

**LA GRANGE
WETLAND MITIGATION BANK**

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.
- January 2003: ISGS submitted a wetland banking instrument to IDOT.
- January 2005: A Level II hydrogeologic characterization report was submitted to IDOT (ISGS Open-File Series 2005–02).
- Fall 2005 and 2006: Extensive earthworks were undertaken by IDOT, including filling and plugging of several ditches, reshaping 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.
- Winter and Spring 2010: Further earthworks were undertaken at the site. The former basin of Amelia Barker Lake was excavated and the fill utilized for road construction in the western third of the site. Similar to 2008 and 2009, large magnitude and long-duration floods affected the site. The site remained flooded over 75-95% of its area from May to late July.

WETLAND HYDROLOGY CALCULATION FOR 2010

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 2010 was 582 ha (1438 ac) out of a total site area of 666 ha (1645 ac). Further, 565 ha (1395 ac) also satisfied wetland hydrology criteria for greater than 12.5% of the growing season. Using the 2010 Midwest Region supplement (U.S. Army Corps of Engineers 2010) to the 1987 Manual, we estimate that 578 ha (1429 ac) satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season. These estimates are based on the following factors:

- According to the MRCC, 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. According to methods outlined in the 2010 Midwest Region supplement, we estimate that March 10 was the starting date of the 2010 growing season based on soil temperature as well as vegetation growth and development observed at the wetland bank site.
- Total precipitation for the monitoring period at the Mount Sterling, IL, weather station was 154% of normal. During the March through May period, precipitation was 118% of normal. Large precipitation events upstream in the watershed led to widespread flooding of the site during this period. For the remainder of the summer (June through August), precipitation was 209% of normal, prolonging flooding over most of the site.

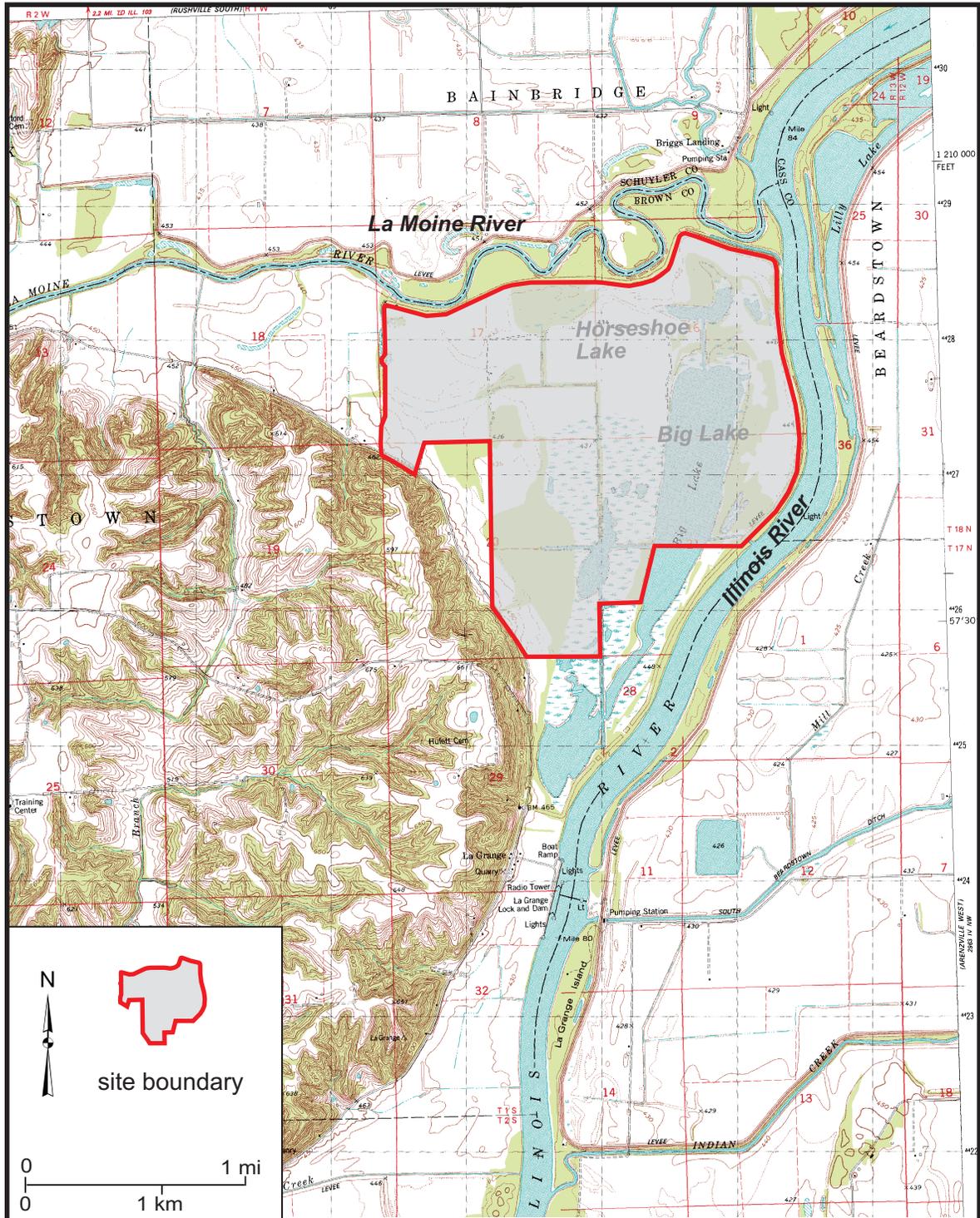
- During long-duration flooding at the site, the U.S. Army Corps of Engineers gauge at the nearby lock and dam and one on-site data logger were the primary sources of water-level elevation data. Also as a result of this flooding, only four soil-zone monitoring wells were accessible above the flood line for reading or surveying for most of the spring. Of these, wells 14S, 41S, and 42S satisfied wetland hydrology criteria for greater than 5% of the growing season, and 41S and 42S for greater than 12.5% of the growing season. According to the 2010 Midwest Region supplement, wells 14S, 41S, and 42S also satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season.
- Water levels recorded via data logger at an on-site gauge (SW1B) showed surface-water inundation for a period sufficient to satisfy wetland hydrology criteria at an elevation of at least 134.75 m (442.09 ft) for greater than 5% of the growing season and at an elevation of at least 133.50 m (437.99 ft) for greater than 12.5% of the growing season. According to the 2010 Midwest Region supplement, surface-water levels at the SW1B data logger also satisfied wetland hydrology criteria at an elevation of at least 134.25 m (440.45 ft) for 14 or more consecutive days during the growing season.

