



**HANNIBAL BRIDGE
WETLAND COMPENSATION SITE**

ISGS #10

FAP 319

Pike County, near East Hannibal, Illinois

Project Manager: Eric T. Plankell

Secondary Project Manager: Geoffrey E. Pociask

SITE HISTORY

- October 1992: ISGS installed monitoring wells and began a hydrogeologic characterization.
- June 1995: ISGS submitted a draft final hydrogeologic characterization report to IDOT.
- July 1997: IDOT completed construction of the created wetland.
- March 1998: ISGS submitted the final hydrogeologic characterization report to IDOT (ISGS Open File Series 1998-2).
- August 2004: Project met all permit requirements and was signed off by the U.S. Army Corps of Engineers. IDOT requested that site monitoring be terminated.

WETLAND HYDROLOGY CALCULATION FOR 2004

We estimate that the total area of created wetland that satisfied wetland hydrology criteria for greater than 5% of the 2004 growing season was 17.4 ac (7.0 ha), and the area that satisfied wetland hydrology criteria for greater than 12.5% of the 2004 growing season was also 17.4 ac (7.0 ha). These estimates are out of an excavation of 17.4 ac (7.0 ha), and are based on the following factors.

- According to the Midwestern Climate Center, the median date that the growing season begins in Hannibal, Missouri, is April 7 and the season lasts 217 days; 5% of the growing season is 11 days and 12.5% of the growing season is 27 days.
- During the period from September 2003 through August 2004, total precipitation at the Hannibal weather station was 113% of normal. Precipitation was above normal in September and December 2003, and in March and August 2004. Precipitation was below normal for all other months of the reporting year.
- In 2004, water levels measured in all U and S wells within the excavation satisfied the wetland hydrology criteria of the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual for greater than 12.5 % of the growing season. No additional areas within the excavation satisfied wetland hydrology criteria for greater than 5% of the growing season.
- Water-level records for the data logger RDS2 indicated inundation for elevations below approximately 139.92 m (459.06 ft), for a duration that satisfied the wetland hydrology criteria for greater than 5% of the growing season. Water-level records for data logger RDS2 indicated inundation for elevations below approximately 139.90 m (458.99 ft), for a duration that satisfied the wetland hydrology criteria for greater than 12.5% of the growing season. Water levels recorded at RDS 1, located in an area of pre-existing natural wetland along the west-central border of the site, also exhibited similar water-level elevations.

- Limitations of the wetland hydrology determination are as follows:
 - The calculation does not include any area attributable to the pre-existing, natural wetland along the west-central border of the site.
 - A portion of the site outside the excavated wetland's boundaries also likely met wetland hydrology for greater than 12.5 % of the 2004 growing season, but was not included.

