

Glossary

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

303(d): The section of the Clean Water Act that requires states to develop a list every 2 years of the streams and lakes in the state that are impaired and requires a Total Maximum Daily Load (TMDL) for those impaired waterbodies. The list is a subset of the 305(b) list. The list is called the 303(d) list and since 2006 is submitted along with the 305(b) list to EPA by the Kentucky Division of Water as the Integrated Report to Congress. The 303(d) list is found in Volume II. Before 2006, the two lists were submitted separately. The 303(d) list can be viewed at <http://water.ky.gov/waterquality/Pages/IntegratedReport.aspx> and <http://water.ky.gov/waterquality/Pages/303dList.aspx>.

305(b): The section of the Clean Water Act that requires states to develop a list every 2 years of the streams and lakes in the state that have been assessed. The list is called the 305(b) list and since 2006 is submitted along with the 303(d) list to EPA by the Kentucky Division of Water as the Integrated Report to Congress. The 305(b) list is found in Volume I. Before 2006, the two lists were submitted separately. The 305(b) list can be viewed at <http://water.ky.gov/waterquality/Pages/IntegratedReport.aspx>.

319 Nonpoint Source Pollution (NPS) Control Program: Congress amended the Clean Water Act (CWA) in 1987 to establish the section 319 Nonpoint Source Management Program because it recognized the need for greater federal leadership to help focus State and local nonpoint source pollution efforts. Under section 319, State, Territories, and Indian Tribes receive grant money, or 319(h) funding, which supports a wide variety of activities including technical assistance, financial assistance, education, training, technology transfer, demonstration projects, and monitoring to assess the success of specific nonpoint source implementation projects. Groups apply to the Kentucky Division of Water for 319(h) funds. For more information, the website can be viewed at <http://water.ky.gov/watershed/Pages/default.aspx> and <http://water.ky.gov/nsp/Pages/default.aspx>.

401 program, Water Quality Certification program: The Clean Water Act Section 401 Water Quality Certification (WQC) program in Kentucky ensures that activities involving a discharge into waters of the state and requiring a federal permit or license, are consistent with Kentucky's water quality standards in Title 401, Chapter 5, of the Kentucky Administrative Regulations. In Kentucky, the Water Quality Certification Section in the Water Quality Branch is responsible for implementing the Section 401 program. For more information, the website can be viewed at <http://water.ky.gov/permitting/Pages/KYWaterQualityCertProg.aspx>.

404 permitting program: Projects that involve the discharge of dredged or fill materials into waters of the United States, including wetlands, are regulated by the U.S. Army Corps of Engineers under Clean Water Act Section 404 and require Section 401 certification. Examples of activities that may require a Section 404 permit and Section 401 water quality certification are stream relocations, road crossings, stream bank protection, construction of boat ramps, placing fill, grading, dredging, ditching, mechanically clearing a wetland, building in a wetland, constructing a dam or dike, and stream diversions.

Agricultural Water Quality Act: The Kentucky General Assembly passed the Kentucky Agriculture Water Quality Act in 1994 (KRS. 224.71-100 through 224.71-140). The goal of the act is to protect surface and groundwater resources from pollution as a result of agriculture and silviculture (forestry) activities. For more information, the website can be viewed at <http://conservation.ky.gov/Pages/AgricultureWaterQuality.aspx>.

Algae: (singular form is alga) Simple, single-celled and rootless plants that grow in sunlit waters and provide food for fish and macroinvertebrates; water that contains too many nutrients will have an overgrowth of algae that can lower the dissolved oxygen in a waterbody as they die and decay

Allowable Load: Equivalent to the Total Maximum Daily Load or a division thereof to a source.

Allocation: The division of a portion of the Total Maximum Daily Load to a source.

Anthropogenic: An effect on nature that is caused or influenced by humans.

Aquifers: An underground geological formation, or group of formations, containing water. Aquifers are sources of groundwater for wells and springs.

Annual Average: The concentration (or load) of a pollutant in a waterbody averaged over the course of one year.

Atmospheric Deposition: The settling of pollutants from the air onto land or water.

Bacteria: (Singular form is bacterium) Single-celled organisms that can't be seen with the naked eye. Bacteria are found everywhere and perform many valuable functions that support life on the planet, however, some bacteria can cause diseases; they reproduce rapidly.