PLANNED FUTURE ACTIVITIES

- One additional flood-resistant data logger will be added to the site in the Fall of 2010. In addition, two water-quality data loggers will be installed to help quantify site functions.
- Monitoring of hydrology will continue until no longer required by IDOT.

La Grange Wetland Mitigation Bank General Study Area and Vicinity

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

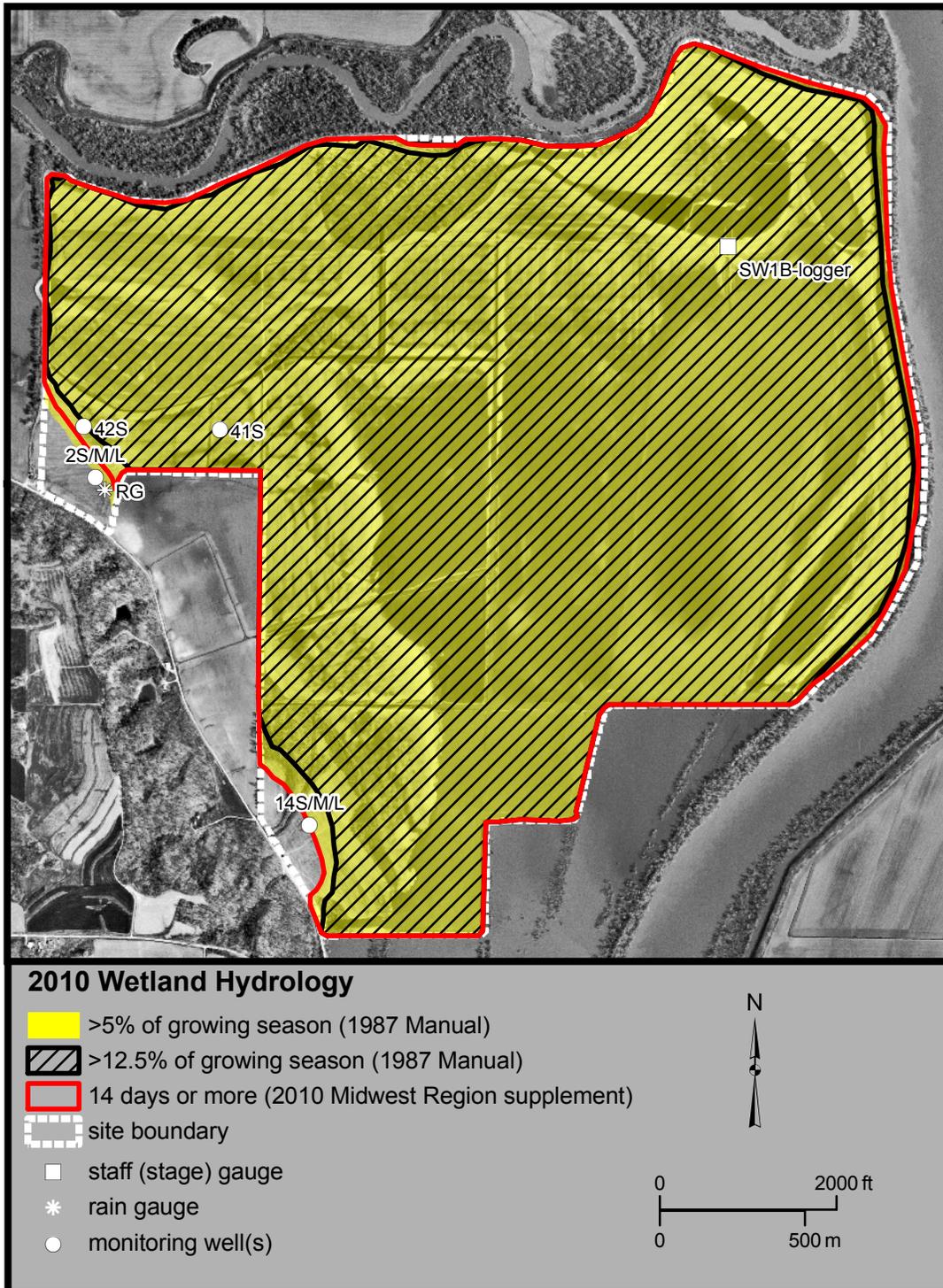


La Grange Wetland Mitigation Bank

Estimated Areal Extent of 2010 Wetland Hydrology

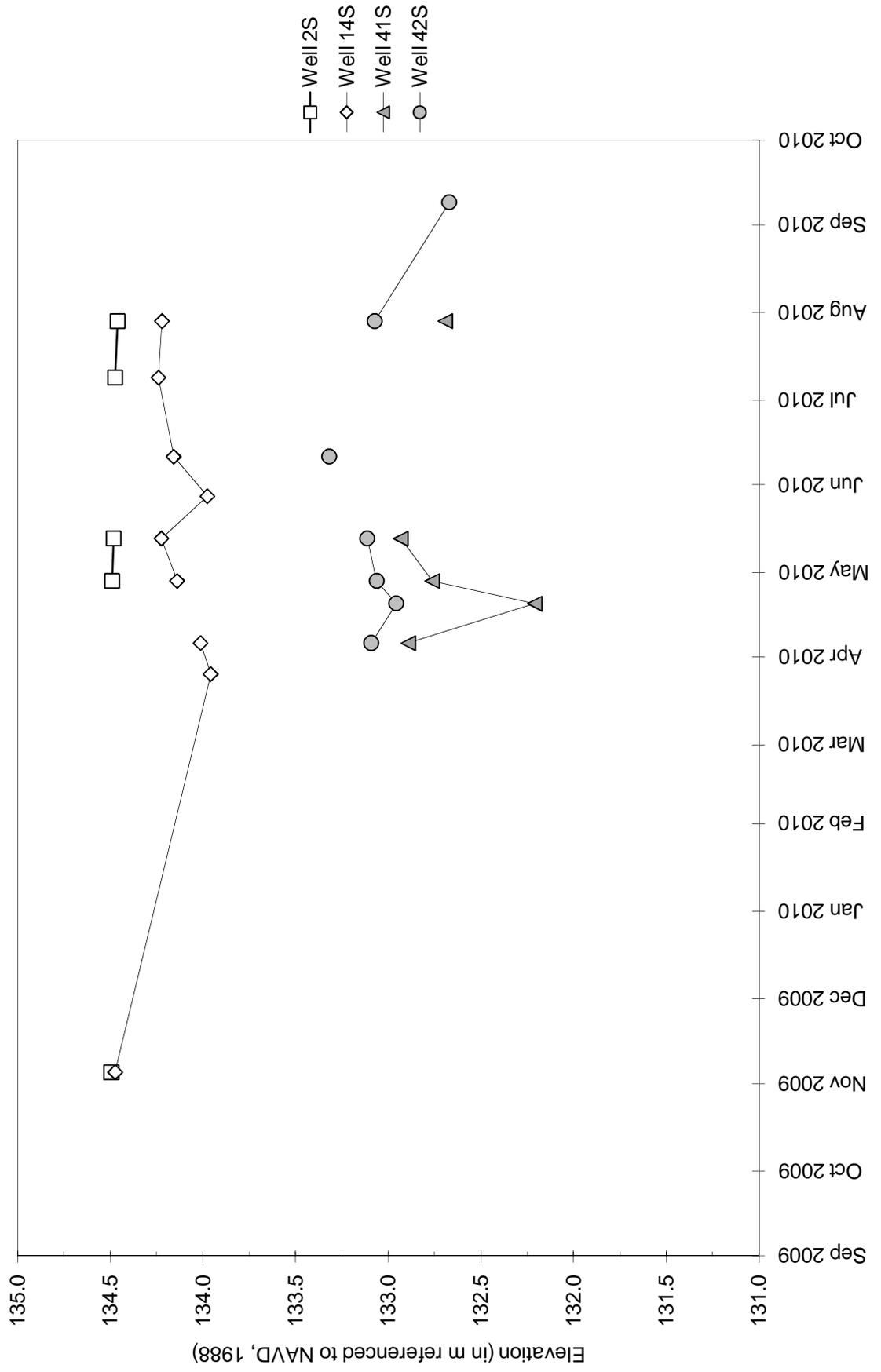
September 1, 2009 through August 31, 2010

