Primrose Creek Watershed Association

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Primrose Creek Stream Analysis

Solebury, PA

2011

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All evaluations were performed by PCWA volunteers utilizing entry level tools. It is not meant to be compared with the accuracy of professional studies. However, we believe with the level of dedication and focus the teams exhibited, this analysis is the start of a database that present general trends and basic understanding of the health of Primrose Creek. Since this effort is a learning process for all involved, techniques and data will evolve.

Primrose Creek was sampled at the following two locations:

East Station Phillips Mill
Approximate Latitude Longitude - 40.38545, -74.96235

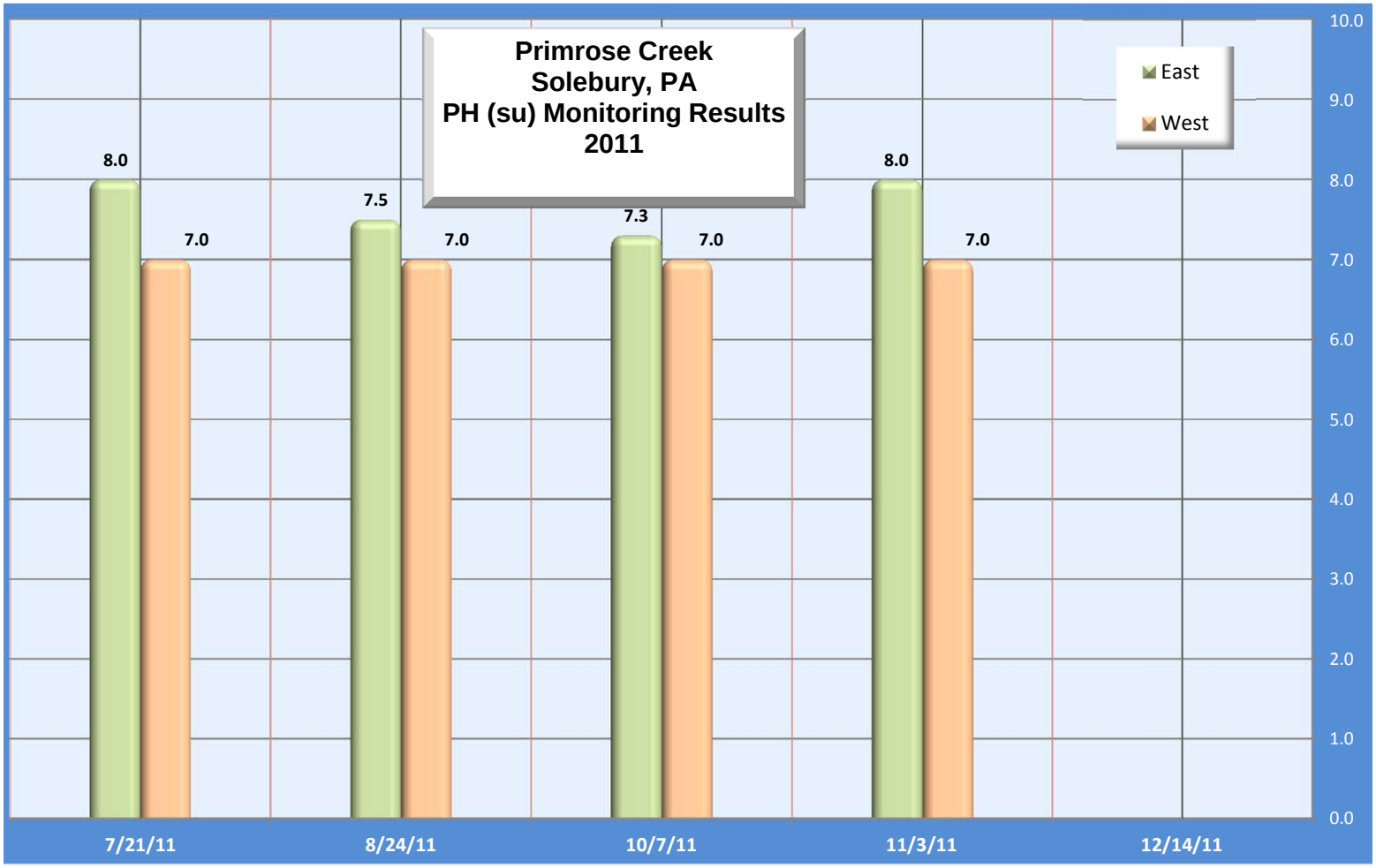
West of Solebury School
Approximate Latitude Longitude - 40.37957, -74.99637

The team was comprised of the following members:

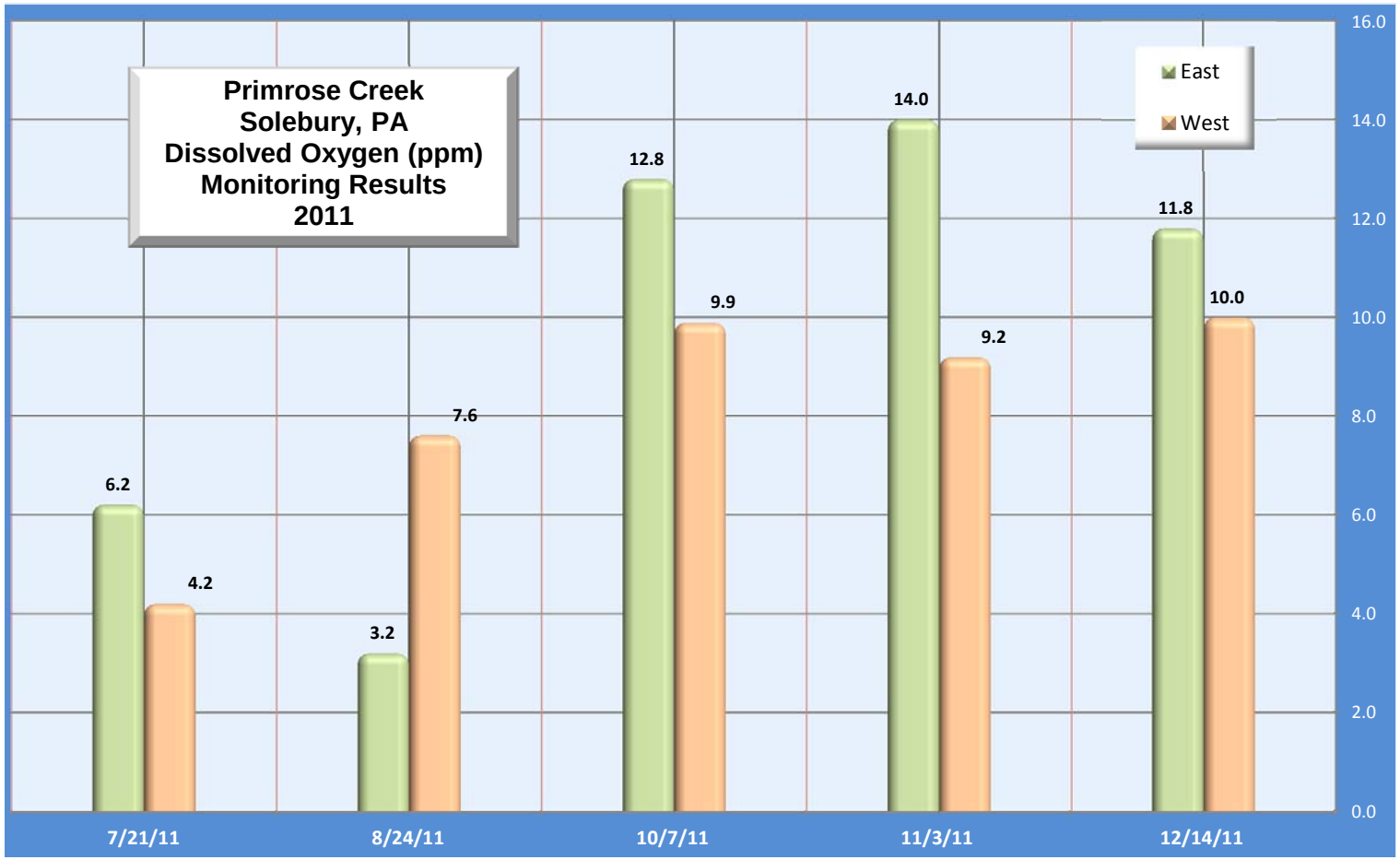
East Team
David Harrison
Robert Long

West Team
Charles Furst
Carol Cope

Graph Trends

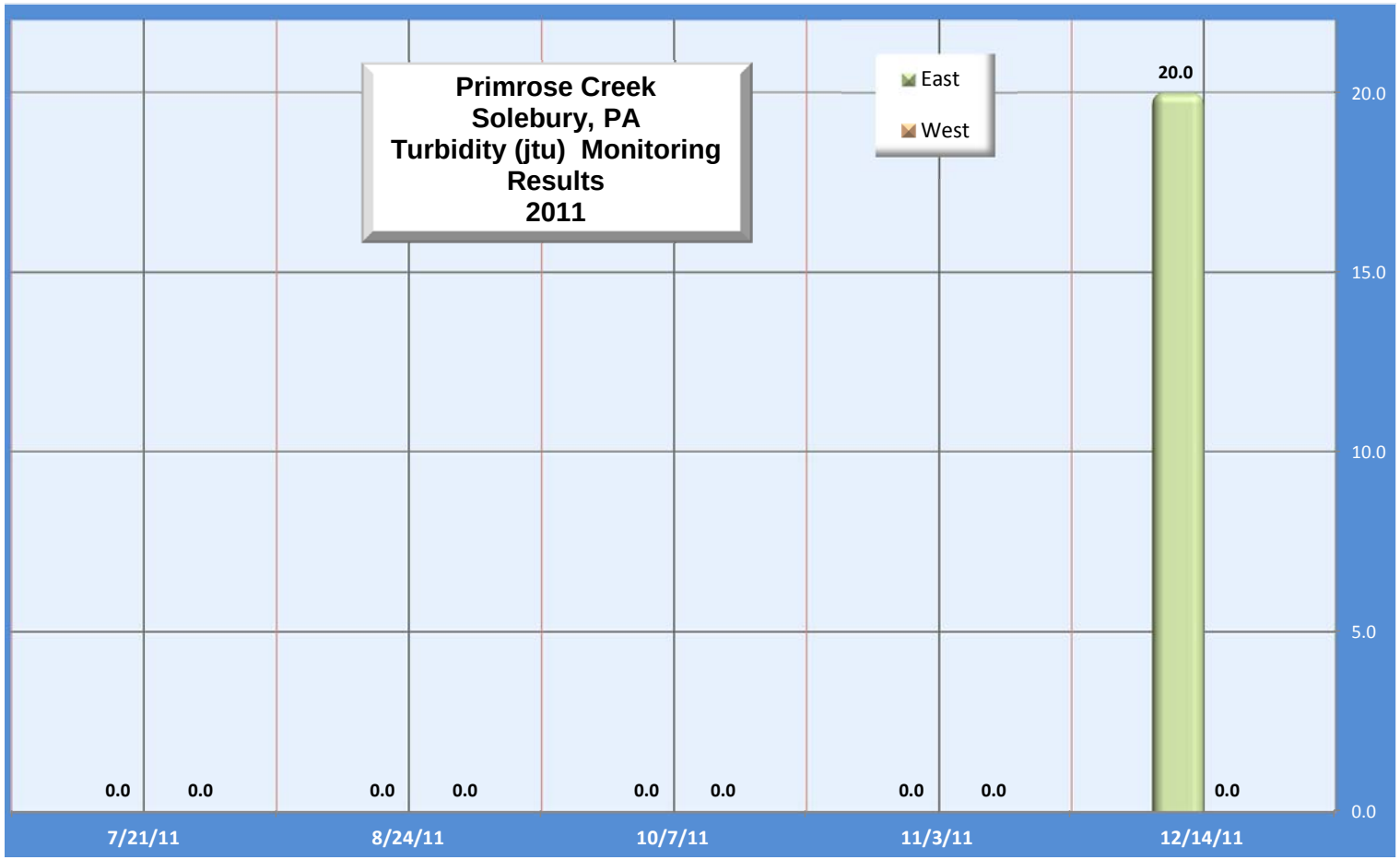


PH is the standard measure of how acidic or alkaline a solution is. It is measured on a scale from 0 – 14 pH of 7 is neutral, pH less than 7 is acidic, and PH greater than 7 is basic. Although each organism has an ideal pH, most aquatic organisms prefer PH of 6.5 – 8.0.