Basins: Area of land where water from rain and melting snow or ice drains downhill into a body of water. There are 12 major river basins in Kentucky.

Best Management Practices (BMPs): A best management practice or BMP has traditionally been defined as something built on the ground with guaranteed documentable results in reducing nonpoint source pollution. With paradigms changing to include more expansive management practices, the term best management practice or BMP is now often used to refer to any management practice designed to reduce pollution in the watershed as well.

- **Structural BMPs** – These Best Management Practices require construction, installation and maintenance. These are usually BMPs that you can see such as vegetated stream buffers, rain gardens, and silt fences.
- **Nonstructural BMPs** - These Best Management Practices involve changes in activities or behavior among people in the watershed. Examples include erosion prevention and sediment control plans for construction sites, ordinances that prohibit building in the floodplain, and education and outreach campaigns.

Benthic macroinvertebrates: Small animals that can be seen with the naked eye, live on the bottom of streams and lakes, and don't have a backbone. They are often the immature forms of insects that live on land as adults, and they are an important food source for fish and other aquatic animals.

Biochemical Oxygen Demand (BOD): A measure of the amount of oxygen consumed in the biological processes that break down organic matter in water. The greater the BOD, the greater the degree of pollution found in the system.

Biological assessment: Using information about the macroinvertebrates, fish, and/or algae and diatoms found in a waterbody to determine the health of the waterbody

Biological indicators: Organisms, processes, or characteristics found in a waterbody and used to determine the status or health of that waterbody.

Biological survey: Collecting and identifying macroinvertebrates, fish, and/or algae and diatoms.

Calibration: The tuning of a modeled parameter to actual data collected from the area such that modeled results predict actual data.

Clean Water Act (CWA): Federal law enacted by Congress in 1972 to protect surface water in the United States. For additional information, the EPA website can be viewed at <http://www.epa.gov/lawsregs/laws/cwa.html>.

Cold Water Aquatic Habitat (CAH): Surface streams that will support native aquatic life or self-sustaining or reproducing trout populations on a year-round basis.

Colony forming unit (cfu): The reporting unit for laboratory bacterial analysis; based on the number of clusters, or colonies, of bacteria that have grown in laboratory conditions until they can be seen with the naked eye.

Combined Sewer Overflow (CSO): Combined Sewer Systems (CSSs) carry both storm water and wastewater (sewage). Normally, the waste all goes to a treatment facility, but when rainfall or snowmelt is heavy, the flow in combined sewer systems can exceed pipe capacity, resulting in discharges to CSOs. CSOs are direct outlets to ditches, lakes, rivers, streams and creeks, which prevent backups in the CSSs. Because the wastes in CSSs are untreated, discharges from CSOs can contain a variety of pollutants, such as pathogens, oxygen-demanding pollutants, suspended solids, nutrients, toxics, and floatable solids.

Combined Sewer System (CSS): These systems carry both storm water and wastewater (sewage) in one pipe to a water treatment facility.

Concentration: The amount of a pollutant in the water, often expressed as mg/L or for bacteria as colonies/100 ml.

Conductivity: A measure of the ability of a solution to carry an electrical current.

Conduits: Openings and channels formed in bedrock by the infiltration of acidic precipitation.

Critical condition: The “worst case” scenario of environmental conditions (flow, temperature, etc.) with a low frequency of occurrence under which the Total Maximum Daily Loading will continue to meet water quality standards.

Criterion: Numeric pollutant concentrations or narrative requirements that protect water quality for designated uses.

Daily Load: The allowable amount of a pollutant expressed on a daily basis.

Designated uses: The Clean Water Act directs states to assign “uses” to their waterways that are legally recognized descriptions of the desired use(s) of the waterway. In Kentucky, the designated uses are Warm water Aquatic Habitat, Cold Water Aquatic Habit, Primary Contact Recreation, Secondary Contact Recreation, and Domestic Water Supply/ Drinking Water.

Diatoms: Single celled plant-like organisms that have rigid structures made of silica in their cell walls.

Dissolved Oxygen (DO): The oxygen that is freely available in water, and that is vital to fish and other aquatic life and for the prevention of odors. DO levels are considered an important indicator of a water body's ability to support desirable aquatic life.

E. coli: A type of fecal bacteria used as an indicator of pathogens.

Ecoregions: Large areas where the environmental conditions and natural features are similar so the plants and animals that live there are similar, too.