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



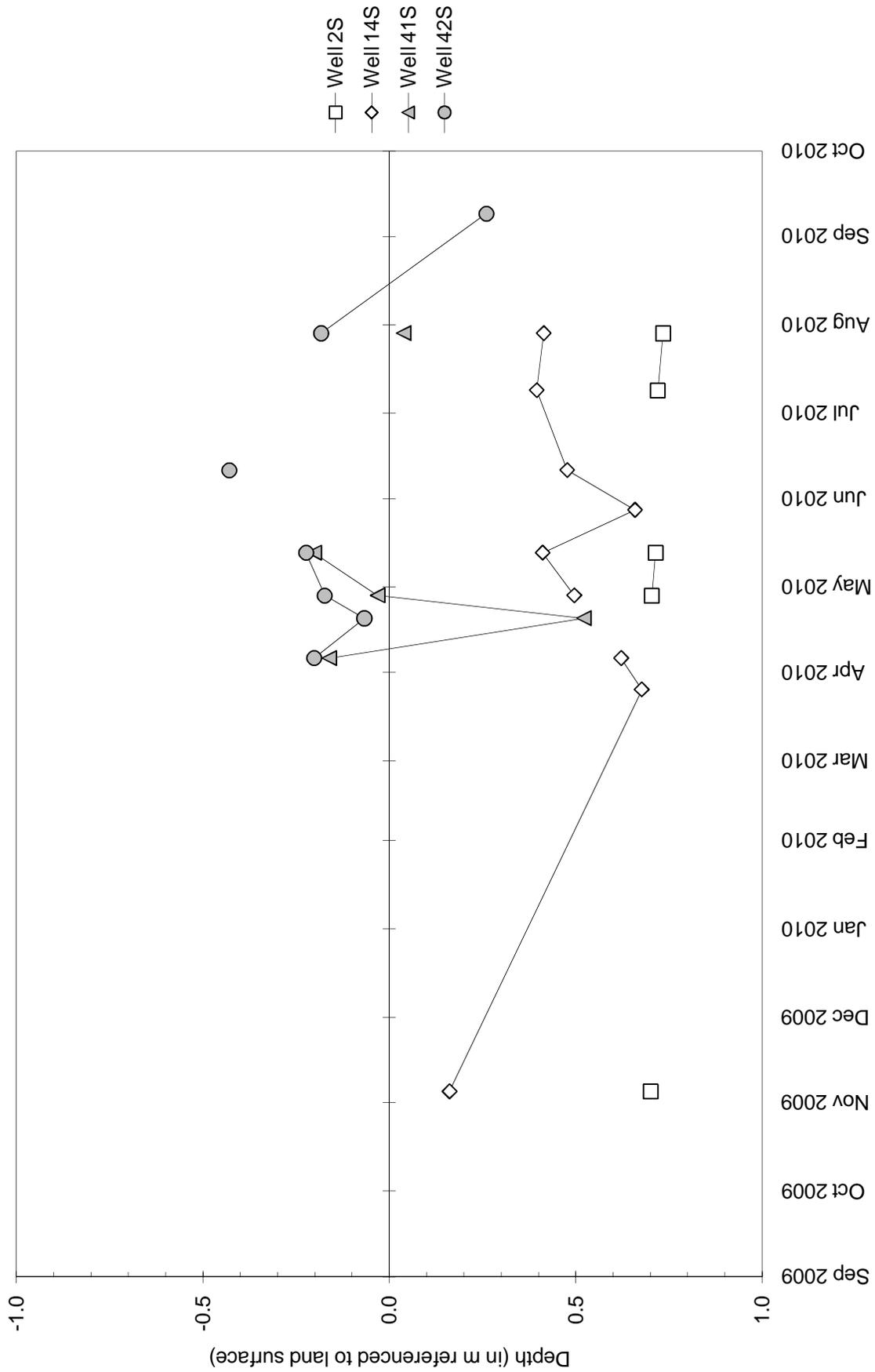
La Grange Wetland Mitigation Bank September 1, 2009 through October 1, 2010

