

CCPaSEC Stream Problem Reporting Protocol

If an observation is significantly different from those noted below and is significantly different from previously obtained observations, report this to the President of CCPaSEC or the President's designee. Once the anomaly is confirmed (see below), the President or the designee will report it to the Centre County Conservation District Water Specialist (Centre County Conservation District Watershed Specialist, 414 Holmes St., Suite 4. Bellefonte, PA 16823; 814-355-8617).

The Centre County Conservation District Watershed Specialist may investigate the reported change to the stream and/or forward the report to the PA Department of Environmental Protection. CCPaSEC may be asked to take additional samples or document its observations following a protocol specific to the case. CCPaSEC volunteers will cooperate with these agencies to the extent possible.

The following procedures will be followed:

Chemical Analyses

If a measurement is obtained that is abnormal (see specific test below) a test on the initial sample will be done a second and third time. Keep the sample. If at least 2 of the 3 readings are abnormal, 2 new water samples will be obtained as follows. A new sample will be taken at a location some distance upstream of the initial sampling site and another sample at a downstream location and test those samples in order to 'bracket' the site. If the colorimeter tests, pH, and specific conductivity tests are done at a location remote from the sampling site, return to the sampling site as soon as possible and collect a new sample at the initial site and collect bracketing samples and test them. Retain the samples and contact the Quality Control Committee Chair who may be aware of recent or ongoing problems with reagents, meters, etc. and can provide advice and guidance. Either the Quality Control team or another team will separately test the samples to confirm the abnormal readings.

The following should be considered abnormal if they are significantly different from the average of several previous measurements.

Nitrates higher than 10 mg/L (= 10 ppm)

(The colorimeter test is accurate from 0 to 30 mg/L.)

Phosphates higher than the amount that can be measured by the colorimeter (= 2.5 ppm)

(The colorimeter test is accurate from 0 to 2.5 mg/L.)

Sulfates higher than the amount that can be measured by the colorimeter (70 mg/L).

(The colorimeter test is accurate from is 0 to 70 mg/L.)

Specific Conductivity higher than 500 micro-siemens per centimeter ($\mu\text{S}/\text{cm}$).

According to the PaSEC field manual, studies of inland fresh-water streams that support good mixed fisheries range from 150 to 500 $\mu\text{S}/\text{cm}$. (The conductivity meter test is accurate for readings between 100 and 19,900 $\mu\text{S}/\text{cm}$.)

Macroinvertebrate Survey

If the diversity (variety of organisms found at a site) is significantly lower than was the case at a majority of previous samplings and this difference has no simple explanation, contact the Macroinvertebrate Collection Chair who may be able to provide insights on the apparent anomaly. The anomaly will be reported to the President or the President's designee.

One simple explanation for a significant drop in the number of different macroinvertebrates at a site may be that extremely high flows prior to sampling resulted in scouring the bottom and sides of a stream, thereby washing away habitats of the various macroinvertebrates. It may take some time to reestablish good habitats and recolonization by macroinvertebrates. Such scouring would be reflected in a significant change in one or more of the site characteristics (see below).

Site Characteristics

Immediately report significant changes to the President or the President's designee, whether occurring naturally or a result of human or animal activity. Also, those changes should be recorded by the team in the appropriate columns in the CCPaSEC data sheet beginning at the date the change was observed, particularly if the new characteristics appear to be long term changes. If feasible, photographs should be taken of the conditions, particularly if the changes appear to be manmade, and made available to the Centre County Conservation District Watershed Specialist. Note significant changes in:

Water appearance

Water odor

Soil odor

Sediment deposits

Stream type (straight, meandering, braided, channelized)

Stream bank cross section (V-shaped, U-shaped, rectangular, undercut)

Stream bank erosion