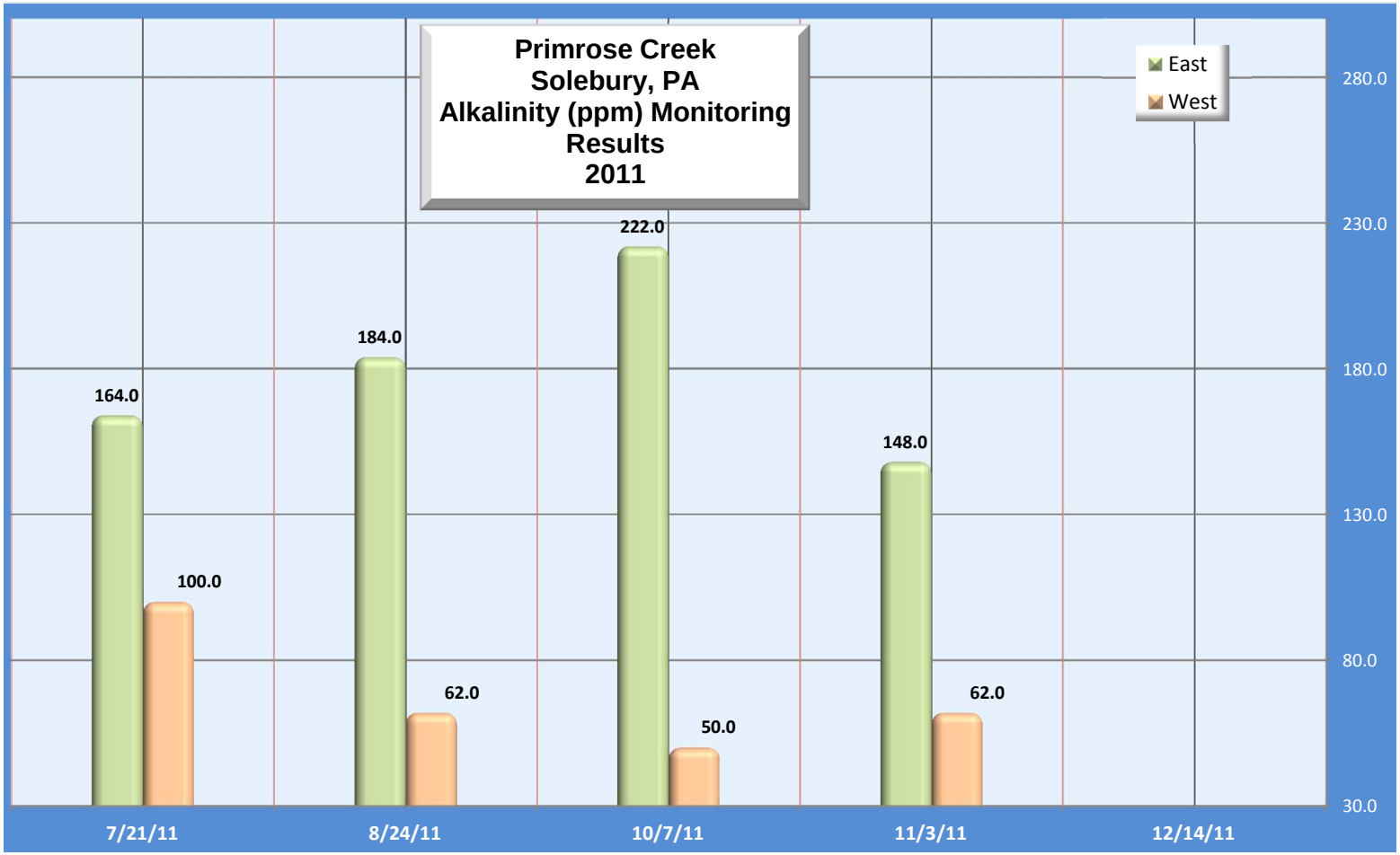


Oxygen is crital to the survial of aquatic plants and animals.

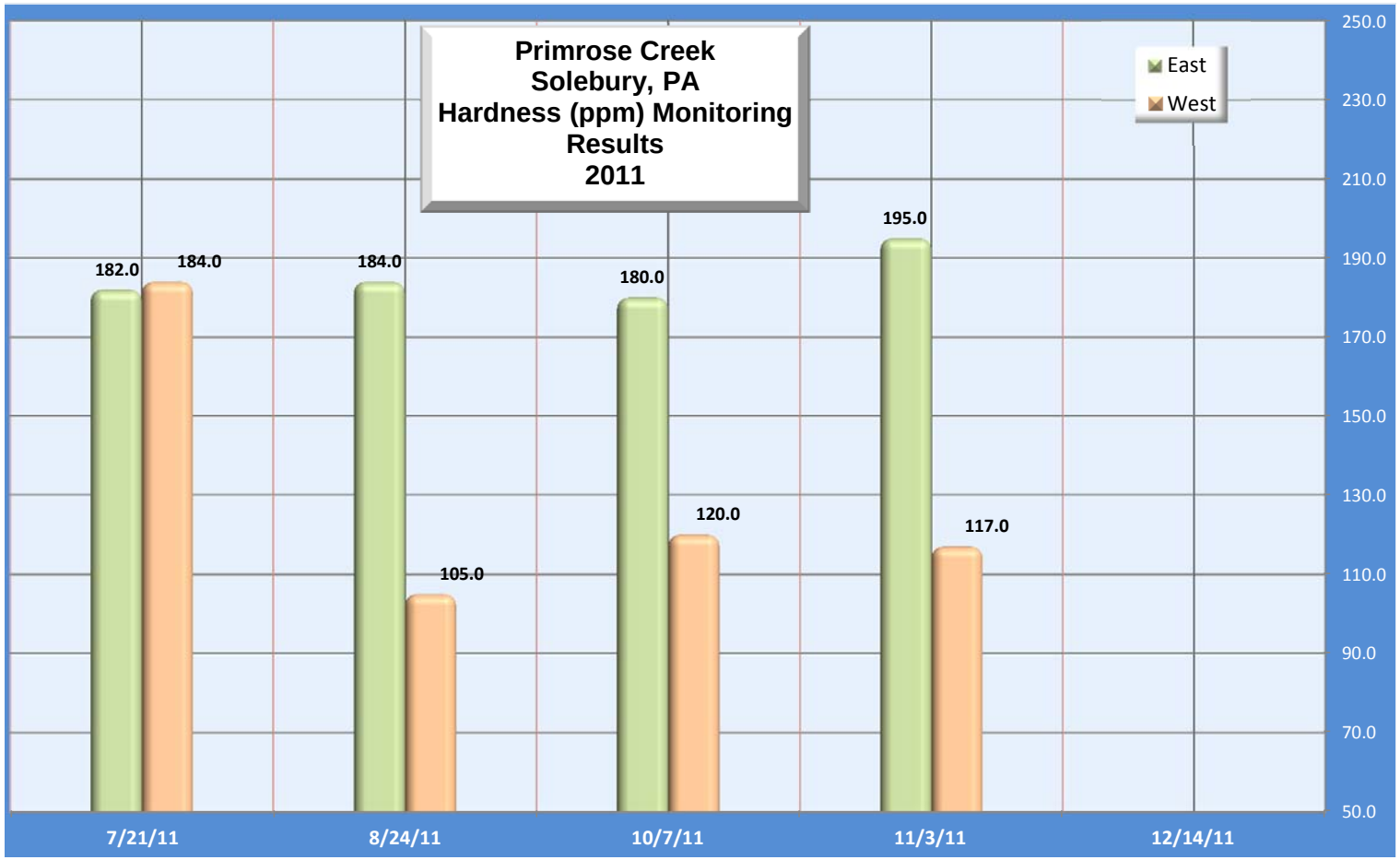
5-6 ppm sufficient for most species
<3 ppm Stressful to most species
<2 pm Fatal to most species