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



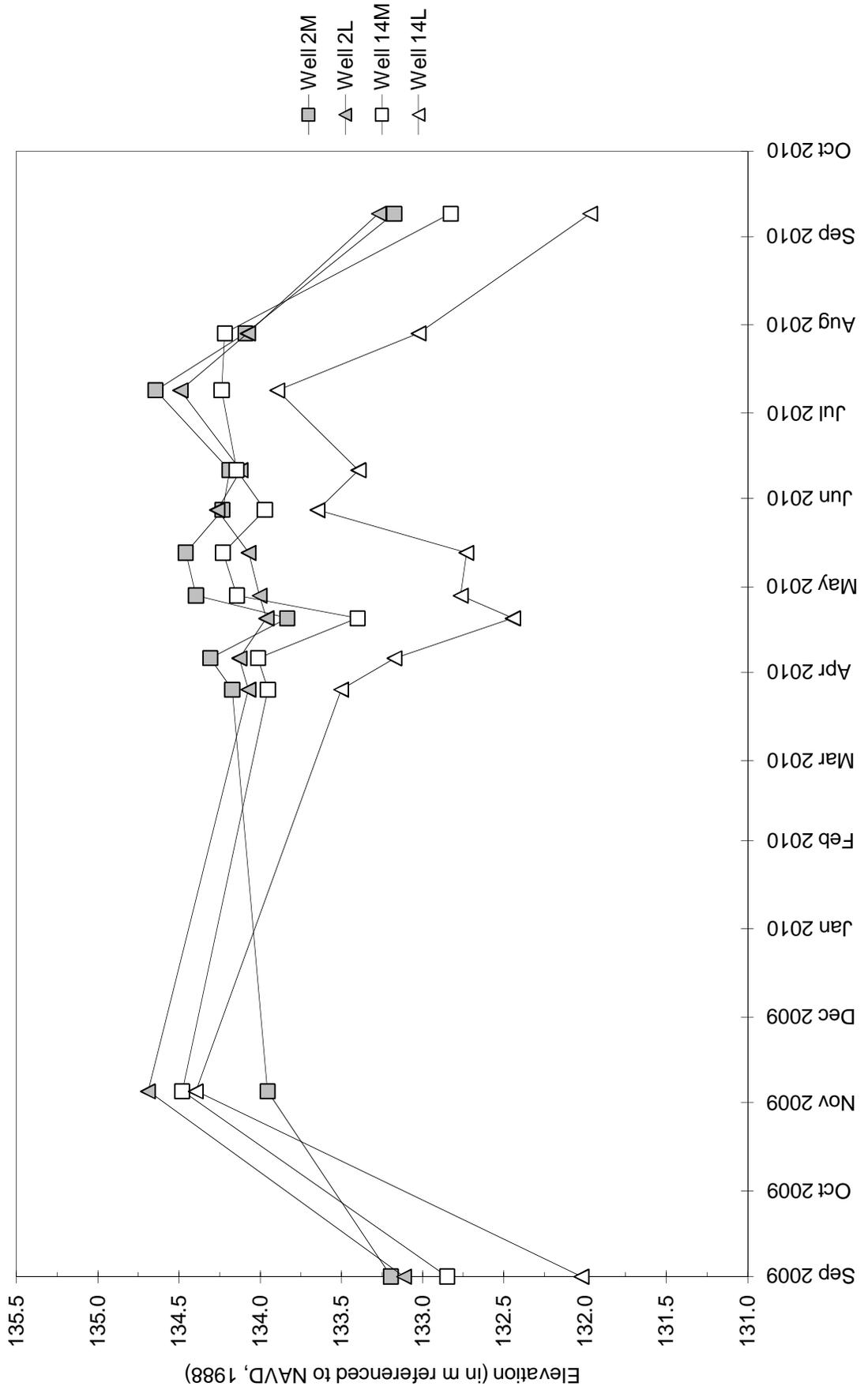
La Grange Wetland Mitigation Bank
September 1, 2009 through October 1, 2010

