

Wetlands Mapping Strategic Plan

Wetlands have become a newly identified land use in the Phase 6.0 Chesapeake Bay Watershed Model (CBWM). While Pennsylvania agreed that identifying wetlands as a land use is beneficial, the Commonwealth dissented because the data that was proposed to identify the existing, natural wetlands is based on 30+ year old aerial imagery. In order to gain consensus at the Water Quality Goal Implementation Team level, Pennsylvania agreed to the land use designations, with the condition that improved wetland mapping data will be included in the CBWM 6.0. The approach proposed in this document to meet the short-term needs by September, 2016 would cost an estimated \$60,000 to \$100,000.

OBJECTIVE: The short-term objective is to provide accurate wetland mapping data for inclusion in the Phase 6.0 CBWM. The deadline to meet this objective is September, 2016. The long-term objectives are to provide the ability for jurisdictions to prioritize and target resources for wetland practices such as restoration and enhancement and to include the data in the National Wetlands Inventory (NWI). The long-term objectives, and the means to achieve those objectives, will be brought back to the Wetlands Expert Panel and Wetlands Workgroup for discussion.

The focus of this paper is the means and methods by which we will meet our short-term objective: provide updated, improved wetlands mapping data for all Bay jurisdictions for inclusion in the CBWM 6.0 by September, 2016. The support of the Management Board is needed due to the limited time frame and the funding needs in order to achieve this goal.

1) Short-Term Objective (0-1st year): Improved mapping of wetland resources must be incorporated into the Phase 6.0 CBWM by September, 2016. This need is identified in the draft Wetlands Workplan, Management Approach #1.

2) Intermediate Objective (1st – 3rd year): Prioritize and target resources to the areas most in need of restoration and enhancement. This need is identified in the draft Wetlands Workplan, Management Approach #4.

3) Long-Term Objective (3rd – 10th year): Develop a continuous process to update the NWI base layer to incorporate newly restored and created wetland acres on a regular basis.

DECISION REQUESTED: Action from the Management Board is sought to 1) move forward with the short-term objective to meet the September, 2016 deadline and; 2) provide EPA/CBP contracting assistance and financial resources to meet the short-term objective. Due to economies of scale, the most cost-effective approach would be to include all Bay jurisdictions in the mapping update; although consistency across all Bay jurisdictions would lead to the best possible outcome, jurisdictions may choose to opt in or out of the strategy.

BACKGROUND: The National Wetlands Inventory (NWI) was established by the US Fish and Wildlife Service (FWS) to conduct a nationwide inventory of U.S. wetlands to provide biologists and others with information on the distribution and type of wetlands to aid in conservation efforts. Pennsylvania as well as other Bay jurisdictions have outdated NWI mapping, which can be over 30 years old. A full-fledged update of NWI is not feasible in the limited time frame, as it takes multiple years (at what is estimated to be a much higher cost) to complete.

While NWIPlus enhances NWI by “adding hydrogeomorphic properties to the NWI database (i.e., increased functionality)” (FWS, NWIPlus Fact Sheet), on its own, it is not a viable solution. NWIPlus adds attributes including landscape position, landform, water flow path, and water body type to the existing mapped data, which is beneficial to those areas that have already been mapped. However, NWI does not capture all of the existing wetlands, specifically due to the age of the data; research has shown that for some geographic areas, NWI underestimates natural wetlands by up to 50 percent. (Wardrop et al. 2007) NWI maps do not show all wetlands, but attempt to show most photo interpretable wetlands given considerations of map/photo scale and wetland delineation practices.

RELEVANCE: Improved wetland mapping and prioritization are identified in the draft Wetlands Workplan. By identifying wetlands as a separate land use in the CBWM 6.0 calibration, best management practices associated with existing wetlands, such as enhancement, now can be collected and reported. Existing natural wetlands would have lower loading rates than Agriculture and Urban/Development

Wetlands Mapping Strategic Plan

land uses; by identifying wetlands separately from the other land uses, a better overall picture is provided of what the watershed looks like. In addition, when wetlands are accurately identified across the Chesapeake Bay Watershed, the Bay jurisdictions can better identify the actual needs and, in the long-term, prioritize and target their resources. The above justifies the need for newer and more comprehensive wetland mapping data.

SHORT-TERM SOLUTION: Derived Wetland Data Supplement to NWI

The Upper Susquehanna Coalition (USC) has provided Pennsylvania with a wetland mapping proposal that is a derived system; it utilizes modeling to identify potential wetlands to a high degree of accuracy. This approach will be shared with the Wetlands Workgroup on November 19 by Patrick Raney, PhD. and USC Wetland Scientist. While the process does not meet Federal Geographic Data Committee (FGDC) standards for NWI, it is robust enough to use as a supplementary, additional layer to NWI. Also, there is potential to incorporate the data in NWI in the future. USC has its own specialized GIS databases for wetland resources, in house support to model the distribution of wetland restoration opportunities, rare and underrepresented wetland types (both extant and restorable), and prior experience setting regional level wetland restoration and preservation priorities under a joint partnership with research scientists at SUNY-ESF under an EPA Wetland Program Development Grant.

Phase I (mapping of high restoration potential wetlands) is the key component, as that is what is needed by September, 2016. Phases II (mapping of rare wetland types and restoration opportunities) and III (prioritization of Phase II) can be done as part of a long-term plan, if deemed appropriate by the Wetlands Expert Panel and Wetlands Workgroup.

The estimated cost for Phase I, including all jurisdictions in the Bay Watershed, is in the range of \$60,000 to \$100,000.

LONG-TERM SOLUTION: Not only can the data provided by USC for mapping purposes be used in the CBWM 6.0, it may have the ability to be utilized for incorporation into NWI in the long-term. For instance, Penn State Riparia may be able to utilize the derived mapping data to meet the FGDC standards for inclusion into NWI. This and other long-term approaches will be brought back to the Wetlands Expert Panel and Wetlands Workgroup for review and approval.

SHORT-TERM TIMELINE (0 – 1st YEAR)

Task	Timeline	Progress/Goals
Begin process of compiling information to update wetland mapping data	September, 2015	Department staff spoke with Wetlands Workgroup Co-Chairs, USGS, Delaware DNREC, USFWS NWI staff, EPA R3 and reached out to PSU and USC
Assemble Strategic Plan and identify Resource Needs	October, 2015	Strategic Plan has been written; resource needs identified
Work with CBP workgroups and Management Board	November, 2015	Upper Susquehanna Coalition is slated to present their modeling methodology at the November Wetlands Workgroup meeting; PA DEP presentation at November Management Board meeting
Identify the means and method of updating mapping data	December, 2015 - January, 2016	Identify funding source; Identify other jurisdictions for partnering on project
Retrieve funding, enter into contract for project	January - February, 2016	Funding needs to be provided prior to contracting of the project
Commence Objective 1 of project - Updating mapping data	February - August, 2016	Final update needs to be provided by September, 2016
Updates provided to the Wetland Workgroup, Modeling Workgroup, and associated Goal Implementation Teams	Ongoing - January - September 2016	Work with Chairs/Co-Chairs of the groups and teams
Complete Objective 1 for incorporation into CBWM 6.0	September, 2016	Include updated mapping data in CBWM 6.0