



**FORMER WESSEL PROPERTY
LA GRANGE WETLAND BANK SITE**

ISGS #52

Sequence #9579

Brown County, near La Grange, Illinois

Primary Project Manager: Keith W. Carr

Secondary Project Manager: Geoffrey E. Pociask

SITE HISTORY

- February 2000: ISGS was tasked by IDOT to conduct a Level II hydrogeologic assessment of the site, and began on-site activities in the Spring of 2000 with the installation of surface-water monitoring equipment and monitoring wells. Additional instruments have been added annually.
- August 2002: IDOT tasked ISGS and INHS to prepare a draft wetland banking instrument, which was submitted to IDOT in January 2003.
- January 2005: A Level II report on the site was submitted to IDOT on January 7, 2005 (ISGS Open-File Series 2005–2).
- Fall and Winter 2005: Extensive earthworks were undertaken by IDOT, including filling and plugging of several ditches, re-shaping of the east levee, construction of a raised access road, and the excavation of a large basin in the north-central area of the site. ISGS and IDOT personnel also completed a topographic survey of the dry basin of Big Lake.
- Spring 2006: Two large drainage tiles were located and removed by IDOT. A partial repair of the south levee breach was also completed by an adjacent landowner.

WETLAND HYDROLOGY CALCULATION FOR 2006

We estimate that the total area of the site that satisfied wetland hydrology criteria (Environmental Laboratory 1987) for greater than 5% of the growing season in 2006 was 34.3 ha (84.7 ac) out of a total site area of 660 ha (1645 ac). A similar acreage of 34.2 ha (84.4 ac) also satisfied wetland hydrology criteria for greater than 12.5% of the growing season. These estimates are based on the following factors:

- According to the Midwestern Climate Center, the median date that the growing season begins in nearby Rushville, Illinois is April 6 and the season lasts 208 days; 5% of the growing season is 10 days and 12.5% of the growing season is 26 days.
- Total precipitation for the monitoring period was 72% of normal. During the four month period from December 2005 to March 2006, precipitation was 86% of normal, leading to slightly drier than typical conditions entering the growing season. In the critical April to July period, however, precipitation dropped off sharply to only 50% of normal. This area of the state and the Illinois River Basin as a whole are undergoing a persistent drought which began in 2005. According to data from the National Drought Mitigation Center, conditions at the site and/or within the basin of the Illinois River have ranged from D3 (extreme drought) to D0 (abnormally dry) between January 3 and May 30 of 2006 (National Drought Mitigation Center 2006).

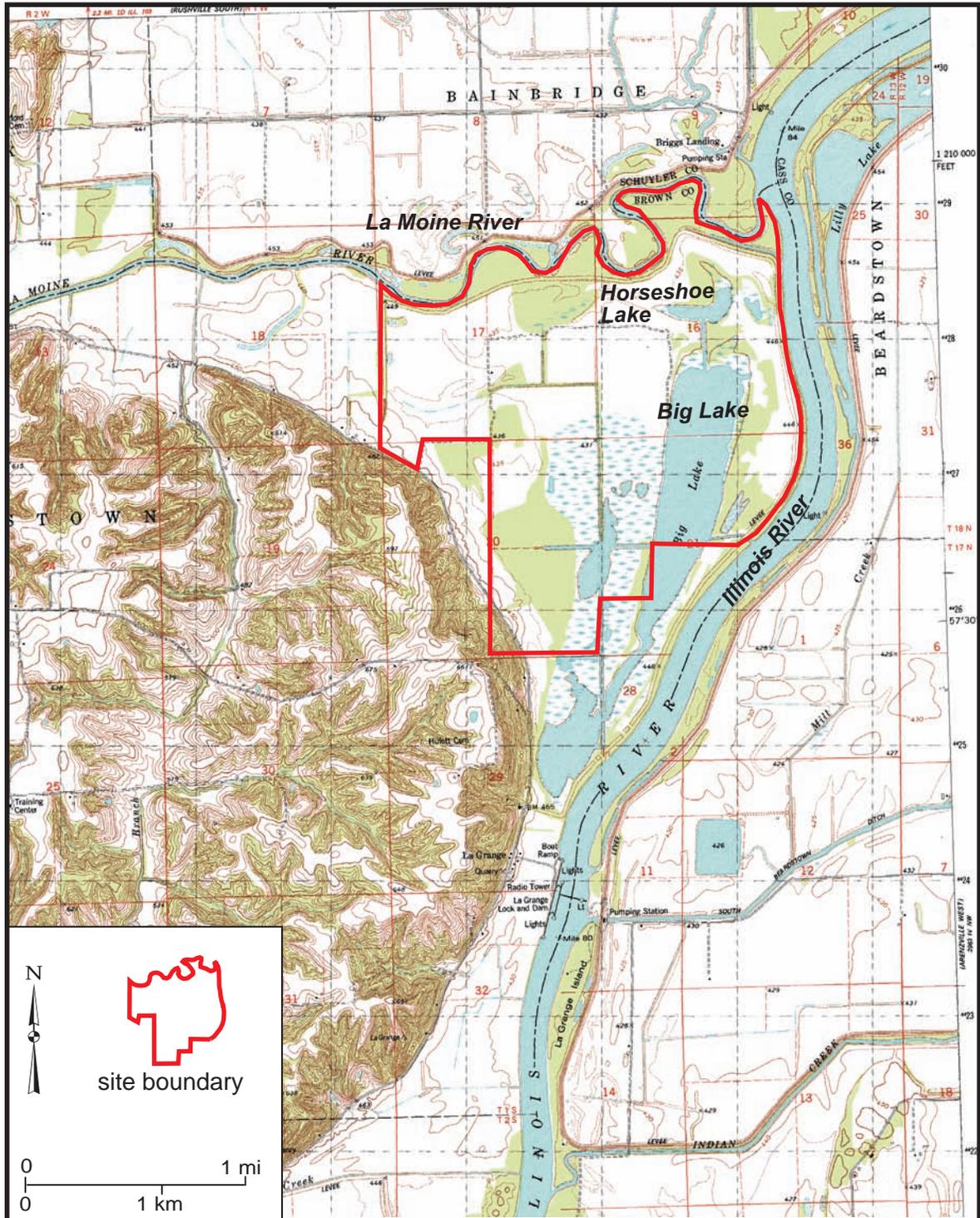
- Of the 36 soil-zone wells on site, only well 21S satisfied wetland hydrology criteria for greater than 5% of the growing season. None of the wells satisfied wetland hydrology criteria for greater than 12.5% of the growing season.
- Three stations equipped with staff gauges or surface-water data loggers showed surface-water inundation for a period sufficient to satisfy wetland hydrology criteria. At SW3AR, combined readings from a data logger and a staff gauge indicated surface-water inundation to an elevation of at least 131.30 m (430.77 ft) for greater than 5% of the growing season, and to an elevation of at least 131.21 m (430.47 ft) for greater than 12.5% of the growing season. At SW4AR, combined readings from a data logger and a staff gauge indicated surface-water inundation to an elevation of at least 130.49 m (428.11 ft) for greater than 5% of the growing season, and to an elevation of at least 130.43 m (427.91 ft) for greater than 12.5% of the growing season. At SW14A, a staff gauge indicated surface-water inundation to an elevation of at least 131.80 m (432.41 ft) for greater than 5% of the growing season, and to an elevation of at least 131.66 m (431.95 ft) for greater than 12.5% of the growing season. Despite these periods of recorded surface-water ponding, on-site observations indicate that the logger and gauge readings only represented minimal areas within the ditches where the loggers were placed. As in previous years, these areas were not added into acreage totals for the site.
- Drawdown in the Big Lake basin rapidly left lake monitoring stations high and dry. Water levels in wells and gauges around the lake that have correlated to lake levels in past years were extrapolated to the lake basin to determine areas that were inundated. Based upon this analysis, Big Lake showed inundation to an elevation of at least 130.50 m (428.14 ft) for greater than both 5% and 12.5% of the growing season. A similar analysis of adjacent well readings coupled with on-site observations yielded an inundation level at both 5% and 12.5% of the growing season of 131.0 m (429.8 ft) in Horseshoe Lake.