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



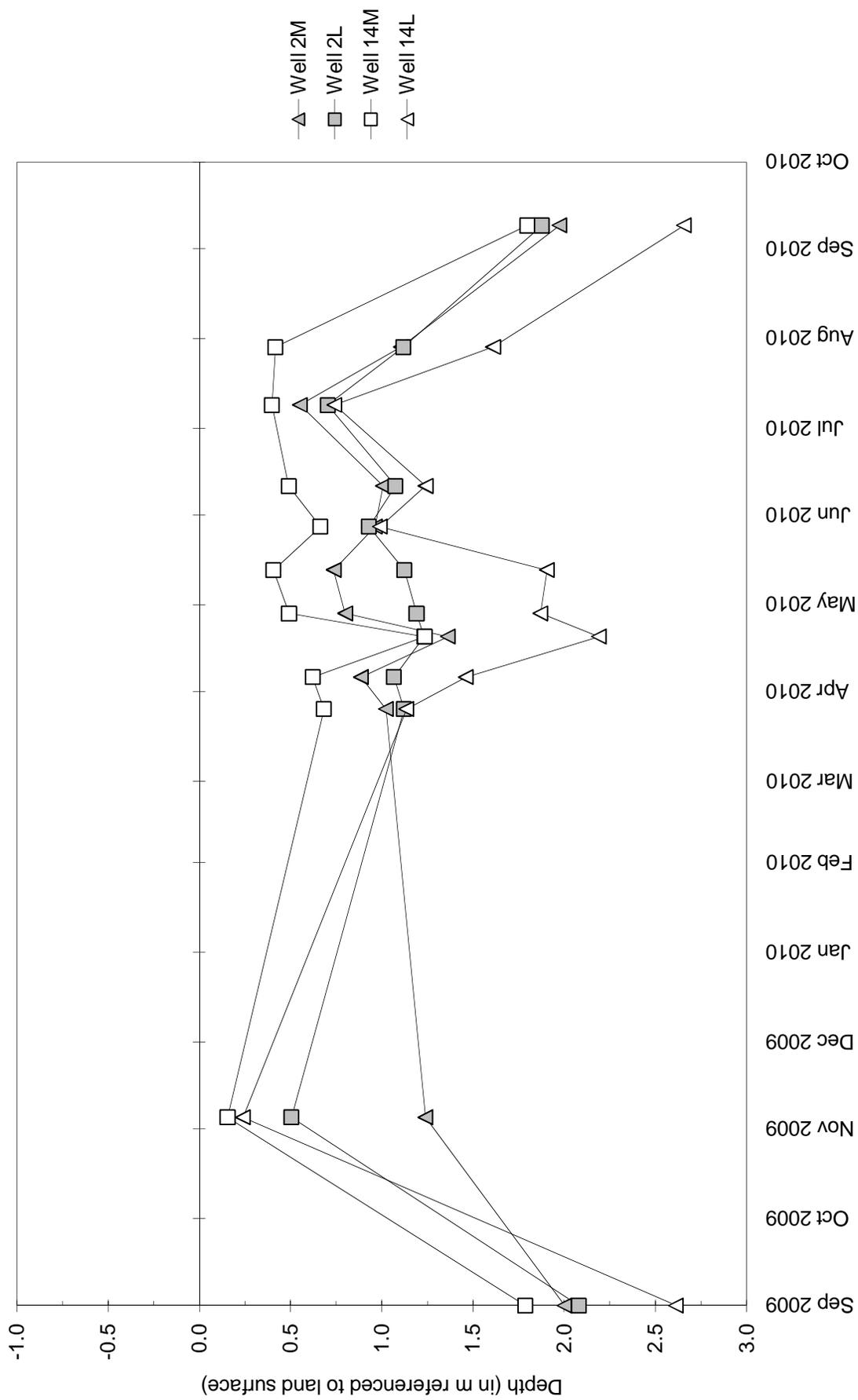
La Grange Wetland Mitigation Bank
September 1, 2009 through October 1, 2010