Ecosystem: The interacting systems of plants and animals and their non-living environmental surroundings.

Endpoint: See Target.

Erosion: The wearing away of land surface by wind or water, intensified by land-clearing practices related to farming, residential or industrial development, road building, or logging.

Eutrophication: Enrichment of an aquatic ecosystem with nutrients that accelerate the growth of algae and weeds. During the later stages of eutrophication the water body is choked by abundant plant life due to higher levels of nutritive compounds such as nitrogen and phosphorus. Human activities can accelerate the process.

Existing Load: The amount of pollutant that exists in the waterbody at the time of the TMDL study.

Facilitator: Someone who helps a group of people understand their common objectives and assists them to plan to achieve them without taking a particular position in the discussion.

Fauna: All of the animal life in a particular area.

Fecal Coliform: Bacteria found in the intestinal tracts of mammals. Their presence in water or sludge is an indicator of pollution and possible contamination by pathogens.

Fishable, swimmable, and drinkable: The intent of the Clean Water Act is to ensure that the waterways in the United States meet these goals.

Flora: All of the plant life in a particular area.

Flow or discharge: The amount of water that passes a certain cross section of water in a given unit of time, often expressed as cubic feet per second (cfs).

Flow Duration Curve: The cumulative frequency distribution of daily stream flow which provides an estimate of the percentage of time a given flow was equaled or exceeded. Low flows are often exceeded and thus have very high exceedance percentages while high flows (floods) occur less frequently and have lower exceedance percentages.

Future Growth: An optional allocation of load that is reserved for future growth of a source in a watershed.

Geomorphology: The study of erosion, sediment transport, and sediment deposition and how these processes shape the surface of the earth.

GIS data layer: Computer programs linking features commonly seen on maps (such as roads, town boundaries, water bodies) with related information not usually presented on maps, such as type of road surface, population, type of agriculture, type of vegetation, or water quality information. A GIS is a unique information system in which individual observations can be spatially referenced to each other.

Glide: Areas in the stream where the water flow is increasing in speed as it flows out of pools and decreasing depth.

Growing Season Average: The concentration (or load) of a pollutant in a waterbody averaged over the course of a growing season.

Habitat: The place where a population (e.g. human, animal, plant, microorganism) lives and its surroundings, both living and non-living.

High gradient streams: Steep streams that flow out of hills and mountains and have many riffles and runs.

Hydrologic Cycle: A continuous cycle that represents the movement of water from one phase to the next between the atmosphere and Earth; this includes evaporation, precipitation, infiltration and runoff.

Hydrologic Unit Code (HUC): A cataloging system developed by the U.S. Geological Survey and the Natural Resource Conservation Service to identify watersheds in the United States. HUCs are typically reported at the large river basin (6-digit HUC) or smaller watershed (11-digit and 14-digit HUC) scale. These codes were developed to standardize hydrological unit delineations for geographic description and data storage purposes.

Hydromodification: When undeveloped land is covered with buildings and pavement, it causes more stormwater runoff to flow into creeks at faster rates. This may result in creek channel erosion, as well as flooding, habitat loss, and, in some cases, property damage. These are development-induced changes to the natural hydrological processes.

Hypoxia: Waters with dissolved oxygen concentrations of less than 2 parts per million, the level generally accepted as the minimum required for most marine life to survive and reproduce.

Impaired waters: These are waterbodies that do not fully support their designated uses.

Impervious surface: Any surface such as pavements (roads, sidewalks, driveways and parking lots) that are covered by impenetrable materials such as asphalt, concrete, brick, stone, rooftops. Compacted soils (often including lawns) are also highly impervious.

Indicator: A pollutant which suggests that contamination by another pollutant may have occurred. Fecal bacteria are used as indicators that contamination by fecal wastes has occurred and that pathogens may be present.

Infiltration: The physical process by which water on the ground surface moves into the soil.

Integrated Report Volume I: Section 305(b) of the Clean Water Act requires states to submit a report every two years that provides the status of waterways that have been assessed in the state. This list of assessed streams is called the 305(b) list and is submitted to EPA as Volume I of the Integrated Report to Congress.

Integrated Report Volume II: Section 303(d) of the Clean Water Act requires states to submit a report every two years that provides the status of waterways that have been assessed in the state. This list of assessed streams is called the 303(d) list and is submitted to EPA as Volume II of the Integrated Report to Congress.