PLANNED FUTURE ACTIVITIES

- Monitoring of hydrology will continue until no longer required by IDOT.

Former Wessel Property, La Grange Wetland Bank Site General Study Area and Vicinity

from the USGS Topographic Series, Cooperstown, IL 7.5-minute Quadrangle (USGS 1980)
contour interval is 10 feet



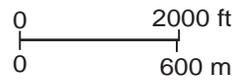
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Locations of ISGS Monitoring Equipment - 2006

Map based on USGS digital orthophotograph, Cooperstown NE quarter quadrangle
 produced from 4/14/98 aerial photography (ISGS 2002)



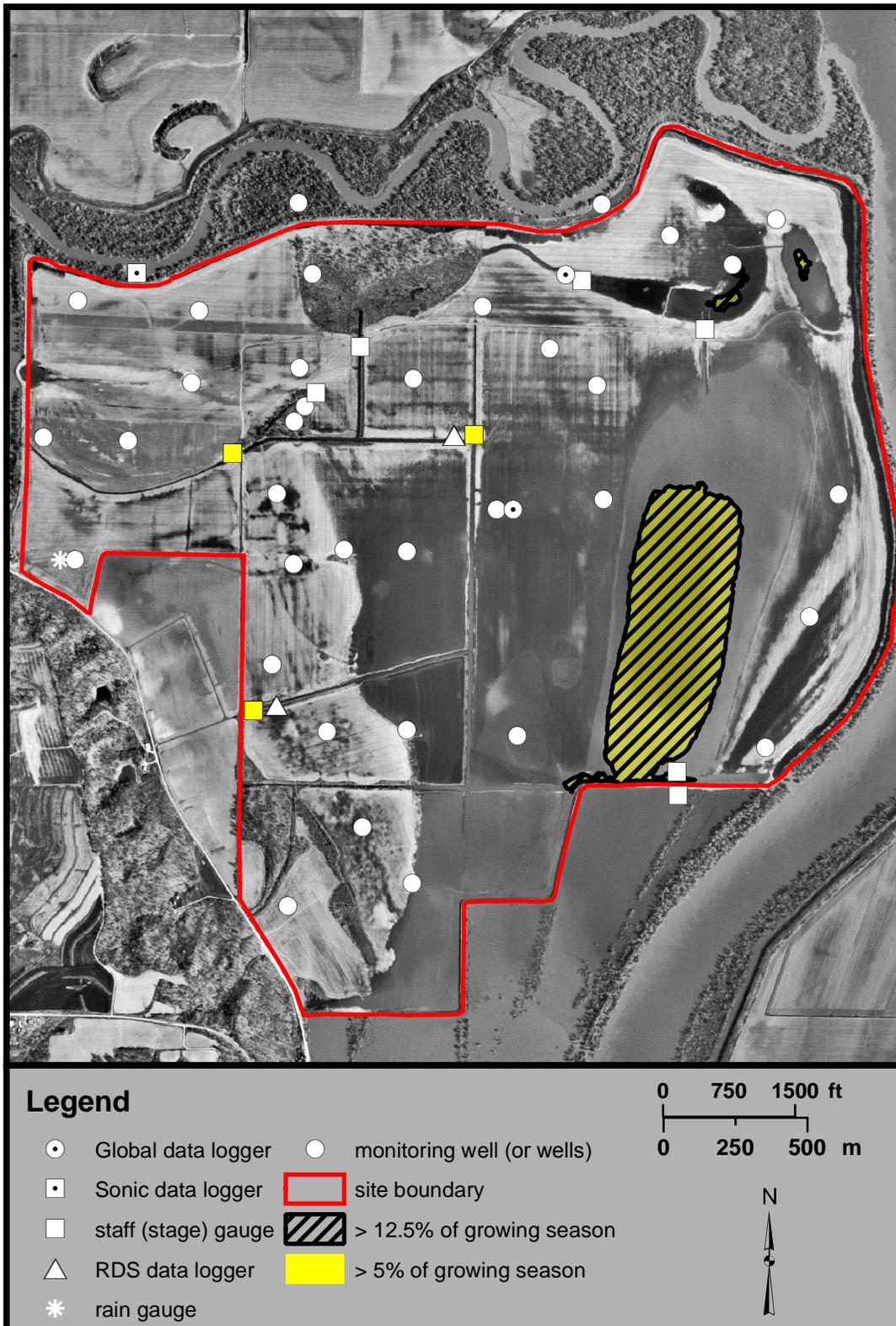
- monitoring well
- * rain gauge
- ⊙ Global data logger
- ◻ Infinities sonic data logger
- staff (stage) gauge
- △ RDS data logger



