3)
- Nitrate (NO_3)
- Nitrite + Nitrate ($\text{NO}_2 + \text{NO}_3$)
- Orthophosphate (PO_4)

Fall 2012 Total Nitrogen Low (top) and High (bottom) Concentration

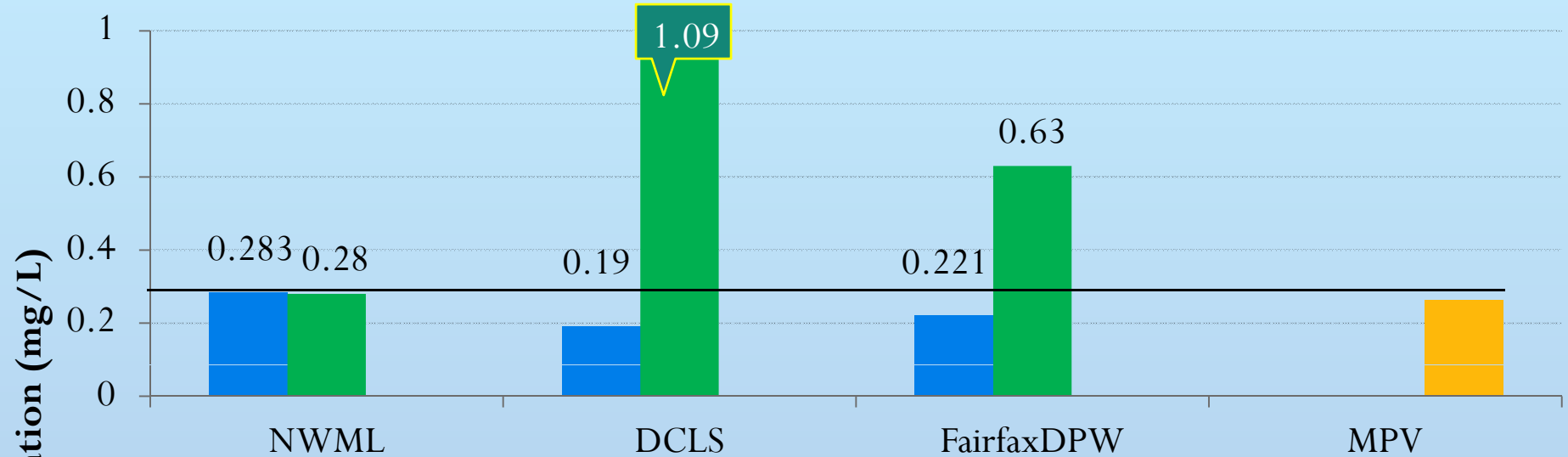