Intermittent streams: Streams with a defined channel that only flow during a precipitation event.

Karst: A geologic formation of irregular limestone deposits with sinks, underground streams, and caverns.

Larvae: (singular form is larva) Immature forms of some insects.

Load: See pollutant load.

Load Allocation: The allowable loading of pollutants into the stream from sources not permitted by KPDES and from natural background

Load Duration Curve: A derivation of a flow duration curve created by multiplying the flow duration curve by the allowable concentration of a pollutant.

Loading Simulation Program C++ (LSPC): A watershed modeling system used to simulate hydrology and general water quality on land as well as a simplified stream transport.

Low gradient streams: Streams that flow through flat land and have few, if any, riffles, many glides and pools, and mostly fine sediment bottoms.

Margin of Safety: A required component of the TMDL that accounts for the uncertainty in the response of the waterbody to loading reductions.

Mixing Zone: The domain of a water body contiguous to a treated or untreated wastewater discharge with quality characteristics different from those of the receiving water. The discharge is in transit and progressively diluted from the source to the receiving system. The mixing zone is the domain where wastewater and receiving water mix. The requirements that apply to assigning mixing zones can be found at <http://www.lrc.state.ky.us/kar/401/010/029.htm>.

Model: A set of equations that can be used to describe the natural or man-made processes in a watershed system, such as runoff or stream transport. By building these cause-and-effect relationships, models can be used to forecast or estimate future conditions that might occur under various conditions.

Municipal Separated Storm Sewer System (MS4): A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, man-made channels or storm drains):

- Owned and operated by a state, city, town, borough, county parish, district, association or other public body (created by or pursuant to state law) having jurisdiction over disposal of sewage, industrial wastes, stormwater or other wastes, including special districts under state law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the Clean Water Act that discharges to waters of the United States; Designed or used for collecting or conveying stormwater;
- Which is not a combined sewer; and
- Which is not part of a publicly owned treatment works.

For more information, the EPA website can be viewed at <http://cfpub.epa.gov/npdes/stormwater/munic.cfm>.

Narrative criterion: A water quality criterion that does not include a desired concentration of the pollutant; rather it supplies a description of a desirable condition.

Natural Background: The amount of a pollutant that occurs naturally and is not influenced by humans.

Nonpoint source pollution: Pollution originating from runoff from diffuse areas (land surface or atmosphere) having no well-defined source. The pollutants are generally carried off the land by storm water. Common nonpoint sources are agriculture, forestry, urban, mining, construction, dams, channels, land disposal, saltwater intrusion, and city streets.

Nonpoint Source Pollution Control Program: The Kentucky Nonpoint Source (NPS) Pollution Control Program goals are to protect the quality of Kentucky's surface and groundwater from NPS pollutants, abate NPS threats and restore degraded waters to the extent that water quality standards are met and beneficial uses are supported.

Numeric criterion: A water quality criterion that includes a desired concentration of the pollutant.

Nutrients: Any substance assimilated by living things that promotes growth. The term is generally applied to nitrogen and phosphorus in wastewater, but is also applied to other essential and trace elements.

Package treatment plants: A small-scale wastewater treatment facility.

Parameter: A specific component of water that may be measured to determine the water quality. Examples of parameters in the Floyds Fork TMDL include nitrogen, phosphorus, dissolved oxygen and flow.

Pathogens: Microorganisms (e.g., bacteria, viruses, or parasites) that can cause disease in humans, animals and plants.

Percent reduction: The reduction required to bring an existing load down to an allowable load.

Perennial streams: Streams that receive groundwater and normally flow year round.

Periphyton: Microscopic underwater plants and animals that are firmly attached to solid surfaces such as rocks, logs, and pilings.

pH: An expression of the intensity of the basic or acid condition of a liquid; may range from 0 to 14, where 0 is the most acid and 7 is neutral. Natural, healthy waters usually have a pH between 6.5 and 8.5.

Point bars: Areas of accumulating sediment in a stream; often called sand bars.

Point source: Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or storm water runoff.

Pollutant load: The amount of a specific pollutant moving through a stream. The pollutant load is based upon both the concentration of the pollutant and the stream flow. Loads are generally expressed in terms of a weight (of pollutant) and a period of time, resulting in pounds per day, for example.

Pollutants: Generally, any substance introduced into the environment that adversely affects the usefulness of a resource or the health of humans, animals, or ecosystems.