Former Wessel Property, La Grange Wetland Bank Site

Estimated Areal Extent of 2006 Wetland Hydrology

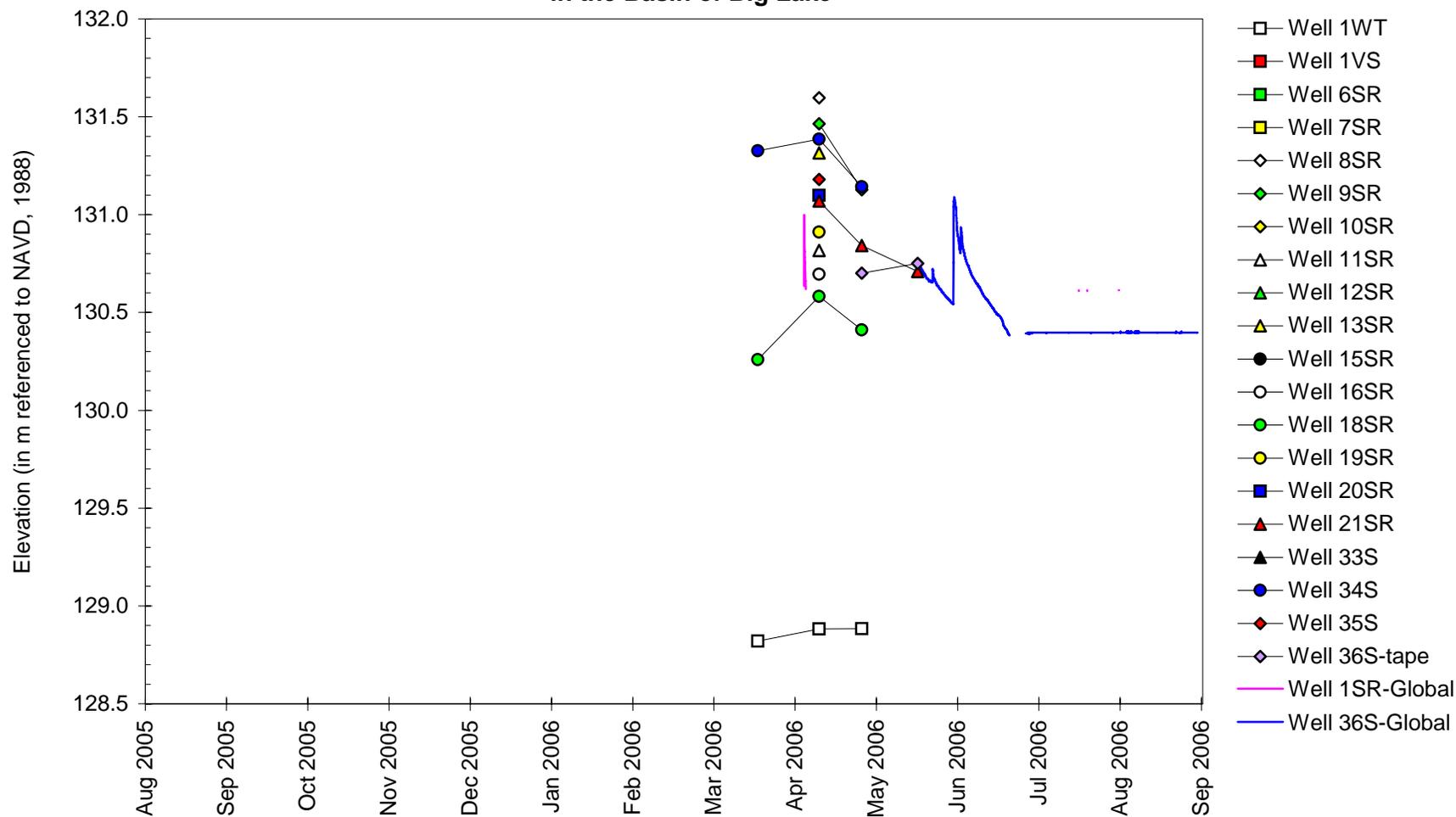
map based upon USGS digital orthophotograph, Cooperstown NE quarter quadrangle
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Former Wessel Property, La Grange Wetland Bank Site

September 1, 2005 to September 1, 2006

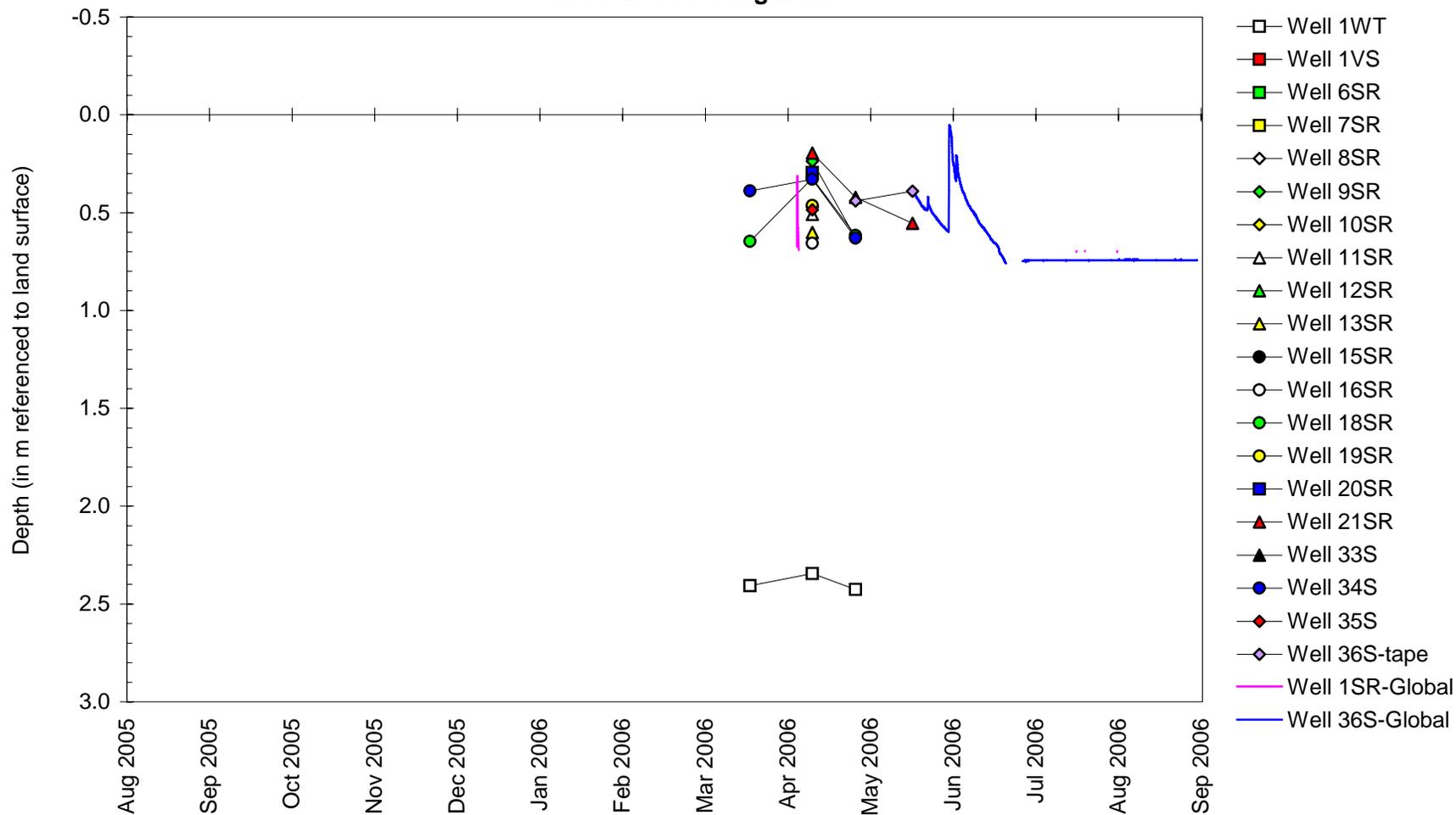
Water-Level Elevations in Shallow Monitoring Wells in the Basin of Big Lake



