WATER RESOURCES ADVISORY COMMITTEE

July 29, 2020
9:30 a.m
Skype Meeting

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AGENDA

9:30 a.m. **Call to Order, Introductions and Attendance** –John Jackson, Chair

The meeting of the Water Resources Advisory Committee was called to order by John Jackson at 9:30 AM, via Skype due to the social distancing orders enforced during the covid-19 pandemic. The members of the committee introduced themselves. Of the 18 members of the committee, 12 were present.

The following committee members were present:

Harry Campbell-Chesapeake Bay Foundation

Jenifer Christman-Western Pennsylvania Conservancy

Shirley Clark, Ph.D., P.E.-Pennsylvania State University

Kent Crawford, Ph.D.-Retired, USGS

Andrew Dehoff-Susquehanna River Basin Commission

John Jackson, Ph.D.-Stroud Water Research Center

Theo Light, Ph.D.-Shippensburg University

Gary Merritt, P.G.-Northern Star Generation

Stephen Rhoads-Retired, Shell

Jeff Shanks-Waste Management

Steven Tambini-Delaware River Basin Commission

Charles Wunz, P.E.-Wunz Associates

The following committee members were not present:

Myron Arnowitt-Clean Water Action

Matthew Genchur-White Township

Jeffrey Hines, P.E.-York Water Supply

Cory Miller-University Area Joint Authority

Dean A. Miller-Pennsylvania Water Environment Association

Sarah Whitney-Pennsylvania Sea Grant

9:35 a.m. **Review and Approval of Minutes from May 28, 2020 Meeting** – John Jackson, Chair

Mr. Crawford pointed out a correction that needed to be made to the previous meeting's minutes. The second paragraph on page four of the minutes stated that Mr. Jackson asked if an alternative analysis would be expected to be provided for every project. This was asked by Mr. Crawford, not by Mr. Jackson. Mr. Haines stated that the revision would be made.

Aside from this minor revision, no other changes to the minutes were requested. Mr. Crawford moved to approve the minutes. Ms. Clark seconded that motion. The decision to approve the minutes from the May 28th meeting met no opposition and was unanimous.

9:45 a.m. **Stream Fish Assessment Method Based on a Thermal Fish Index** – Tim Wertz, Bureau of Clean Water-Water Quality Division

Mr. Wertz presented the Thermal Fish Index (TFI) which was developed by DEP as a means to assess Aquatic Life Use (i.e. maintenance, propagation, etc. of various subcategories of fishes), using stream fishes.

This index was based around the fact that species of fish are well known for their thermal preferences in the waters that they occupy. DEP developed the TFI based on extensive literature review and insight from regional experts. The TFI expands upon three traditional fish thermal classes (cold, cool, warm) with the addition of 2 more thermal classes. The TFI categorical thermal preferences include; cold, cold-cool, cool, cool-warm, and warm.

The TFI is used to calculate the relative abundance of aquatic species per thermal classification. Each of the five thermal categories are weighted (cold water being "1" and warm water being "5"). These weighted categories are then multiplied by the relative abundance of a species in their respective thermal preference. The total for each category is then added together and multiplied by two to expand the scoring range. The result is the TFI score. A TFI score can range anywhere from 2.0 - 10.0, with 2.0 indicating the coldest assemblage and 10.0 indicating warmest assemblage.

After developing these categories, DEP wanted to see what TFI scores were associated with Aquatic Life Uses outlined in the beginning of the presentation (Cold Water Fishes – CWF; Warm Water Fishes – WWF). To do this, DEP used the trout percent abundance and percent occurrence metric for fish

samples from Pennsylvania surface waters to see how they aligned with the entire fish assemblages in both limestone and freestone environments.

The TFI assessment method is a standardized index applicable across all Pennsylvania waterbodies. This is important because many other traditional fish indices developed for waters across the nation require standardizations for different waterbody classifications. Because the TFI uses a relative thermal ranking, a unitless score with major ecological relevance, it can be applied across all Pennsylvania waterbody classifications.

Mr. Crawford asked if each one of the rows in the chart on slide 8 of the presentation represent a different stream and how the TFI was calculated. Mr. Wertz replied that the data in the rows are based on samples, not necessarily different streams. Mr. Wertz also explained that the TFI is calculated for a particular sample by multiplying the percentages under each of the thermal preference categories by their relative weight/category ranking, adding them together, and then doubling the overall result in order to expand the range.

Mr. Rhodes inquired about how the TFI came about. Mr. Wertz explained how the TFI started in 2016 when DEP was investigating the development of an index associated with increased data collection efforts on the Susquehanna River in response to concerns related to smallmouth bass population declines.

Mr. Rhodes also asked if DEP plans to have the TFI evaluated and examined by outside parties for peer review. Mr. Wertz indicated that the TFI was developed with input from EPA, the Pennsylvania Fish and Boat Commission and the Susquehanna River Basin Commission. Mr. Wertz also indicated that publication in a scientific journal would be pursed subsequent to finalizing the TFI technical documentation and the assessment method.

Ms. Christman was curious as to how many individual fish it takes to provide a representative sample that can accurately be evaluated with the TFI. Mr. Wertz explained that after a review if the technical documents regarding sample size and based on his professional experience, the number was somewhere around 50 individuals for fish data collections in Pennsylvania surface waters. This means that a sample with less than 50 individuals may not have been collected according to data collection protocols or that sterile or toxic conditions exist within the surface water. If less than 50 individuals are collected, further evaluations would be required to ensure adherence to protocols and/or to characterize toxic or sterile conditions. Further evaluations could also include additional data collection.

