



# pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION  
SECRETARY

June 6, 2012

Mr. Stuart Gansell  
33 Presidents Drive  
Mechanicsburg, PA 17050

Dear Mr. Gansell:

Thank you and my water quality standards and assessments staff thank you for your letter expressing your concerns and those of the various other retired Department of Environmental Protection (DEP) employees about conditions in the Susquehanna and Juniata Rivers. As you know, we have many dedicated and expert staff paying attention to the Susquehanna River. Also, we have at least 11 DEP staff with a combined service of 160 years working directly with water quality standards and assessments and related water quality matters working on this important matter.

We are certainly grateful for your dedicated service to DEP, which culminated in your tenure as Director of the Bureau of Watershed Management, and welcome this opportunity for this dialogue between us. Given that the Bureau where you served had its own distinct functions that did not involve water quality standards and assessments or other actual water quality functions which are the heart of Section 303(d) program, I hope, with the help of my team of experts in water quality standards and assessments, I am able to clarify some confusion you may have on the Section 303(d) issue. Also, I am told that seven other signatories to your letter were in various mining programs which are likewise not involved with Section 303(d) water quality matters so I hope this clarifies some misunderstanding they may have as well. As you may know, DEP has an active initiative to engage in dialogue with former DEP personnel about a host of topics. We find this engagement to be helpful to both our current employees and our former employees. I know that you know Kelly Heffner and Rod Kime. I invite you to visit or telephone them to chat about this. Actually, I think it would have been very helpful if this sort of engagement had been able to occur first as it would have helped to clarify for you some of the important details on how Section 303(d) operates. In the future, I invite you to have that face-to-face or oral dialogue. In that regard, I invite you to call Kelly Heffner, our Deputy Secretary for Water or Rodney Kime, Environmental Program Manager for the Division of Water Quality Standards, at any time.

Our experienced and professional staff reviewing the limited available data have determined there is insufficient reason and data to place the rivers on the Integrated Report of impaired waters. As I am sure you know, a Section 303(d) impairment listing proposal is a process driven by complete and acceptable scientific data. For very good reason, anecdotal evidence is not an acceptable part of that scientifically rigorous process. A Section 303(d) Integrated Report proposed listing must meet empirical scientific data thresholds demonstrating impairment. Our DEP experts do not believe the listing threshold is met for the rivers.

Although there has been increased media attention to this matter lately, the situation is not new. DEP has been aware of the problem of a disease infecting and killing the young-of-year (YOY) smallmouth bass since at least 2005. So far, smallmouth bass appear to be the only species of fish adversely affected by disease. We are not aware of any data that demonstrates the other warm water fish species or the macroinvertebrate community as a whole is under stress to the

point it would be considered impaired. While there were some merely anecdotal narratives received during the Integrated Report public comment period and stories published in newspapers there was no actual scientific data received demonstrating impacts to the fish or macroinvertebrates other than smallmouth.

I am happy to report to you that DEP is working very hard with other partners on this issue. We are in the process of developing a large river assessment method based on fish, macroinvertebrates, algae, and mussels. Thirty sites in six major rivers have been sampled including six sites in the Susquehanna, with two sites between Sunbury and Holtwood. The data is currently being analyzed. DEP is also planning macroinvertebrate sampling in the river this summer. Although, the Pennsylvania Fish and Boat Commission (PFBC) feels macroinvertebrates cannot be used to assess the river, DEP macroinvertebrate experts disagree. These studies will help determine if the biological communities in the river are impaired.

Also, it is important to note that stressed YOY smallmouth bass are not limited to the section of the river from Sunbury to Holtwood or the Juniata. They have been found in other parts of the river, tributaries to the river, and even outside the Susquehanna River basin including the Delaware, Allegheny, and Schuylkill River. Of particular note, are diseased YOY smallmouth bass in Pine Creek (Lycoming County) and Loyalsock Creek, two large streams with good water quality. The disease is more widespread than originally thought and occurs outside the areas you mentioned ought to be impaired based on diseased YOY bass. The fact that the disease is widespread over many types of waters indicates the presence of the disease alone does not support a proposed impairment to the waterway as you outline.

There are many unknowns about the disease. There may be a natural stressor weakening the fish such as the high water temperatures in recent years which correlate well with observations of the disease. The summer months since 2005 have seen some of the highest temperatures and lowest flows observed on the river. This may be a natural disease cycle tied to the population levels of the fish and changing natural conditions. Intersex fish have been observed indicating possible effects of endocrine disrupters and an increase in the number of parasitic hosts may mean more widespread and greater infestation of bass. All of these are possible factors that remain under consideration.

Moreover, only one species is exhibiting the adverse effects of the disease, there is no data demonstrating the warm water communities as a whole are impaired, the disease is widespread and even in good water quality waters, and not enough is understood about the interaction of this one species with possible natural and anthropogenic stressors to draw any conclusions. Dr. Viki Blazer, a fish pathologist with United States Geological Survey (USGS), will continue studies in this regard on the endocrine disrupters and parasites. DEP will continue work on the large river protocol and do macroinvertebrate sampling and we hope that PFBC will continue to look at new locations to determine how widespread the disease has become.