Former Wessel Property, La Grange Wetland Bank Site

September 1, 2005 to September 1, 2006

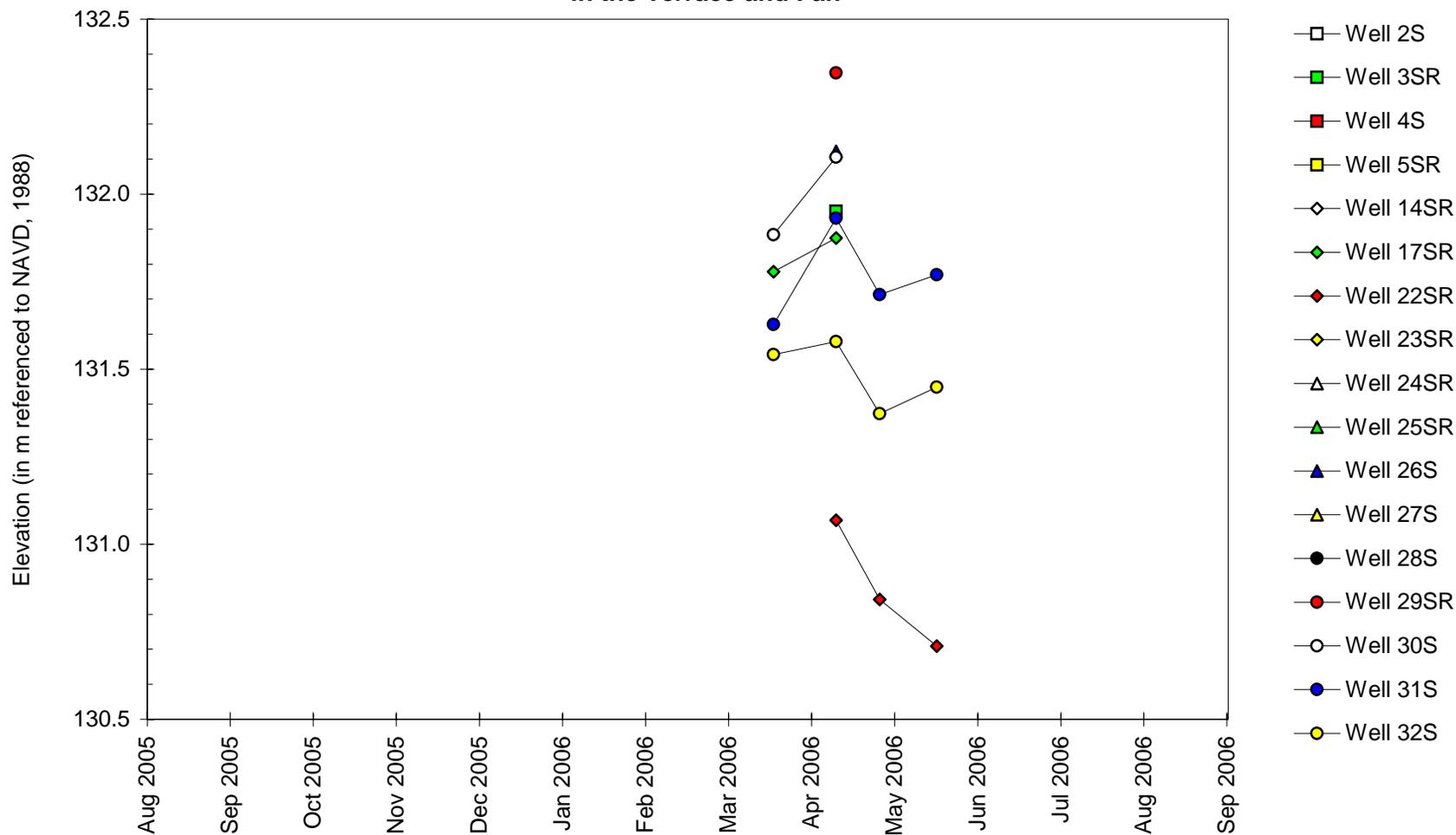
Depth to Water in Shallow Monitoring Wells in the Basin of Big Lake



