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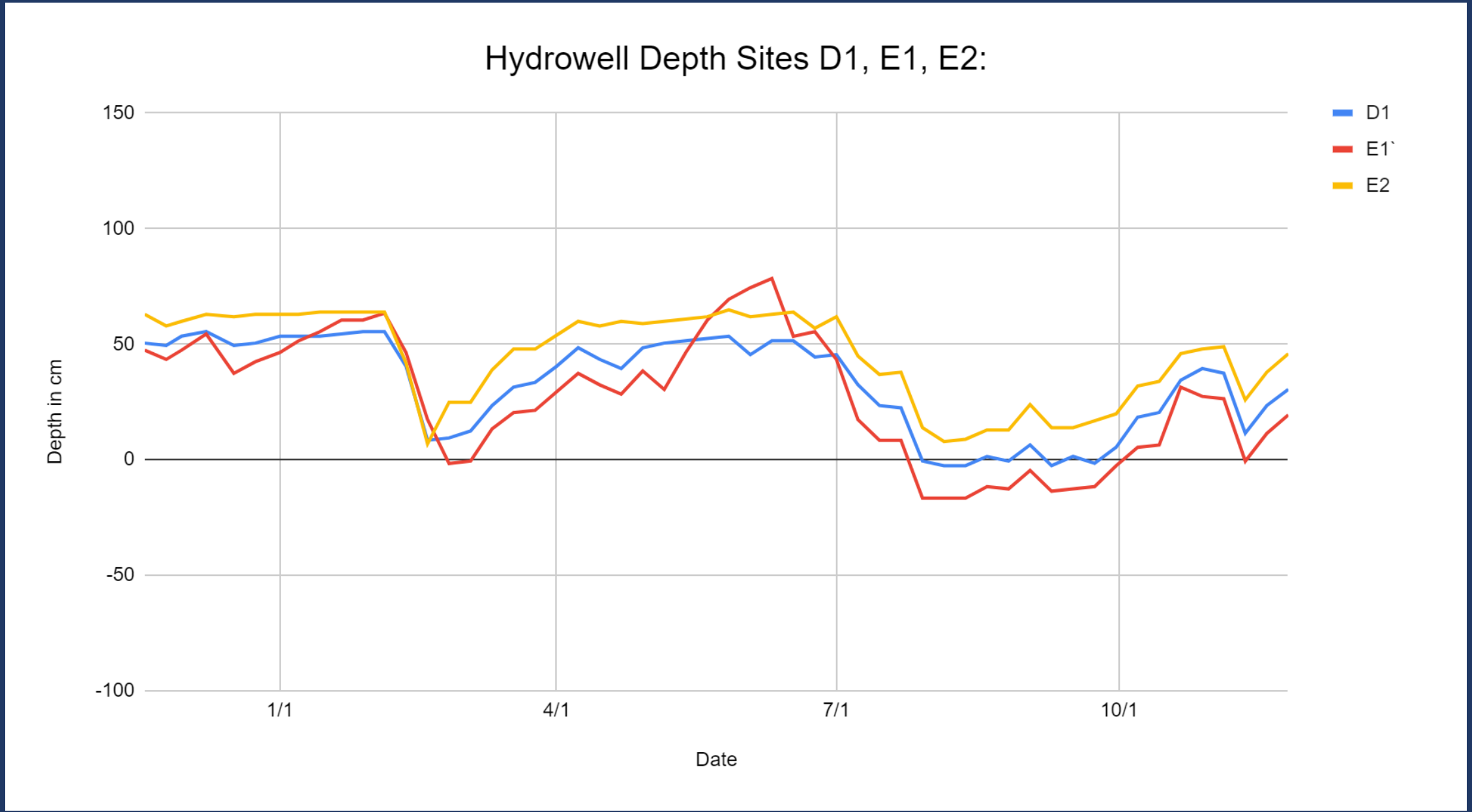
