

Local Groundwater Levels in Wisconsin

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2007 July

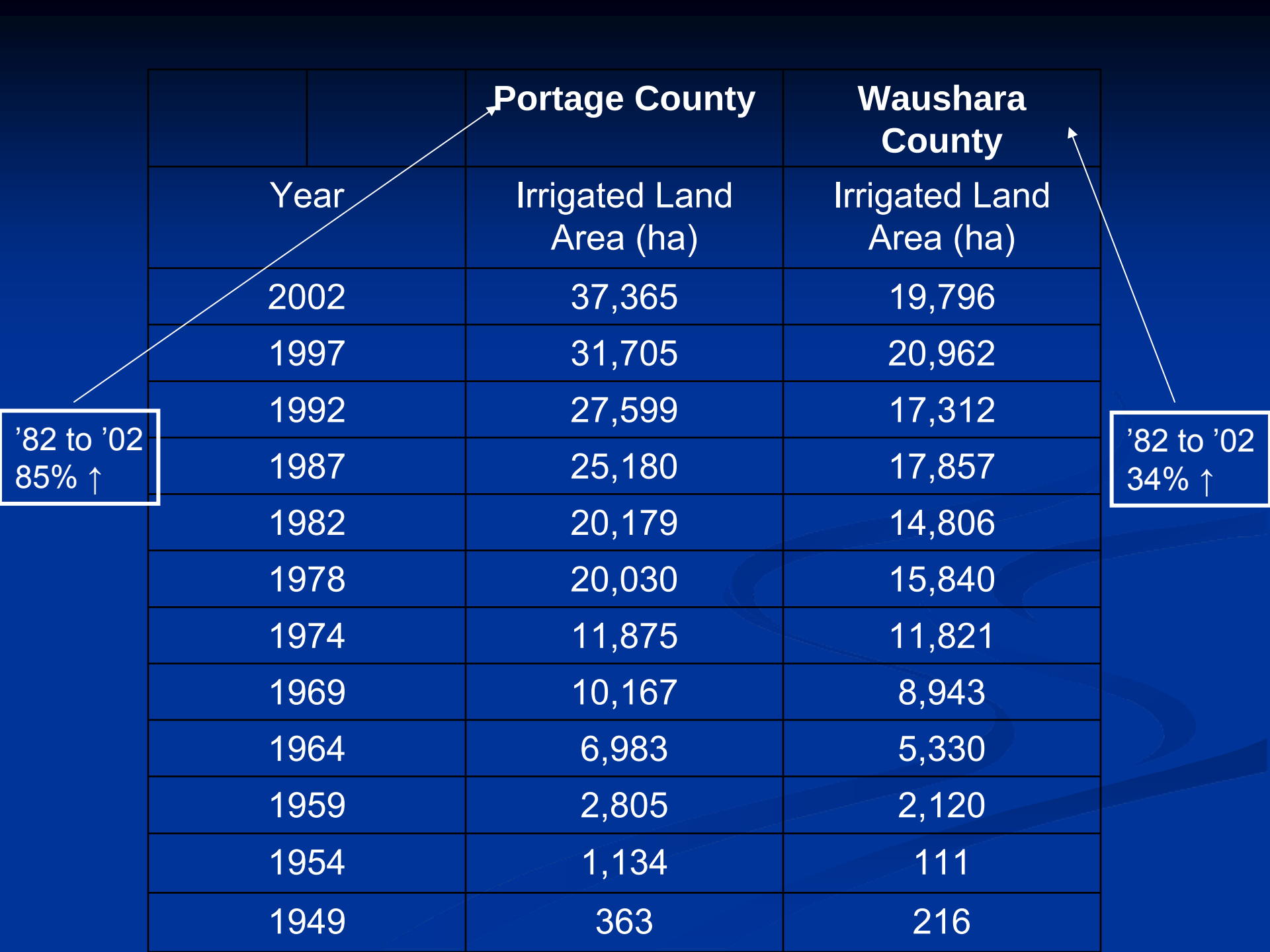
Hancock area lake



Hancock area lake



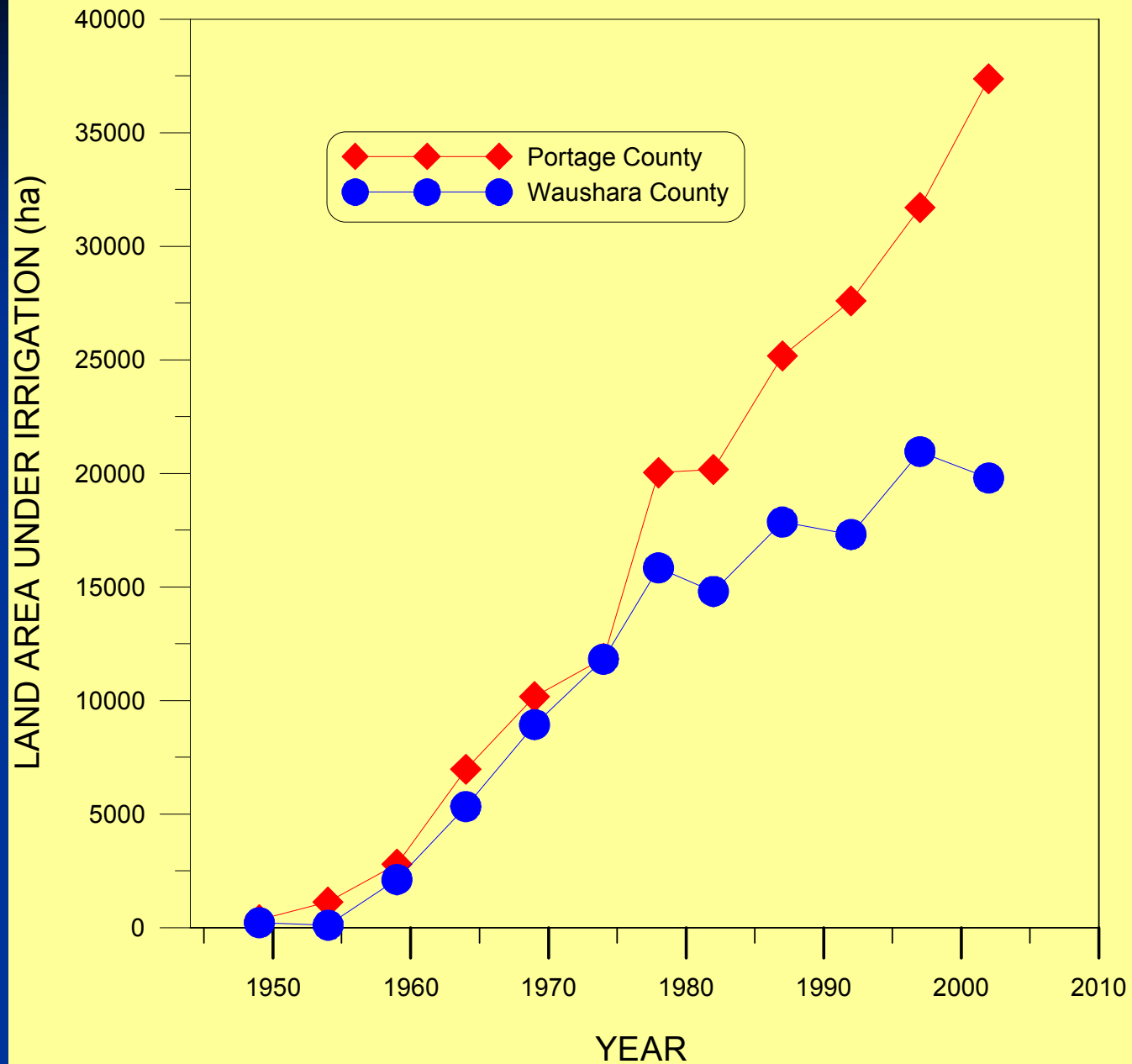




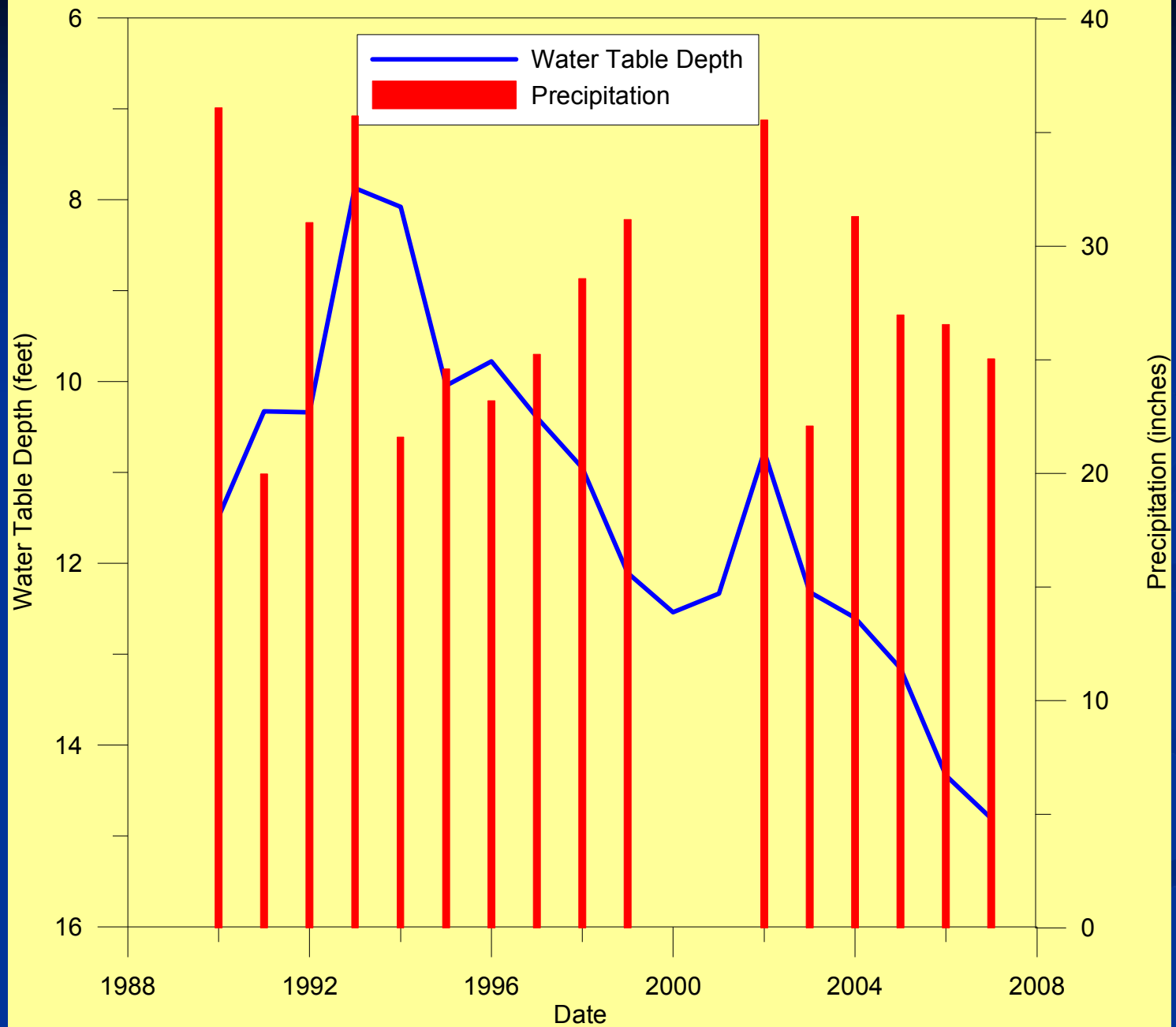
'82 to '02
85% ↑

'82 to '02
34% ↑

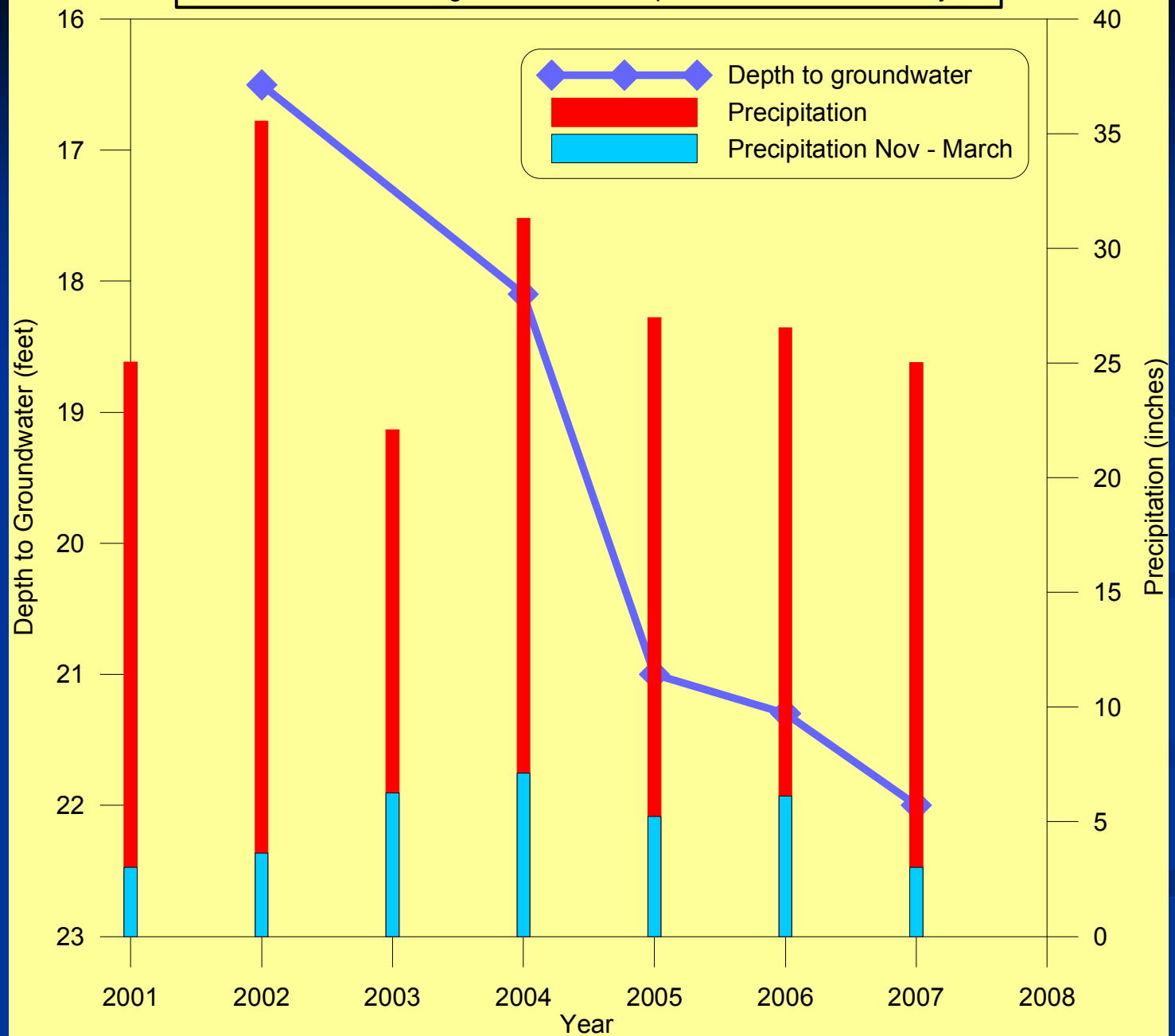
Land Area Under Irrigation (ha) in Portage and Waushara Counties from 1949 - 2002.