Former Wessel Property, La Grange Wetland Bank Site

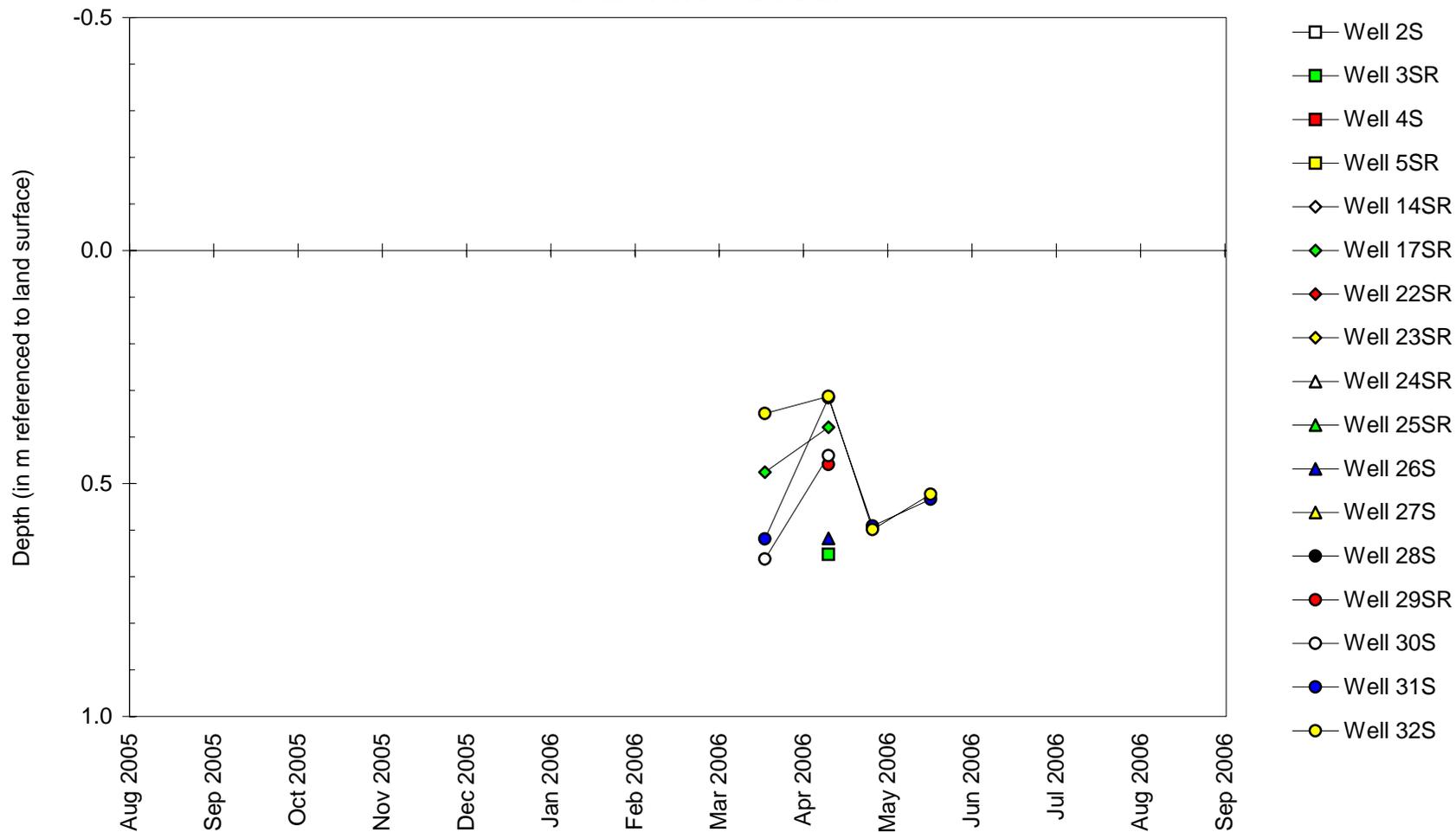
September 1, 2005 to September 1, 2006

Water-Level Elevations in Shallow Monitoring Wells in the Terrace and Fan



Former Wessel Property, La Grange Wetland Bank Site
September 1, 2005 to September 1, 2006

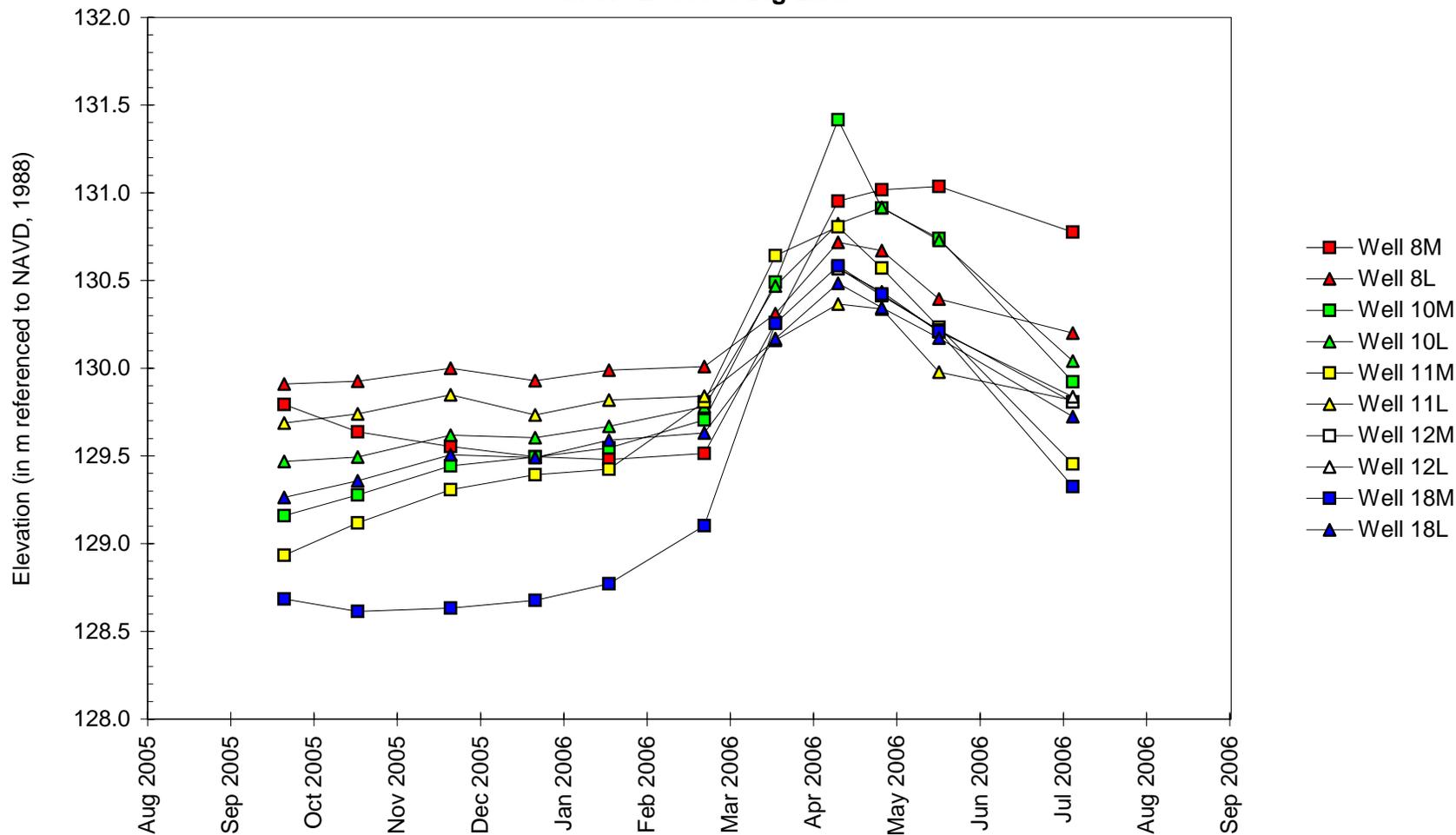
Depth to Water
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Former Wessel Property, La Grange Wetland Bank Site