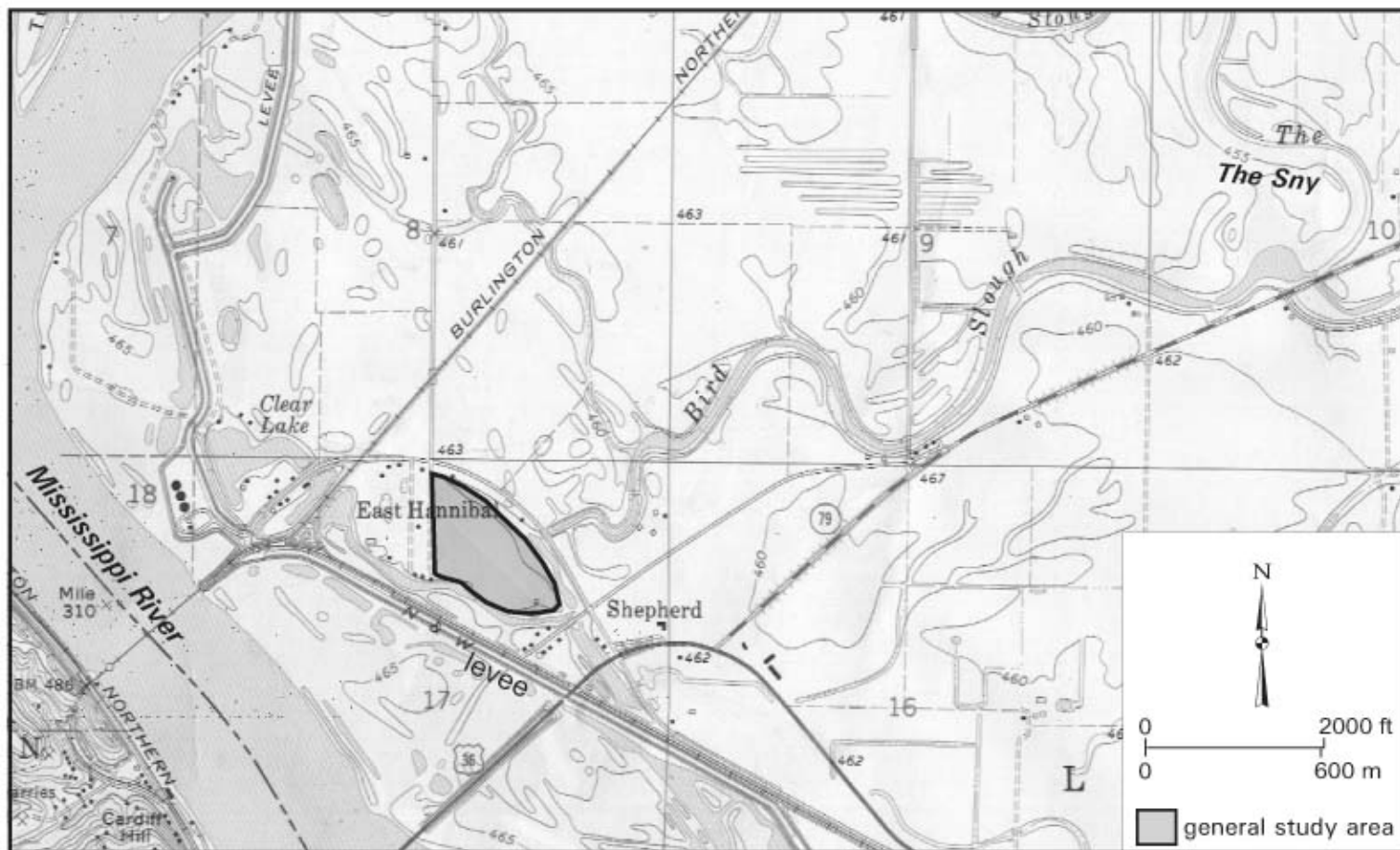
PLANNED FUTURE ACTIVITIES

- Site monitoring was discontinued in August 2004, per IDOT's request. The site will be decommissioned shortly.

Hannibal Bridge Wetland Compensation Site (FAP 319)

General Study Area and Vicinity

from the USGS Topographic Series, Hannibal East, IL-MO 7.5-minute Quadrangle (USGS 1971)
contour interval is 5 feet east of the Mississippi River and 20 feet west of the Mississippi River



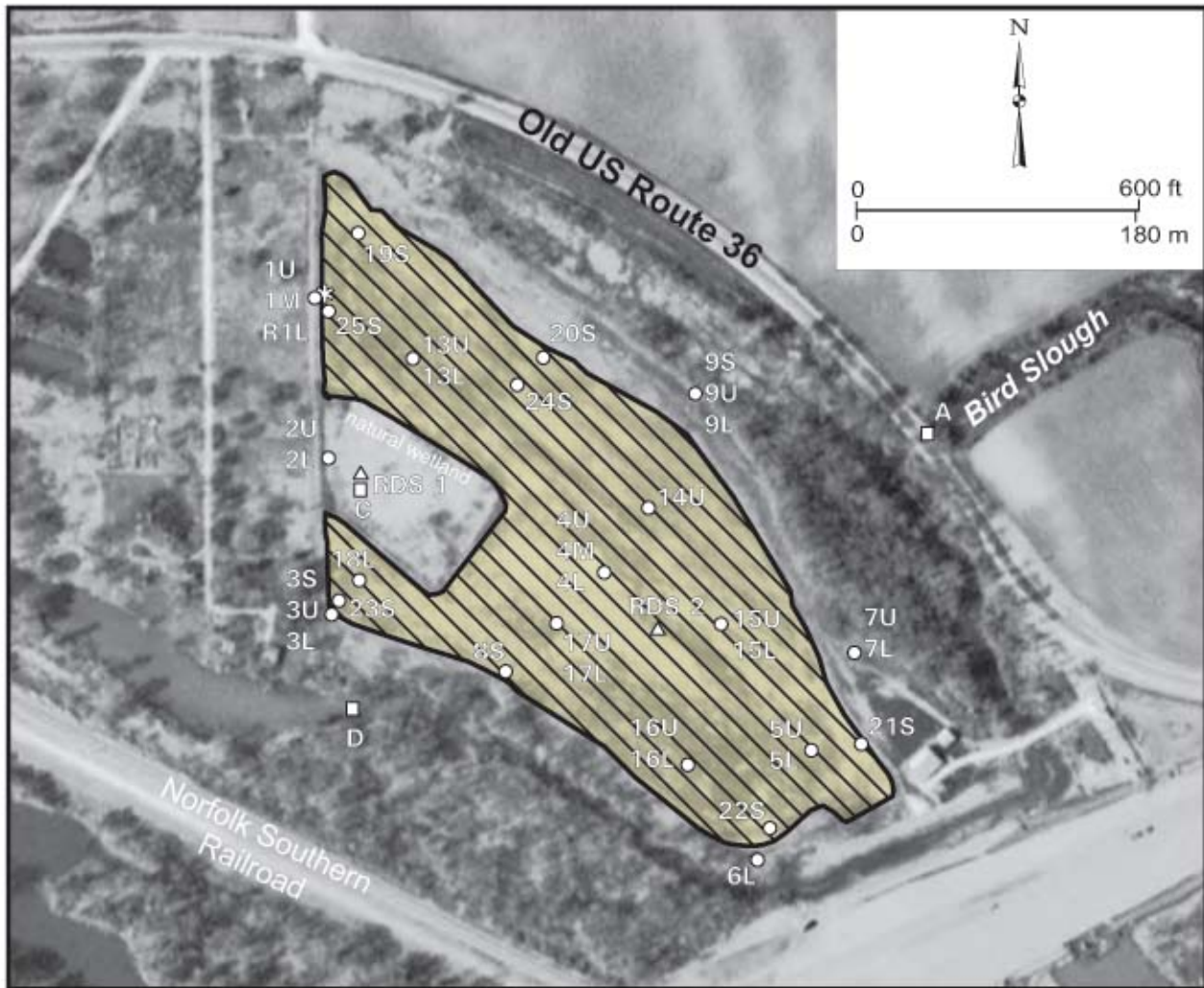
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Estimated Areal Extent of 2004 Wetland Hydrology