Mr. Crawford wanted an example of the TFI scoring method and asked what the score would be for the Susquehanna River in the Marietta area. Mr. Wertz said that Marietta is an interesting site because fishes tend to move around a bit and many of those fishes move up from impounded portions of the river into the flowing portions. Mr. Wertz indicated that Marietta samples score approximately 8.4 with the TFI. At times, the Marietta sample TFI scores will exceed TFI impairment thresholds, but this could be attributed to habitat modifications (impoundments) that have existed for a very long time. Mr. Crawford then asked what type of score samples collected from the Susquehanna River at Clemson Island would receive given it has no impairments, to which Mr. Wertz responded that samples for Clemson Island are generally below impairment thresholds.

Mr. Wunz asked if DEP had considered the fact that one particular point on the Susquehanna River may have several different habitats and water influenced by different branches and local tributaries. Mr. Wertz confirmed this and said the development included sites within the three major water quality zones to encompass all of the difference influences to the Susquehanna. When it comes to fish assemblages, those systems are not overly different from one another because fishes do tend to swim across the influence and zone barriers, unless the water quality across zones is significantly different.

Mr. Jackson asked if DEP's support documents of the TFI assessment method included the analysis to support the claim that this index performs the same as or better than other fish indices, to which Mr. Wertz responded affirmatively. Mr. Jackson proceeded to ask Mr. Wertz what it means to him to have a thermal tolerance metric as opposed to an index that mainly takes habitat into account. Mr. Wertz explained how habitat, temperature and water quality all play significant roles when it comes to fish assemblages. One of these factors is not more important than another; they all impact each other. Temperature of course is important, but without a temperature change, the assemblage changes drastically as you move away from a cobble dominated type system to a slow moving, silted-bottom type stream. The same goes for water quality; the higher quality of water, the cooler the assemblage, assuming habitat and temperature are adequate. It may be challenging in certain cases to determine which of these three factors is most important due to the co-variants that are present.

Mr. Jackson also had questions regarding the graph on slide 9 and asked how Mr. Wertz would interpret the difference between the limestone and the freestone percent abundance (PA). Mr. Wertz stated the abundance and the dominance of fishes in the limestone group is very important. The limestone systems typically show a dominance of brown trout which differs greatly from freestone systems that will have several different species in a particular sample.

Mr. Jackson asked if there was a minimal stream length or stream area that would need to be included to make sure that the samples cover a diversity of habitats. Mr. Wertz explained that the monitoring book outlines all of procedures for the collection protocols. The procedures are standardized, and the targeted reach length is 10 times the wetted stream width for a wadable stream and 500 meters long for boatable, non-wadable sites.

Mr. Crawford asked how impaired areas are rated on DEP's TFI scale and how those impaired areas would then be rated on the 303(d) list. He then asked if other factors are taken into account such as water chemistry and how DEP's TFI scale ranking would relate to other assessments. Mr. Wertz stated that they use the best available data to assess and to determine sources and causes of impairments. In addition to fish data, DEP is also collecting other data including habitat and water chemistry. Mr. Wertz also confirmed that if a TFI score indicates attainment, but the macroinvertebrate method indicates impairment, then the surface water could be listed as impaired because the two methods (fish and macroinvertebrates) are independently applicable.

10:30 a.m. **Guidance on Notification Requirements for Spills, Discharges, and other Incidents of a Substance Causing or Threatening Pollution to Waters of the Commonwealth Under Pennsylvania's Clean Streams Law TGD (383-4200-003)** – Theia Hofstetter, Bureau of Clean Water-Wastewater Operations

Ms. Hofstetter presented a brief overview of a draft proposed technical guidance document concerning notification requirements for spills and pollution incidents under PA's Clean Streams Law. The guidance is specific to 25 Pa. Code 91.33 and 25 Pa. Code 92a.41(b). In general, if a spill occurs, DEP should be contacted. Ms. Hofstetter explained in depth the reporting requirements for each regulation.

No questions were presented following the presentation.

10:40 a.m **General Discussion** - John Jackson, Chair

Ms. Light had a question for Mr. Wertz. Ms. Light was curious as to if there is an easy tool for students to get the information that already has the measurements of stream sites and also designates if a stream site is either limestone or freestone. Mr. Wertz replied that DEP does have the steps of how to categorize stream sites documented fairly well in the technical and assessment documents. Mr. Jackson also shared a public website where all of this information is readily available via an easy online mapping tool.

10:45 a.m. **Public Comment Period** – John Jackson, Chair

Mr. Troutman, Senate Environmental Resources Committee, inquired as to what prompted the spill notification technical guidance document to be created. Ms. Hofstetter indicated that it was created to replace the fact sheet DEP once had. Policy states that fact sheets must be reviewed every few years. Upon its most recent review, DEP decided to create a guidance document instead of a fact sheet because guidance documents have a longer period of time between each required reviewing period. Mr. Troutman then asked if DEP has considered adding any thresholds in terms of spillage as other states have incorporated. Ms. Hofstetter explained that each spillage situation is unique and due to the regulations not including any thresholds themselves, the technical guidance document is following suit.

Ms. Atkinson reinforced that any suggestions would be able to be presented during the public comment period and that the DEP would consider those comments and evaluate options moving forward.

10:52 a.m**. Adjourn –** John Jackson, Chair

Ms. Light motioned to adjourn the meeting. Ms. Christman seconded the motion. The meeting was adjourned at 10:52 a.m.

Next Meeting: September 30, 2020