

Glossary

Words used in definitions that are themselves included in the glossary are shown in italics.

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| ague | A malarial fever with recurring chills and sweating fits. |
| anoxic | Lacking oxygen. |
| aquifer | A layer of soil or rock that is saturated and is capable of transmitting significant quantities of water. Some material, such as clay, can transmit very little water and will not generally be thought of as an aquifer. Other material, such as sand, gravel, or <i>sandstone</i> , can transmit significant quantities of water. |
| base flow | Flow in a stream during dry weather than is fed by <i>groundwater</i> seeping into the stream through its bed and banks. |
| B.C.E. | Before the Common Era. Equivalent to B.C. when used with dates. |
| bedrock | The layer of solid rock that underlies the surface soil. Bedrock in the <i>upper Doan Brook watershed</i> is <i>sedimentary rock</i> that lies a few feet below the surface. The sedimentary bedrock of the <i>lower watershed</i> lies several hundred feet below the surface. |
| biofiltration | The process of passing water through a concentrated colony of microorganisms that feed on contaminants found in the water. Biofiltration experiments on Doan Brook have used naturally occurring microbes to reduce the high concentrations of <i>nutrients</i> in the brook water. |
| BMP | Best Management Practice. BMPs for <i>watershed</i> management and development are the most effective and practical approaches to controlling <i>point</i> and <i>non-point source pollution</i> to levels that meet environmental quality goals. |
| C.E. | Common Era. Equivalent to A.D. when used with dates. |
| cfs | Cubic feet per second. Cfs is the unit typically used to report the rate at which water flows past a given point in a culvert or stream. |
| COE | United States Army Corps of Engineers. |
| combined sewer | A sewer line that carries both <i>stormwater runoff</i> and <i>sanitary sewage</i> . |
| confluence | The place where two streams meet. |
| CSO | Combined Sewer Overflow. Overflows of combined sewers to streams and lakes generally occur during wet weather, when the volume of <i>stormwater</i> is too large for the sewers to carry. |

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| culvert | A pipe that carries a stream from one above-ground section to another above-ground section. For example, the pipe that carries a stream under a road is a culvert as is the long pipe that carries Doan Brook beneath University Circle. |
| CWRU | Case Western Reserve University. |
| daylighting | Restoring a section of a stream that has been confined in a culvert or storm sewer to an above-ground channel. |
| Design Flood | The flood that a dam or other structure must, by regulation, be designed to safely withstand. The Design Flood for Horseshoe Lake dam and the Lower Shaker Lake dam is one half of the <i>PMF</i> . |
| drainage area or drainage basin | See <i>watershed</i> . |
| dredge spoil | Soil material that is removed (dredged) from the bottom of a lake or stream and then must be disposed of. |
| DVI | Doan Valley Interceptor sewer. The DVI is a <i>combined sewer</i> that runs roughly parallel to Doan Brook in the <i>lower watershed</i> . |
| EPA | Environmental Protection Agency. |
| Escarpment | A long, cliff-like ridge of land or rock. In this handbook, the Escarpment (capitalized) refers specifically to the Portage Escarpment, the sharp fall in elevation that represents the westernmost edge of the Appalachian Plateau and separates the <i>lower</i> and <i>upper</i> Doan Brook <i>watersheds</i> . |
| eutrophic | Having high <i>nutrient</i> content and high biological activity. Refers specifically to lakes. |
| exotic species | Species of plants or animals that are not native to the area. |
| fissile | Geologic term referring to rock (generally <i>shale</i>) that breaks along parallel planes as it weathers, resulting in thin, plate-like fragments. |
| flood | See Appendix H for a discussion of flood return periods (that is, the definition of a 5-year flood, etc.). |
| gabions | Rock-filled wire baskets (generally square) that are stacked together to reinforce an eroding stream bank. |
| glacial till | A soil made up of jumbled clay, silt, sand, gravel, and sometimes larger particles, that was deposited in a relatively thin layer (generally less than a few tens of feet) by the glaciers as they retreated. Glacial till makes up much of the soil of the Doan Brook <i>watershed</i> . |