Fall 2012 Total Phosphorus Low (top) and High (bottom) Concentration

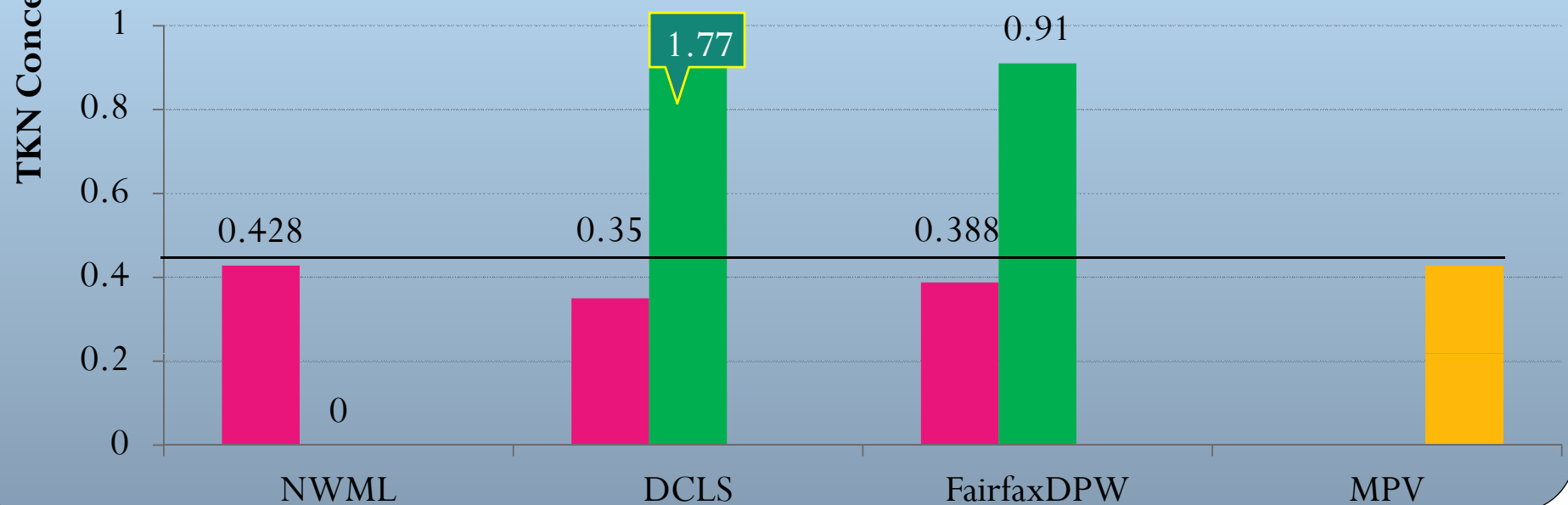


Fall 2012 TKN Low (top) and High (bottom) Concentration

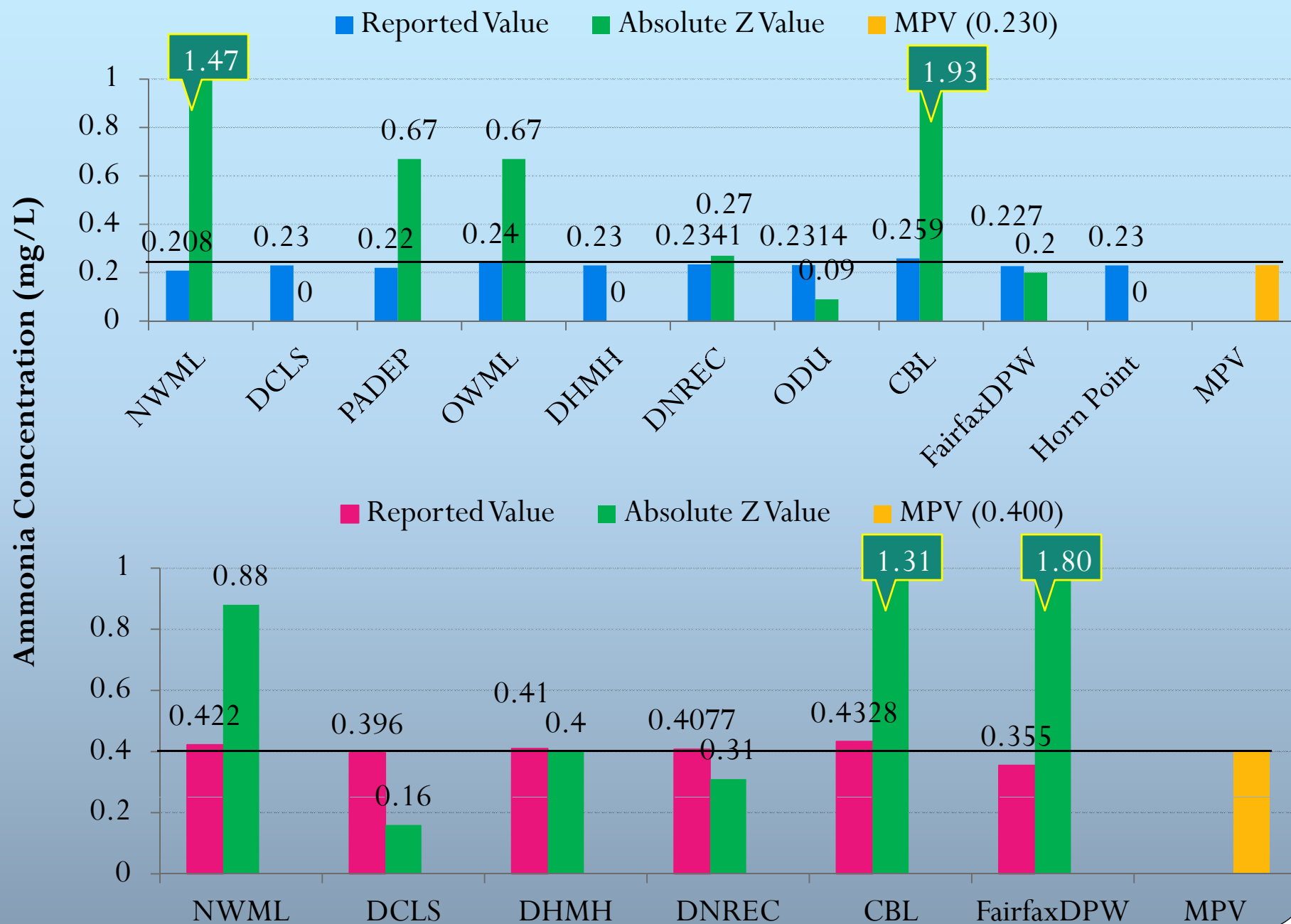
■ Reported Value ■ Absolute Z Value ■ MVP (0.264)