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



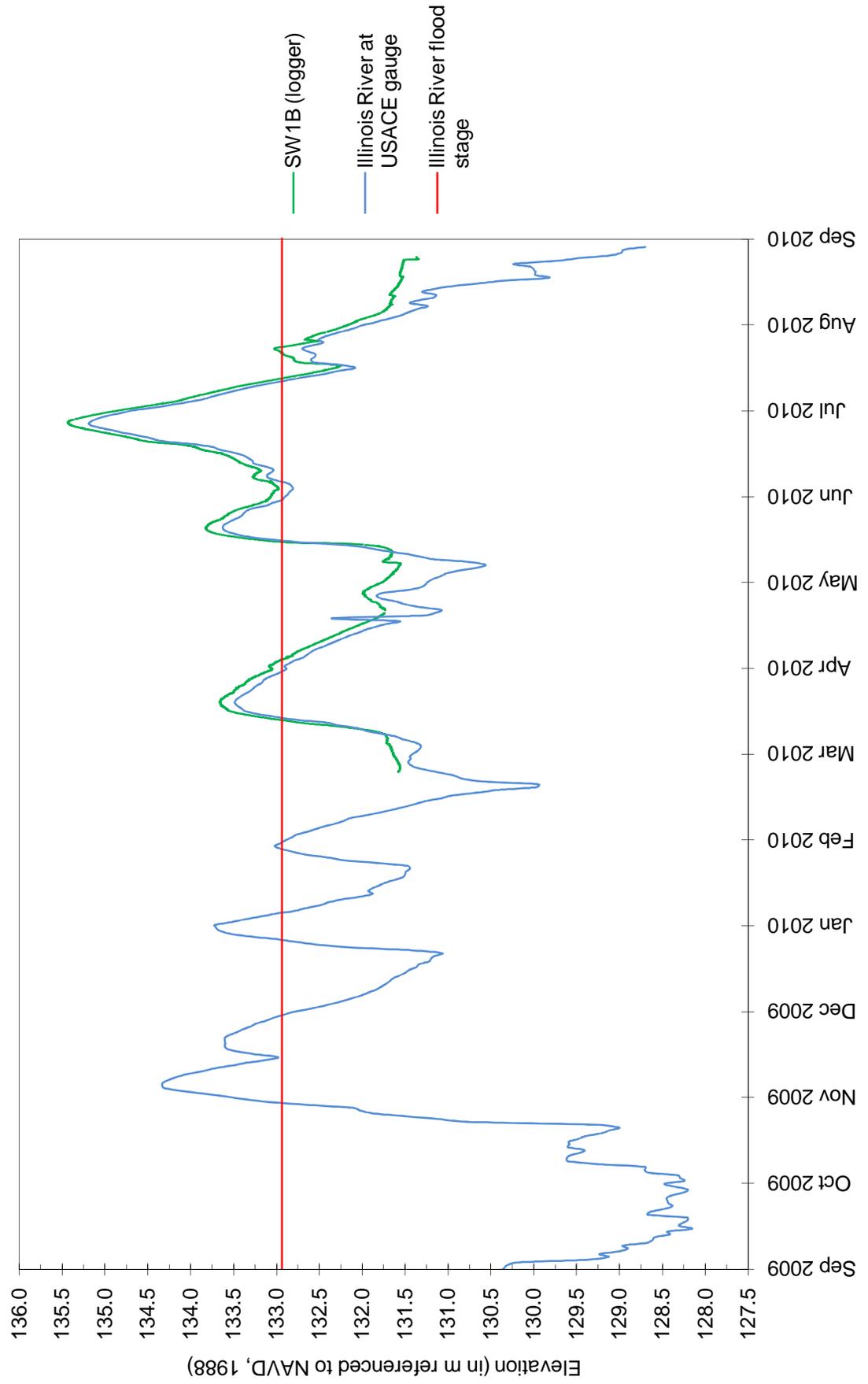
**La Grange Wetland Mitigation Bank
September 1, 2009 through October 1, 2010**