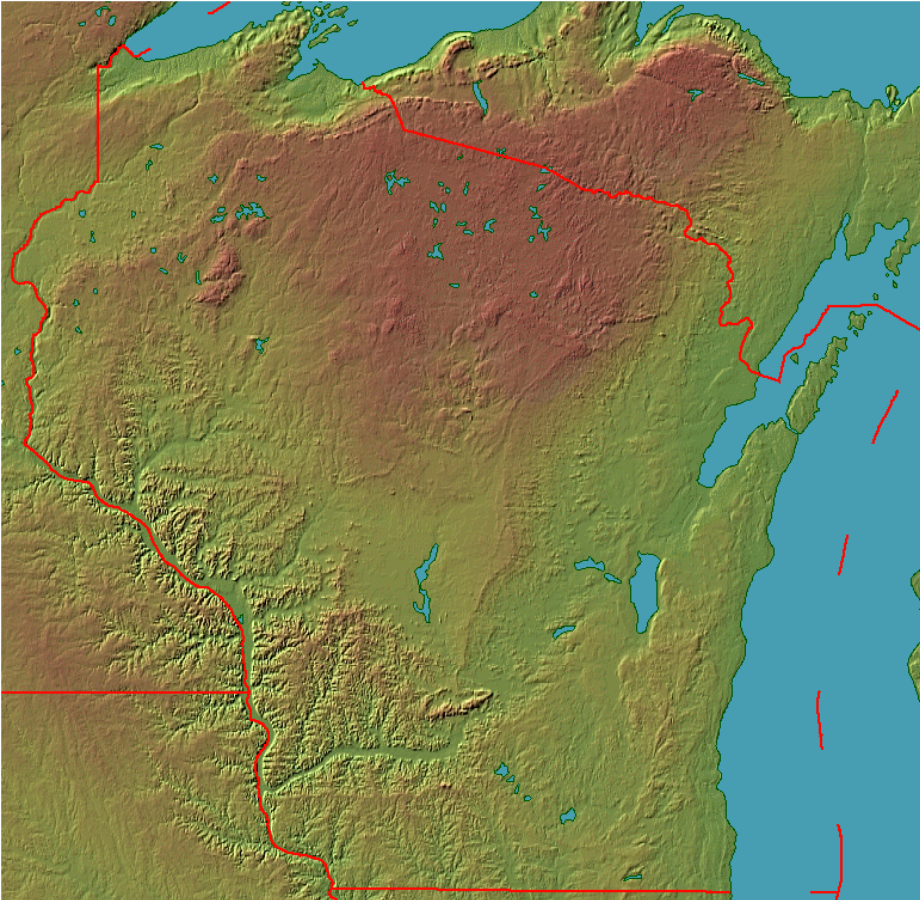


Water Table Depth and Annual Precipitation at Hancock USGS well 15-0008, 1990 - 2007.



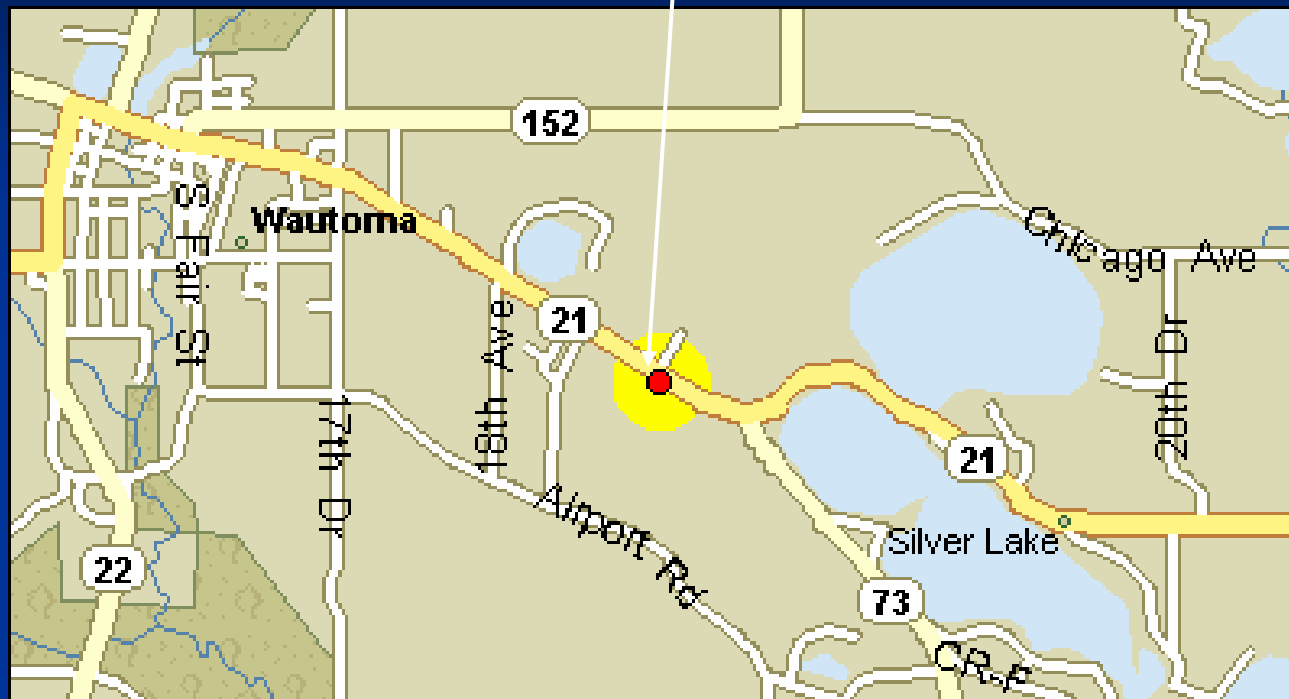
Depth to Groundwater on Field S-16 at Hancock Agricultural Research Station from 2002 through 2007 and Precipitation for winter and all year.





Explanation - Percentile classes								○ Real Time □ Continuous △ Periodic Measurements
●	●	●	●	●	●	●	●	
New Low	<10 Much Below Normal	10-24 Below Normal	25-75 Normal	76-90 Above Normal	>90 Much Above Normal	New High	Not Ranked	

Well number WS-18/10E/01-0105

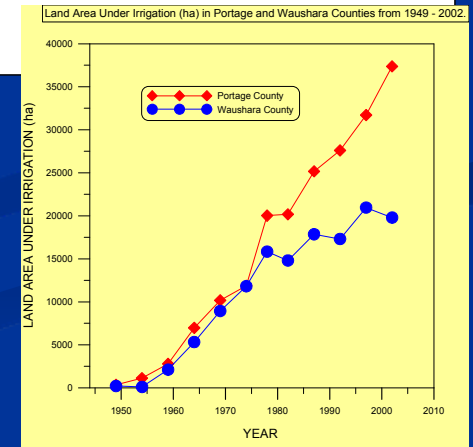
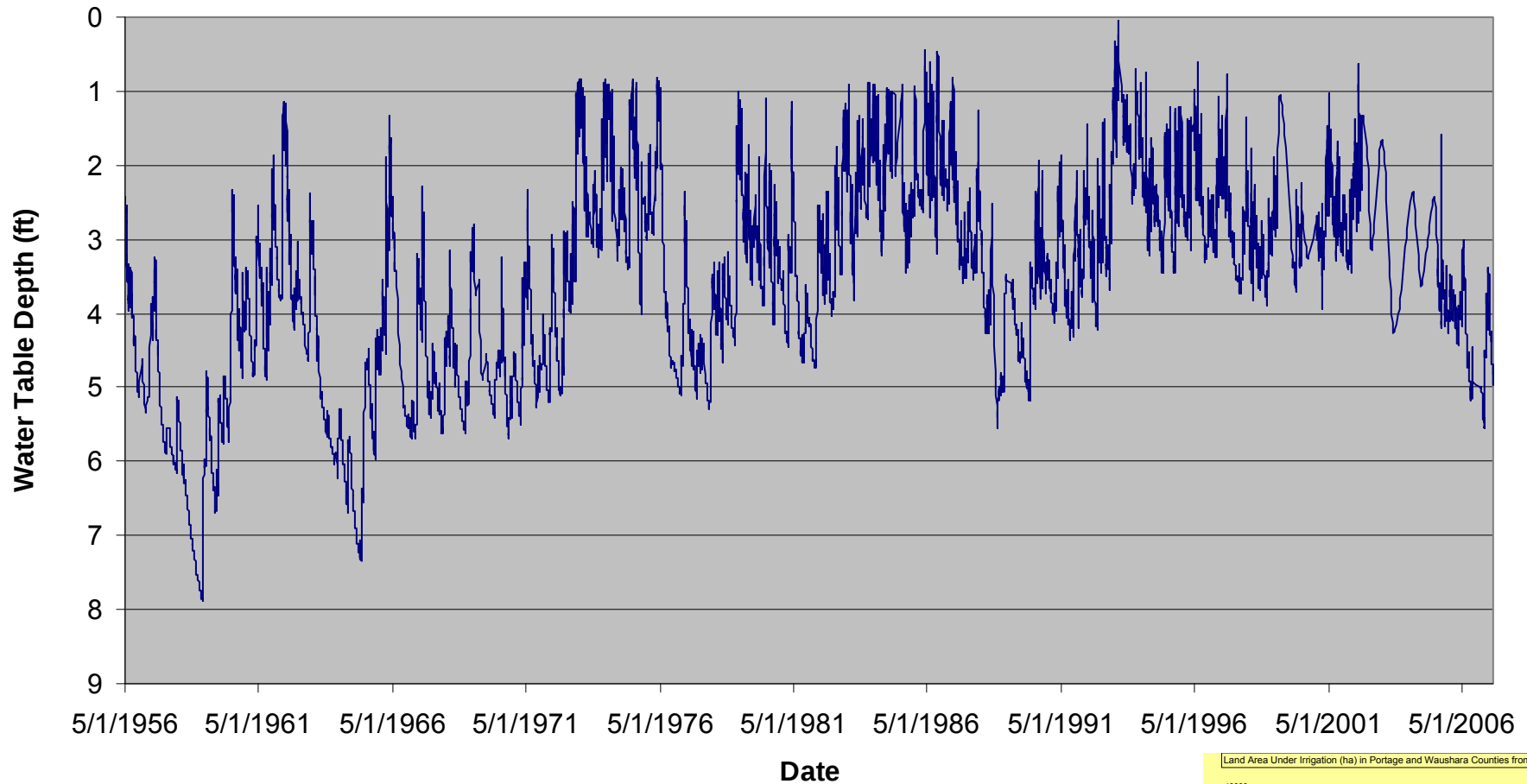