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| groundwater | Water that soaks into the soil and then flows within the matrix of soil or rock particles. Many people picture groundwater as a series of streams flowing in caverns beneath the ground. This is only rarely the case. Most of the time, and certainly in the Doan Brook <i>watershed</i> , groundwater works its way through the soil and rock, winding tortuously among the soil or rock grains and seeping through cracks in rock. If you dig into an <i>aquifer</i> beneath the Doan Brook watershed, all you will find is wet soil or rock. |
| headwaters | The upstream-most sections of a stream; the area where a stream originates. |
| HHI | Heights/Hilltop Interceptor sewer. The HHI is a network of large-diameter <i>interceptor sewers</i> that is under construction in the <i>upper watershed</i> . When complete, it will divert much of the upper watershed's <i>sanitary sewage</i> away from the <i>Doan Valley Interceptor</i> . |
| hydrology | The science that deals with the circulation, distribution, and properties of the waters of the earth. |
| hypereutrophic | Having excessively high <i>nutrient</i> content and biological activity. Refers specifically to lakes. Hypereutrophic lakes (like all of the Shaker Lakes) are aesthetically unappealing at times due to odor, excessive plant and algae growth, and high turbidity. The dissolved oxygen content in the lakes is sometimes depleted by excessive plant growth, so that they support poor biologic communities. |
| impermeable | See <i>impervious</i> . |
| impervious | Allowing little or no water to <i>infiltrate</i> ; water tight. Paved areas and building roofs are the primary <i>impervious</i> surfaces in most urban watersheds. |
| impoundment | A lake, reservoir, or detention basin. |
| infiltrate | To filter into or through. Groundwater infiltrates into <i>permeable</i> material (like soil), but does not infiltrate through <i>impervious</i> surfaces (like pavement or rooftops). |
| interceptor sewer | A large <i>sanitary</i> or <i>combined</i> sewer line that collects flow from a number of smaller sewers. |
| invasive exotic species | <i>Exotic species</i> that thrive in the local environment and grow excessively at the expense of native species. Purple loosestrife, Japanese knotweed, and many kinds of honeysuckle are examples of invasive exotics that are found in the Doan Brook <i>watershed</i> . |
| JCDBW | Joint Committee on Doan Brook Watershed. |
| lacustrine | Originating in lake water. Lacustrine sediments are those deposited on lake bottoms. |

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| Lake Plain | The relatively flat area adjacent to Lake Erie that once lay under the waters of the lake's ancestors. The Doan Brook <i>lower watershed</i> lies in the Lake Plain. |
| lower watershed | The part of the watershed extending from Lake Erie to the sharp change in elevation (the <i>Escarpment</i>) just upstream (south and east) from University Circle. |
| macroinvertebrates | Invertebrates (animals without backbones) large enough to be seen without a microscope. Macroinvertebrate species include aquatic insect larvae, crustaceans, aquatic worms, and shellfish, among others. The health of the macroinvertebrate population is an indicator of the water and habitat quality in a stream. |
| MLK | Martin Luther King, Jr., Boulevard. |
| NCSL | The Nature Center at Shaker Lakes. |
| NEORS | Northeast Ohio Regional Sewer District. |
| non-point source pollution | Pollution that originates from the accumulation of low concentrations of pollutants collected over a large area. Most of the <i>nutrients</i> that are discharged to Doan Brook accumulate from lawns and golf courses that are spread over the entire <i>watershed</i> . Nutrient contamination in the brook is thus the result of non-point source pollution. |
| nutrients | Essential chemicals needed by plants or animals for growth and health. In the context of water quality, "nutrients" refers primarily to nitrogen-containing compounds (ammonia, nitrates, nitrites, organic nitrogen) and phosphorus-containing compounds. Lack of these compounds (especially phosphorus) limits the growth of aquatic organisms. When nutrients are present in excessive quantities (as in Doan Brook), they promote excessive plant growth that creates <i>eutrophic</i> or <i>hypereutrophic</i> conditions. |
| ODNR | Ohio Department of Natural Resources. ODNR is responsible for the safety of the Shaker Lakes dams and has authority or expertise in a number of other areas relevant to Doan Brook. |
| organic chemicals | Chemicals containing carbon. Naturally occurring organic chemicals are the basis of life on earth. However, in the context of water quality, "organics" generally refers to manmade carbon containing compounds such as synthetic oils, <i>PCBs</i> , poly-aromatic hydrocarbons (PAHs), pesticides, and herbicides that are often toxic and that often remain toxic for a long time when they are released into the environment. |
| overtopping | In the context of <i>hydrology</i> , overtopping refers to water flowing over the top of a dam or other water barrier, generally in a manner that the barrier is not intended to withstand. None of the Shaker Lakes dams is intended to withstand water flowing over its main earthen embankment. |