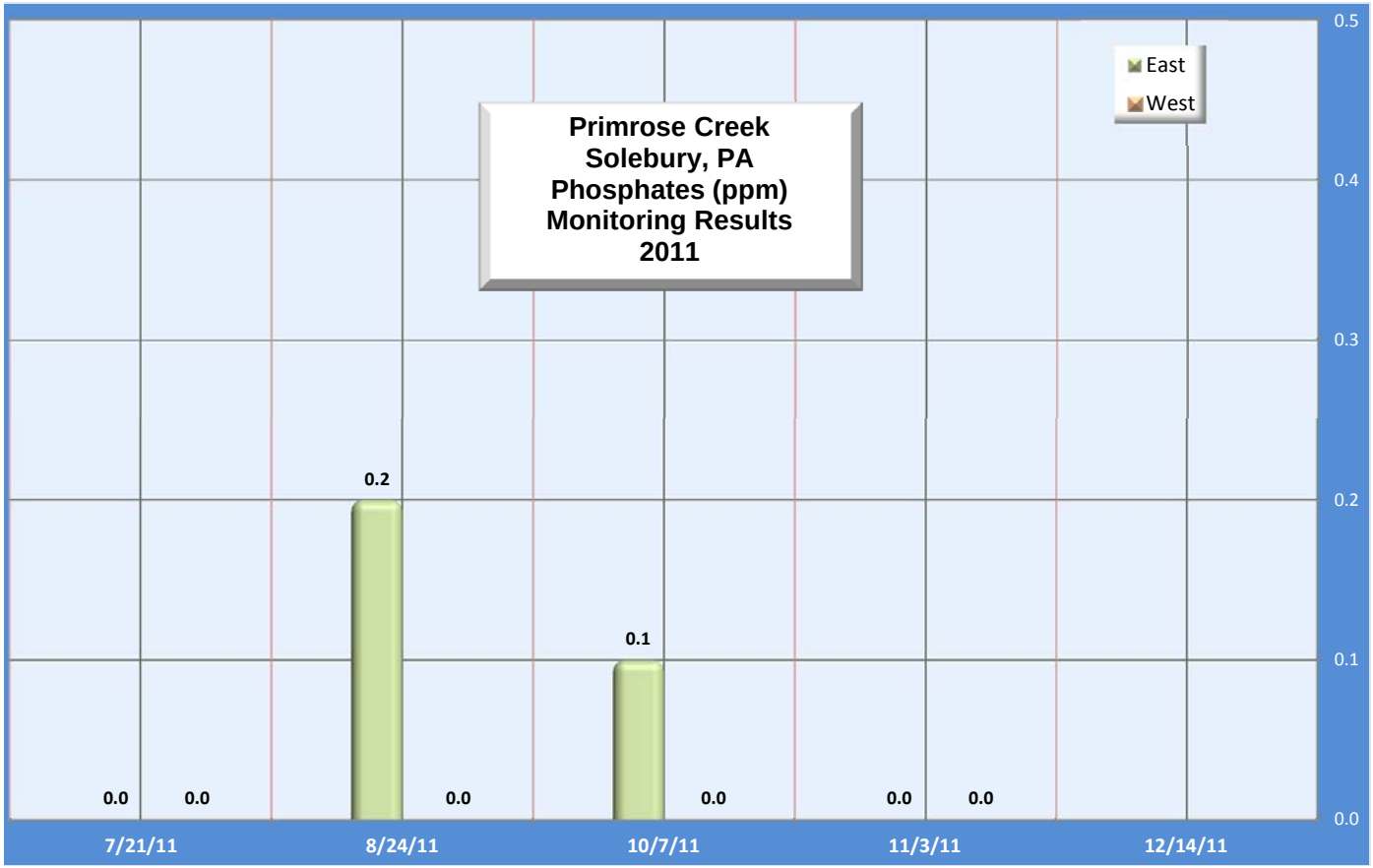
Turbidity is the cloudiness or haziness of water caused by individual particles (suspended solids) that are generally invisible that may be invisible to the naked eye, similar to smoke in air. The measurement of turbidity is a key test of water quality. A measure of 0 to 10 jtu is considered in general terms acceptable for streams.