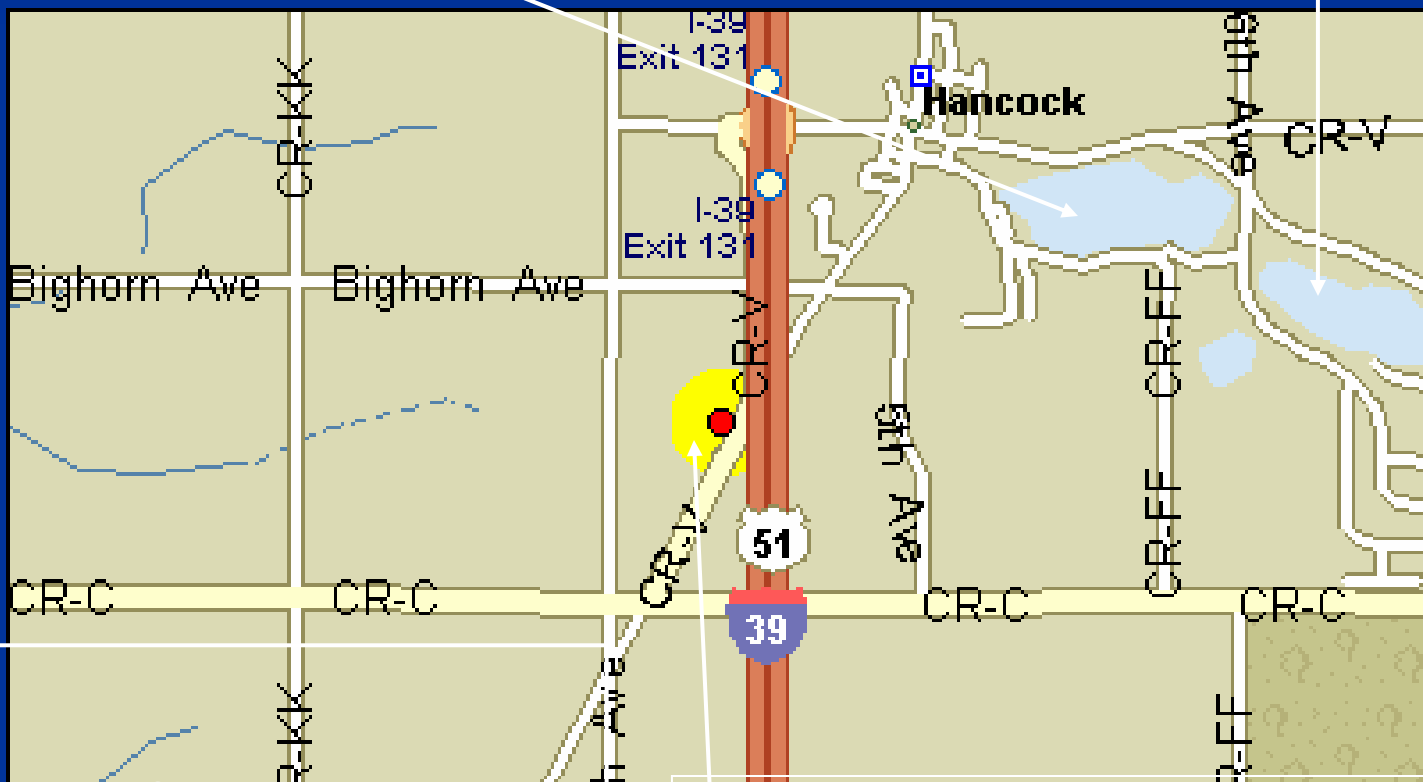
Well depth: 14.0 feet

Hole depth: 14.0 feet

Land surface altitude: 873.00 feet above sea level

Well WS-18/10E-105, near Wautoma, WI

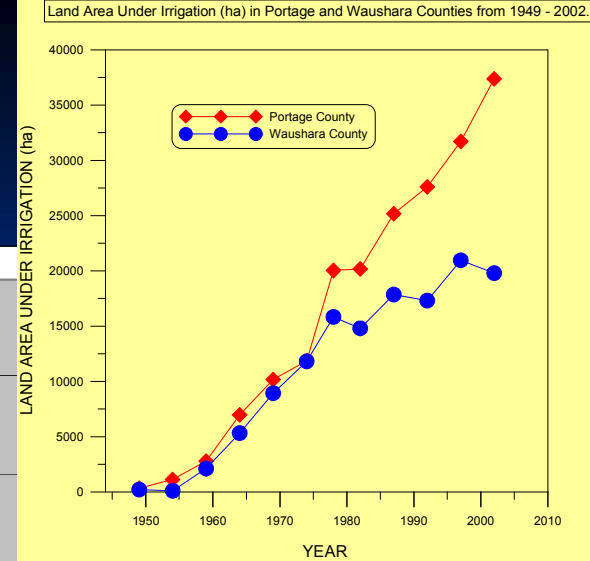
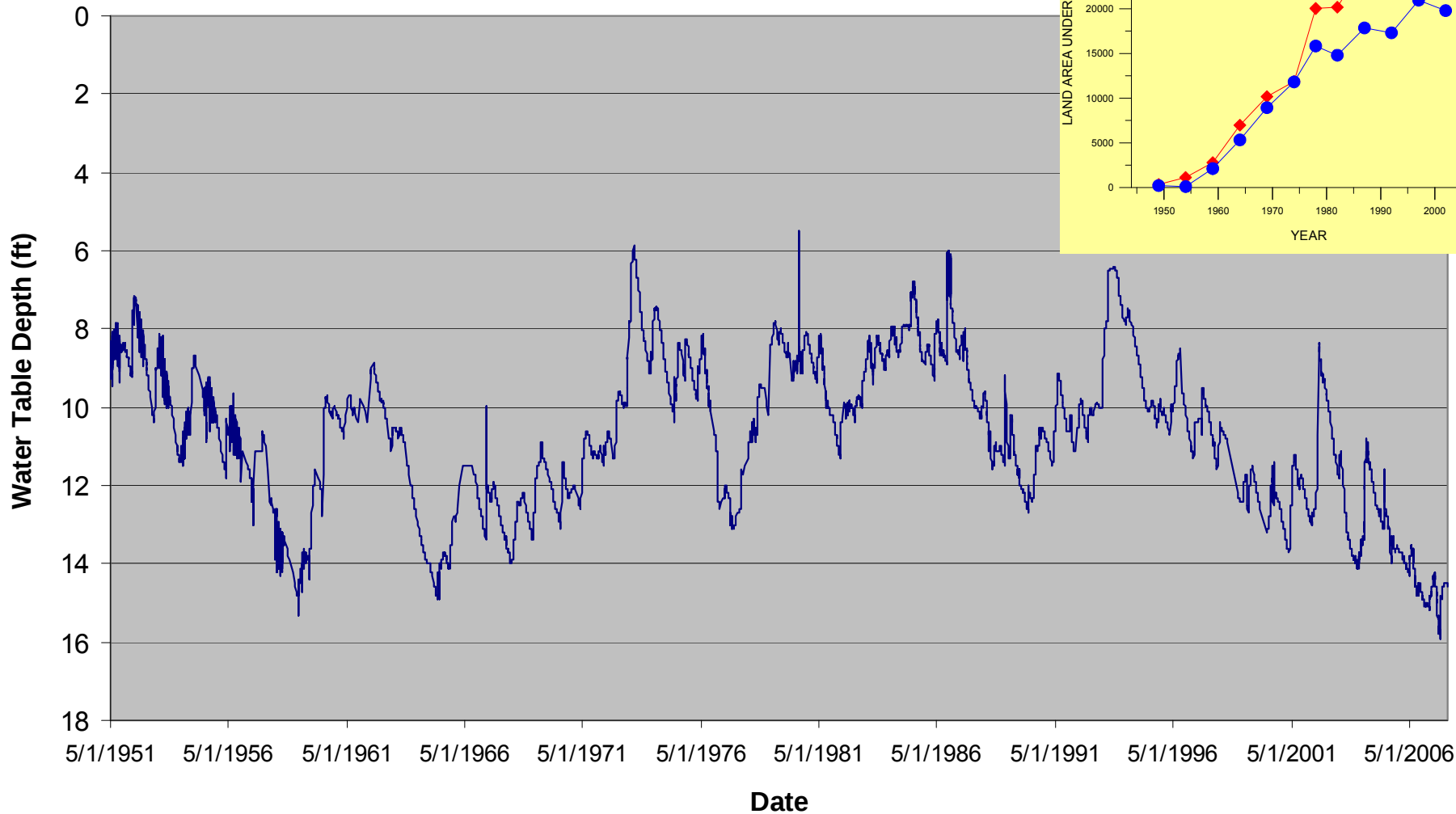




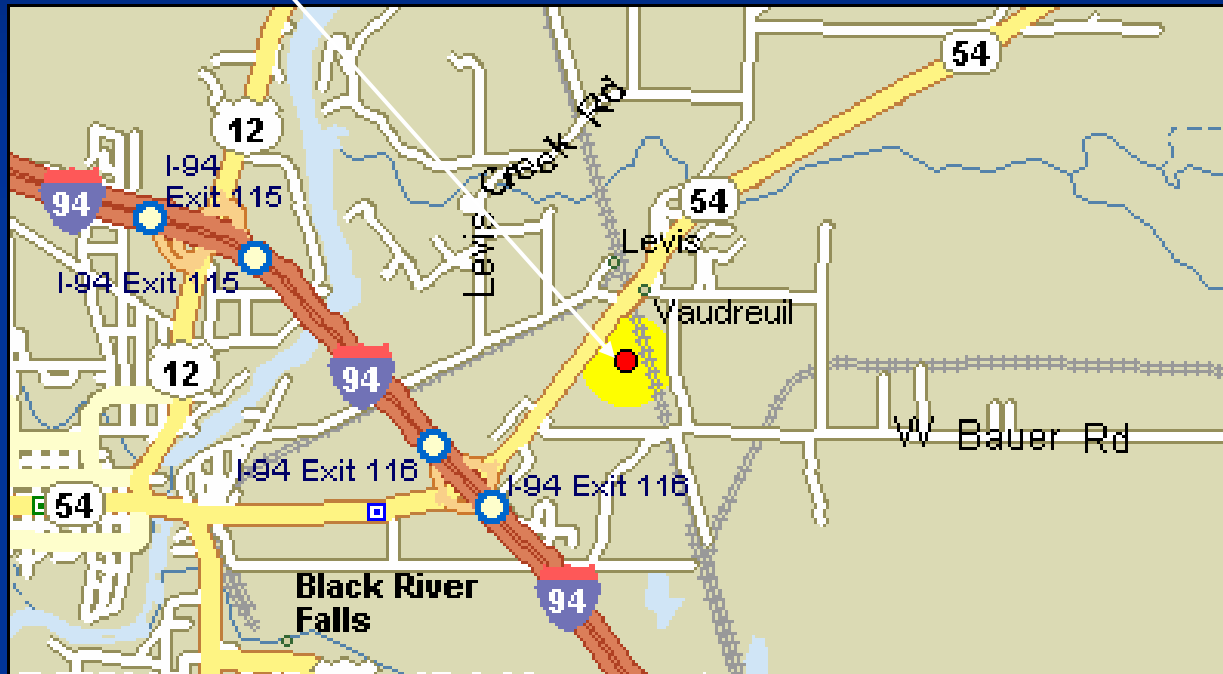
Well depth: 18.0 feet
Hole depth: 18.0 feet
Land surface altitude: 1,080 feet above sea level