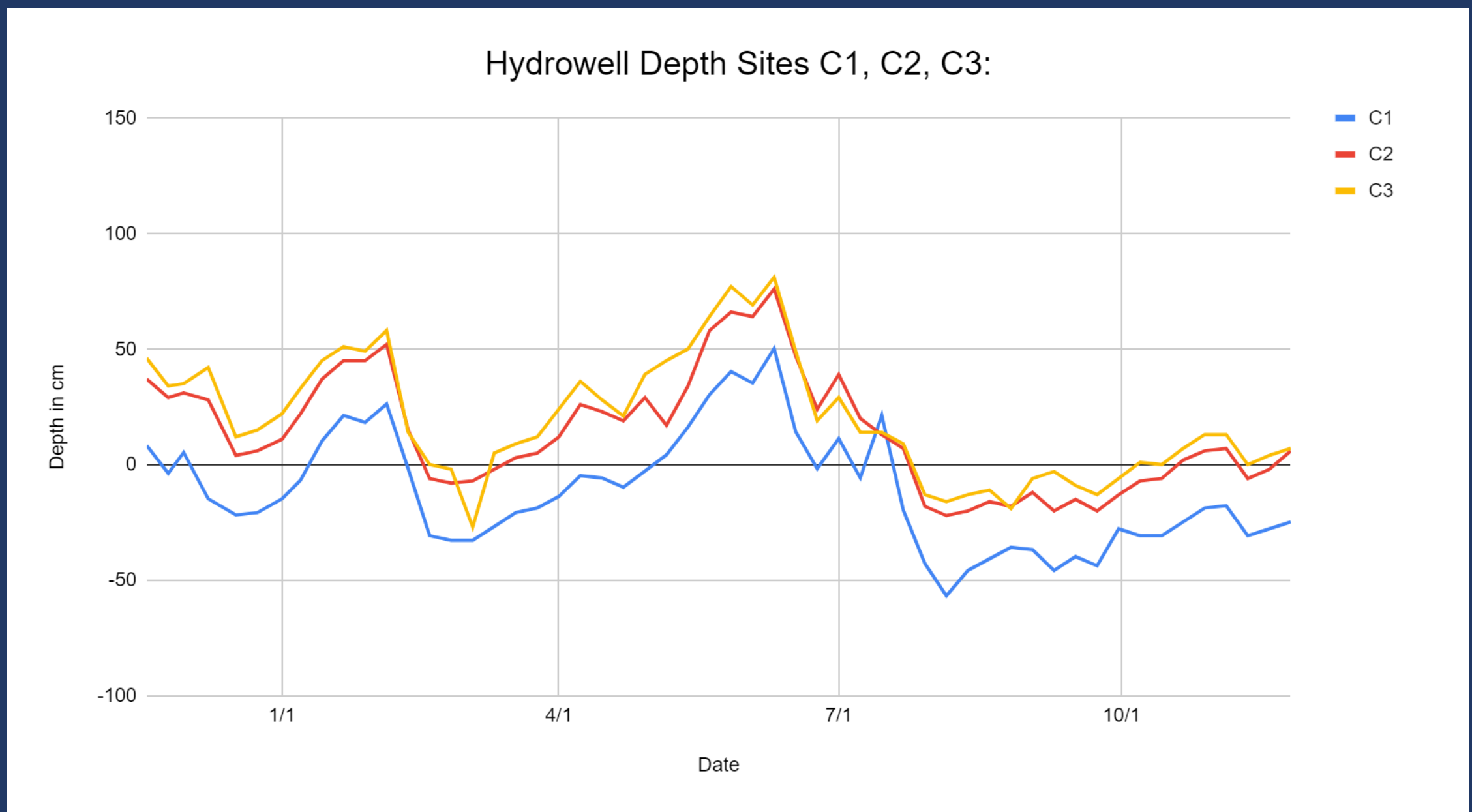
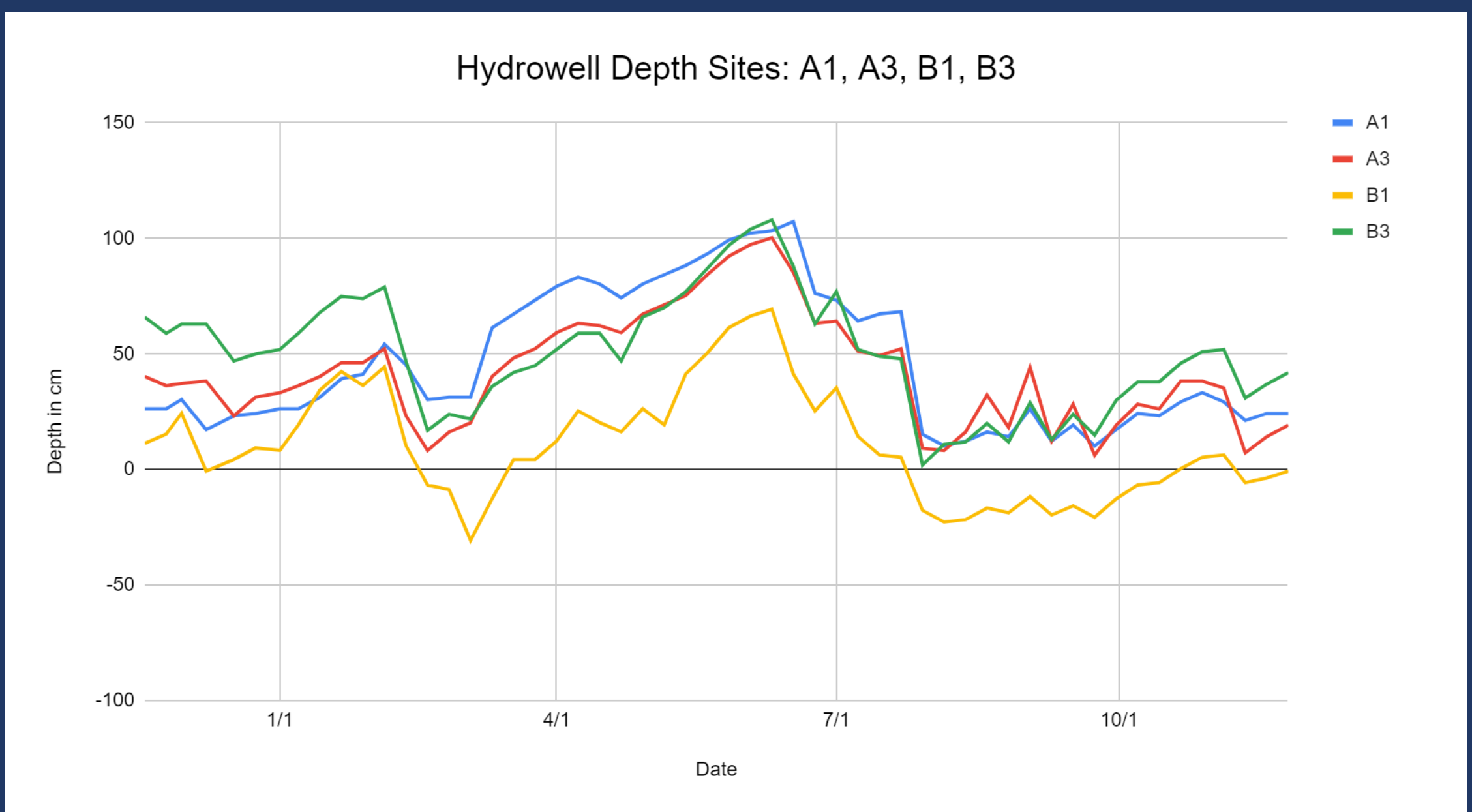