Aquatic organisms benefit from a stable pH value in their optimal range. To maintain a fairly constant pH in a water body, a higher alkalinity is preferable. High alkalinity means that the water body has the ability to neutralize acidic pollution
from rainfall or basic inputs from wastewater.

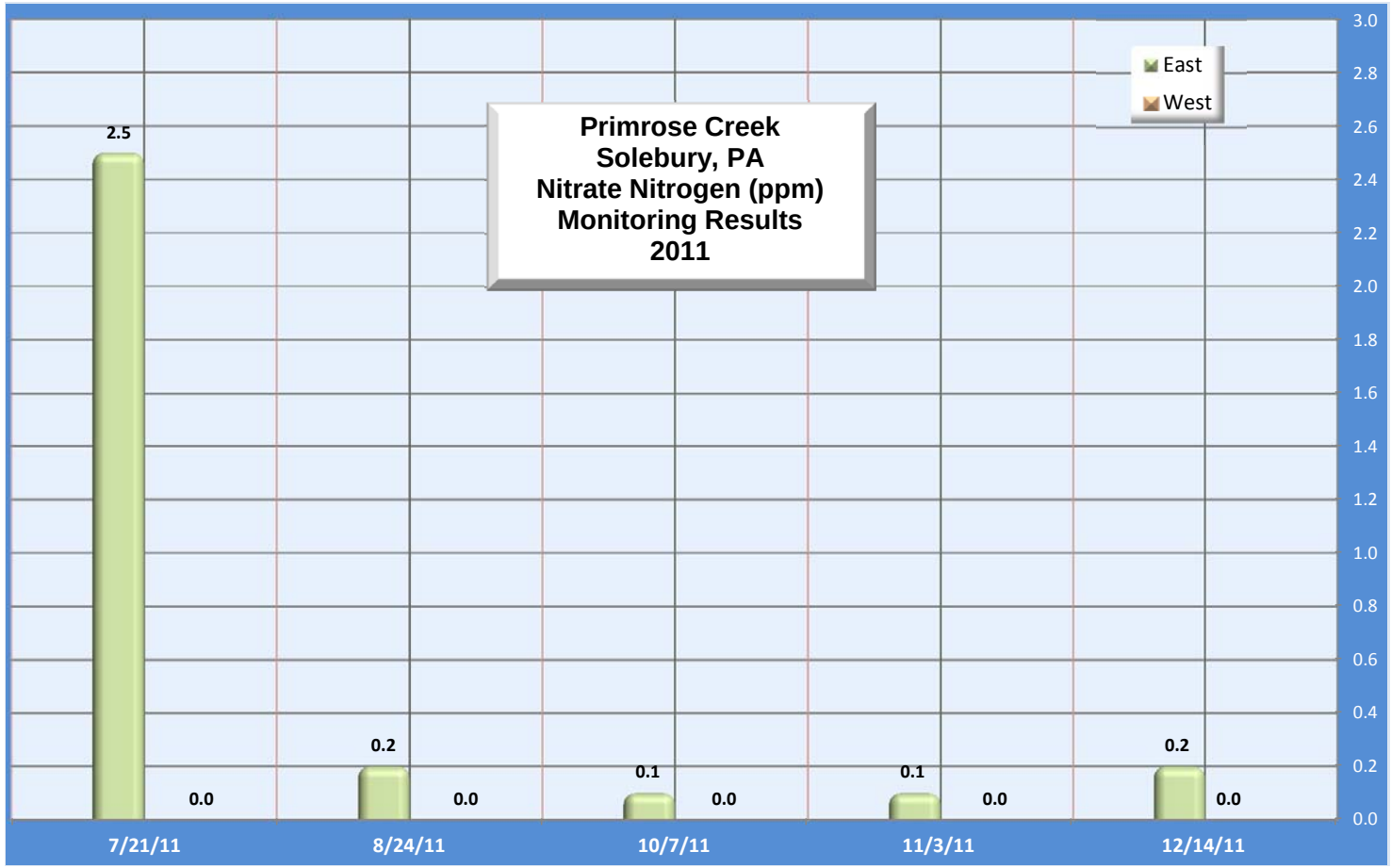


Water hardness is the indication of mineral content.
< 17.1 Soft
17.1 - 60 Slightly Hard
60 - 120 Moderately Hard
120 - 180 Hard