Well number WS-19/08E/15-0008

Well WS-18/10E-008, near Hancock, WI

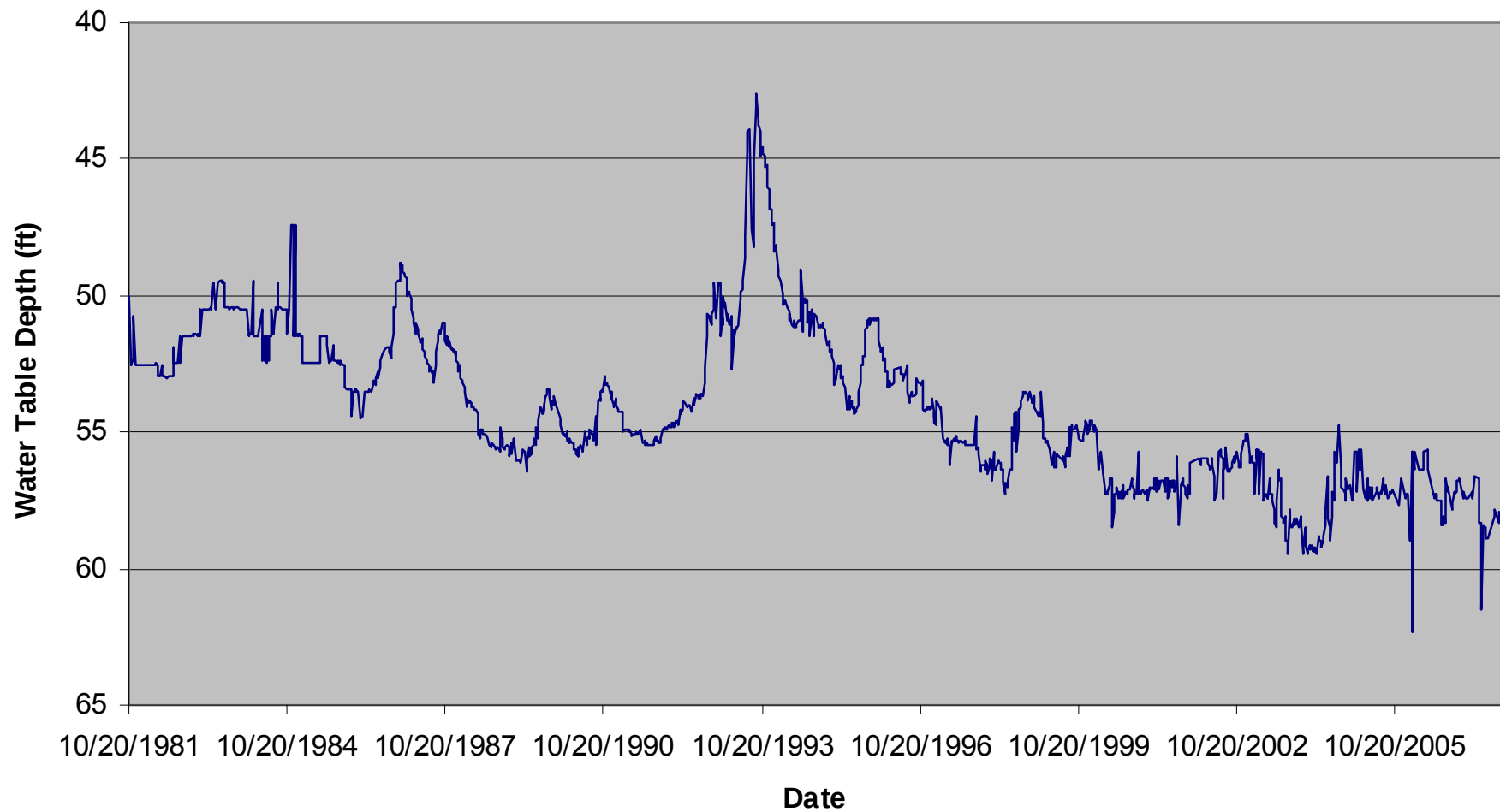


Well number JA-21/04W/13-0038

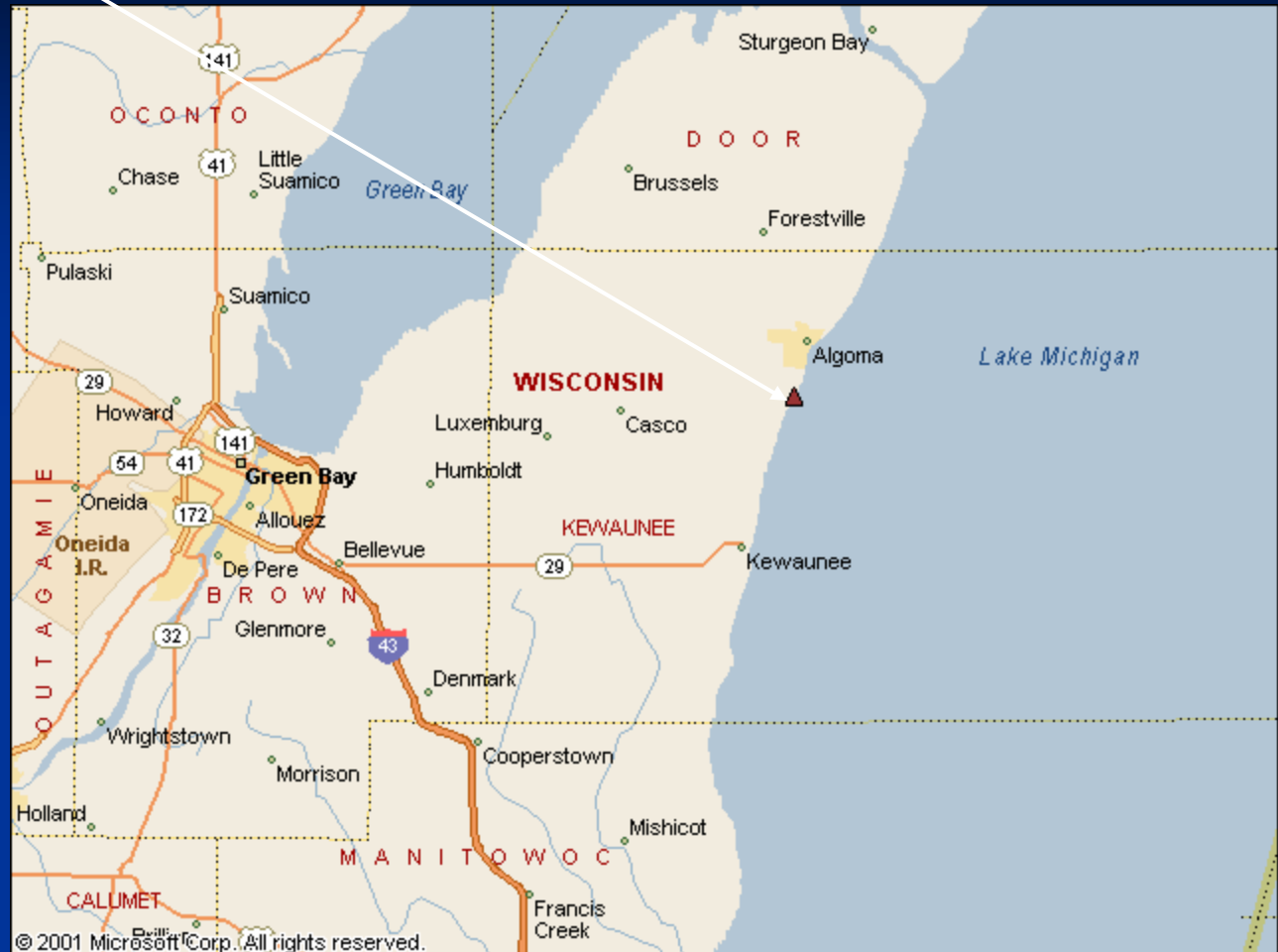


Well depth: 80.0 feet
Hole depth: 80.0 feet
Land surface altitude: 856 feet above sea level

Well JA-21/04W/13-0038, near Black River Falls, WI

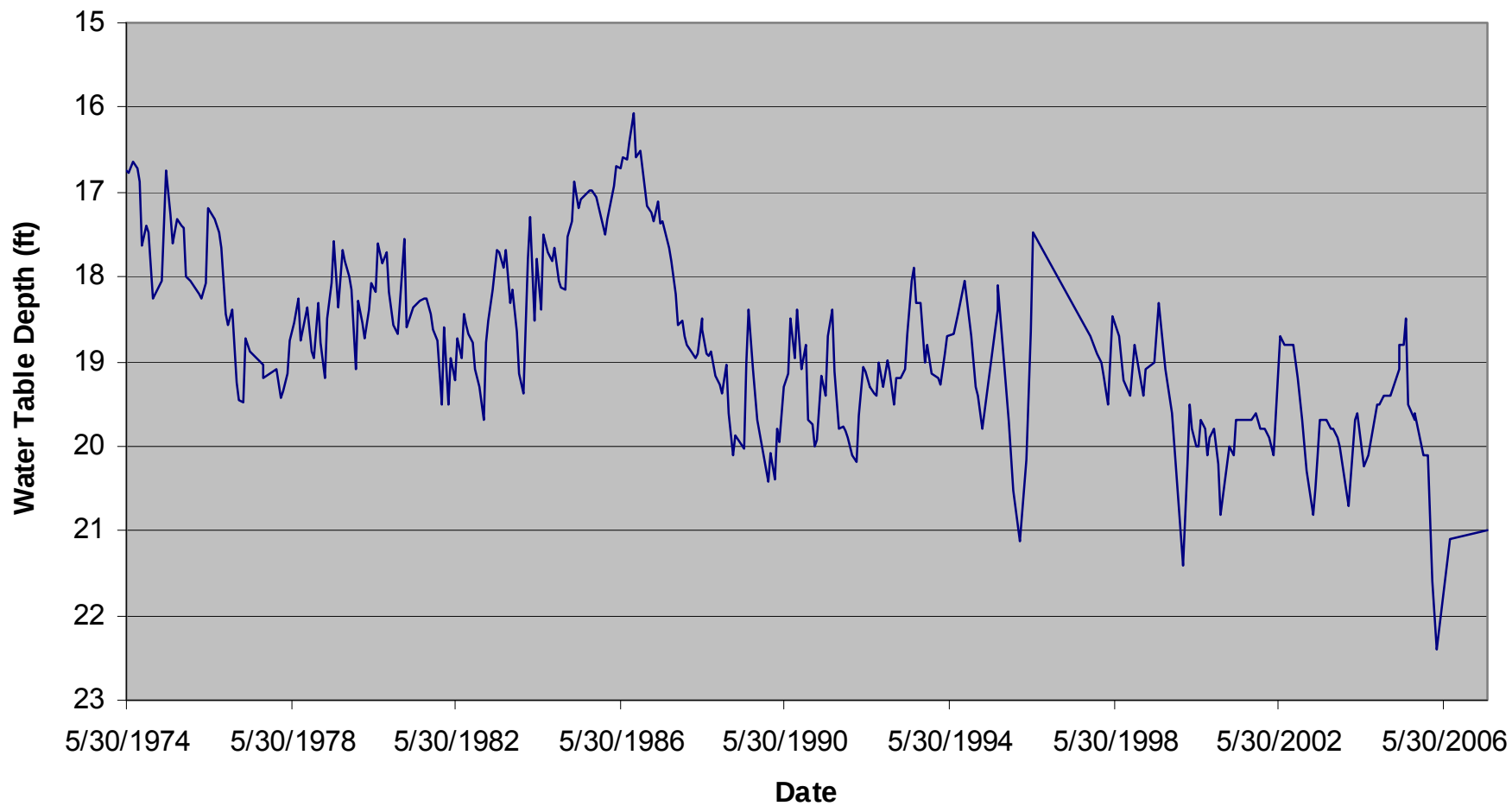


Well number KW-24/25E/10-0030

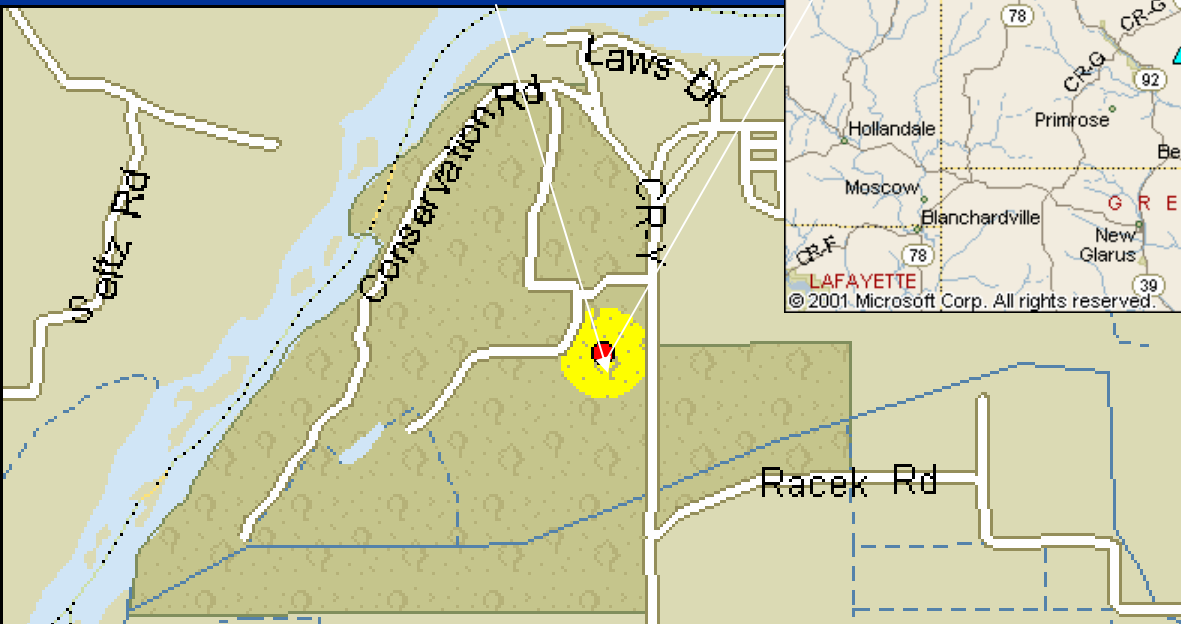


Well depth: 203 feet
Hole depth: 203 feet
Land surface altitude: 620 feet above sea level

