



Pennsylvania Department of Environmental Protection

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Southcentral Regional Office

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Mr. Dennis Guise
Deputy Executive Director/Chief Counsel
Pennsylvania Fish and Boat Commission
1601 Elmerton Avenue
Harrisburg, PA 17109

Dear Mr. Guise:

We recently reviewed the Draft Big Spring Creek (707B) Fisheries Restoration Plan (Draft Plan) prepared by R. Thomas Greene that was on the Pennsylvania Fish and Boat Commission's (PFBC) web site. Based on the review of the plan we have several comments that should be considered before it is finalized.

First of all, it is our opinion that lack of habitat is not the major cause for the poor reproductive success of trout in Big Spring Creek. Granted, there are sections of the stream that are wide and shallow and lack structure, but there are many other stretches that are quite capable of holding trout and yet the number of trout in these reaches is extremely low. There are stretches of Big Spring Creek where the habitat is very similar to the Letort and other Cumberland Valley limestone streams that support the natural reproduction of brown and/or rainbow trout. Prior to the recent problems with sinkholes, even Cedar Run, which flows through the highly urbanized area of Camp Hill, supported a Class A brown trout fishery. In the Draft Plan Greene states "at the present time, most of the spawning activity and the majority of the trout population is limited to the 350 meters of stream located in the headwaters. These results are strikingly similar to the observations made in 1972." Such is not the case. In 1972 a Fish Commission inventory estimated a dense brook trout fishery of 125.96 kg/ha. In 1999, a PBBC inventory found 14.17 kg/ha brook trout, 12.77 kg/ha brown trout, and 109.03 kg/ha rainbow trout. Essentially the upper reach of Big Spring Creek, in our opinion, has become an extension of the hatchery populated by escapees from the hatchery with minimal reproductive success. We feel that the hatchery discharge has had a negative effect on the trout population in Big Spring Creek. It should also be noted that Big Spring Creek was listed in the 1998 303(d) Report as impaired due to organic enrichment/low D.O. and siltation, not habitat impairment. In addition and related to emphasis on habitat, we are concerned that many of more traditional habitat structures may not be appropriate to the channel



dimension, pattern, and profile of Big Spring Creek. Installing such devices without a thorough assessment of geomorphic variables may have detrimental consequences.

In the Draft Plan Mr. Greene also stated that recent studies targeting both fish and benthos have shown no negative effects due to the hatchery discharge. We disagree. First of all, Mr. Greene states that more slimy sculpins (*Cottus cognatus*) were collected in close proximity to the hatchery discharge compared to further downstream. He refers to sculpins as a pollution-intolerant species. Information from the EPA Rapid Bioassessment Protocols document indicates that slimy sculpins are considered intermediate in their tolerance to pollution. Furthermore, their ability to reproduce closer to the discharge may be related to the fact that they deposit their eggs in sticky masses on the undersides of rocks in riffle areas versus depositing the eggs within the substrate as is the case with trout.

Mr. Greene's comments on the benthic macroinvertebrate studies that have been conducted by the Department also need to be addressed. Comparisons were made between surveys conducted by the Department in 1971, prior to the construction of the hatchery, and just recently in 1998. First of all, the collection protocols and data analysis were different between the two survey dates therefore making comparisons less valid. The majority of the samples collected in 1971 were with Hester-Dendy (artificial substrate) samplers while in 1998 sampling was done with a D-frame net using EPA Rapid Bioassessment Protocols. A qualitative kick net sample was also collected May 5, 1971. In that collection Karl Sheaffer identified the specimens down to the genus level. The mayflies *Ephemerella* and *Ameletus* were found in the upper reaches of the stream. Both of these taxa are extremely sensitive to pollution. A very important point is that the genus *Ephemerella* was in the family Baetidae in 1971. The family Baetidae is fairly resistant to organic pollution. Based on the present taxonomy *Ephemerella* is in the family Ephemerellidae which is sensitive to pollution. Unfortunately, Sheaffer only identified the Hester-Dendy samples down to the family level but the family Baetidae was present in every sample from the upper reaches. Mr. Greene stated that the upper reach of Big Spring Creek was dominated by pollution-tolerant taxa and the family Baetidae which as I stated is considered a moderately pollution-tolerant family but the specimens collected by Sheaffer were most likely *Ephemerella*. Unfortunately this cannot be substantiated. A subsequent survey conducted by the Department in 1974 revealed that mayflies had been eliminated from the upper reaches of Big Spring Creek below the discharge. The more recent Department survey in 1998 documented a benthic community totally dominated by pollution-tolerant taxa and yet Mr. Greene pointed to the fact that a pollution-sensitive caddisfly (*Glossosoma*) was collected in the reach below the discharge. He failed to mention that the total number of *Glossosoma* in the sample represented only 0.1% of the total number of individuals. Pollution-tolerant sowbugs (*Lirceus*) and scuds (*Gammarus*) comprised 57% and 35% of the total numbers respectively. Mayflies were virtually absent. Overall, the data strongly indicates that the macroinvertebrate community in Big Spring Creek is reflective of severe organic pollution in the headwaters. Such was not the case prior to the construction of the hatchery.

We appreciate being able to review the report and trust that our comments will be viewed in a constructive, scientific light with the ultimate goal of restoring this valuable resource. Please feel free to contact me or members of my staff should you have any comments or questions.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Robert J. Schott". The signature is fluid and cursive, with a large initial "R" and "S".

Robert J. Schott
Aquatic Biologist

cc: Gary Hepford
Stream file 2.21.0 (Big Spring Creek)