over 180 Very Hard



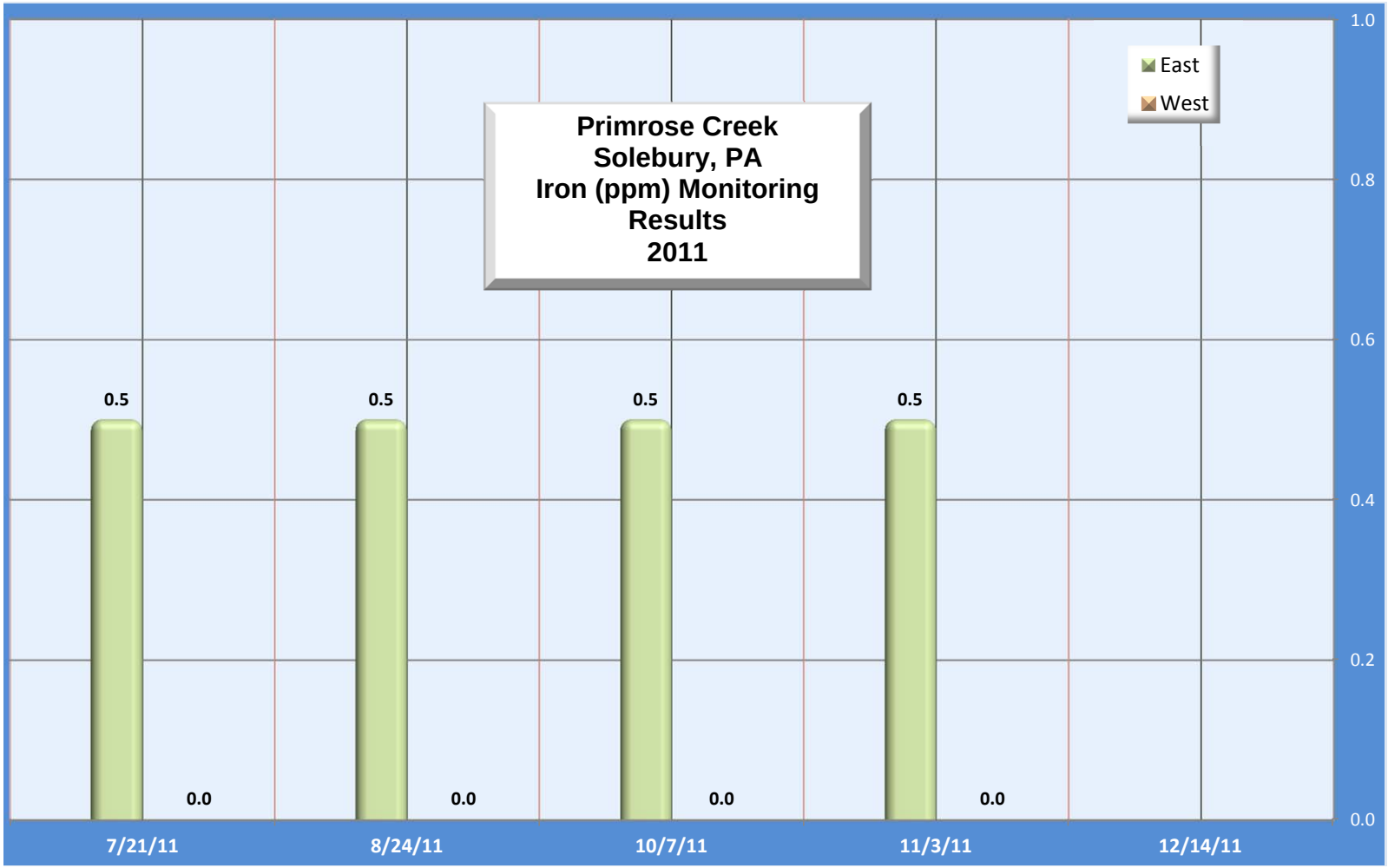
Acceptable range is 0 - .1

Phosphorus comes from both point and nonpoint sources. *Point sources* include municipal waste treatment plants, industrial discharge, large confined livestock operations, and urban stormwater. *Nonpoint sources* of phosphorus include soil erosion and water runoff from cropland, lawns and gardens, home waste treatment systems, livestock pastures, rangeland, and even forests.