Based on data collected between September 1, 2003 and September 1, 2004

map based on USGS digital orthophotograph Hannibal East, NW quarter quadrangle

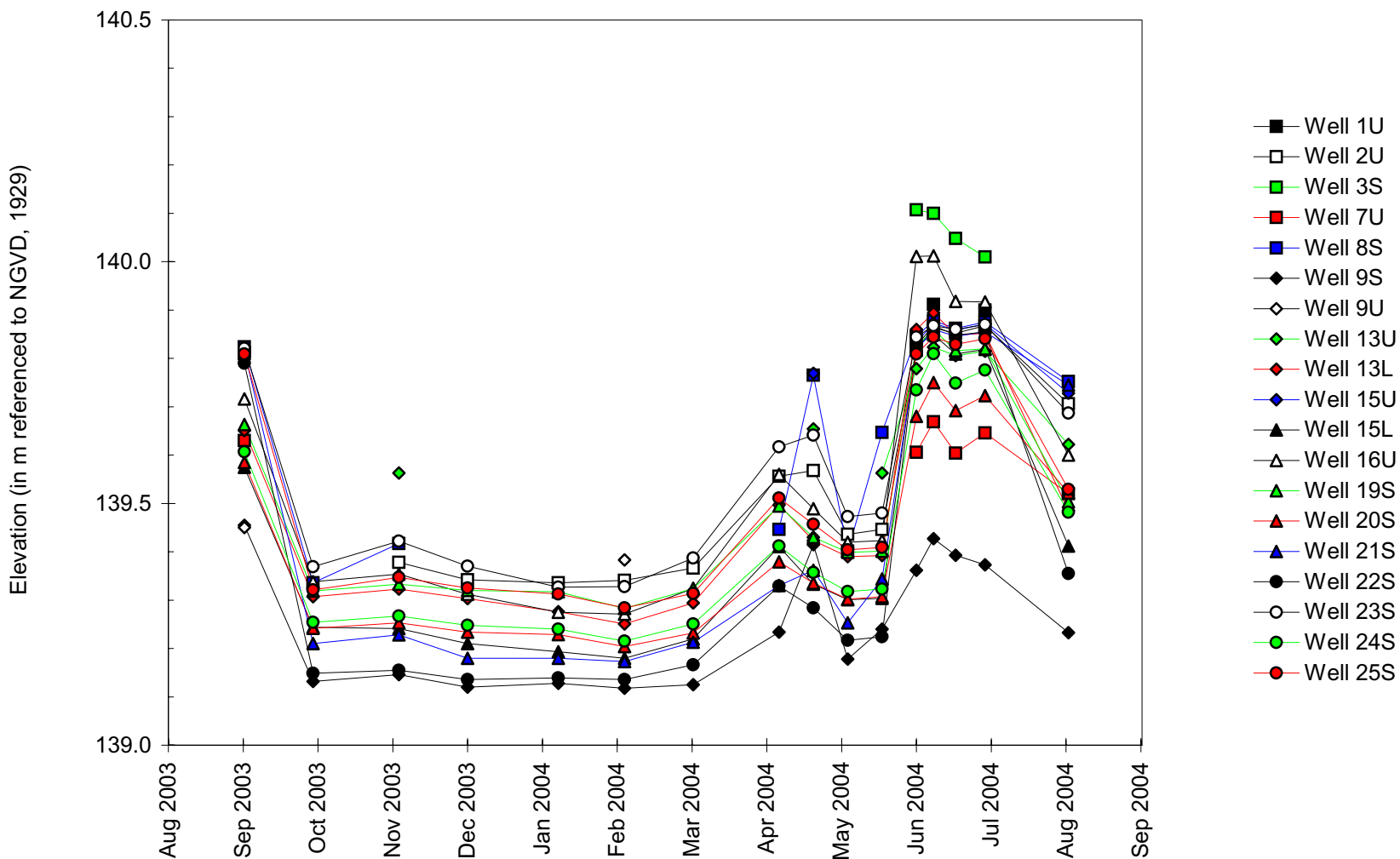
produced from 4/12/99 aerial photography (ISGS 2002)



