Daily stream flow from Rhode River subwatersheds, Maryland, USA, 1974-2023

Methods Details

**Site Information**

Discharge has been measured since 1974 at five watersheds at the Smithsonian Environmental Research Center (Table 1).

Table 1. Watershed locations and drainage areas.

|  |  |  |  |
| --- | --- | --- | --- |
| Weir Number | Latitude | Longitude | Drainage area (ha) |
| W101 | -76.55766000 | 38.89061000 | 226 |
| W102 | -76.56444000 | 38.88806000 | 192 |
| W103 | -76.56913000 | 38.88936000 | 253 |
| W109 | -76.55371389 | 38.86896667 | 16.3 |
| W110 | -76.55362000 | 38.88398000 | 6.3 |

**Field measurements**

Watershed discharges are measured with sharp crested V-notch weirs, whose foundations were in contact with the Marlboro Clay aquiclude. All weirs were 120 notches and have an associated instrument building and a stilling well. Depths were measured to the nearest 0.3 mm with floats and counterweights and were recorded every 5-15 minutes. From 1974-1996, stage was recorded on strip tape, and since 1996 stage has been recorded on Campbell Scientific CR-10 dataloggers. Details are provided in (Correll et al. 1999).

**Data processing**

Discharge was calculated using site-specific stage-discharge rating equations. To calculate daily flows, discharges were first converted to a regular 5-minute time series and summarized to daily flows, which were normalized by watershed area (Table 1). Hydrographs were visually compared among watersheds. Field notes and hydrographs were used to manually identify and remove problematic data. These could include: hung floats following high flows, debris in the v-notch, major leaks, freezing, and other issues noted in field books. Data gaps were filled using regressions of daily flow among watersheds.

**References**

Correll, D. L., T. E. Jordan, and D. E. Weller. 1999. Effects of Interannual Variation of Precipitation on Stream Discharge from Rhode River Subwatersheds1. JAWRA Journal of the American Water Resources Association **35**: 73–82. doi:10.1111/j.1752-1688.1999.tb05453.x