Well number KW-24/25E/10-0030, near Algoma, WI

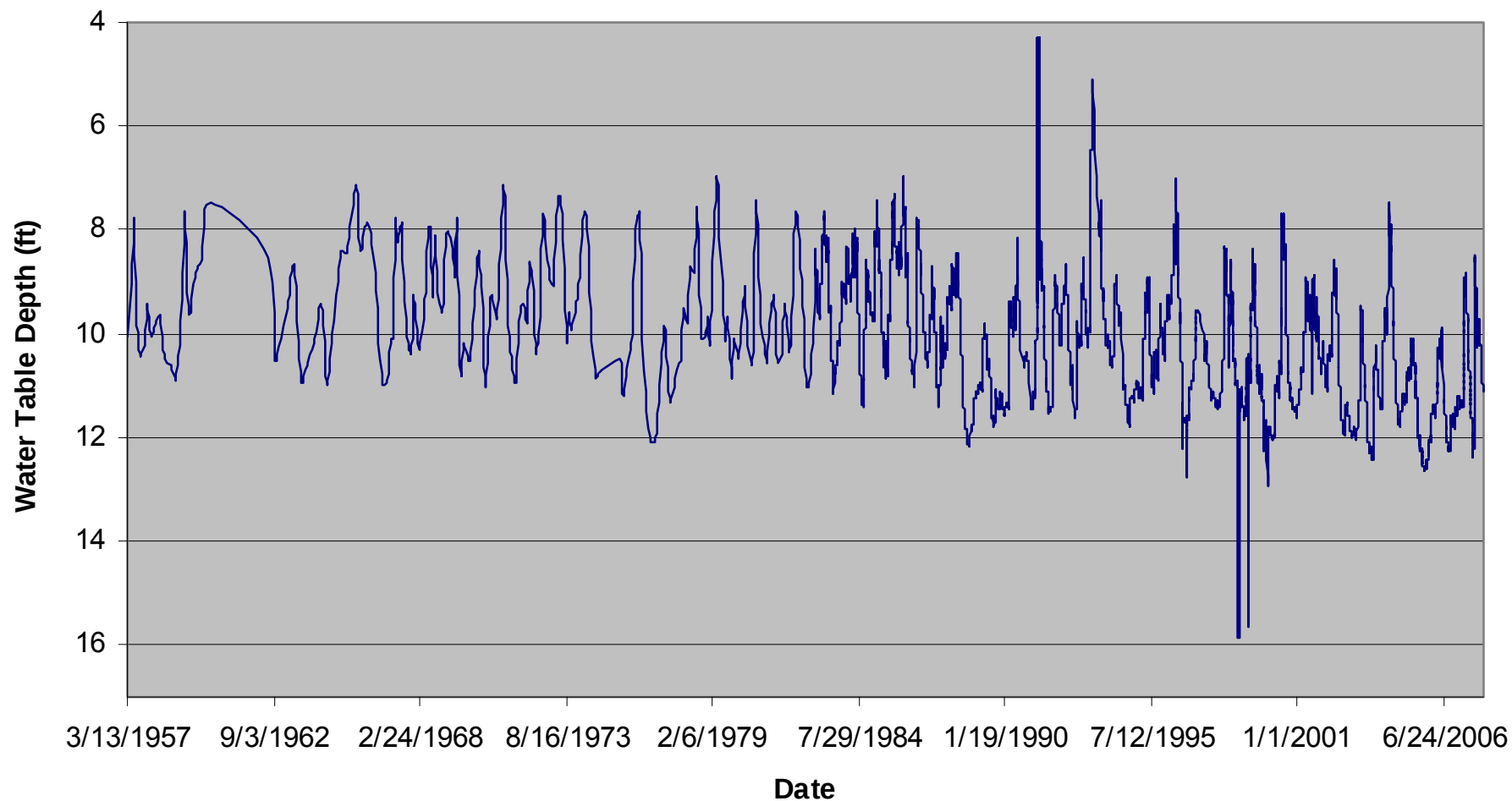


Well number DN-09/06E/29-0083

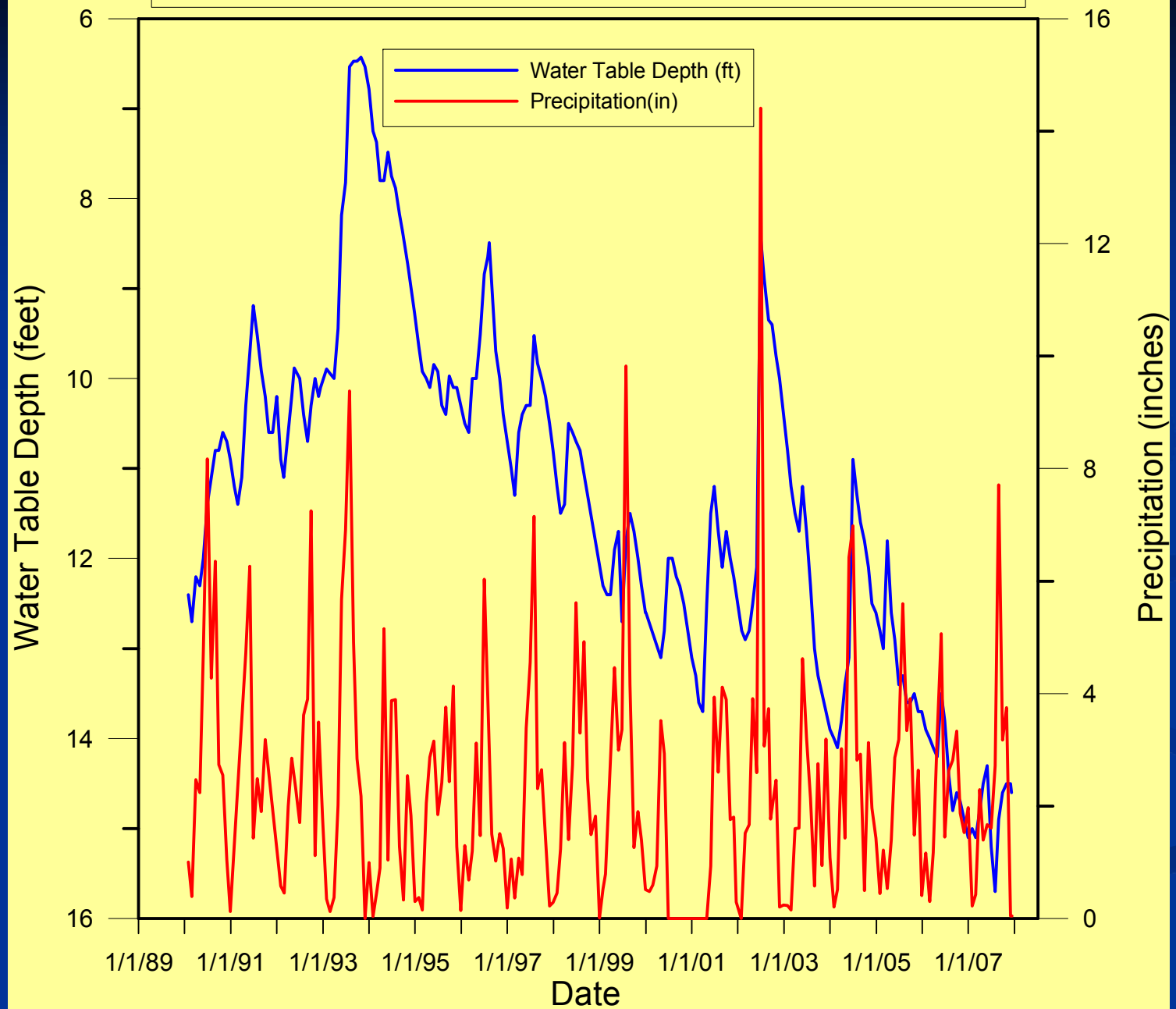


Well depth: 146 feet
Hole depth: 146 feet
Land surface altitude: 740 feet above sea level

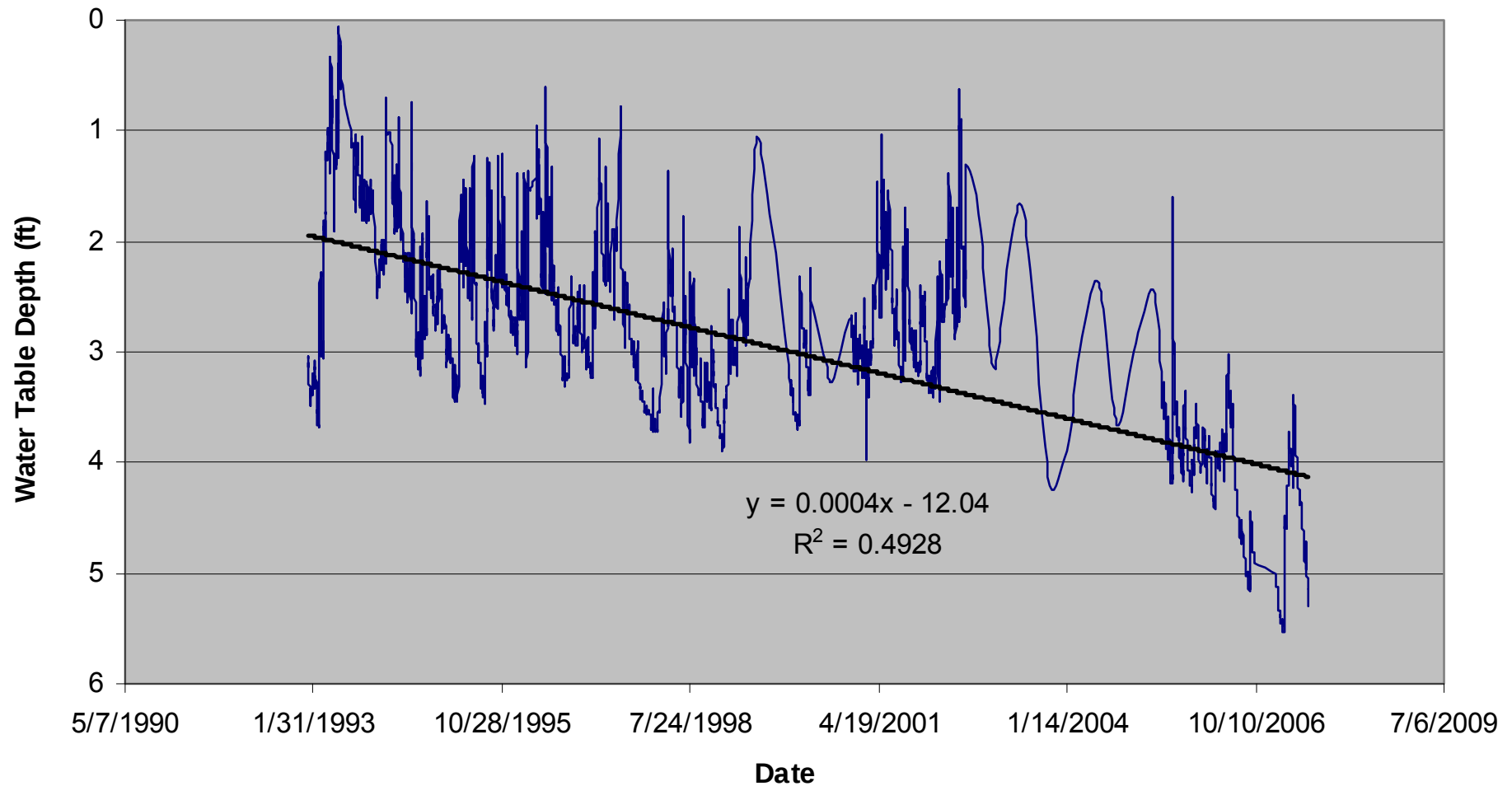
Well number DN-09/06E/29-0083 , Lower Wis. River Valley



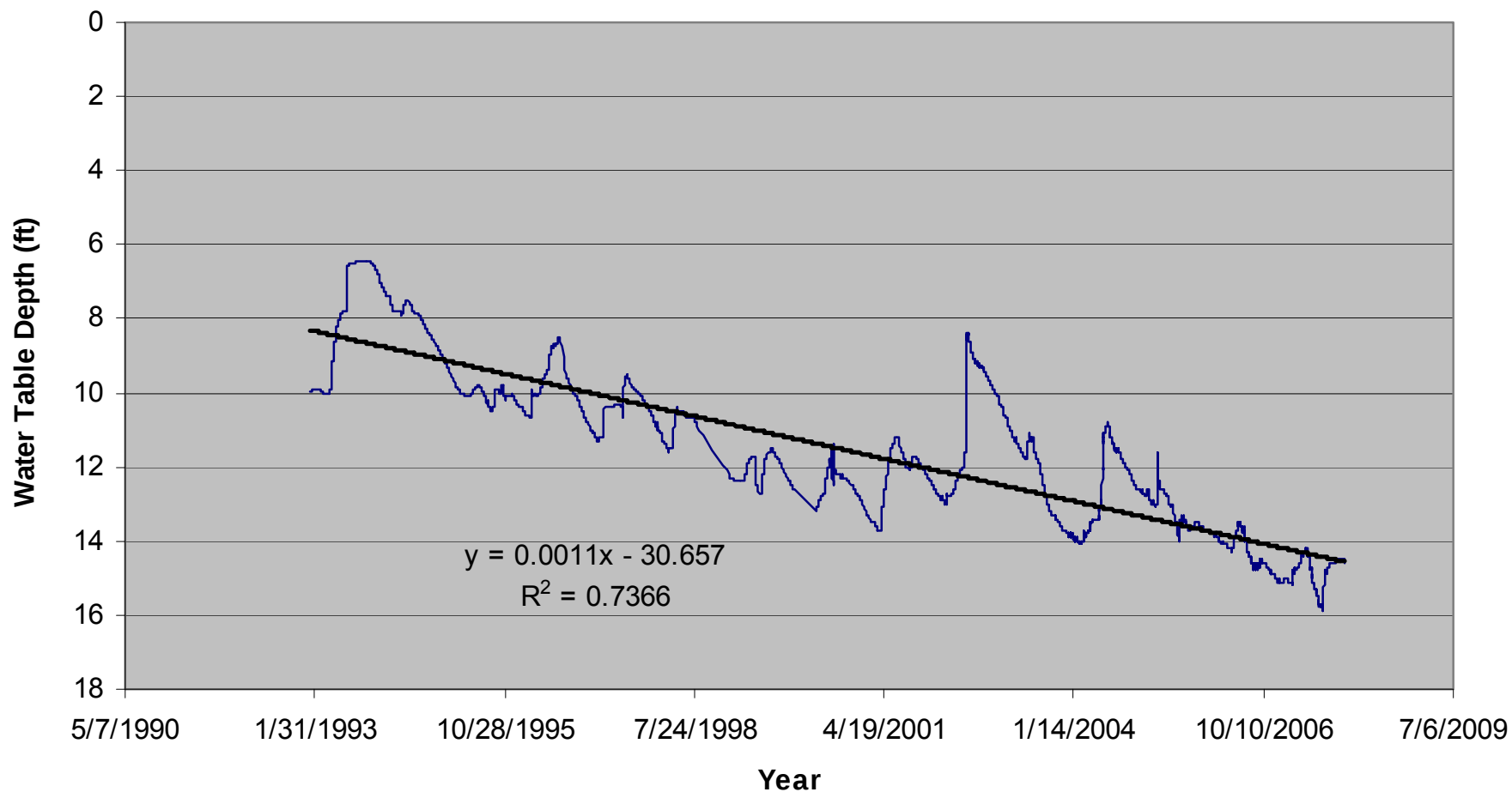
Water Table Depth and Monthly Precipitation at Hancock USGS well 15-0008.



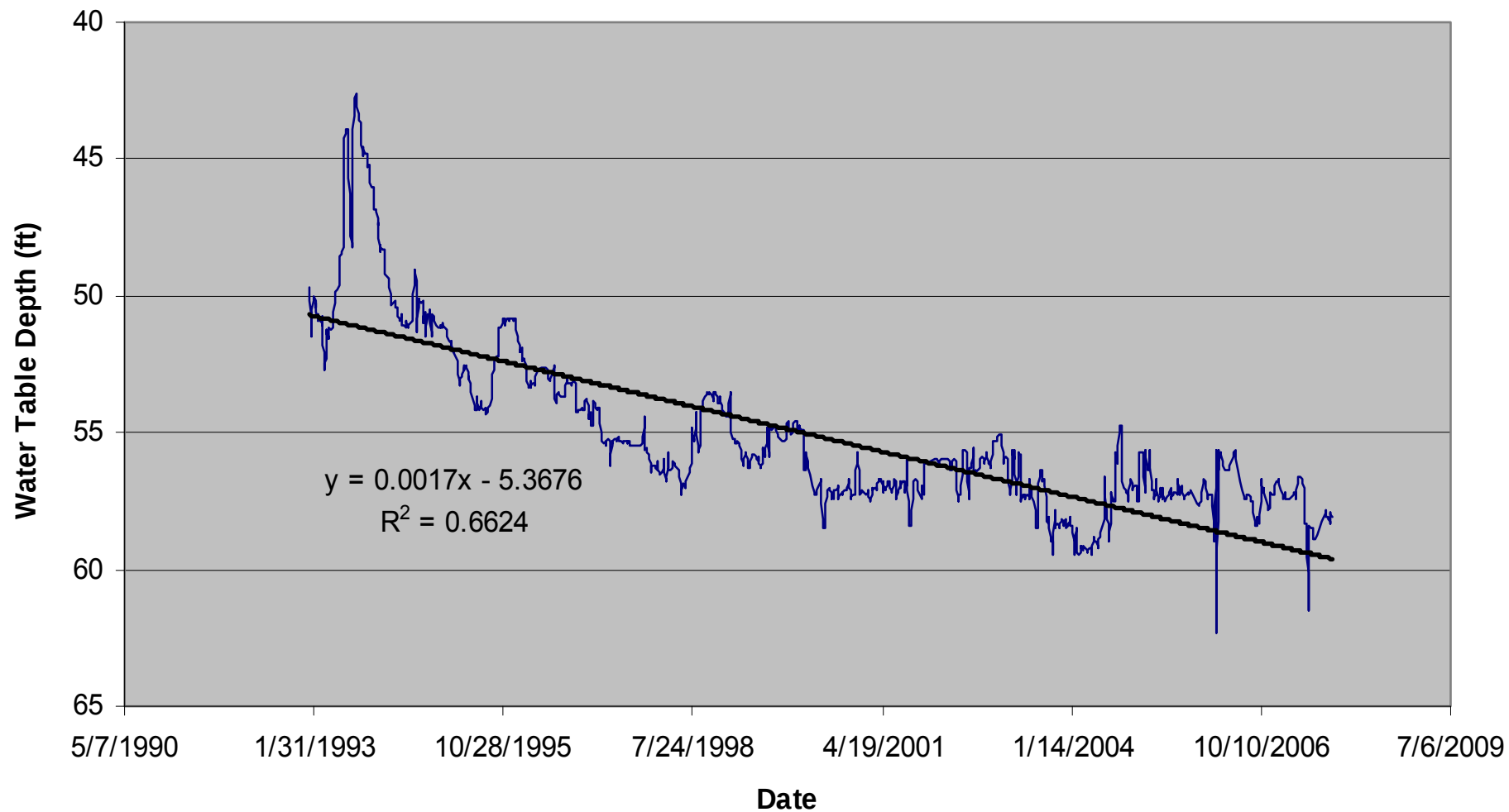
1993-to-2007, Well WS-18/10E-105, near Wautoma, WI



