



**CARBONDALE
WETLAND COMPENSATION SITE**

ISGS #65

FAP 322

Sequence #9780

Jackson County, near Carbondale, Illinois

Primary Project Manager: Geoffrey E. Pociask

Secondary Project Manager: not assigned

SITE HISTORY

- Fall 1999: The wetland compensation site was constructed.
- March 2002: ISGS was tasked by IDOT to monitor wetland hydrology at the site. Post-construction water-level monitoring was initiated in April 2002.
- May 2006: IDOT held a site review meeting and proposed closure of this site after the 2006 monitoring season.

WETLAND HYDROLOGY CALCULATION FOR 2006

We estimate that 0.2 ha (0.6 ac) out of a total of 4.0 ha (9.9 ac) satisfied wetland hydrology criteria (Environmental Laboratory 1987) for greater than 5% of the growing season in 2006, whereas 0.06 ha (0.1 ac) satisfied wetland hydrology 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 Carbondale, Illinois, is April 4 and the season lasts 203 days; 5% of the growing season is 10 days and 12.5% of the growing season is 25 days.
- Total precipitation for the reporting period from September 2005 through August 2006 was 105% of normal. Drier than normal conditions prevailed in October and December 2005 and in February, April, June, and August 2006. Precipitation was near or above normal in September and November 2005 and in January, March, May, and July 2006.
- In 2006, monitoring wells 2S, 4S, 5S, and 8S satisfied wetland hydrology criteria for greater than 5% of the growing season. Furthermore, wells 2S and 5S also satisfied wetland hydrology criteria for greater than 12.5% of the growing season.
- The water levels recorded at data loggers RDS 1 and Gauge A show that flood events from Piles Fork supply surface water to the created wetland areas. The area in the basin surrounding RDS 1 below approximately 123.2 m (403.8 ft) was inundated for greater than 5% of the growing season, and a small area below approximately 122.9 m (403.2 ft) was inundated for greater than 12.5% of the growing season.
- For the entire post-construction monitoring period of 2002–2006, wells 2S, 4S, 5S, and 8S satisfied the wetland hydrology criteria for greater than 5% of the growing season in at least 3 of 5 years. Furthermore, wells 2S and 5S also satisfied the wetland hydrology criteria for greater than 12.5% of the growing season in at least 3 of 5 years. We estimate that 0.2 ha (0.6 ac) of the 4.0-ha (9.9-ac) site satisfies wetland hydrology criteria for greater than 5%

of the growing season, whereas 0.1 ha (0.3 ac) satisfied wetland hydrology for greater than 12.5% of the growing season.

