

## Handout 1.1a Watersheds and the Watershed Approach

I have titled this course “The Virginia Peninsula from a Watershed Perspective” because we will be exploring this areas geography, geology, ecology, hydrology, history and environmental future from the viewpoint of the watersheds that make up the peninsula. By peninsula, I mean the body of land boarded by the James and York River and the Chesapeake River. The United States Environmental Protection Agency, USEPA, in the early 1990s began to promote a watershed approach as a way to implement the Clean Water Act, passed by Congress on October 18, 1972, at the time the concept of a watershed was strange to most people. Now, the term is commonly used in literature and in public education and watershed boundaries can easily be found on maps and signs are posted that announce the watershed that you are entering. Essentially, in this course we will look at the peninsula where we live through a watershed lense.

What is a Watershed? *The land area that drains to one stream, lake or river* – affects the water quality in the water body that it surrounds. Like water bodies (e.g., lakes, rivers, and streams), individual watersheds share similarities but also differ in many ways. Every inch of the United States is part of a watershed – in other words, all land drains into a lake, river, stream or other water body and directly affects its quality. Because we all live on the land, we all live in a watershed — thus watershed condition is important to everyone. Watersheds exist at different geographic scales, too. The Mississippi River has a huge watershed that covers all or parts of 33 states. You might live in that watershed, but at the same time you live in a watershed of a smaller, local stream or river that flows eventually into the Mississippi. EPA’s healthy watersheds activities mainly focus on these smaller watersheds.

We have defined the watershed approach and spoken about watersheds in general. In the next several slides we will better define a watershed and talk about how they are mapped, organized and used to analyze water resources and to communicate and gain understanding of water resources and water resource issues. This video defines a watershed and describes how water flows within the specific boundaries of a watershed. A big difference between the watersheds found in lowland areas such as the peninsula and piedmont of mountainous areas of Virginia is the types of flows you see within watershed. In our area flow is significantly affected by tidal influences and not as much by elevation although in comparison to Florida,

where I worked for many years the peninsula is “mountainous”. To learn more about your individual watershed use <https://mywaterway.epa.gov/community/>

The primary reason for the USEPA to view water resources through a watershed approach was for the management of non-point pollution. By 1990, the USEPA and its state and local partners had put into effect major pollution control actions for point sources such as hazardous waste sites, waste water treatment sites and waste dumping sites and many others industrial, municipal and agricultural pollutant sites where a point source could be identified. However, for stormwater management and other types of non-point sources of pollution, or NPS pollution, there was not a coordinated management approach. To address this, the USEPA created a watershed approach to manage water resources on a watershed basis and published the [Watershed Approach Framework, in June 1996](#) to assist in the approaches implementation. This framework envisioned a mapping of “nested watersheds” as the method of managing NPS pollution. In this context a “Watershed Prospective” is looking at an area of land based on the nested watersheds that make up the area. This gives us a framework of study that connects the land to its water resources.

A good example of a watershed based program is the Chesapeake Bay Preservation Act, 1988. This act preceded the USEPA Watershed Approach Framework, 1996, but embodies the primary goals of the framework.

The original Watershed Approach Framework states “The watershed approach should take into consideration the findings of and priorities established under preexisting initiatives, such as the Comprehensive State Ground Water Protection Program (CSGWPP), Wellhead Protection Program, State Wetlands Conservation Plans, National Pollution Discharge Elimination System (NPDES), watershed or basin strategy, National Estuary Program Comprehensive Conservation Management Plan, or Clean Lakes projects. In addition, states and tribes should take into consideration the goals and plans of relevant large-scale projects, such as the Chesapeake Bay, Great Lakes, and Gulf of Mexico programs and the Northwest Forest Plan and Everglades initiative. These projects may provide significant opportunities for "nesting" smaller projects within larger frameworks, yielding benefits to both.” We will look at the Chesapeake Bay in the second section of today’s lectures.

The USEPA in cooperation with the USGS employs the Hydrologic Unit Code or HUC methodology to tie together Hydrologic, Environmental and Civic data and the programs mentioned above in a framework of nested watershed.