

Because nutrient concentrations vary greatly during a pumping event (Figure 2), it is important to be consistent in selecting when during the drainage event the grab samples are collected. Therefore, samples should be collected in such a way that they are representative of the entire drainage event. Determining this sampling strategy will require the intensive monitoring of several events to learn the variability trends prior to reducing sample numbers greatly. Even with the establishment of the nutrient concentration trends over time at the pump station, there will still be a need to sample several times during the pumping event to yield an average that is more representative than a single sample. One may be tempted to sample the drainage event at pump start-up, shut down, and mid-way through the event. However, without intensive sampling (defining the nutrient concentration time series throughout the entire event) there is still no guarantee that this "average" concentration will be an accurate reflection of actual conditions. Note that the other two sampling procedures reduce this problem.

The primary advantage of grab samples is that very little equipment is required for sample collection and flexibility in sampling location selection. However, this method sacrifices data resolution due to the small number of samples collected. The user must also be aware that P concentrations change during an event and that grab sampling will yield no indication of whether the sample is representative of the event.

Autosamples

Autosamplers are instruments that are composed of a timer, pump, sample distributor, and sample bottles. They can be programmed to collect volumes of water on desired time intervals, beginning at a specific time. They place the water sample in one of up to 24 bottles stored in the autosampler base. Running from the autosampler pump is a suction hose connected to a strainer which is generally mounted in a specific position in a ditch, canal, sump, etc. where water is being

MAIN CANAL - TOTAL PHOSPHORUS

SUGARCANE FARM - JANUARY 25, 1990

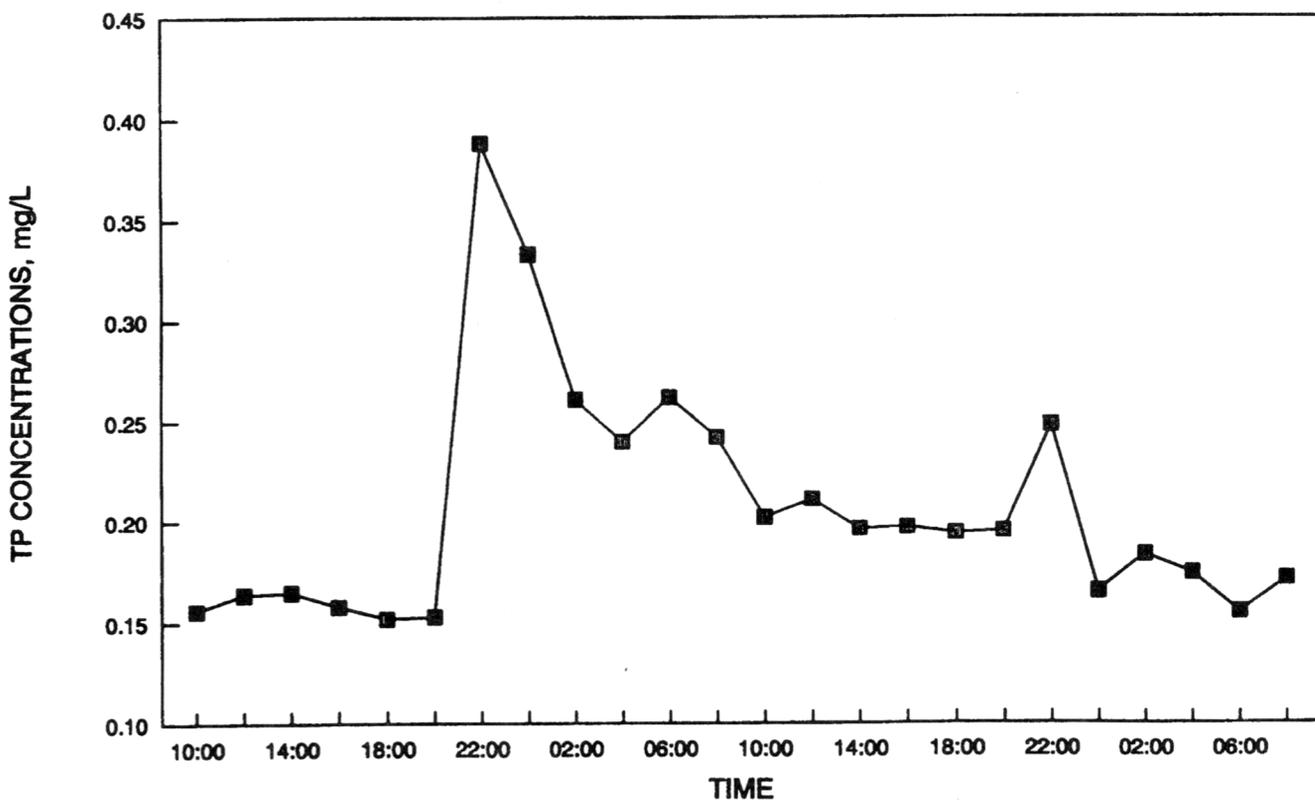


Figure 2: Phosphorus concentration distribution over time during a drainage event at a sugarcane farm.