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| PCBs | Polychlorinated biphenyls. A group of manmade, toxic <i>organic chemicals</i> that persist in the environment and have been linked to cancer, reproductive defects, and other health problems. |
| permeable | Allowing water to <i>infiltrate</i> . |
| Plateau | Generally refers to a level land area raised above the surrounding land. In this handbook, the Plateau (capitalized) refers to the Appalachian Plateau, the westernmost edge of which forms the <i>upper watershed</i> and terminates at the <i>Escarpment</i> . |
| PMF | <i>Probable Maximum Flood</i> . |
| point source pollution | Pollution that originates at a single location such as a factory waste discharge pipe. |
| Probable Maximum Flood | The Probable Maximum Flood, or <i>PMF</i> , is defined as "...the flood that can be expected from the most severe combination of critical meteorologic and hydrologic conditions that are reasonably possible..." in a given area (National Research Council, 1988). In other words, the worst flood that can be imagined if science is used to guide the imagination. |
| QHEI | Qualitative Habitat Evaluation Index. A physical habitat index designed to provide an empirical, quantified evaluation of the general stream microhabitat characteristics that are important to fish communities. |
| riparian | Having to do with the bank of a river. Used to refer generally to the area surrounding any natural body of water. |
| riparian corridor | The strip of land immediately adjacent to and including a stream. A riparian corridor that is left in its natural condition protects the stream's water quality and habitat. |
| riprap | Large rocks that are dumped or placed to prevent erosion. The downstream face of Horseshoe Lake dam has been armored by riprap. |
| runoff | Water that flows along the surface of the land. |
| sandstone | A <i>sedimentary rock</i> composed of sand particles cemented together. |
| sanitary sewage | Wastewater (sewage) collected from households and businesses. |
| sanitary sewer | A sewer that is designed to carry only sewage collected from household and business indoor drainage systems. Sanitary sewers are not intended to collect <i>stormwater runoff</i> . |
| sediment | Particulate material suspended in or settled to the bottom of a water body. Sediment may originate from natural sources such as natural soil erosion or from human activity such as construction, road grit, disturbed land, or agriculture. Increased flow in an urban stream like Doan Brook also increases the quantity of sediment eroded from the stream bed and banks. |

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| sedimentary rock | A rock formed by the accumulation and cementation of mineral (sand, silt, clay, etc.) grains. Sedimentary rocks are generally formed when layers of material that were deposited over many years by wind or water are subsequently buried and compressed until they become rock. |
| sedimentation | Deposition of sediments in lakes or other areas of relatively still water. Over time, lake sedimentation degrades lake habitat and transforms lakes into marshes and eventually valleys. Lake sedimentation rarely changes a lake's ability to decrease downstream flooding (see Chapter 7). |
| sewershed | The area that drains into a <i>sanitary</i> or <i>combined sewer</i> system. The sewershed is generally related to the surface <i>watershed</i> , but it need not correspond exactly. The sewershed of the Doan Valley Interceptor Sewer (DVI) is currently much larger than the Doan Brook watershed. However, the completion of the Heights/Hilltop Interceptor Sewer (HHI) will make the DVI sewershed smaller than the Doan Brook watershed. |
| shale | A very fine-grained <i>sedimentary rock</i> composed of silt and clay. Shale tends to break apart along planes parallel to the plane in which the silt or clay was originally deposited. As a result, shale frequently weathers into thin plate-like fragments. |
| Site 14 | The Corps of Engineers Diked Disposal Facility Site No. 14. The area of landfill over the mouth of Doan Brook at Lake Erie where the Corps of Engineers has disposed of material (<i>dredge spoil</i>) from the mouth of the Cuyahoga River and nearby Lake Erie navigation channels. |
| storm sewer | A sewer designed to carry <i>stormwater runoff</i> without any mixture of <i>sanitary sewage</i> . |
| stormwater | <i>Runoff</i> that flows from the surface of the <i>watershed</i> during a storm. |
| surface runoff | See <i>runoff</i> . |
| stormwater retrofit | Stormwater retrofits are new stormwater control structures (small or large) designed to reduce flooding or improve water quality. They are retrofit into already developed areas. |
| subwatershed | A small area of a larger <i>watershed</i> for which surface <i>runoff</i> drains to a particular point. The area that drains to Horseshoe Lake is an example of a subwatershed within the Doan Brook watershed. The area that drains to the Lower Shaker Lake is another subwatershed that contains the Horseshoe Lake subwatershed. |
| till | See <i>glacial till</i> . |
| uncontrolled drainage areas | Drainage areas (or <i>watersheds</i>) that do not include a lake or other structure that reduces flood peaks or slows storm <i>runoff</i> . |

upper watershed The part of the Doan Brook *watershed* that lies on the higher elevation land east of the line of the *Escarpment*.

watershed A stream's watershed is the area of land over which water running along the ground surface (called *runoff* or *surface runoff*) will eventually flow into the stream. Also called a *drainage area* or *drainage basin*.