September 1, 2005 to September 1, 2006

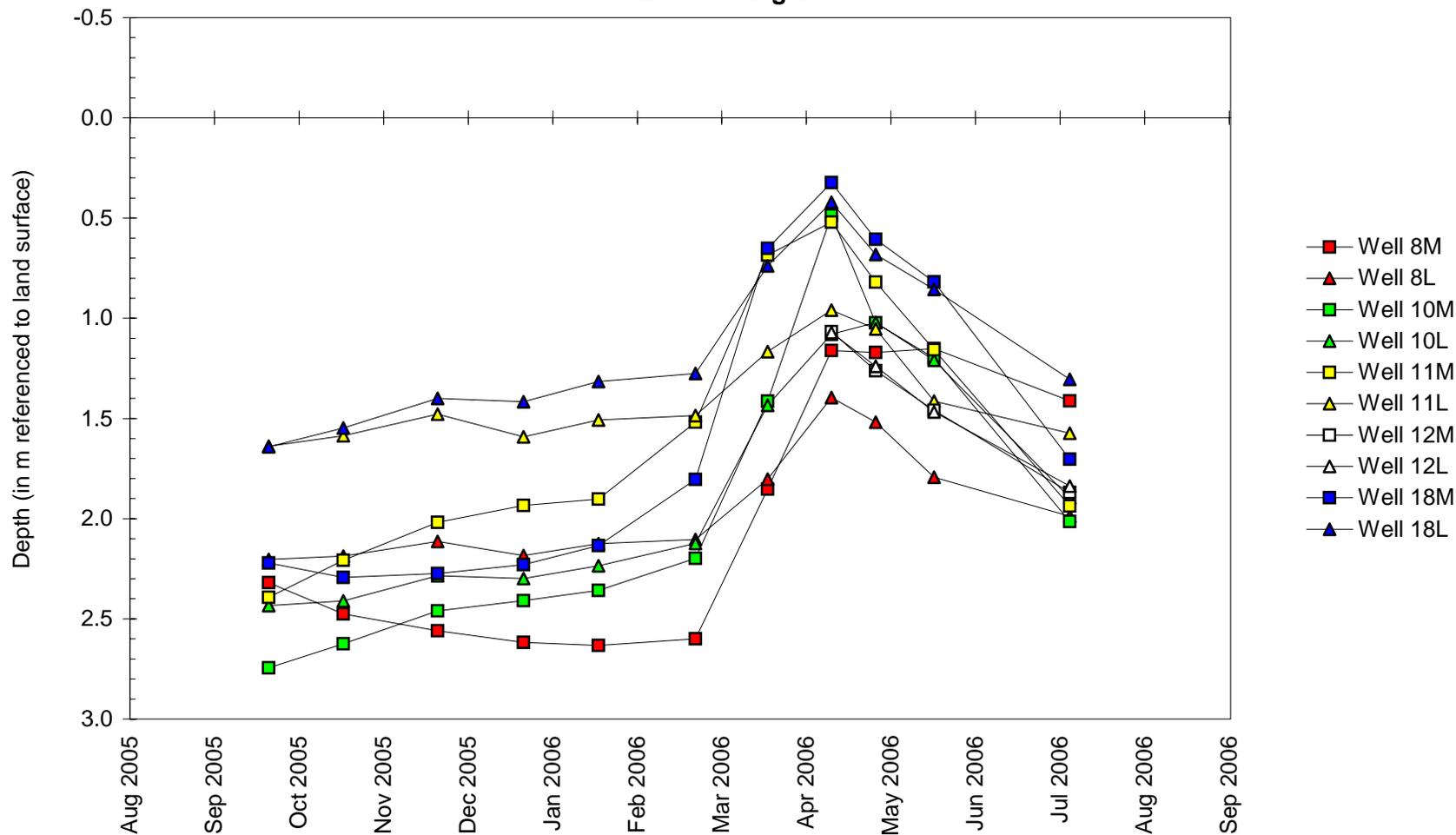
Water-Level Elevations in Deeper Monitoring Wells in the Basin of Big Lake



Former Wessel Property, La Grange Wetland Bank Site

September 1, 2005 to September 1, 2006

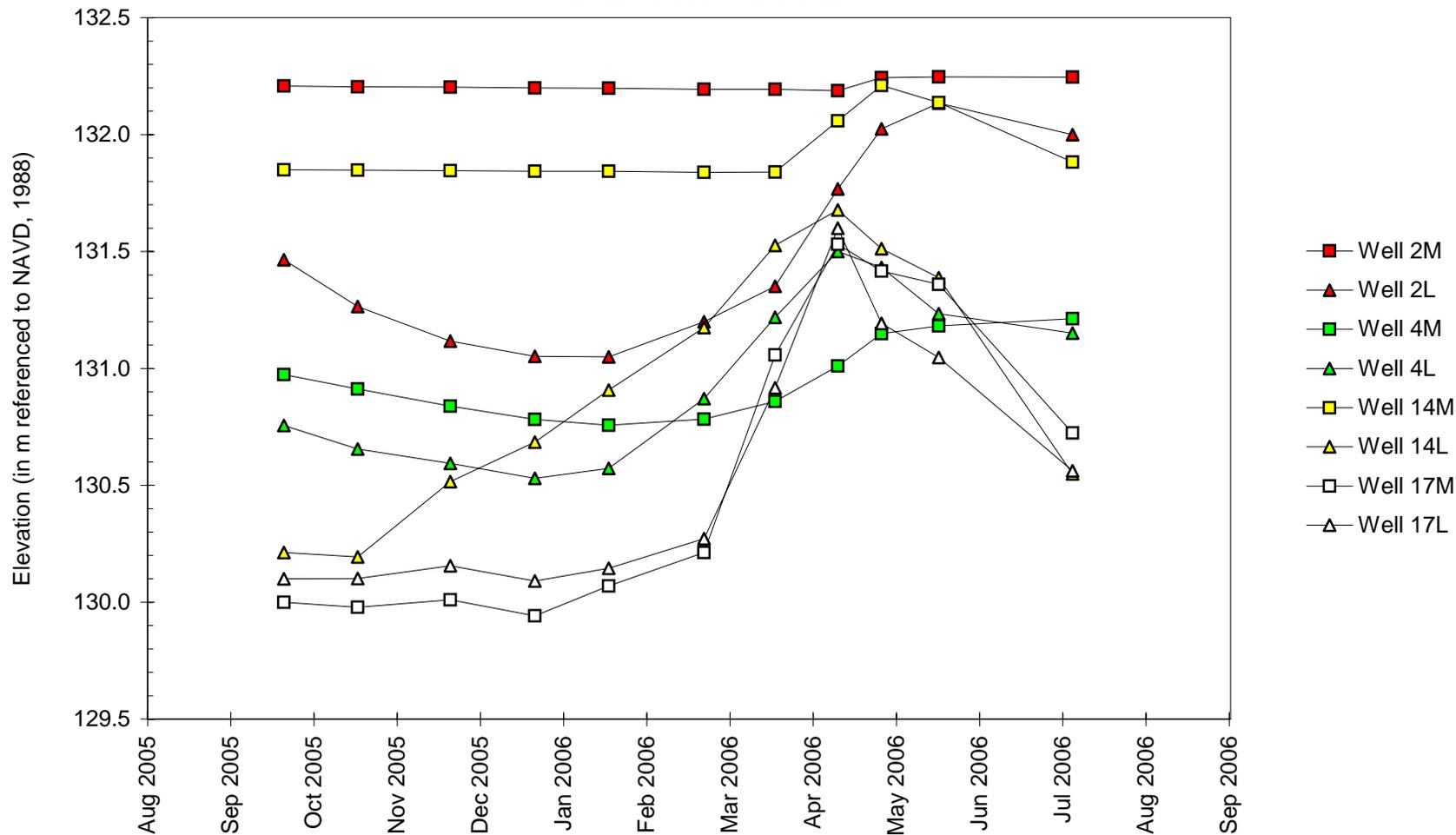
Depth to Water in Deeper Monitoring Wells in the Basin of Big Lake