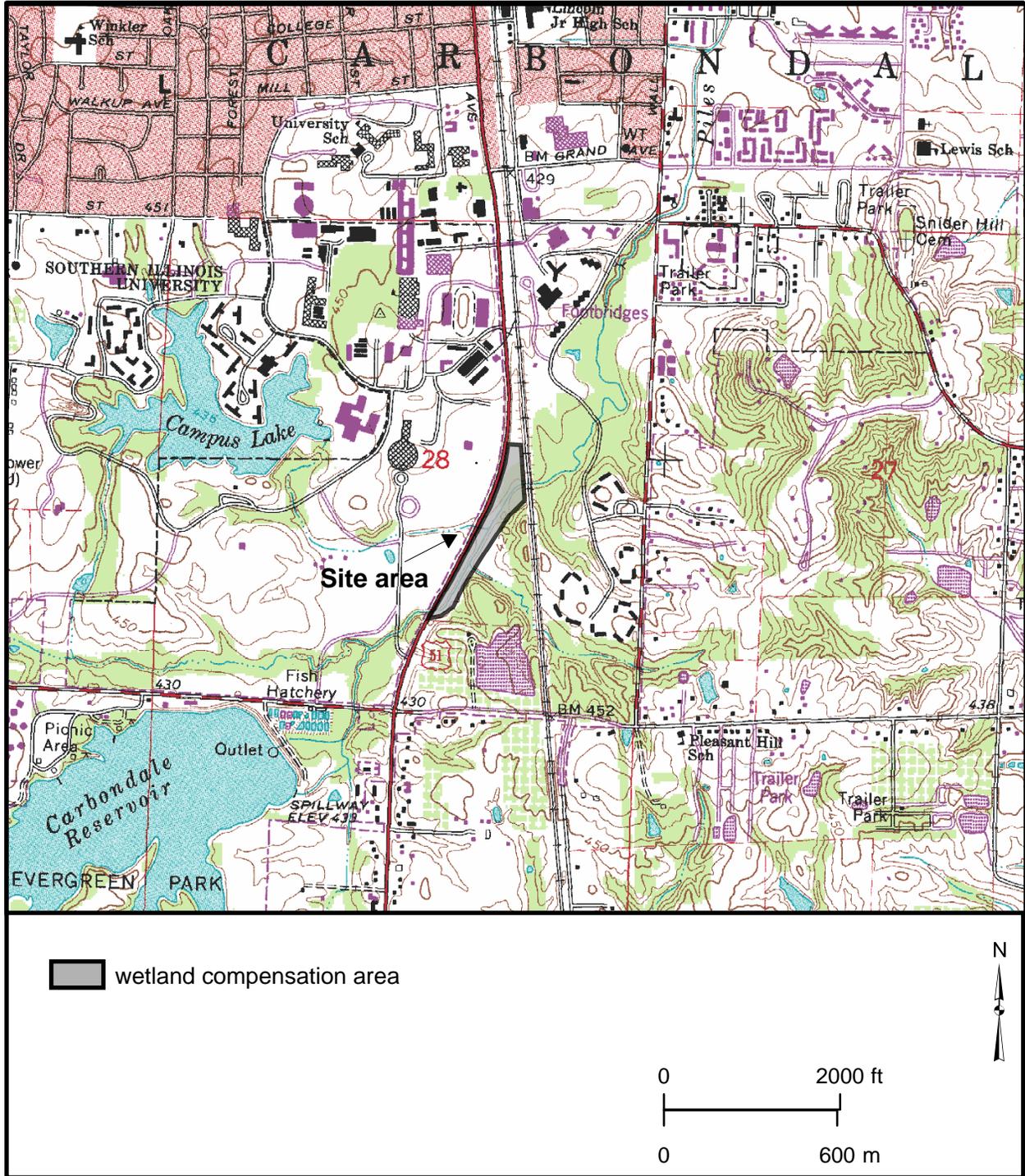
PLANNED FUTURE ACTIVITIES

- Water-level monitoring will continue until no longer required by IDOT.

Carbondale Wetland Compensation Site (FAP 322)

General Study Area and Vicinity

from the USGS Topographic Series, Carbondale, IL 7.5-minute Quadrangle
(USGS 1966; photorevised 1990)
contour interval is 10 feet



Carbondale Wetland Compensation Site (FAP 322)

Estimated Areal Extent of 2006 Wetland Hydrology

based on data collected between September 1, 2005 and September 1, 2006

Map based on USGS digital orthophotograph, Carbondale NW quarter quadrangle from 3/31/2005 aerial photography and ISGS topography (ISGS 2006)