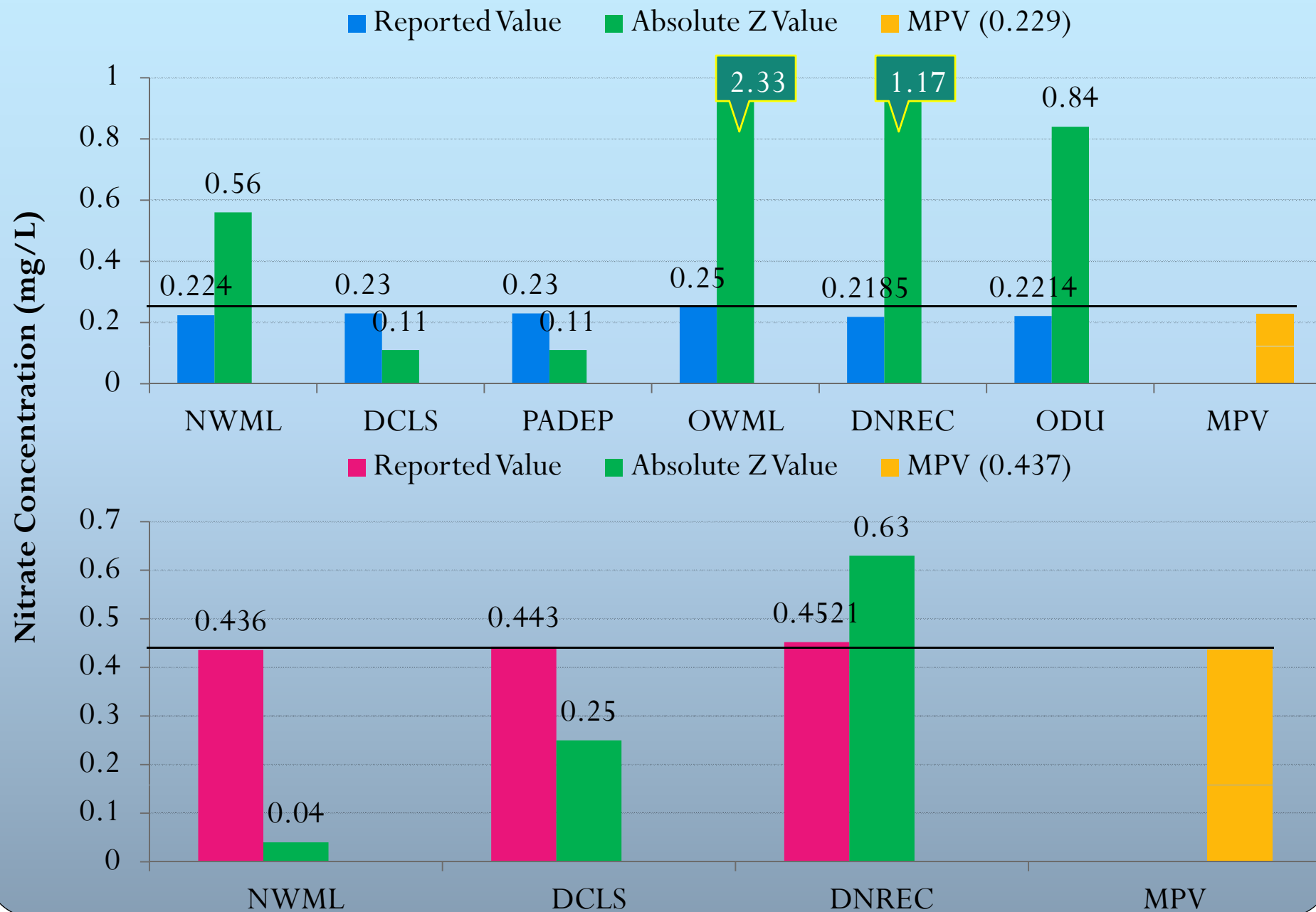
■ Reported Value ■ Absolute Z Value ■ MVP (0.428)