Acceptable level - 0 - 10.

Sources of nitrate in water are from natural as well as human activities. Human activities include fertilizers, animal feedlots, septic systems, wastewater treatment lagoons, animal wastes and industrial wastes.



The recommended limit for iron in water, 0.3 ppm, is based on taste and appearance rather than on any detrimental health effect.

Source Data

Primrose Creek Monitoring Data Summary - 2011

East Team - David Harrison, Robert Long
West Team - Carol Cope, Charles Furst

	East	West
	7/21/2011	**7/20/2011**
PH (s.u.)	8.0	7.0
Disolved Oxygen (ppm)	6.2	4.2
Turbidity (jtu)	0.0	0.0
Alkalinity (ppm)	164.0	100.0
Hardness (ppm)	182.0	184.0
Phosphates (ppm)	0.0	0.0
Nitrate Nitrogen (ppm)	2.5	0.0
Iron (ppm)	0.5	0.0
Time	4:30pm	6pm
Weather	Hot, Humid	90 degrees
Cloud Cover (%)	0.0	0.0
Wind Conditions	light	none
Rain Conditions	none	none
Staff Gage	0.6	n/a
Flow Regime	Baseflow	
Collector	RL	CF/CBC
	8/24/2011	**8/24/2011**
PH (s.u.)	7.5	7.0
Disolved Oxygen (ppm)	3.2	7.6
Turbidity (jtu)	0.0	0.0
Alkalinity (ppm)	184.0	62.0
Hardness (ppm)	184.0	105.0
Phosphates (ppm)	0.2	0.0
Nitrate Nitrogen (ppm)	0.2	-
Iron (ppm)	0.5	-
Time	5:30pm	
Weather	Clear, 82 Degrees	Sunny, 75-80
Cloud Cover (%)	0.0	
Wind Conditions	light	light
Rain Conditions	none	
Staff Gage	0.8	
Flow Regime	Baseflow	
Collector	DH/RL	CBC

	10/7/2011	**10/7/2011**
PH (s.u.)	7.3	7.0
Disolved Oxygen (ppm)	12.8	9.9
Turbidity (jtu)	0.0	0.0
Alkalinity (ppm)	222.0	50.0
Hardness (ppm)	180.0	120.0
Phosphates (ppm)	0.1	0.0
Nitrate Nitrogen (ppm)	0.1	0.0
Iron (ppm)	0.5	-
Time	11am	5pm
Weather	Clear, 55	sunny,70
Cloud Cover (%)	0.0	0.0
Wind Conditions	none	none
Rain Conditions	none	none
Staff Gage	1.0	-
Flow Regime	Baseflow + water slightly turbid	
Collector	RL	CBC

	11/3/2011	**11/3/2011**
PH (s.u.)	8.0	7.0
Disolved Oxygen (ppm)	14.0	9.2
Turbidity (jtu)	0.0	0.0
Alkalinity (ppm)	148.0	62.0
Hardness (ppm)	195.0	117.0
Phosphates (ppm)	0.0	0.0
Nitrate Nitrogen (ppm)	0.1	0.0
Iron (ppm)	0.5	-
Time	3:15pm	4:30pm
Weather	Partly Cloudy, 58	Partly Cloudy, approx 60
Cloud Cover (%)		
Wind Conditions	light	light
Rain Conditions	none	none
Staff Gage	0.86	
Flow Regime		
Collector	DH/RL	CF/CBC

	12/14/2011	**12/14/2011**
PH (s.u.)		
Disolved Oxygen (ppm)	11.8	10.0
Turbidity (jtu)	20.0	0.0
Alkalinity (ppm)	-	-
Hardness (ppm)	-	-
Phosphates (ppm)	-	-
Nitrate Nitrogen (ppm)	0.2	0.0
Iron (ppm)	-	-
Time	3:30pm	5:00pm

Weather	Mostly Cloudy, 50	dark
Cloud Cover (%)		
Wind Conditions	light	
Rain Conditions	none	
Staff Gage		
Flow Regime		
Collector	DH/RL	CF/CBC