2006 Wetland Hydrology

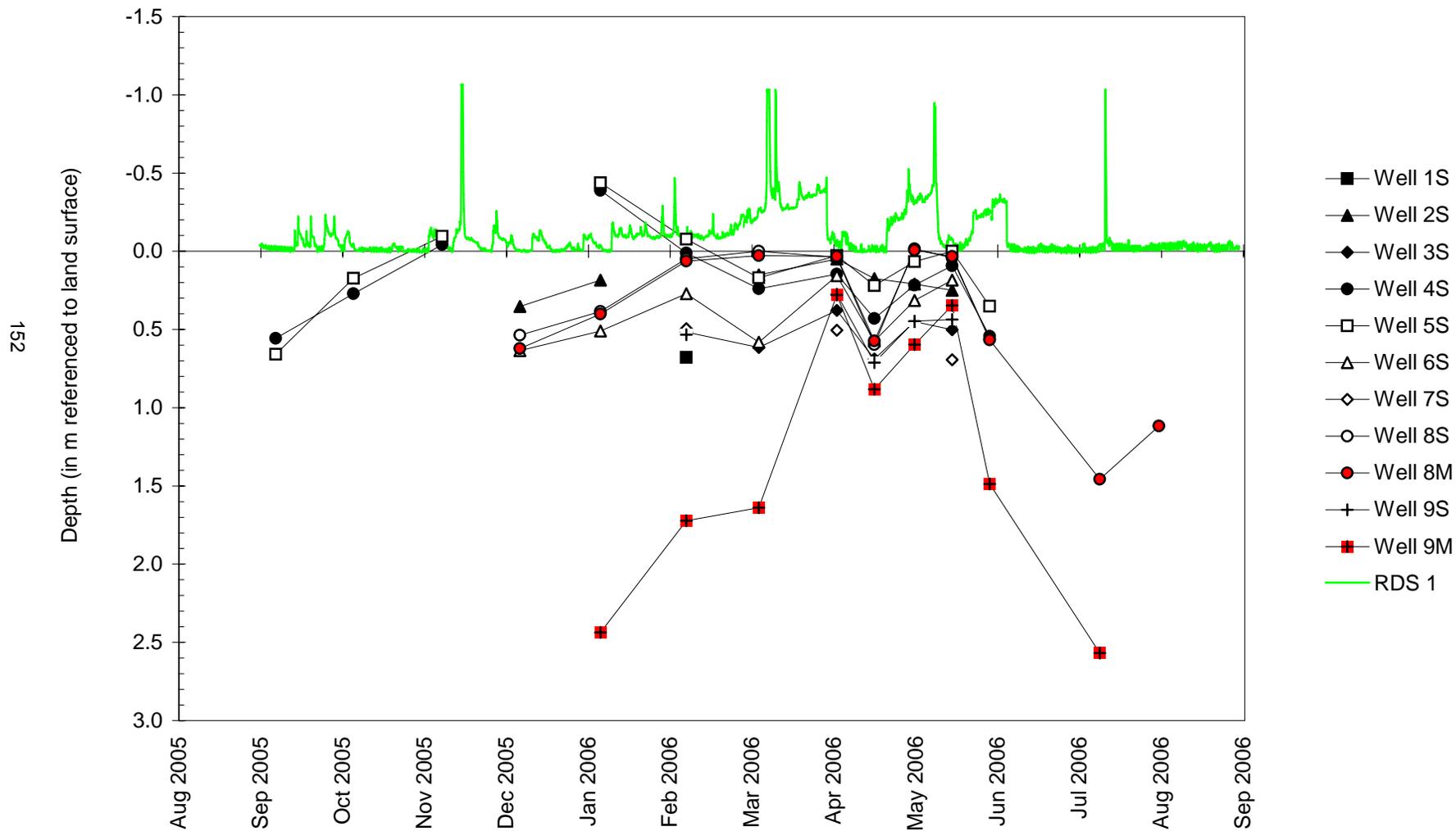
- >5% of growing season
- >12.5% of growing season
- monitoring well
- ▲
 RDS data logger
- Global data logger
- staff gauge
- *
 rain gauge
- stream (Piles Fork)
- site boundary