Hannibal Bridge Wetland Compensation Site

September 1, 2003 to September 1, 2004

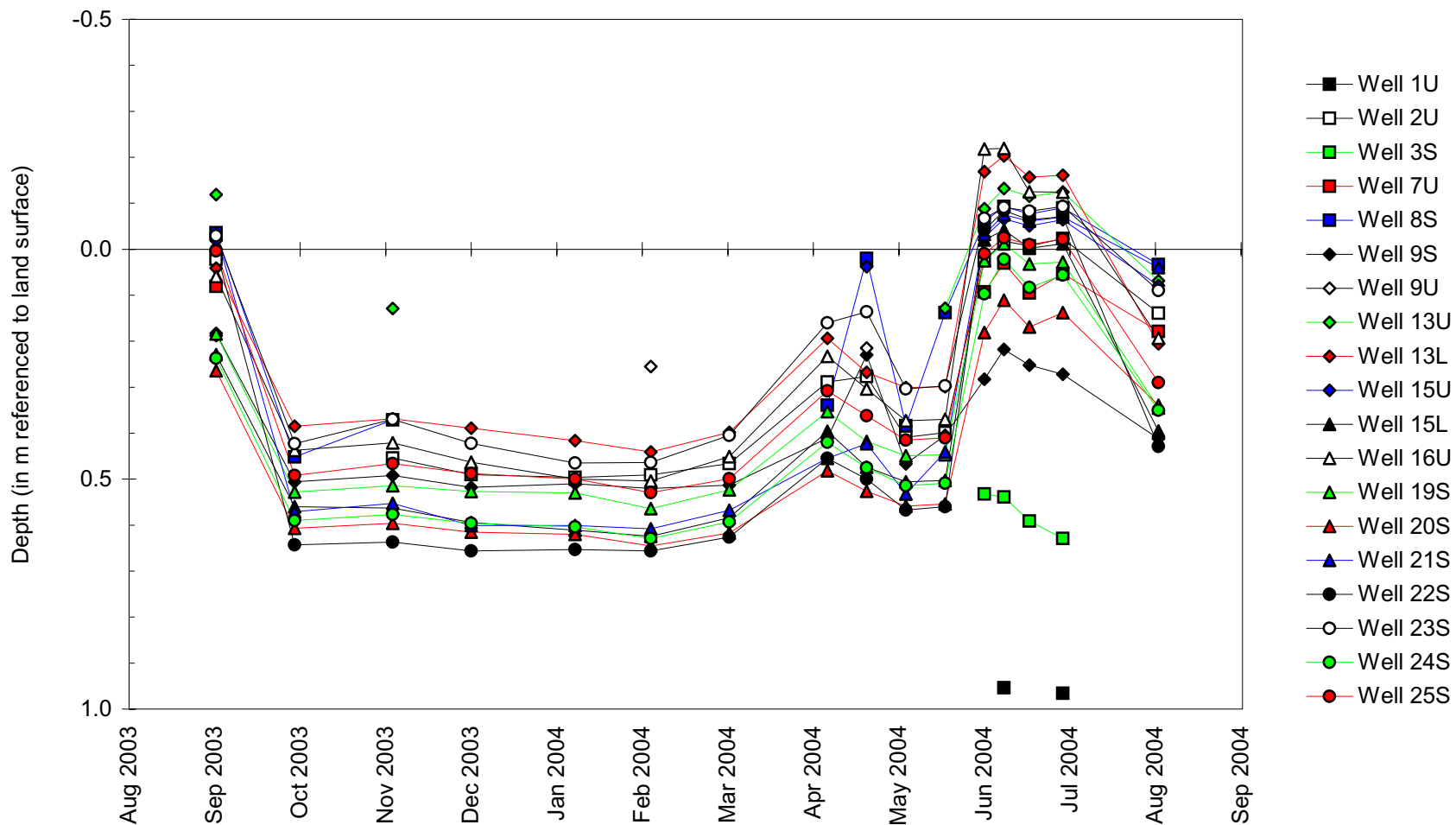
Water-Level Elevations in Wells Used to Determine Areas Satisfying Wetland Hydrology Criteria