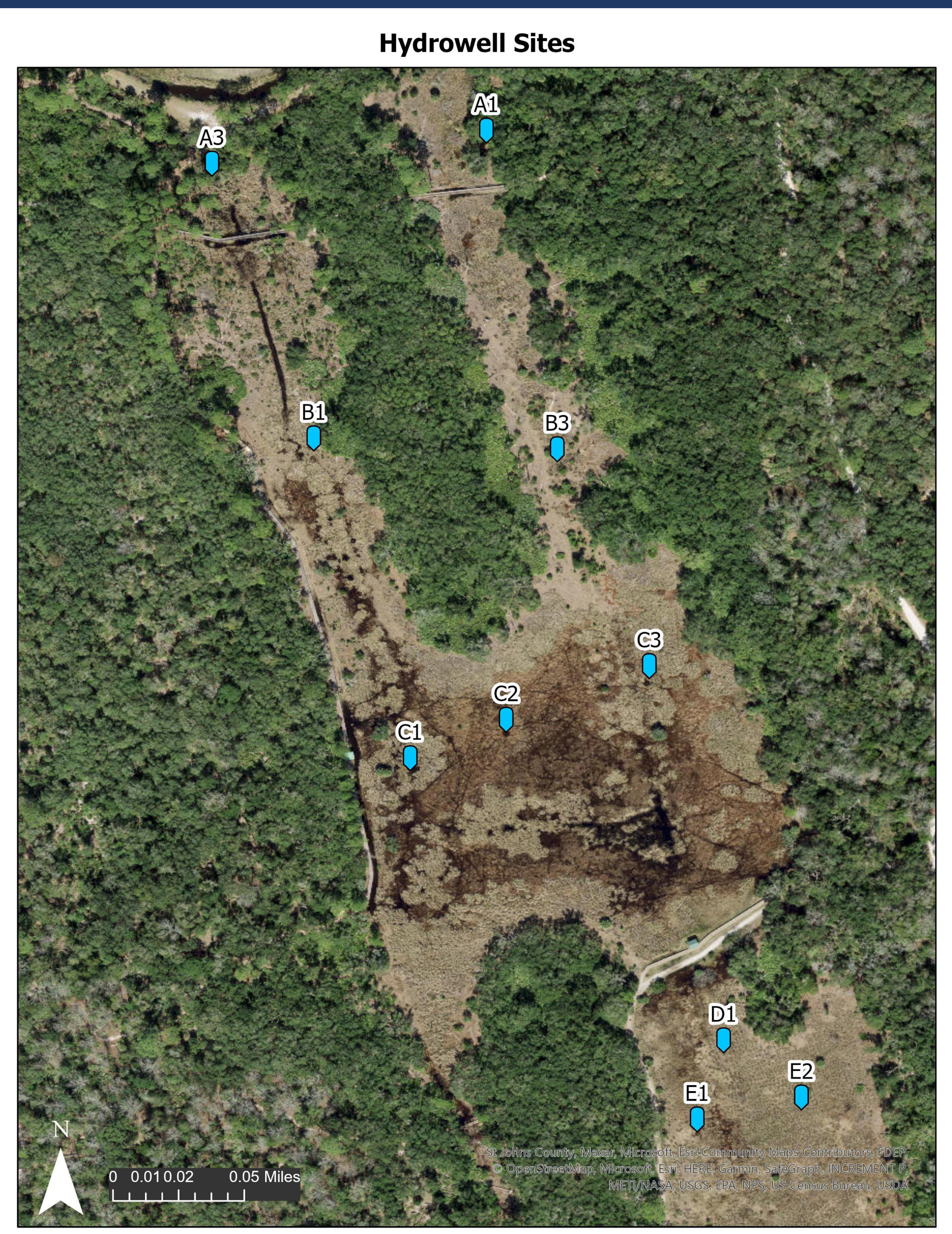
Collecting Groundwater Level Data Within the Restored Freshwater Marsh in the GTM Research Reserve