Carbondale Wetland Compensation Site

September 1, 2005 to September 1, 2006

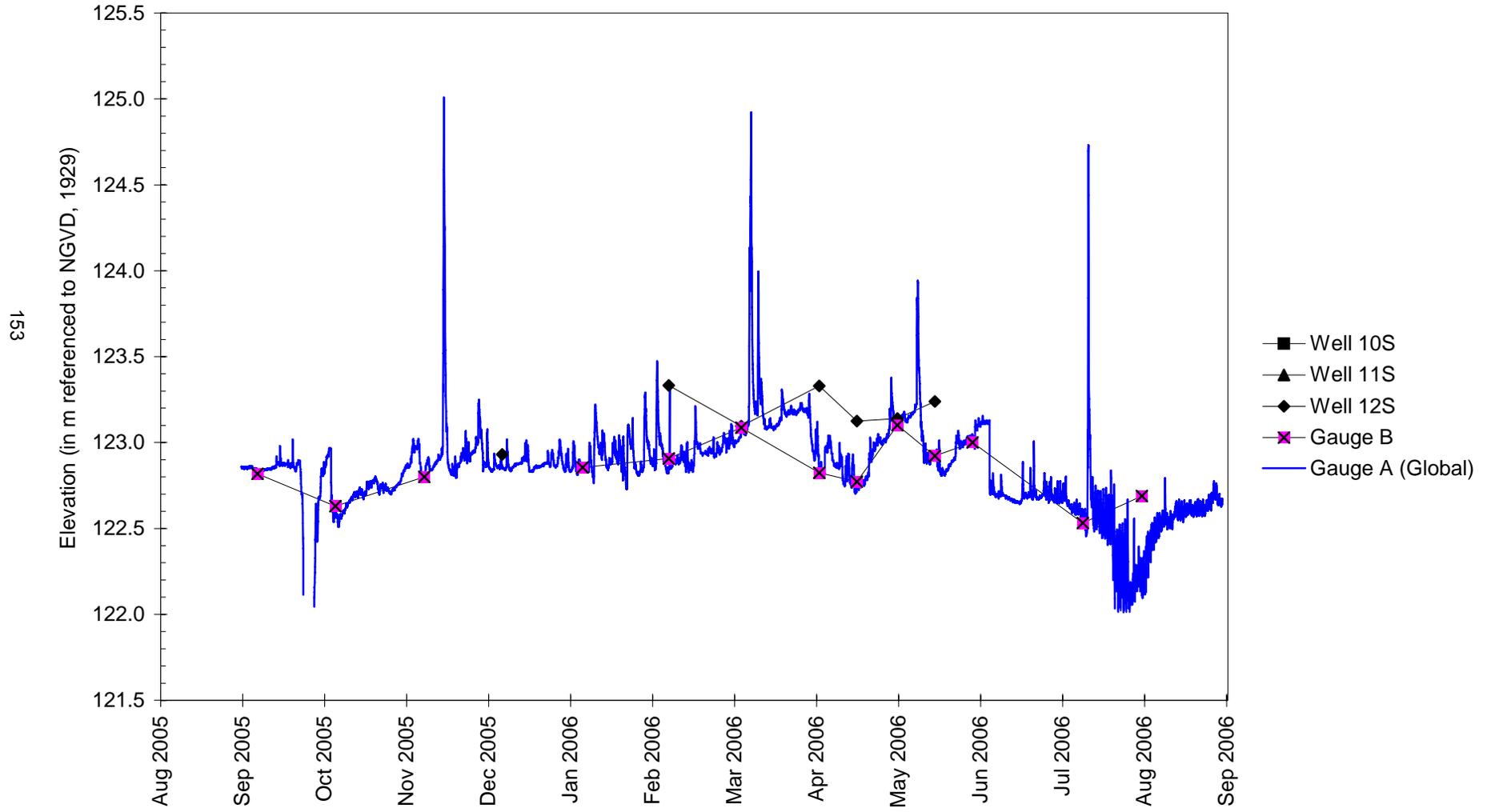
Depth to Water in Selected Monitoring Wells and at the RDS Data Logger