Hannibal Bridge Wetland Compensation Site

September 1, 2003 to September 1, 2004

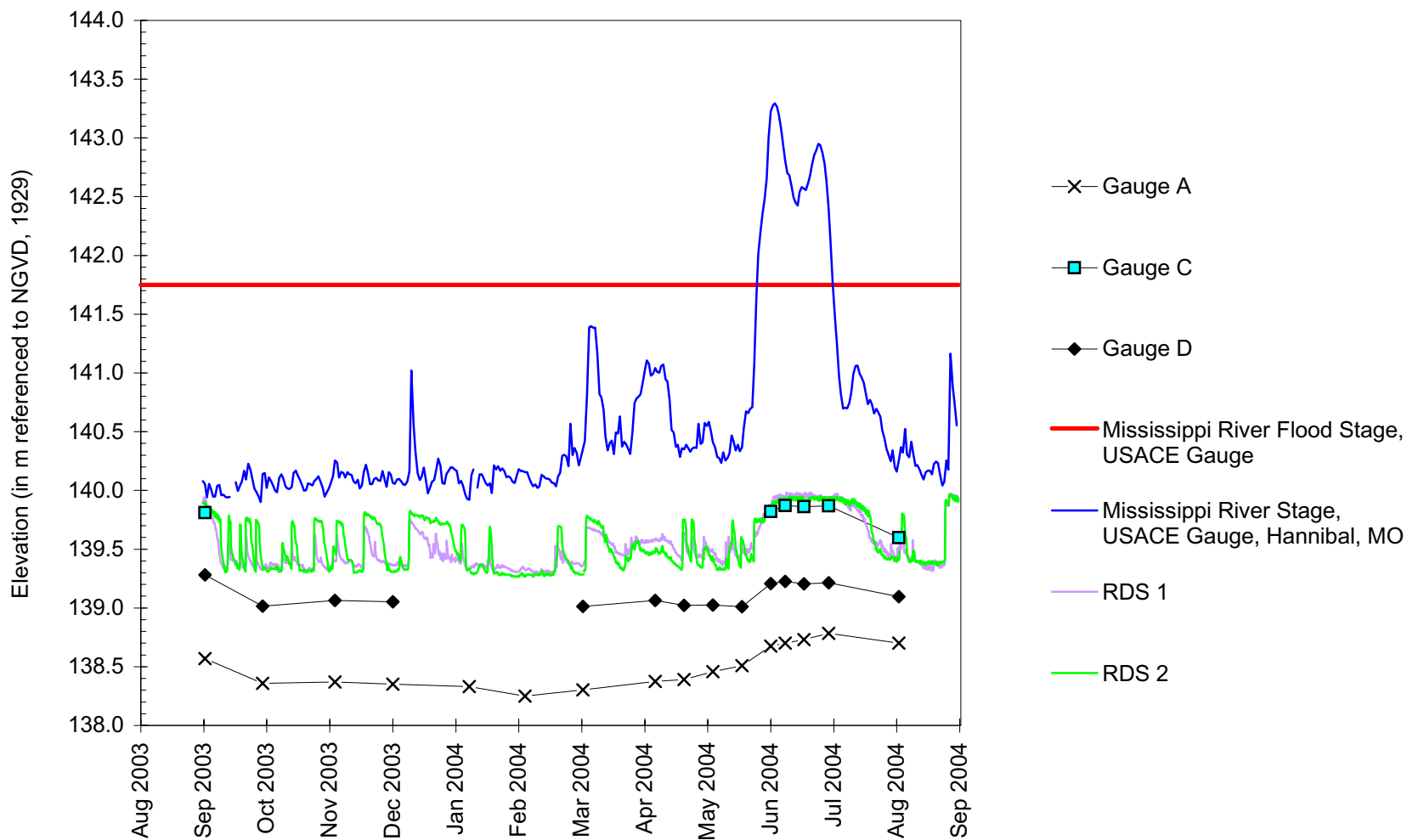
Depth to Water in Wells Used to Determine Areas Satisfying Wetland Hydrology Criteria



