

# Depicting the Value: The Importance of Wetland Mapping

## Essential for Management, Necessary for Protection, Critical for Restoration



### Wetlands and What They Provide

Wetlands are ecosystems that are flooded or saturated by water which can fluctuate from season to season, and which have soils and plants that are adapted to these wet conditions. There are different wetland types and they typically exist between uplands and open water areas, but can also be wet forests, or depressions, or as part of a floodplain along rivers and streams. They include marshes, bogs, rivers, ponds, swamps, lakes, seeps, and wet meadows. Wetlands are vital to a healthy environment and provide valuable natural services that benefit people such as storm protection, flood control, cleaning and filtering water, providing wildlife habitat, and recreational opportunities.

### Wetland Mapping

The most accurate method of determining where wetlands exist on the ground is an on-site delineation by a wetland professional. But this can be expensive and time consuming, especially when trying to inventory wetlands across all of Delaware. Mapping wetlands across the state is an efficient and valuable method to identifying where wetlands are likely to exist as a guidance or pre-delineation tool. When mapping, there are a variety of data that help determine where wetlands are such as aerial imagery, soils maps, elevation, and land use/cover. In the past 20 years, the technology to produce accurate wetland maps without visiting each wetland on the ground has become cheaper and more reliable. Even with the advances in technology, a random set of field visits are made for quality assurance/quality control to produce accurate replication with automated processes. Additionally, federal wetland mapping standards are in place and the assistance of the [U.S. Fish and Wildlife Service's National Wetlands Inventory \(NWI\)](#) is important in keeping consistency across many mapping efforts in the U.S. The NWI Wetlands Mapper is a critical online reference for the public to find wetland data and maps nationwide.

### What Wetland Mapping Data Shows

Wetland maps have evolved to deliver a wide range of information about each wetland type, location, and size. [Each wetland is coded](#) and classified using an ecological description and a physical description. For example, looking at one wetland you can find out that it's a Palustrine class, that is forested with needled leaved evergreen trees as dominant, that it has a certain degree of wetness, and if it's been modified from its original form from natural or man-made causes. Additional physical features may reveal where the wetland exists in the individual watershed, what is the source of its water, and does that water flow or remain in the wetland. These characteristics give information for planning and resource management which is available online without having to go on site, saving time and costs.

### How Are Wetland Maps Used:

- Development of comprehensive resource management plans
- Environmental impact assessments
- Natural resource inventories
- Habitat surveys
- Research
- Land use or development planning

There are many professions that use wetland maps in their everyday work, as well as individual landowners who want to know what's on their property. Wetland maps are used by local, State, and Federal agencies, as well as by academia, private industry, and organizations. Being able to reference wetland maps provides significant savings in time and costs for many professions in developing research, planning projects, creating site plans, permitting projects, mitigation planning, and restoration

## Importance of Updates and Keeping Wetland Maps Current

Because there are both natural and man-made changes happening at ground level constantly, it's important to update wetland maps at regular intervals. Changes to infrastructure such as roads, buildings and houses, or loss of wetlands due to sea level rise, provide examples of evolving landscape characteristics. To account for how wetlands are faring over time, regular mapping updates are vital and allow for the assessment of wetland status and change (e.g., gains, losses, and change in type).



Example of a wetland loss in Delaware. Outlined in orange is an example of a non-tidal forested wetland in 2007 (left) that was converted to agriculture by 2017 (right).

## Mapping Wetlands in The First State

Delaware has been fortunate to have four statewide wetland mapping efforts (1981/2, 1992, 2007, 2017), which is likely the most of any state in the U.S. [Delaware DNREC](#) coordinated with NWI to share this data to the public. These wetland map updates have enabled the production of three status and changes reports to see the trends between each mapping effort. Importantly, this also involves tracking the beneficial functions and services that wetlands provide. For Delaware, ideally statewide maps would be updated every five years, but wetland scientists in Delaware anticipate a map update again in 2027 (next 10-year interval) pending funding to support this effort, including partnership with NWI. It is essential to identify and secure funding and administrative support to update wetland maps at regular intervals which provides enormous time and costs savings by many user groups.

