

Testimony on HB 1275 for the Pennsylvania House of Representatives Environmental Resources and Energy Committee

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Prepared Statement:

Thank you for the opportunity to comment on the subject matter of this proposed legislation.

My name is Roland Wall, I am the Executive Director of the Patrick Center for Environmental Research. For over 70 years, the Patrick Center has studied and worked to manage the impacts of human activities on aquatic systems, with special attention to nonpoint source pollution from stormwater. Most recently, our team has provided scientific guidance and support to the Delaware River Watershed Initiative (DRWI), a program that has focused on reducing nutrient and sediment pollution due to land use activities in the watershed.

I doubt that this Committee needs more evidence of the importance of riparian buffers. The use of buffers as a best management practice to limit nonpoint source pollution is well understood and widely applied. There is abundant literature that describes in detail the ecological and engineering principles underlying the design and implementation of buffers.

The scientific evidence is also well established as to the effectiveness of riparian buffers. Although the quantitative effectiveness of specific buffers may vary based on a variety of factors (soils, local geology, flows, etc.) the literature indicates consistently that forested buffers of equal to or greater than 30 meters (~ 100 ft.) are highly effective in filtering nutrient runoff.

Nor should the Committee be surprised by the need to limit nonpoint pollution. The PA Department of Environmental Protection's 2022 Integrated Water Quality Report indicated that 33% of the Commonwealth's streams and rivers are listed as impaired. Agriculture and

stormwater were cited as 2 of the 3 major drivers of impairment. (Acid mine drainage, the third cause, is outside the scope of these comments.)

Beyond their importance for water quality, riparian buffers provide many other benefits, including shading to control stream temperatures, providing wildlife habitat and food sources for aquatic organisms, increasing open space, controlling erosion, and mitigating floods. These positive cumulative impacts of buffers result in both ecological and economic benefits.

Despite these benefits, there have been objections raised as to the necessity and practicality of legally mandated riparian buffers. These objections often relate to limiting the ability of property owners to fully utilize their land. While the legal arguments for balancing property rights with public good are beyond the scope of my expertise, I would point out that water quality, ecological health, and biodiversity all have substantial economic value for landowners that should be considered in shaping legislation.

There is extensive economic literature demonstrating the connections between water quality and property values. In studying Puget Sound, for example, Papenefus (2018) indicated that proximity to impaired waterbodies led to an annual depreciation of \$1,942 in property values. In the Chesapeake Bay region, Irwin and Wolf demonstrated that improvements in water clarity increased house sale prices by \$9,900. Overall, Mamum et al. (2023) found that on a national scale “property values appreciate by \$6 to 9 billion if water quality is improved by 10%.”

These are just a few examples of how ecological conditions can have economic impacts.

Maintaining clean water and functioning ecosystems can be a rational goal for property

developers planning to maximize their investment. Ignoring the impacts of nonpoint source pollution can have long term effects on return-on-investment.

Eutrophication, to name one impact, is a condition driven by nutrient runoff that can lead to undesirable and sometimes dangerous algal blooms, fish kills, and reduced recreation value.

The financial, aesthetic, and public health implications of eutrophication alone can have substantial impacts on property values and quality of life considerations.

In agricultural settings, objections to enforced riparian buffers focus on lost income from loss of tillable land. Although this legislation would exempt agriculture that is operating under existing state and federal guidelines, the need to maximize crop production is a real issue in efforts to use riparian buffers as a management tool. However, there are now specific 3-zone design systems that build agricultural products into buffer zones, with harvestable tree and bush crops. The United States Department of Agriculture (USDA) provides a variety of resources to support agroforestry in riparian buffers. Multiuse buffers can also have value for nonresidential properties, and the PA Department of Conservation and Natural Resources supplies materials outlining this process.

I would also note that technology offers increasingly sophisticated methods for managing the use of buffers and other mitigation practices in both urban and agricultural settings. Using targeted biophysical monitoring, supported by a range of watershed models, managers can identify major stormwater stressors, their flow paths in specific sub-watersheds, and develop best management practices.

As we learned in the Delaware River Watershed Initiative, protecting riparian zones is the cumulative outcome of many local actions. This legislation recognizes that buffers must be applied on a stream-by-stream and property-by-property basis. In the case of the DRWI, over 50 miles of stream buffers were restored in the Delaware basin. While this is a small fraction of the riparian buffers needed in the Commonwealth, it demonstrated that such focused work is possible.

The USDA Forest Service citation? estimates that over 1/3 of the riparian forests in Pennsylvania have been lost to development, with 60% of the buffers within the Chesapeake drainage degraded (State of PA, 1998). These losses mirror the scale of stream impairments noted above. While there are many variables involved in protecting and improving water quality, riparian buffers are a well-established method in offsetting human impact on streams. I commend the legislature for considering this issue and thank you for the chance to comment.

References

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