Hannibal Bridge Wetland Compensation Site

September 1, 2003 to September 1, 2004

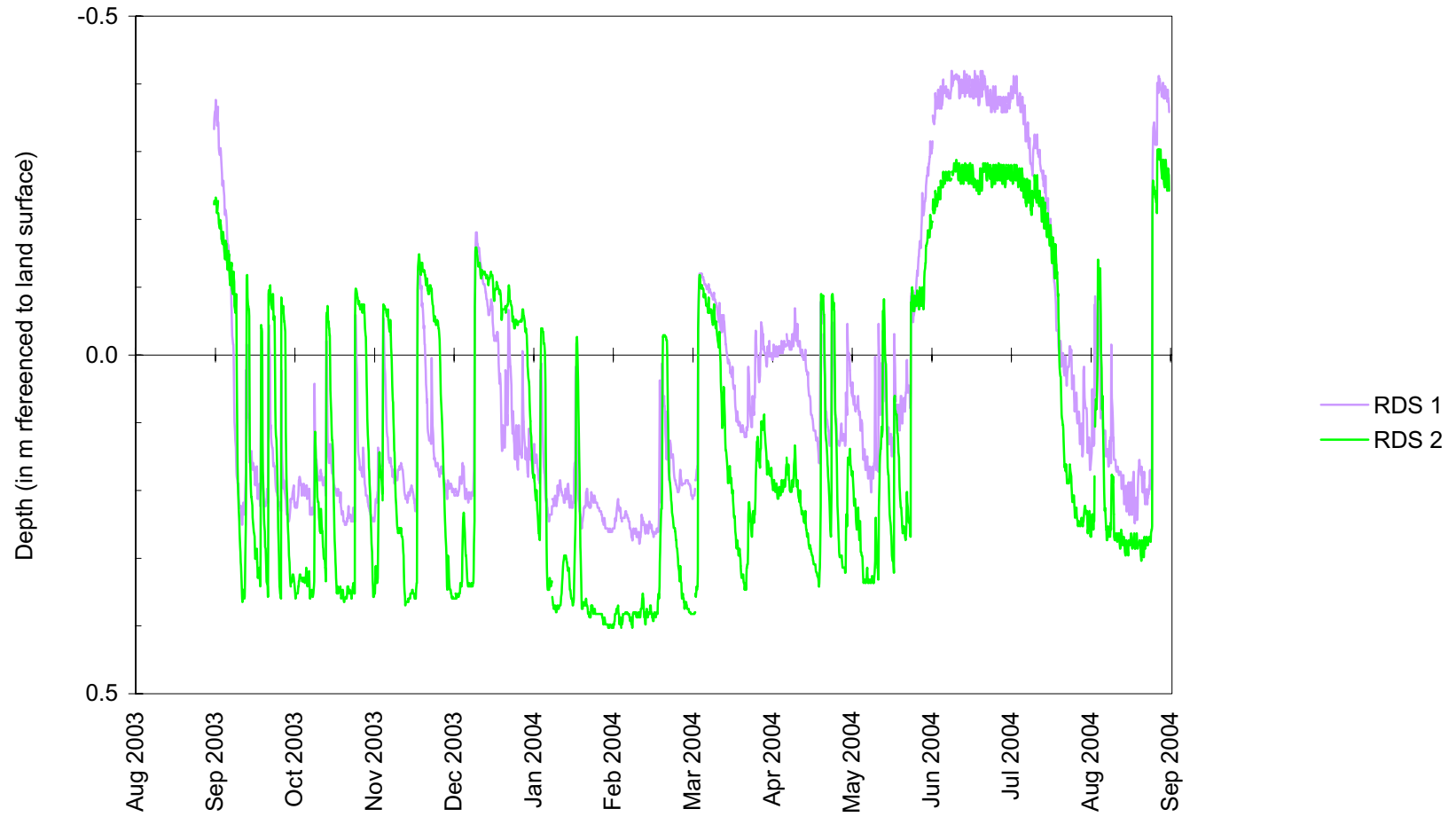
Water-Level Elevations in RDS Data Loggers and on Stage Gauges