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September 1, 2005 to September 1, 2006

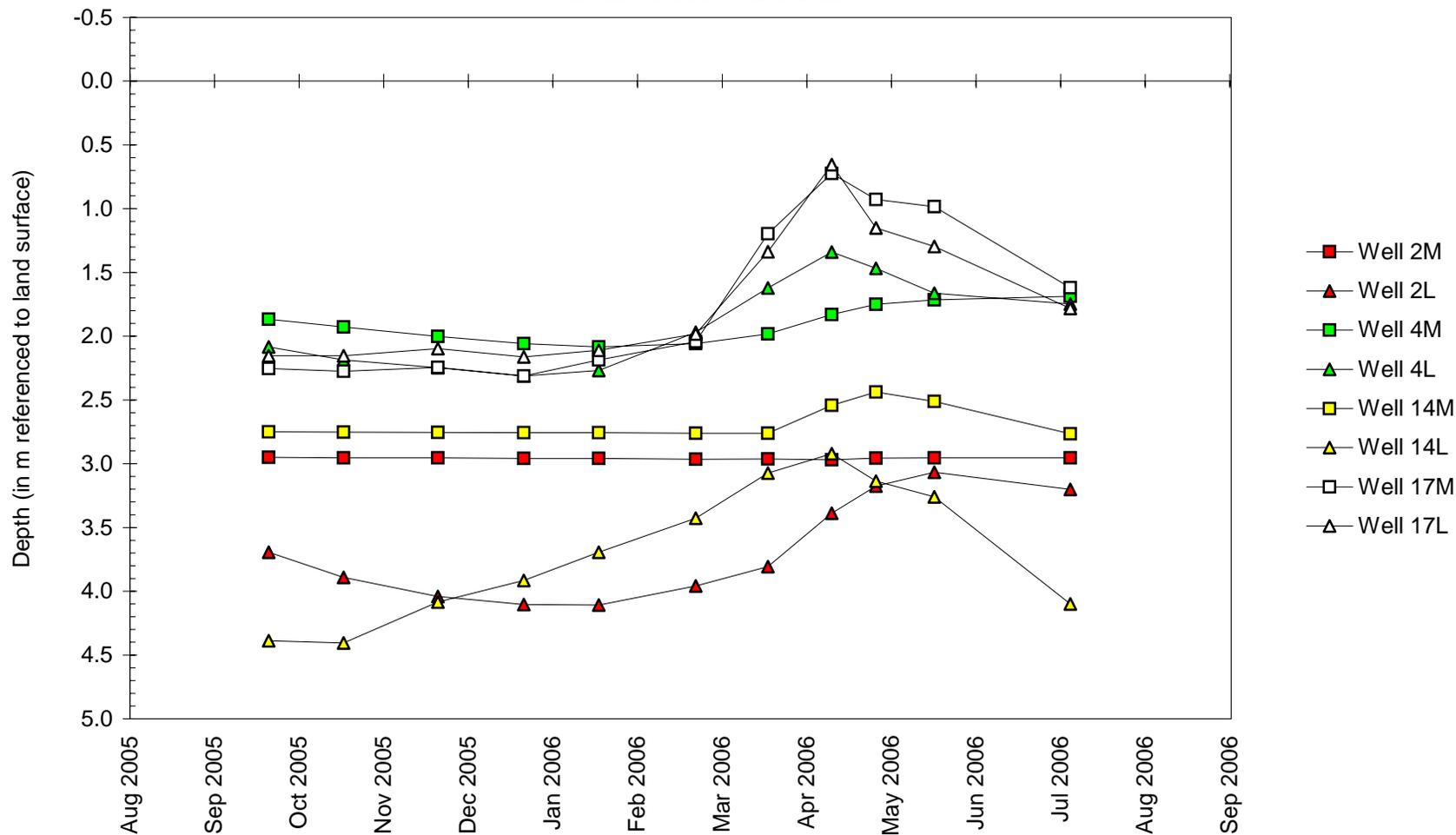
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Depth to Water in Deeper Monitoring Wells in the Terrace and Fan