Carbondale Wetland Compensation Site

September 1, 2005 to September 1, 2006

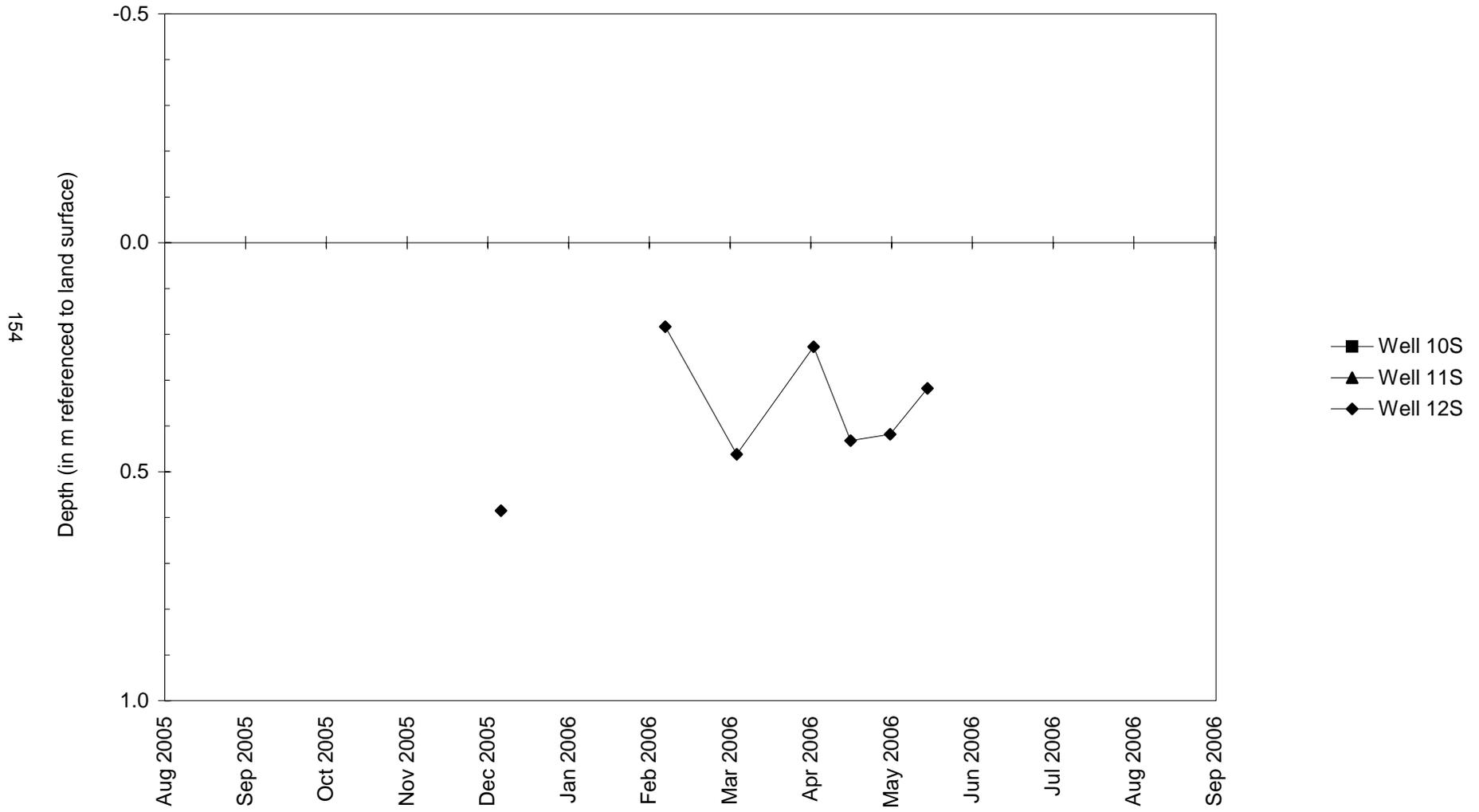
Water-Level Elevations in Selected Monitoring Wells, on the Stage Gauge, and at the Global Data Logger