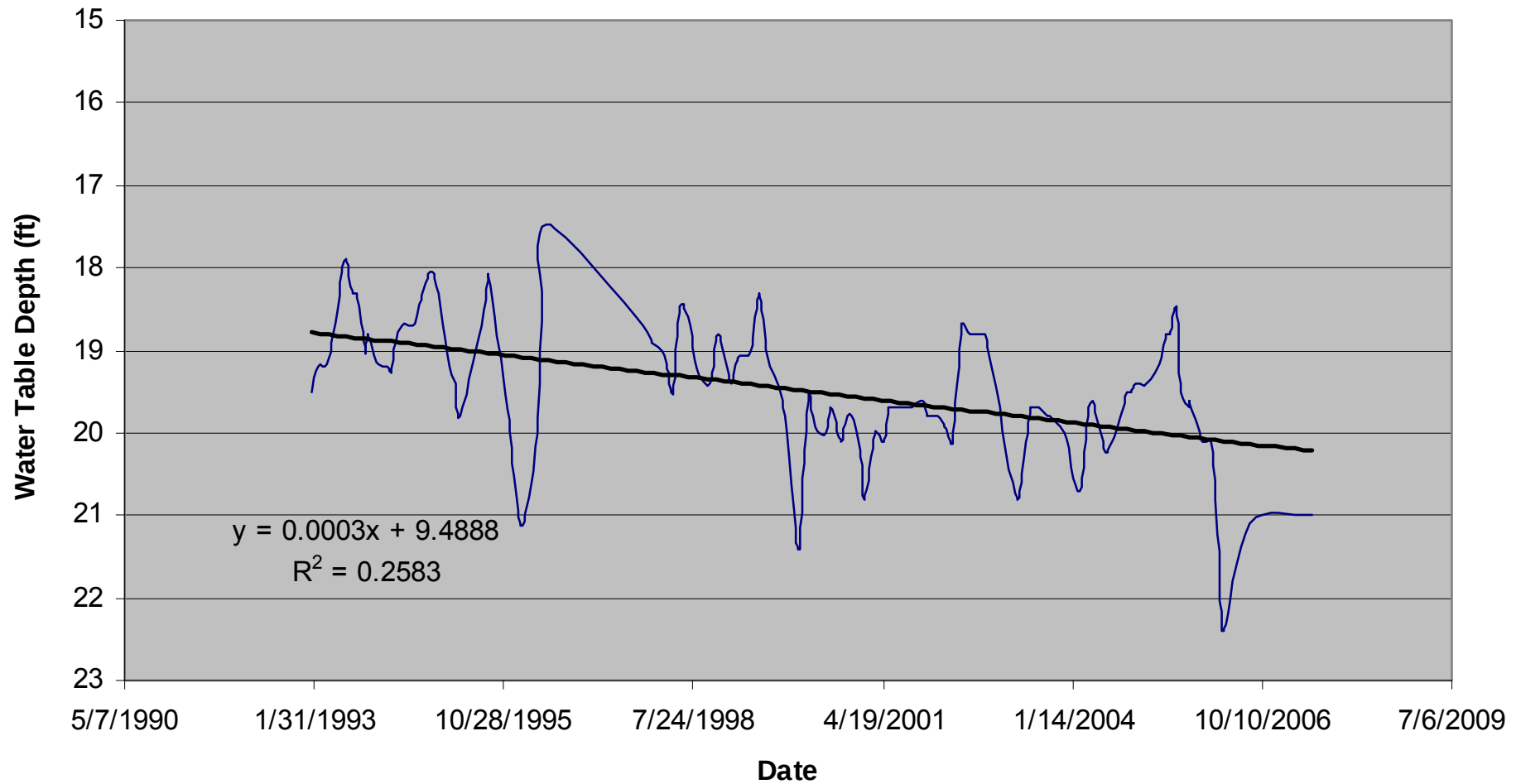
1993-to-2007, Well WS-18/10E-008, near Hancock, WI



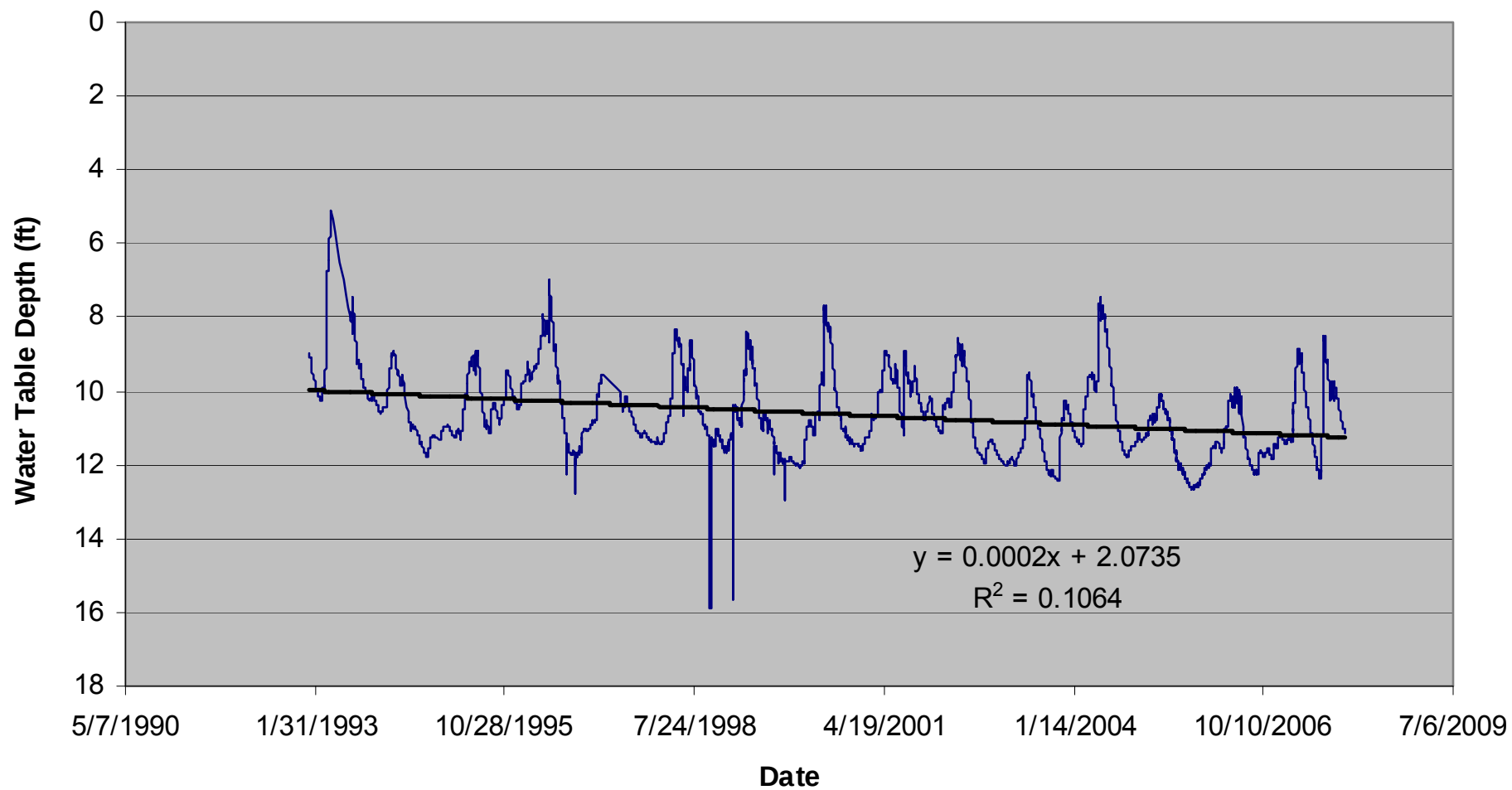
1993-to-2007, Well JA-21/04W/13-0038, near Black River Falls, WI



1993-to-2007, Well number KW-24/25E/10-0030, near Algoma, WI

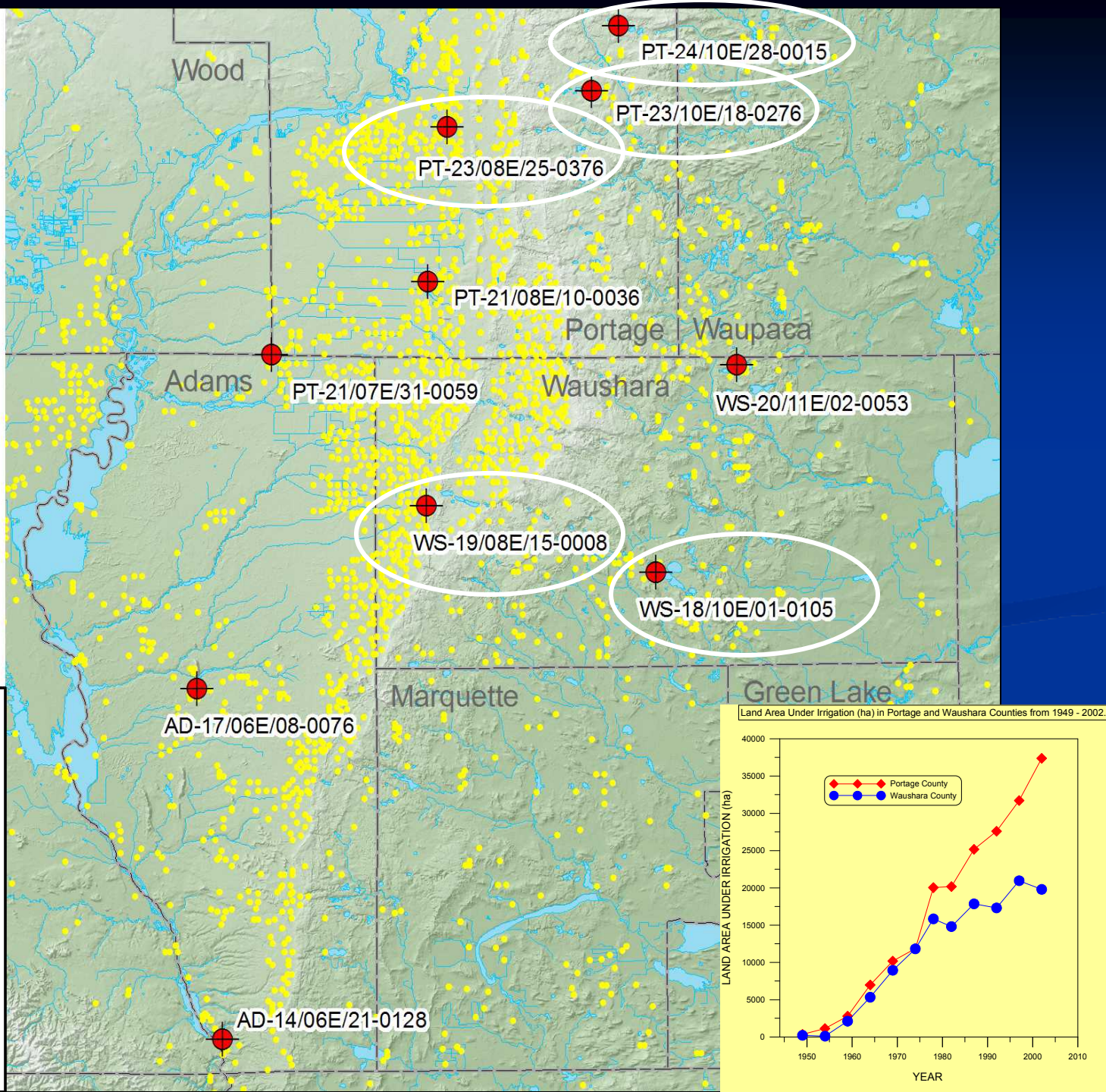
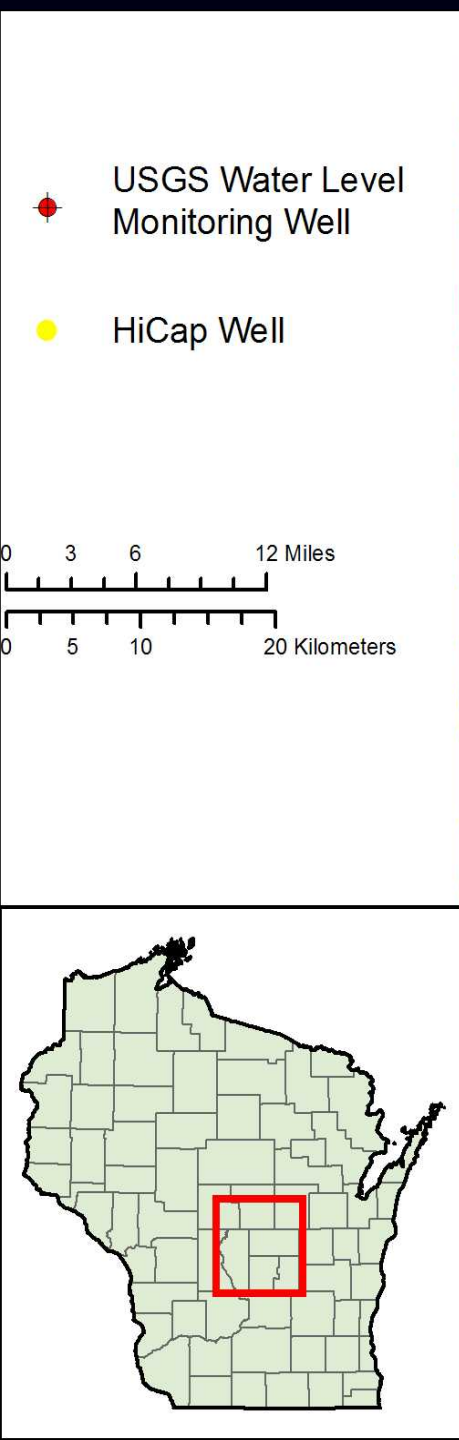