INTRODUCTION

In 2007, staff at the reserve undertook the restoration of the 58-acre portion of the interdunal freshwater marsh located within the GTM Research Reserve. The site's hydroperiod had been altered from ditching in 1962 for mosquito control. During the restoration shallow ground water monitoring wells were established to determine anthropogenic sources of water loss and the post-restoration near surface hydrology. The current iteration of hydro well monitoring was started in November 2020, focusing on determining the current hydroperiod and its linkage to precipitation and the inputs from the Big Savannah swale.

METHODS

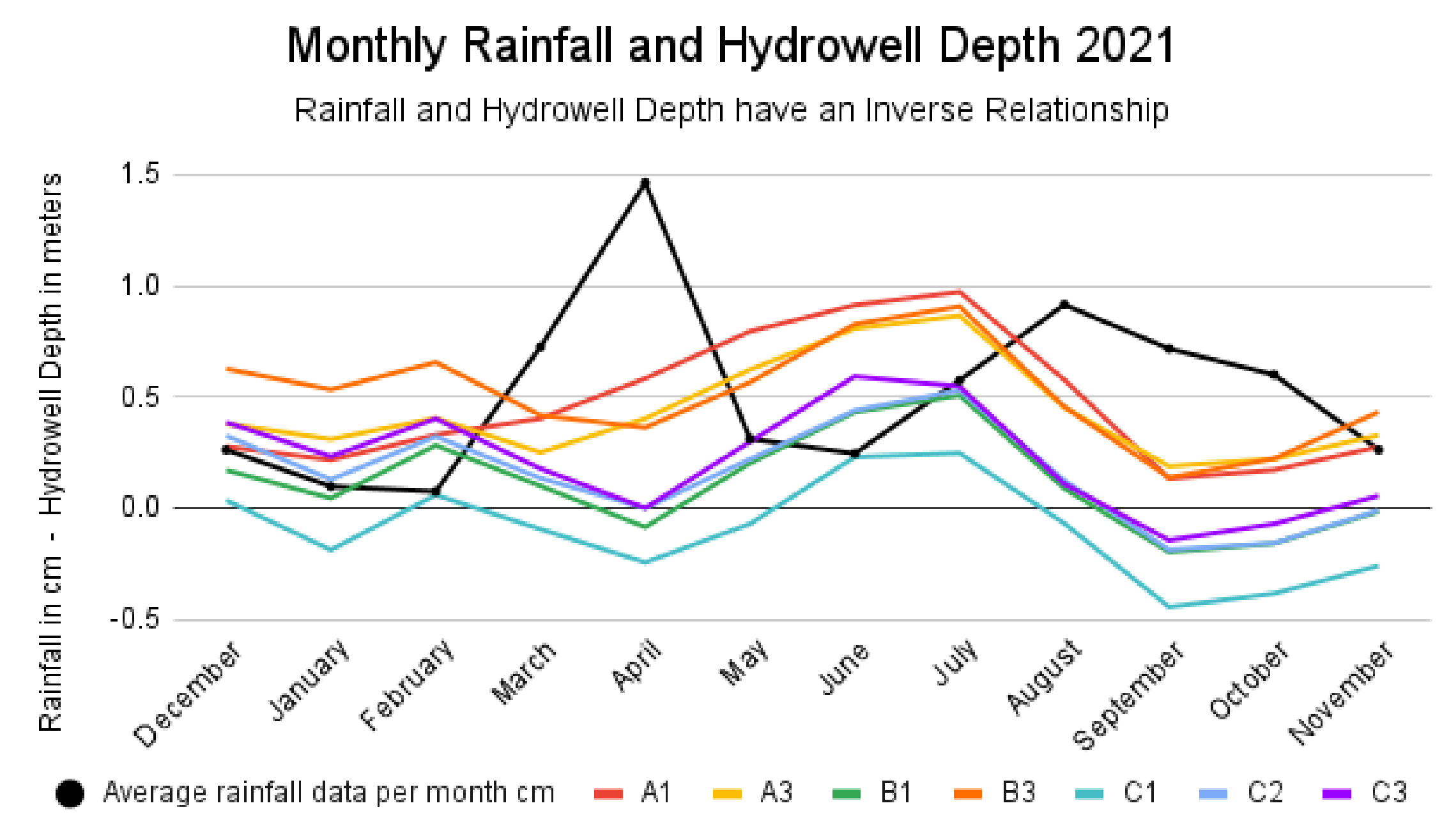
1. A two-person survey team weekly records the water level in each of the ten monitoring wells using a Solinst Model 102M water level meter, measured from an established reference point on either the outer casement or riser pipe.
2. This data, along with the preceding seven days rainfall, is charted to identify trends for infiltration and hydroperiod in the freshwater marsh.



*Negative values in figures indicate inundation.



RESULTS



WHAT CAN WE LEARN FROM THIS?

Analysis of collected data shows that well depths trend inversely to rainfall, with an expected lag due to infiltration rates. Field observations revealed that two of the monitoring wells require rehabilitation to exclude standing surface water from the well interior. Existing data has been normalized to better inform GTM resource managers about drought conditions needed for successful prescribed burns.

Soil profiles at the well sites will be collected to identify porosity and hydraulic conductivity, allowing for a more accurate understanding to infiltration rates and hydroperiod across the marsh. Water quality sampling will be collected to provide inputs to other GTM projects such as CCVATCH. Going forward, inclusion of Big Savannah Swale level data into the matrix and additional analysis of rainfall data will be added to provide more insight about the hydraulic inputs into the vadose zone of the freshwater marsh.