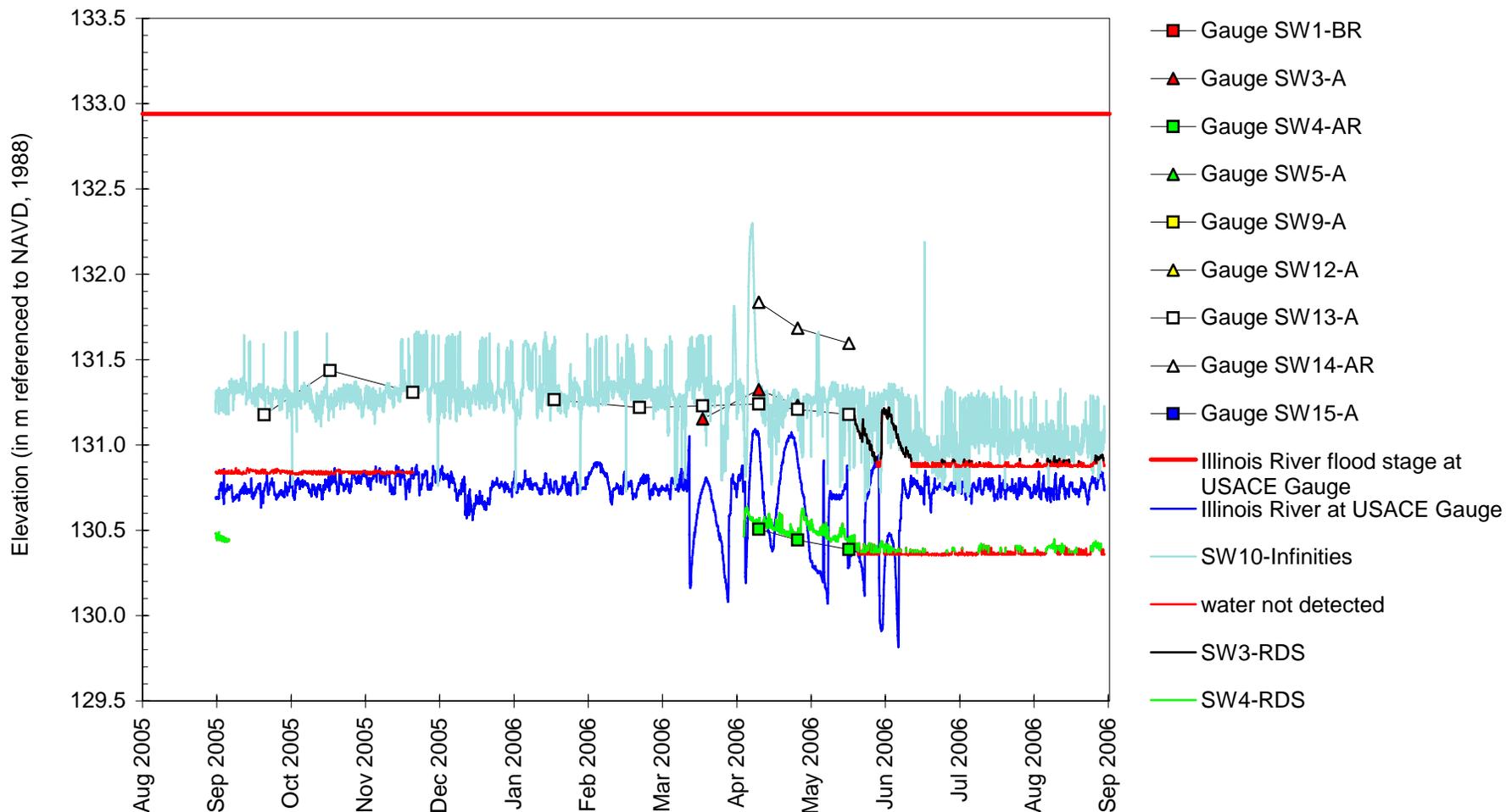


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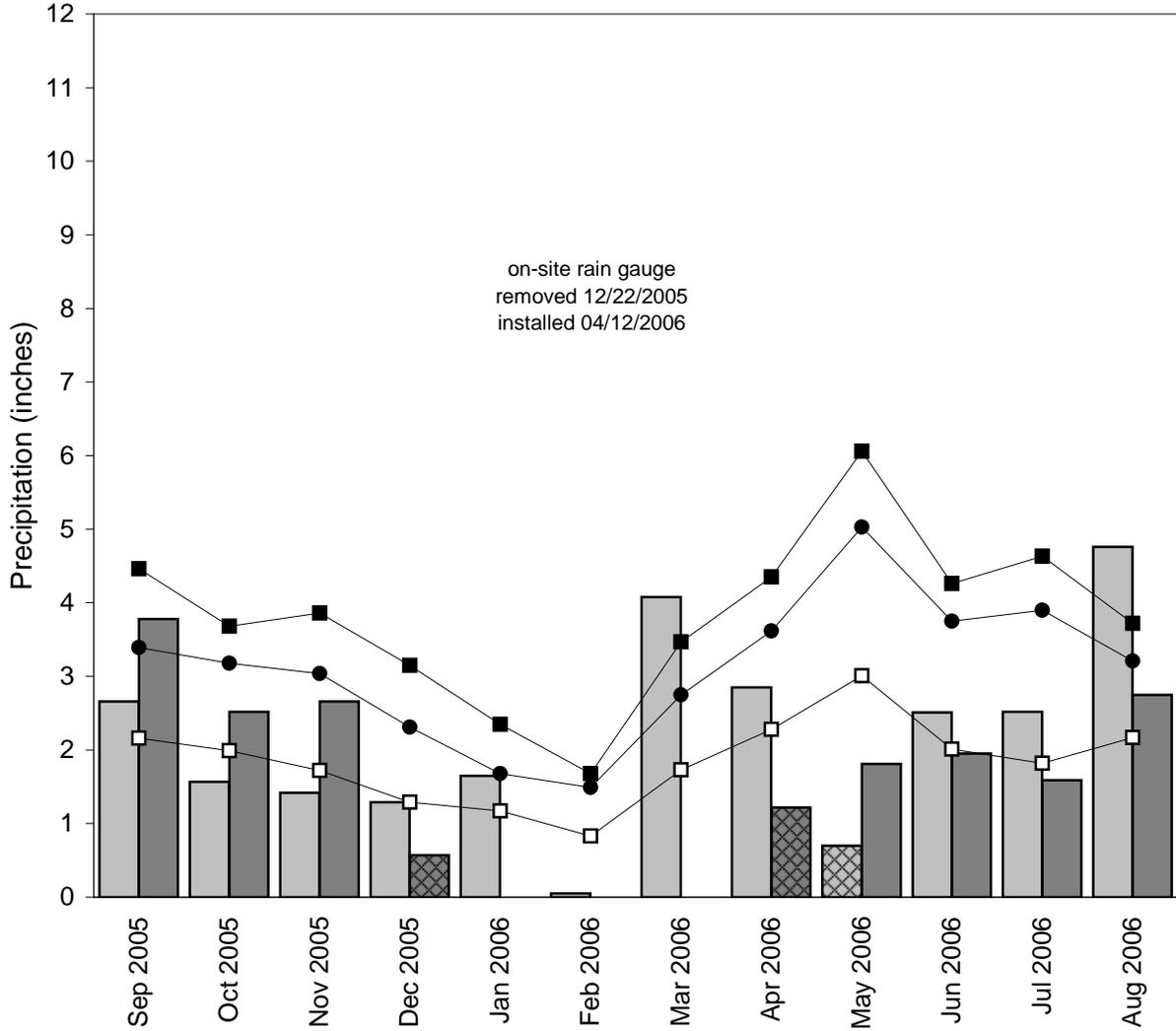
September 1, 2005 to September 1, 2006

Water-Level Elevations on Surface Water Gauges

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**Former Wessel Property,
La Grange Wetland Bank Site
September 2005 through August 2006
Total Monthly Precipitation Recorded On Site and at the
Mount Sterling, IL Weather Station**



- monthly precipitation recorded at Mount Sterling (MRCC)
- monthly precipitation recorded on site by ISGS
- 1971-2000 monthly 30% above average threshold at Mount Sterling (NWCC)
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- 1971-2000 monthly 30% below average threshold at Mount Sterling (NWCC)
- ▨ data incomplete

Graph last updated October 18, 2006