1993-to-2007, Well number DN-09/06E/29-0083 , Lower Wis. River Valley

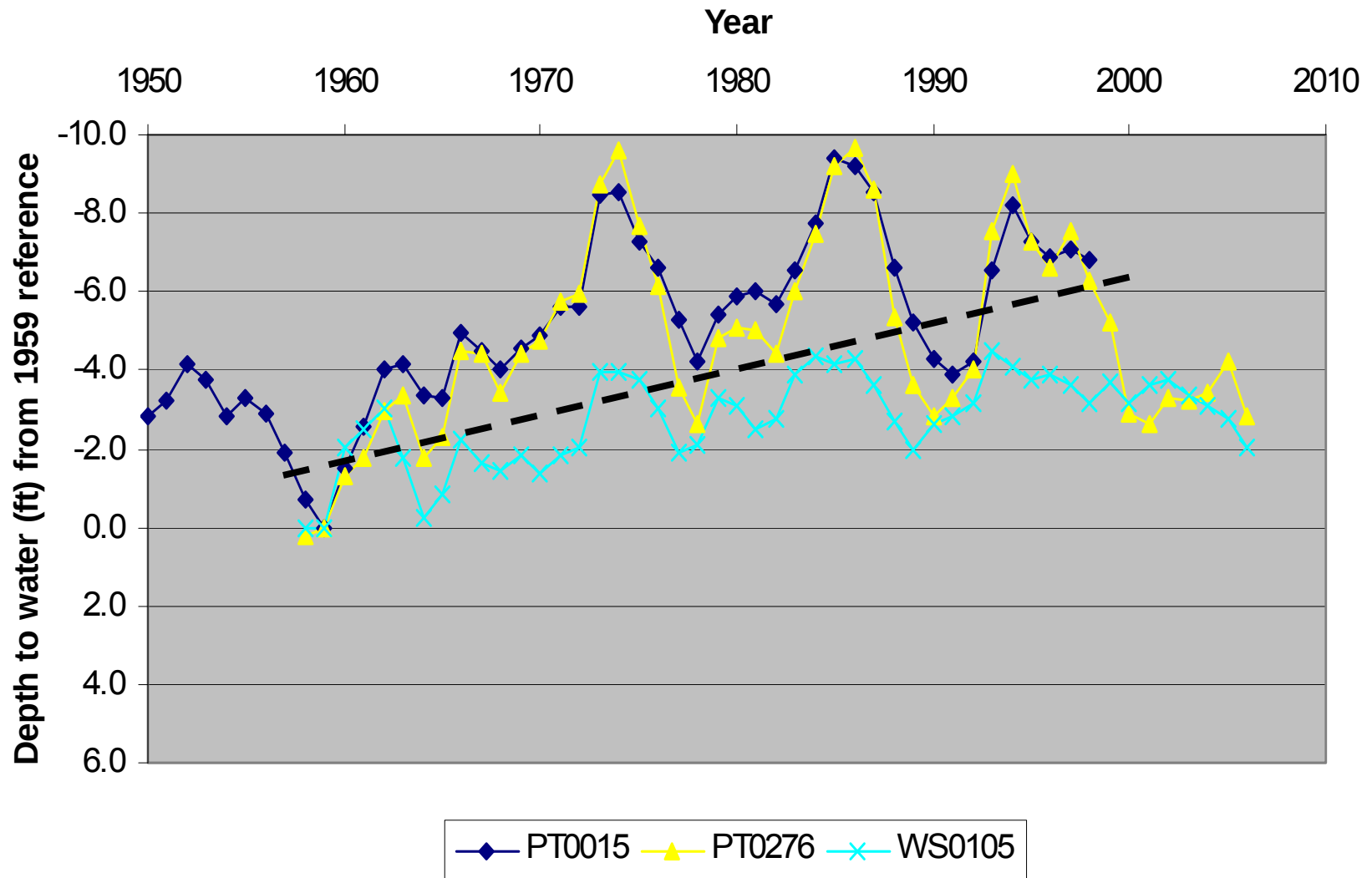


One point of view:

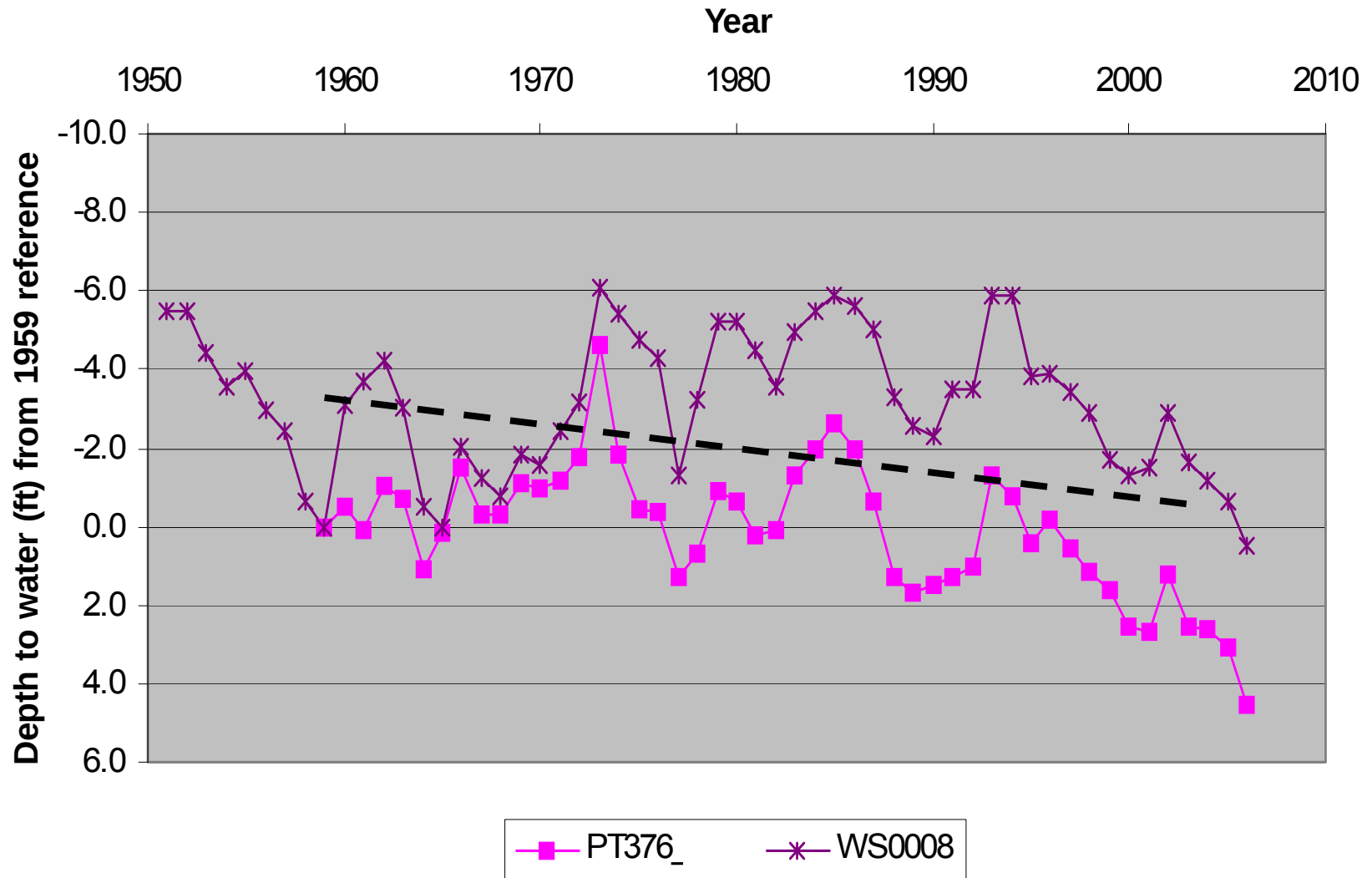
“Drought vs. Pumping?”



Water levels unaffected by pumping

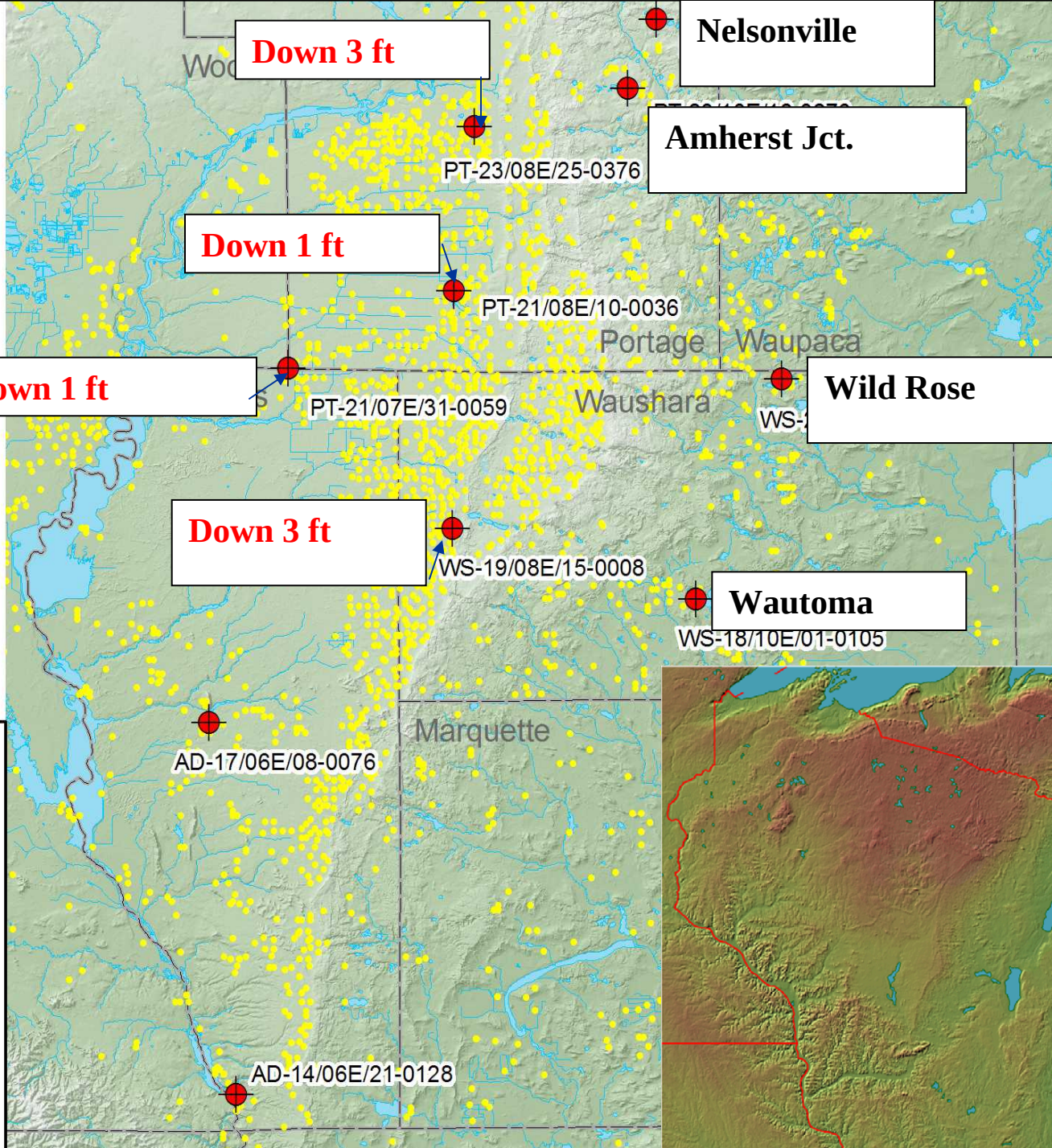
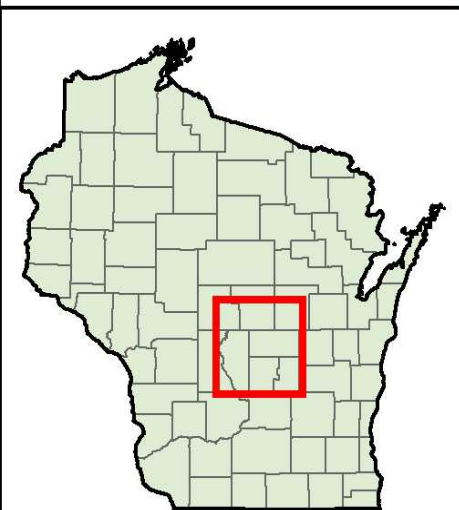
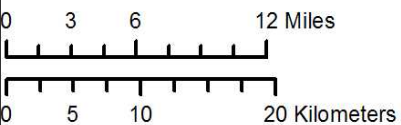