Carbondale Wetland Compensation Site

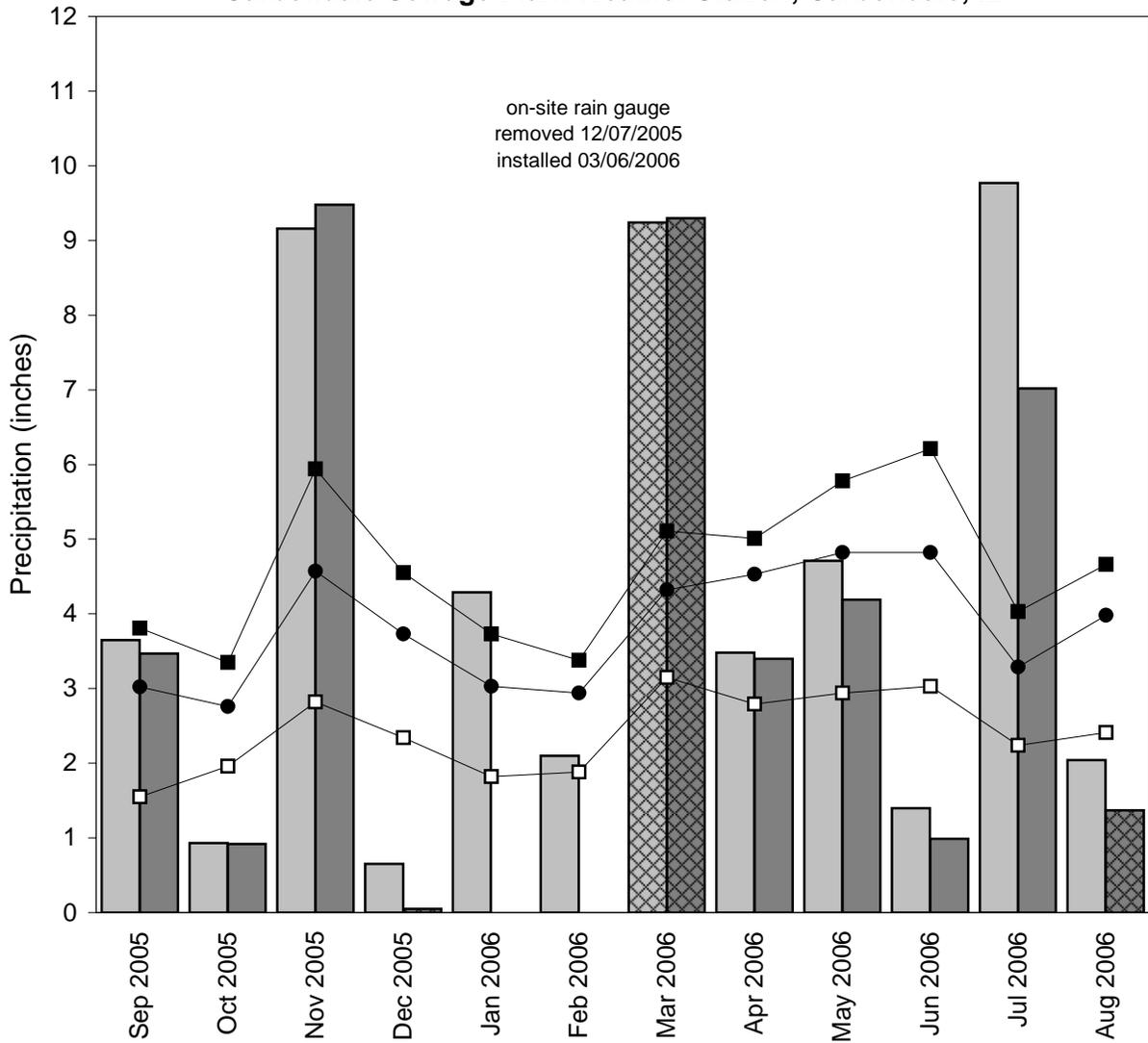
September 1, 2005 to September 1, 2006

Depth to Water in Selected Monitoring Wells



Carbondale Wetland Compensation Site September 2005 through August 2006

**Total Monthly Precipitation Recorded On Site and at the
Carbondale Sewage Plant Weather Station, Carbondale, IL**



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

Graph last updated October 13, 2006