Fall 2012 Ammonia Low (top) and High (bottom) Concentration

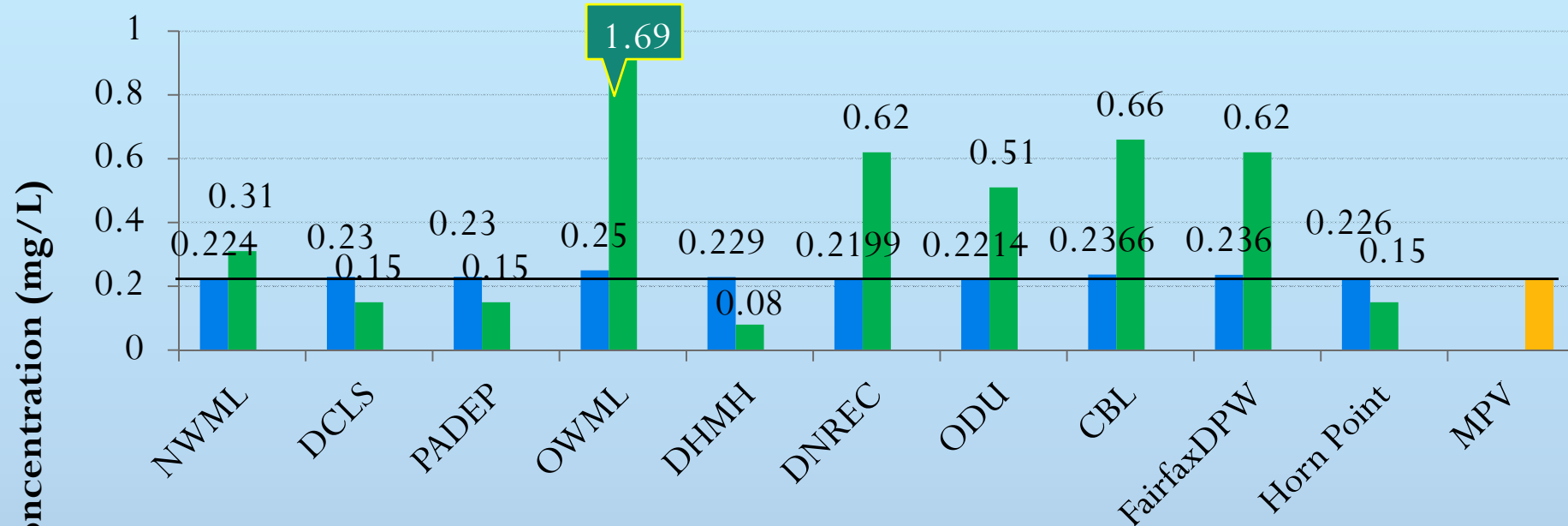


Fall 2012 Nitrate Low (top) and High (bottom) Concentration

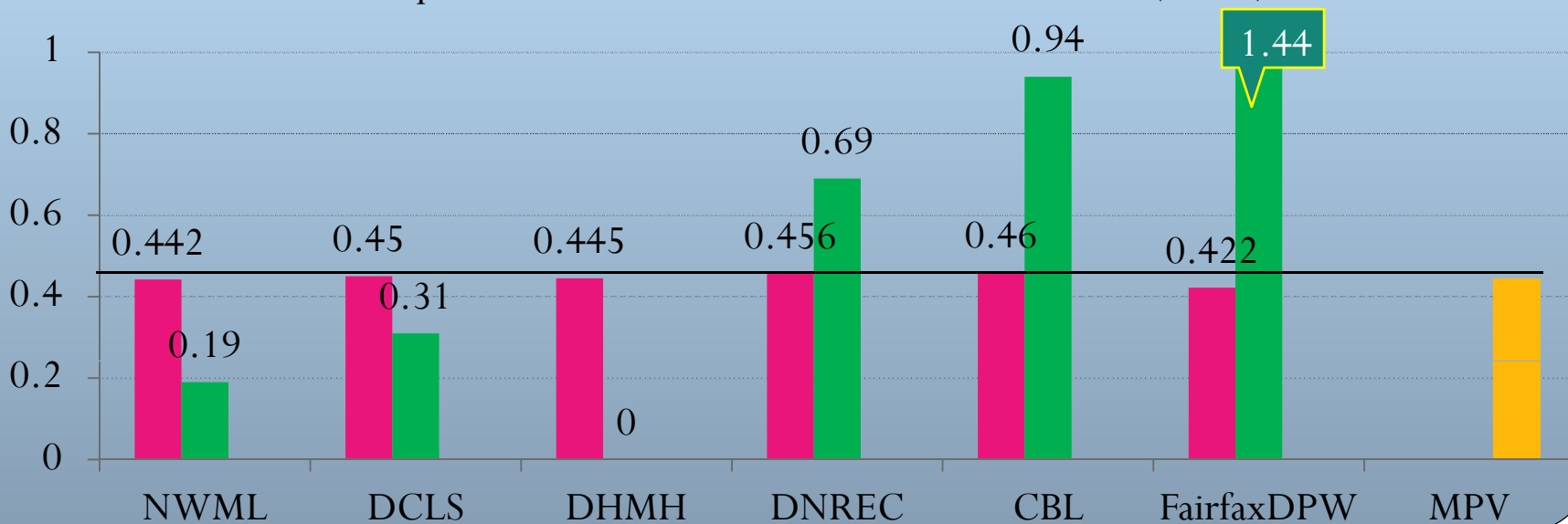


Fall 2012 NO₂ + NO₃ Low (top) and High (bottom) Concentration

■ Reported Value ■ Absolute Z Value ■ MPV (0.228)



■ Reported Value ■ Absolute Z Value ■ MVP (0.445)



Fall 2012 Orthophosphate Low (top) and High (bottom) Concentration