Hannibal Bridge Wetland Compensation Site

September 1, 2003 to September 1, 2004

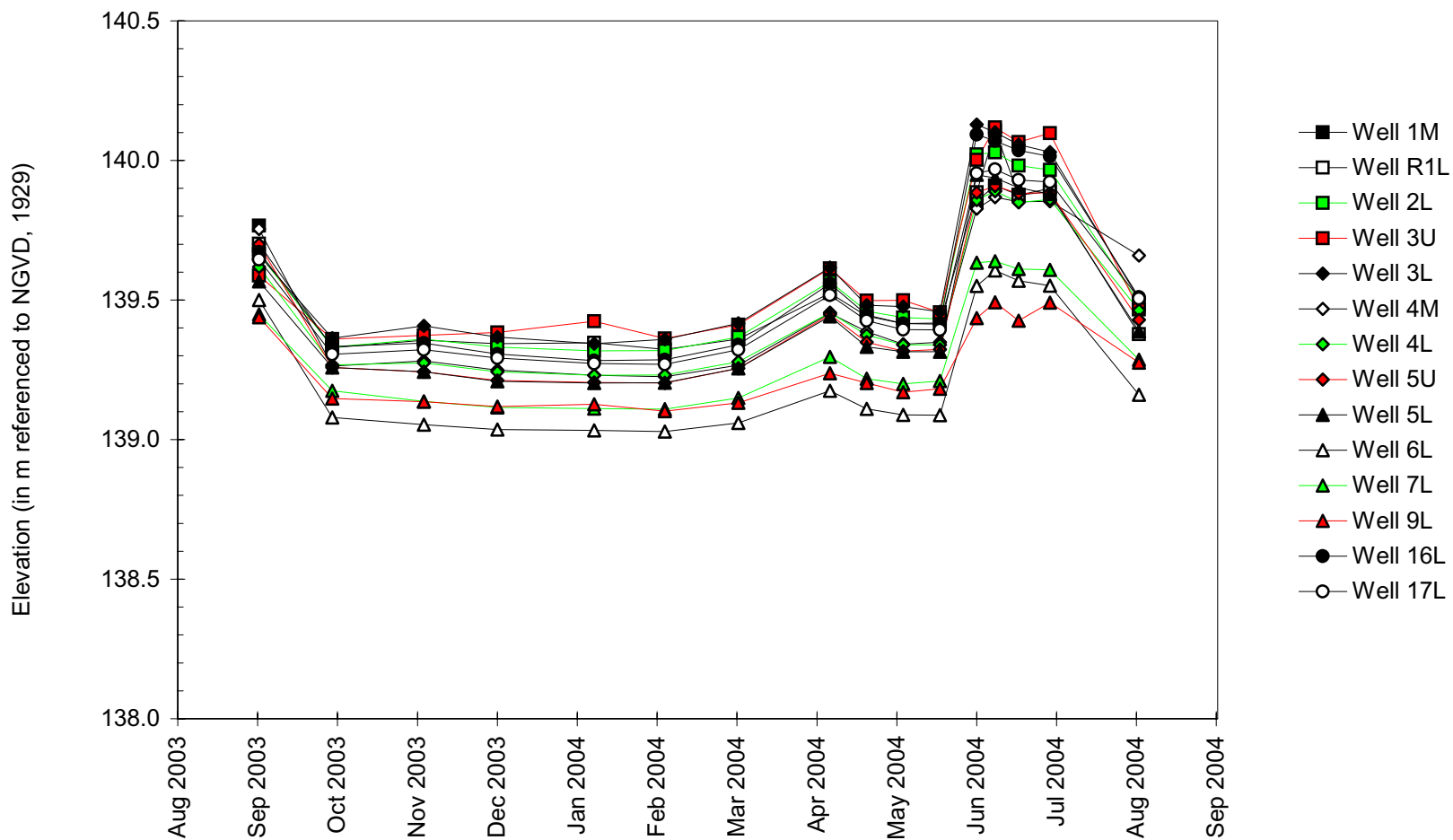
Depth to Water in RDS Data Loggers



Hannibal Bridge Wetland Compensation Site

September 1, 2003 to September 1, 2004

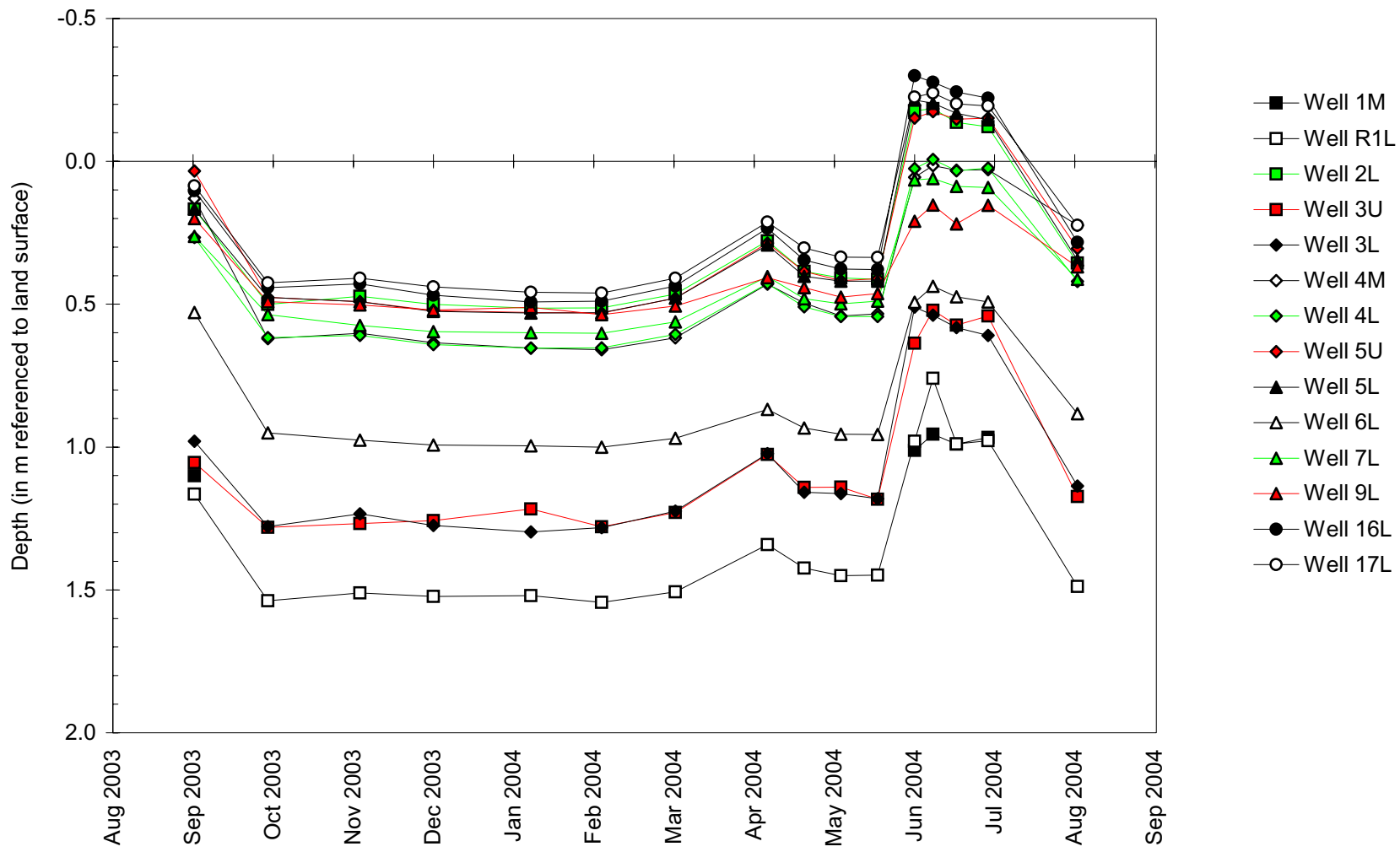
Water-Level Elevations in Deeper Monitoring Wells



