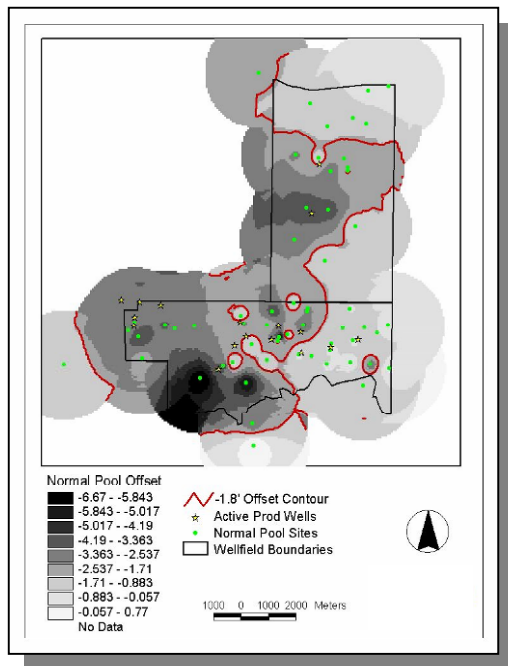


Ecological Monitoring at the J.B. Starkey & North Pasco Regional Wellfields

GPI



Water Use Permit Compliance Monitoring

Client/Owner: Tampa Bay Water
Project Location: Pasco County, Florida

This ongoing project involves ecological monitoring and data analysis for the 17,000 J.B. Starkey Wellfield and Wilderness Park and North Pasco Regional Wellfield study area in Pasco County, Florida. Upland and wetland monitoring stations have been established in the study area to monitor natural ecological fluctuations as well as those induced by wellfield pumpage and lowering of the water table. Water level monitoring is conducted twice-monthly at 107 wetland and upland monitoring stations that have been established both on and off-site to determine natural and anthropogenic fluctuations in ecological conditions. To assist in this determination, Historic Normal Pool elevations were established in 35 isolated cypress wetlands. A semi-quantitative Wetland Assessment Procedure (WAP) was conducted on a semiannual basis at 107 sites. The assessment includes an evaluation of species dominance, species cover changes, foliar conditions, reproductive characteristics, soil condition, wetland hydrology, and other indicators of ecological response to changes in water availability. A total of 23 tree transects were established in the study area for the purposes of monitoring tree mortality, recruitment, and growth characteristics. Standard normal deviate analyses are performed on the period-of-record hydroperiod, Normal Pool offset, and WAP data in order to assess whether data at each site falls within the range of what was considered “normal” for each water year as defined by the population of control sites and regional reference sites. The Normal Pool offsets are mapped in ArcView GIS Spatial Analyst to determine if a spatial pattern is present in water levels relative to indicators of historic inundation. The results of the analyses are presented in semiannual and annual reports that are prepared and submitted according to regulatory permit criteria and schedule. During recent years, GPI has moved analysis beyond simple “impact detection” to more sophisticated data analysis methods capable of characterizing the spatial and temporal patterns present in hydrologic and vegetative parameters of interest.