Conowingo Dam Talking Points

Background

* The Conowingo Dam is located on the lower Susquehanna River about ten miles upstream from the mouth of the Chesapeake Bay in Conowingo, Maryland.
* The Susquehanna River delivers an average of 25 billion gallons of fresh water into the Chesapeake Bay each day.
* The Conowingo Dam, a hydroelectric dam, opened in 1928 and is currently owned by Exelon Energy Corporation.
* Hydroelectric dams do not require any fuel source to run, only relying on the force of water to sustain its electricity production.
* The lower Susquehanna River has two other dams upstream of the Conowingo: Holtwood and Safe Harbor.
* The Conowingo Dam serves many purposes in addition to trapping sediment that flows downstream. These include being a source of drinking water for the city of Baltimore, a cooling station for water used to power a nuclear generation station and for recreational boating and fishing.
* When the Chesapeake Bay Total Maximum Daily, or Bay TMDL, was put into place in 2010, it was based on the assumption that conditions would remain unchanged in the reservoir with respect to sediment trapping and that the climate would remain steady.
* At this time, the storage capacity of the Dam was estimated to be trapping as much as 2 percent of nitrogen, 45 percent of phosphorus and 70 percent of sediment flowing downstream into the Chesapeake Bay.

What’s the problem?

* Since the Bay TMDL was established in 2010, new models, monitoring data and research have indicated that reservoir conditions have changed.
* The Susquehanna River, beginning in upstate New York, picks up agricultural, suburban, stormwater and urban runoff as it flows through Pennsylvania into Maryland.
* Over the years, the phosphorus and sediment trapped by the Dam have built up to the point where the storage capacity of the reservoir behind the Dam is almost full.
* The storage of both the Holtwood and Safe Harbor dams have also been filled to capacity, a condition that was reached several decades ago.
* A 1997 United States Geological Survey (USGS) report estimated that the Conowingo Dam had, by that time, accumulated 174 million tons of sediment, 670,000 tons of nitrogen and 130,000 tons of phosphorus.
* In 2015 USGS reported that the Dam had reached 92 percent capacity.
* When the storage capacity is met, the sediments and nutrients currently being trapped will instead flow downstream and into the Bay.
* When at total capacity, the Dam’s storage will be half-full with sediment.
* Extreme weather events, such as Hurricane Agnes in 1972 and Tropical Storm Lee in 2011, can be catastrophic because they churn up large amounts of built-up sediment and nutrients that then flow in the Bay, decimating underwater grass beds and marine life.
* Recent publications from the USGS and Johns Hopkins University indicate that the reservoir’s sediment-trapping performance has declined substantially since around 2000. That decline in trapping efficiency was observed under many flow conditions.
* Although the loss of trapping capacity will significantly increase the sediment load moving through the Susquehanna River system, it is the nutrients that are attached to this sediment that will have the largest impact on the water quality of the Bay.
* The additional sediments and nutrients reaching the Bay would increase algae blooms and turbidity, clog navigation channels and destroy underwater grasses, which are a vital habitat for marine life.
* The nutrient reductions called for in the Susquehanna watershed by the Bay TMDL are no longer enough to meet goals for dissolved oxygen in the deep waters of the upper Bay.

The issue with dredging

* The sediment trapped behind the Dam contains not only sand and soil, but also significant amounts of coal, toxic metals, PCBs, methane gas, phosphorus, antibiotic-resistant bacteria and low levels of radiation.
* Sediment is extremely small and hard to catch in the water.
* Sediment would need to be transported for disposal, and the pollutants found within could leach into the soil and water.
* The sediment may also be reused once collected and turned into a marketable product (e.g., construction materials).

Is there a solution?

* The amount of sediment flowing downstream has greatly decreased over the past several years, thanks in part to lower-than-average rainfall and better soil management practices.
* Scouring events tend to follow periods of heavy rainfall, hurricanes and melting snow.
* An appendix to the Bay TMDL states that the Environmental Protection Agency (EPA) would consider adjusting the two-year milestone loads for Maryland, New York and Pennsylvania if the Dam were to fill up prior to 2025.
* As a matter of equity, the Bay TMDL allocations were developed so that everyone must share in the task of restoring the Bay; therefore, it has been suggested that all watershed jurisdictions should share in absorbing the additional pollution reductions needed to account for the Conowingo Dam reaching full capacity.
* To account for the increased pollution as a result of the Conowingo Dam reaching full capacity, the Chesapeake Bay Program’s Principals’ Staff Committee agreed to develop a separate Conowingo Dam planning target, with its own Watershed Implementation Plan (WIP) and to pool resources in areas determined to have the most impact on Chesapeake Bay water quality.
* An independent third party will be contracted to facilitate the development and implementation of the Conowingo WIP.
* A representative from every partner organization will work together collaboratively to develop the WIP, which will include determining a fund manager, assigning specific jurisdictions’ load reduction responsibilities (including shared resources), and working with EPA and other federal partners on federal funding allocations.
* The WIP will take into account local government and public engagement strategies, the identification of specific reduction practices and an associated timeline, identification of funding sources, establishment of a fund manager, and the determination of any gaps and contingencies to address those gaps.
* The Principals’ Staff Committee sent a letter to Exelon Energy Corporation emphasizing the importance of their continued involvement in the effort to address the water quality impact from the Conowingo Dam.