Hannibal Bridge Wetland Compensation Site

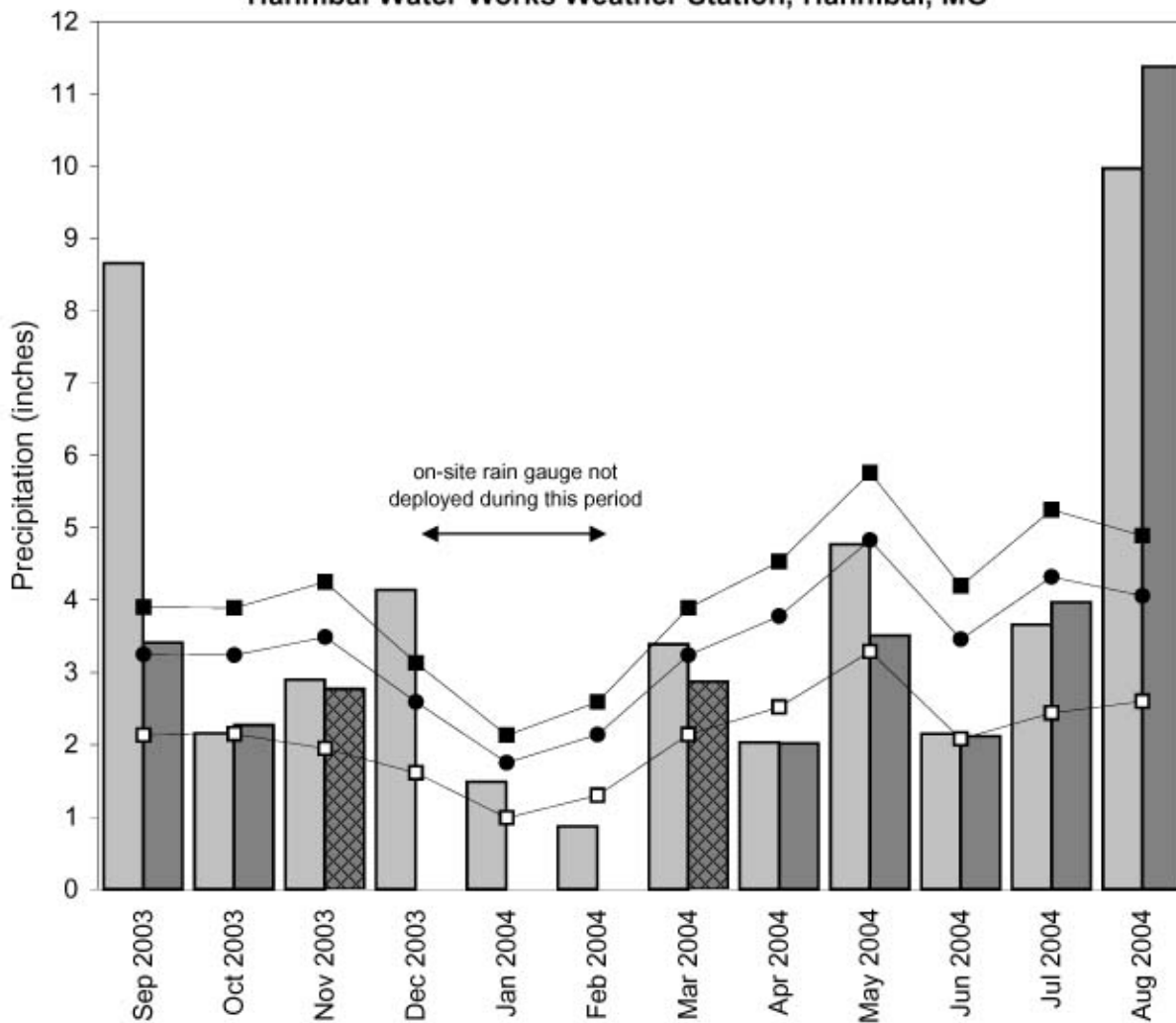
September 1, 2003 to September 1, 2004

Depth to Water in Deeper Monitoring Wells



Hannibal Bridge Wetland Compensation Site September 2003 through August 2004

**Total Monthly Precipitation Recorded On Site and at the
Hannibal Water Works Weather Station, Hannibal, MO**



- monthly precipitation recorded at weather station (Midwestern Regional Climate Center)
- monthly precipitation recorded on site by ISGS
- 1971-2000 monthly average precipitation (National Water and Climate Center)
- 1971-2000 monthly 30% above average threshold (National Water and Climate Center)
- 1971-2000 monthly 30% below average threshold (National Water and Climate Center)
- data incomplete

Graph last updated October 1, 2004