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



La Grange Wetland Mitigation Bank September 1, 2009 through August 31, 2010

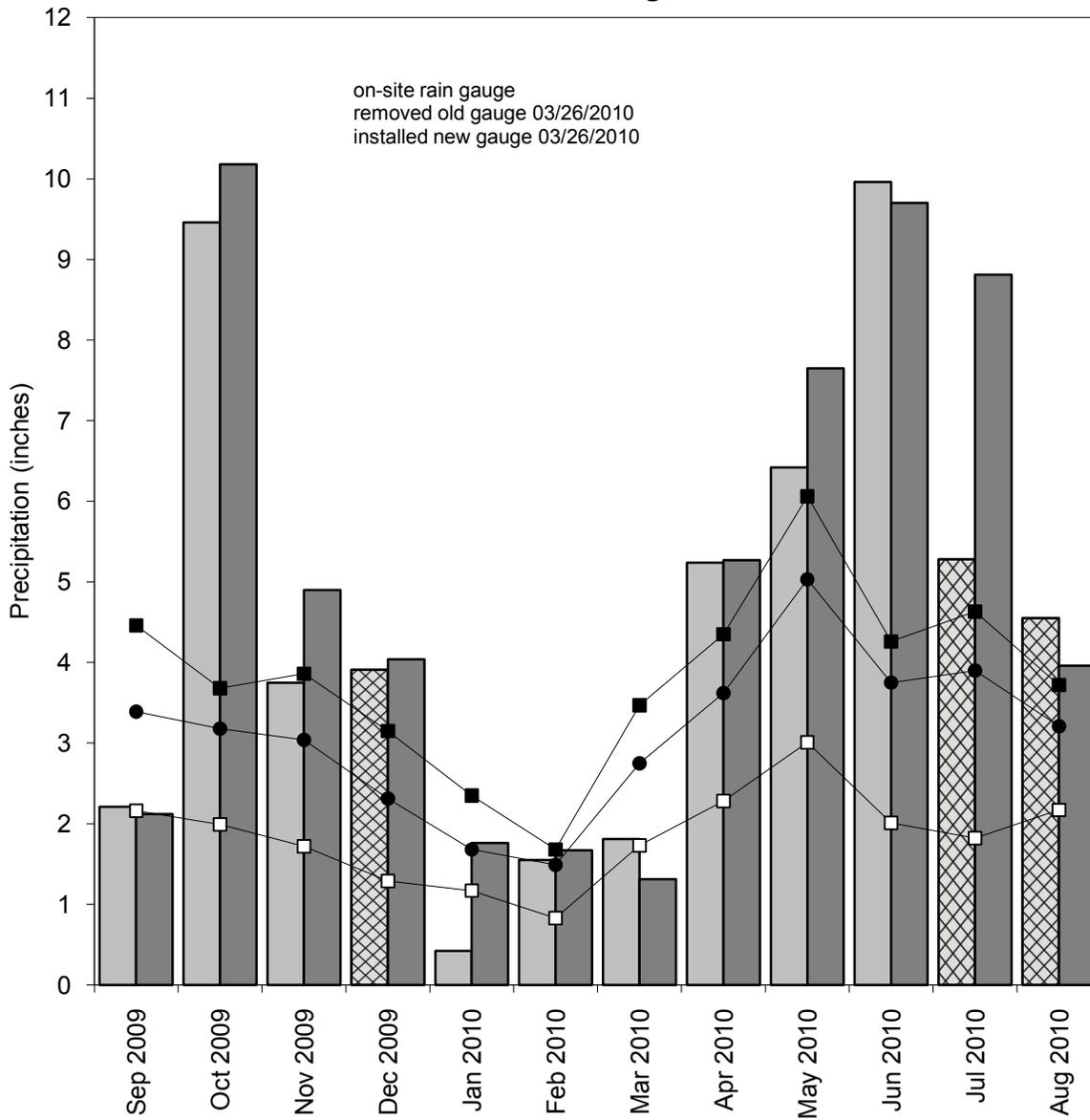
Water-Level Elevations at Surface-Water Gauges



La Grange Wetland Mitigation Bank

September 2009 through August 2010

Total Monthly Precipitation Recorded on Site and at Mount Sterling, IL



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

Graph last updated September 29, 2010