Water levels affected by pumping

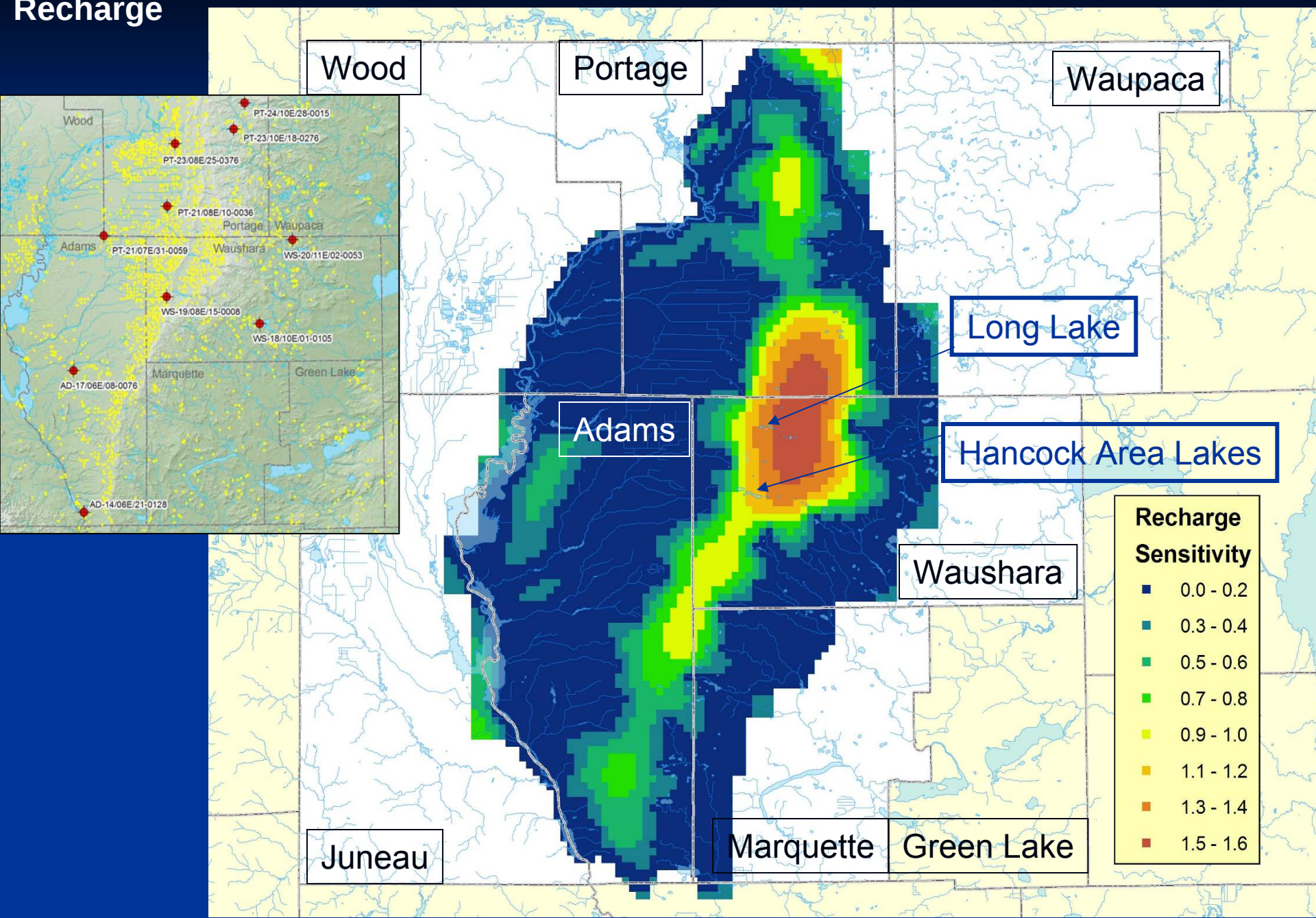


USGS Water Level
Monitoring Well

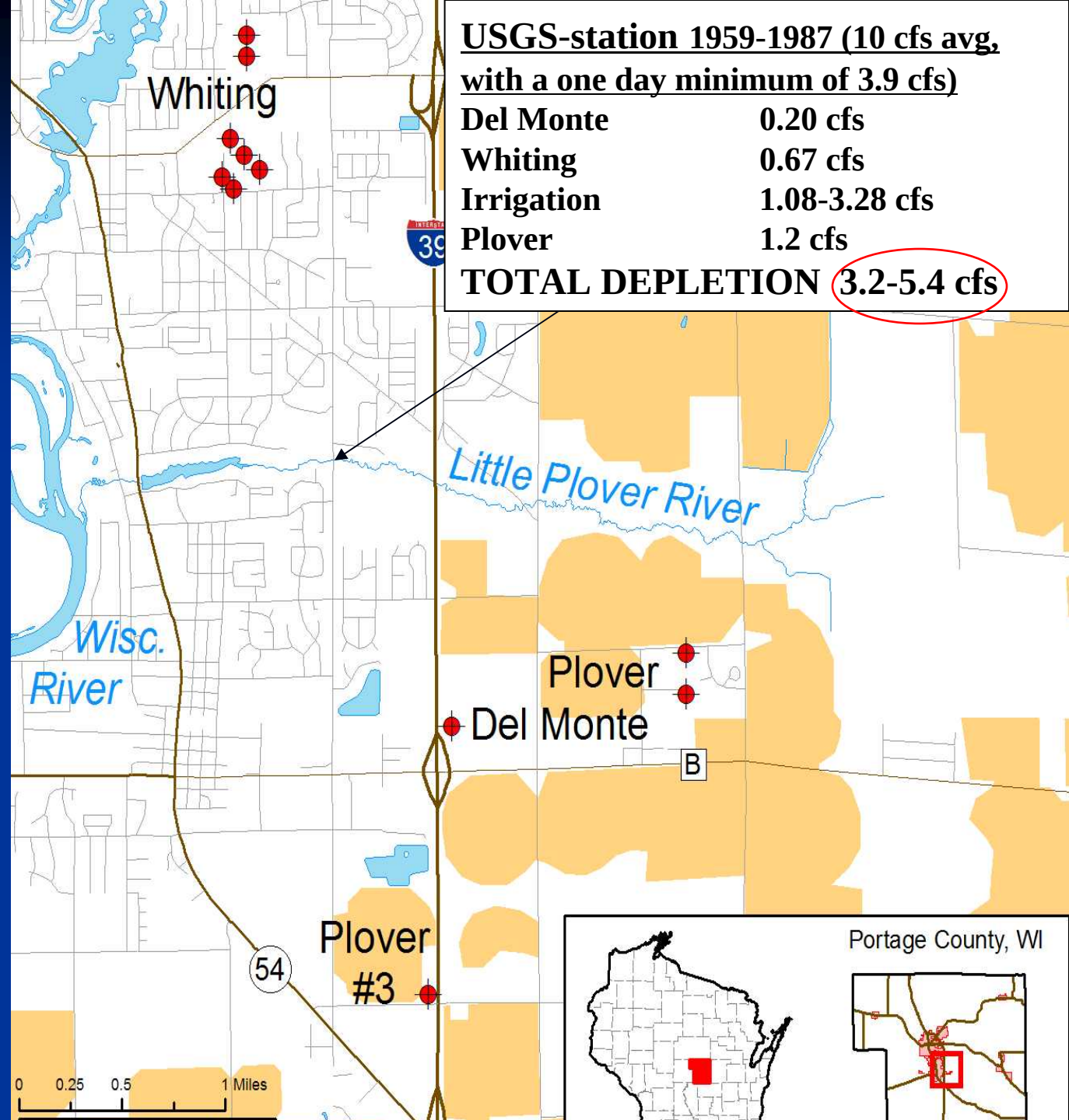
HiCap Well



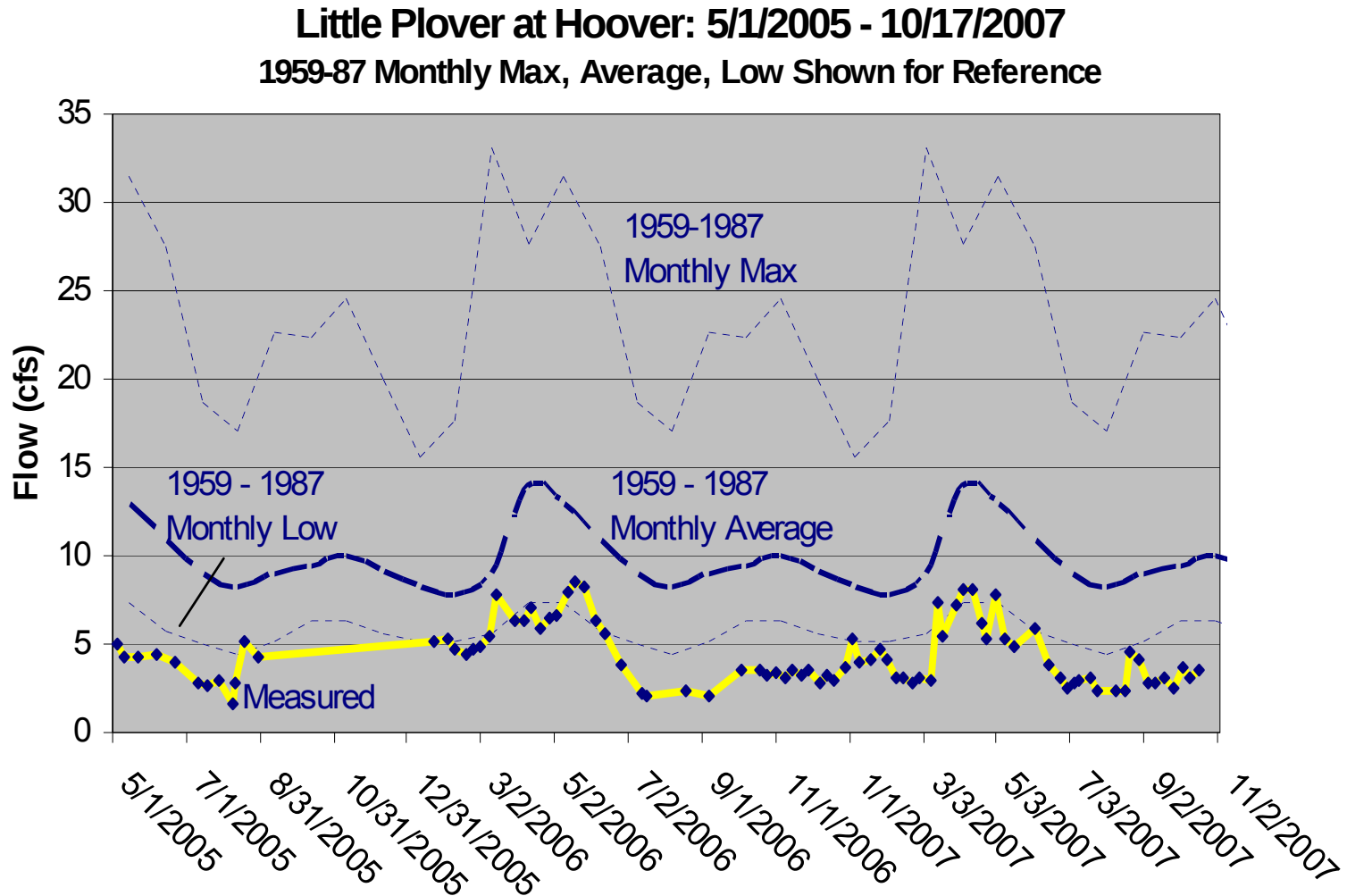
Sensitivity of Central Sands Groundwater Levels to Changes in Groundwater Recharge



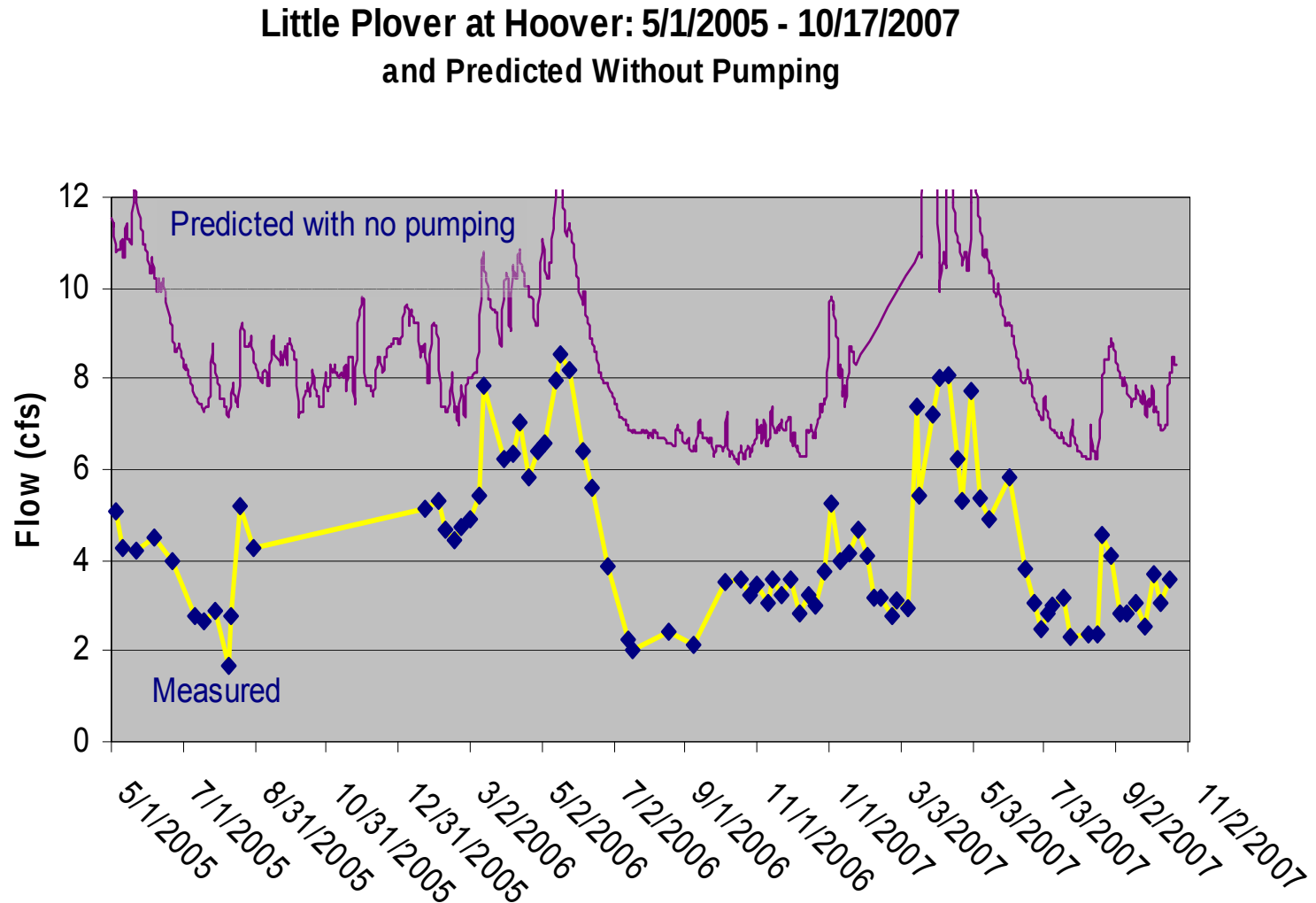
Groundwater flow modeled depletions to the Little Plover River (range used for irrigation – 2-6” per year)



Little Plover 2005-7 Flows (Yellow) Compared with 1959-1987 Max, Min, and Average



Little Plover 2005-7 Measured Flows (Yellow) Compared with Regression-Predicted Flows without pumping



Summary

There is no clear cause

Where do we go from here?

- Field research to determine groundwater recharge rates for different vegetations
- Measure drainage rates for various irrigation systems
- Computer model simulation of water use by different vegetations

