

CHARACTERIZING THE DYNAMICS OF POLLUTANTS IN STREAMS DRAINING URBANIZED AREAS IN NORTHWEST FLORIDA

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Understanding the dynamics of contaminants in streams represents an important first step for identifying their sources and methods to mitigate their delivery from the landscape. We have begun to examine the concentrations and loads of several pollutants in streams during storm events and periods of base flow in the developed areas around Pensacola, Florida. Pressure transducers were installed to serve as water level gauges in ten small streams in the Pensacola Bay watershed, and we measure streamflow at least once per month using current meters or an acoustic Doppler current profiler to develop discharge records from each study watershed. We conducted two separate sampling regimens at eight of the sites to examine pollutants including nitrogen, phosphorus, and fecal indicator bacteria. To examine pollutants in base flow, we took water samples approximately biweekly from each stream; and to examine pollutants in stormwater, we operated automatic stormwater samplers through storm events in 2019. Our results show that concentrations of most pollutants we examined (which included N, P, and coliform bacteria) were reduced during storm event flows, but daily loads increased due to increased discharge in streams compared to base flow conditions. This provides important information for understanding how pollutants vary with discharge and over time, as well as the feasibility of methods such as green infrastructure for reducing pollutant loads.

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