Your suggestion that DEP list the segment as impaired by "Cause Unknown" is not well taken by our DEP experts. That this has been done in the past is irrelevant here. When it has been done in the past it was because the rigorous data protocols for making an impairment proposal have been followed and scientifically support such a proposal. Here that is not the case. Also, I was surprised to read your suggestion in this regard that the proposed listing should be done to "focus attention and funding on the issue." These purposes are not a part of the scientific process that underlies the proposed listing process. To list a river as impaired by fiat as, basically, a publicity stunt is not an acceptable or appropriate thing to do.

I think you are operating under some misimpression about what listing would mean. In fact, listing the river as impaired by fiat, as you are suggesting, would not accomplish much with respect to the problem your letter discusses. Let me correct the misimpression you have that a Total Maximum Daily Load (TMDL) would be on line in two years. The Section 303(d) process does not work that way. In fact, even after actual listing which would come after proposed listing and approval of the proposal by the Environmental Protection Agency (EPA), EPA itself says that “[s]tates then provide a long-term plan for completing TMDLs within 8 to 13 years from first listing.”

Further, you should know that listing the river does not come with any additional funding. Consider that just the watershed from Sunbury to Holtwood encompasses 5,500 square miles, five major tributaries, and a multitude of smaller tributaries. All potential pollutant sources within all tributaries, as well as upstream sources in the main stem must be identified, sampled, and modeled in one massive TMDL. It would take many years to complete any TMDL.

My experts tell me that your suggestions that DEP impair the entire 98 miles of the Susquehanna River for dissolved oxygen and pH are simply not scientifically justified. The data on that was collected at only three stations and only two of these are representative of the main stem. Three locations cannot possibly be considered scientifically sound to be representative of 98 miles of the Susquehanna River. The Lower Susquehanna subbasin, which encompasses the miles suggested for listing, drains about 5,500 square miles in PA, has five major tributaries, and many smaller tributaries entering it. There are three major hydroelectric impoundments. To assess a watershed as large and complex as the Susquehanna River, many sample locations are needed to cover the varying anthropogenic and physical changes occurring in the basin. In addition, dissolved oxygen and pH are non-conservative, meaning they are affected by biological and mechanical process from one location to the next.

The dissolved oxygen data that violated state criteria on the Susquehanna was collected at one backwater site. There is no additional data to demonstrate this backwater area is representative of all backwater YOY smallmouth nursery areas along both shorelines of all 98 miles of river. There is no data to demonstrate how these low readings might differ from natural conditions under low flow and high temperature. It has not been demonstrated, to our knowledge, the YOY smallmouth are exclusively limited to these backwater areas. The information must be collected using a scientifically valid approach and fully represent the river both temporally and spatially.

The pH that violated criteria was minimally over the criteria of 9.0 at the three Susquehanna locations. This was not a problem for the YOY smallmouth. The 2009-2010 USGS report, states that “YOY smallmouth bass rarely were exposed to pH that exceeded 9.0 during the critical period, and values this high were sustained for periods of less than 12 hours. It, therefore, seems unlikely that pH is a major stressor to YOY smallmouth bass in the study reaches...” When pH was over 9.0 most observations were only between 9.1 and 9.2, rarely exceeding 9.2. Note that pH over 9.0 was observed in warm water streams other than the Susquehanna and Juniata during this time corresponding to high temperatures and low flows.

DEP takes these local criteria exceedances seriously and plans a larger study in the same area this summer. This includes deploying sondes at more locations and studying the relationship between algae biomass, nutrients, dissolved oxygen, and pH. I am happy to report to you that DEP has requested the complete monitoring record from USGS for the sites in question but we have not received that data yet. When we do we will fully review it.

Your suggestion that DEP impair the river for or on the basis of "noxious weeds" is not well taken by our DEP experts. DEP currently does not have a scientific method to assess the existence and impacts of "noxious plants." As a threshold matter a clear definition and then a scientific method that provides quantitative analysis and results would be required. I am happy to report to you that staff is researching a method that can be applied to the Susquehanna and Juniata Rivers. DEP has contracts pending with Dr. Hunter Carrick of Central Michigan University. Dr. Carrick is an expert in algae and nutrients who has worked with DEP for a number of years in developing nutrient criteria. This summer, Dr. Carrick will work primarily in the Susquehanna River. His task is to study the relationship between nutrients, algae, and dissolved oxygen. He will determine if there are excessive nutrients in the river that would stimulate noxious plant growth. Note there has been considerable reduction in the amount of total phosphorous, nitrogen, and sediment entering the rivers since the Chesapeake Bay TMDL was implemented.

We also received comments from you during the Integrated Report public comment period and we will respond to those comments in the comment/response document. We respond to all comments received and publish them on our DEP public Web site when we submit the Integrated Report to EPA for approval.

If you have any questions, please contact Alisa E. Harris, Acting Special Deputy Secretary for External Affairs, by e-mail at [aliharris@pa.gov](mailto:aliharris@pa.gov) or by telephone at 717.787.6490; Kelly Heffner, Deputy Secretary for Water Management, by e-mail at [kheffner@pa.gov](mailto:kheffner@pa.gov) or by telephone at 717.787.4693; or Rodney Kime, Environmental Program Manager for the Division of Water Quality Standards, by e-mail at [rakime@pa.gov](mailto:rakime@pa.gov) or by telephone at 717.787.9637.

Sincerely,



Michael L. Krancer  
Secretary

cc: Shawn Garvin, EPA Region III  
Senator Mary Jo White  
Senator Edwin B. Erickson  
Senator John T. Yudichak  
Representative Scott Hutchinson  
Representative Camille George