Pollutant yield: A pollutant yield is calculated from a pollutant load to account for geographic size differences. This normalized load, the pollutant yield, can be determined by dividing the pollutant load by a unit of area (e.g. acre, square mile).

Pools: The deepest areas with the slowest flow in a stream.

Primary Contact Recreation (PCR): Recreational activities such as swimming that create contact between the water and the mucus membranes of humans (mouth, eyes, inside nose) that will allow infection by any pathogens that could be in the water.

Precipitation: Any form of water that falls from the atmosphere; includes rain, snow, sleet, and hail

Quality Assurance Project Plan (QAPP): A QAPP is a project-specific document that specifies the data quality and quantity requirements of the study, as well as all procedures that will be used to collect, analyze, and report those data.

A QAPP helps monitoring staff to follow correct and repeatable procedures and helps data users to ensure that the collected data meet their needs and that the necessary quality assurance (QA) and quality control (QC) steps are built into the project from the beginning.

Reach: A selected length of a stream.

Recharge: The process by which water is added to the water table, or groundwater, usually by percolation from the soil surface; e.g., the recharge of an aquifer.

Riffles: The areas in a stream where there is a drop in elevation that causes the rocks on the bottom of the stream to extend above the surface of the water creating a churning action that causes the surface of the water to look rough and bubbly.

Riparian areas: Areas adjacent to rivers and streams with a differing density, diversity, and productivity of plant and animal species relative to nearby uplands.

Runoff: That part of precipitation, snow melt, or irrigation water that runs off the land into streams or other surface-water. It can carry pollutants from the air and land into receiving waters.

Run: A segment of a stream that flows quickly out of a riffle.

Sanitary Sewer Overflows (SSOs): Occasional unintentional discharges of raw sewage from sanitary sewers. These types of discharges are called Sanitary Sewer Overflows (SSOs). SSOs have a variety of causes, including but not limited to severe weather, improper system operation and maintenance, and vandalism.

Seasonality: The yearly factors that affect the relationship between pollutant inputs and the ability of the stream to meet its designated uses.

Secondary Contact Recreation (SCR): Recreational activities such as fishing, wading, and boating that create limited human contact with the water in a stream or lake.

Sediment: Soil, sand, and minerals washed from land into water, usually after rain. They pile up in reservoirs, rivers and harbors, destroying fish and wildlife habitat, and clouding the water so that sunlight can't penetrate the water.

Sediment deposition: The process by which sediments carried by the flow of water in a stream are deposited on the stream bottom as the flow loses energy and slows.

Sediment transport: The process by which sediments in a stream are moved by the force of the flow of water.

Septic systems: An on-site system designed to treat and dispose of domestic sewage. A typical septic system consists of tank that receives waste from a residence or business and a system of tile lines or a pit for disposal of the liquid effluent (sludge) that remains after decomposition of the solids by bacteria in the tank and must be pumped out periodically.

Sinkholes: Depressions on the land surface formed as precipitation carries soil into the ground through cracks and conduits in limestone.

Source: An entity that contributes a pollutant to a receiving waterbody.

Special Use waters: Rivers, streams, and lakes that are worthy of additional protection and are listed in Kentucky Administrative Regulations or the Federal Register as Cold Water Aquatic Habitat, Exceptional Waters, Reference Reach Waters, Outstanding State Resource Waters, Outstanding National Resource Waters, State Wild Rivers and Federal Wild and Scenic Rivers. Not included as special use waters are water bodies designated by default as Warm Water Aquatic Habitat, Primary Contact Recreation and Secondary Contact Recreation.

Springs: Ground water seeping out of the earth where the water table intersects the ground surface.

Stakeholder: Anyone who is involved in or affected by watershed planning. Stakeholders include landowners, government agencies, businesses, private individuals, and special interest groups.

Stormwater: Water runoff that results from a storm event.

Straightpipes: Some homes or other buildings are neither on sewers nor have an installed septic system. Instead, wastes are illegally "straight piped" to a creek, ditch or other area outside the structure. In addition to the odor this creates, straight pipes directly contribute pathogenic wastes to streams, posing a health hazard.

Surrogate: A measure that is used to represent another pollutant-related impairment in the TMDL process. As an example, the amount of biochemical oxygen demand (BOD) may be limited to ensure that healthy dissolved oxygen levels are maintained.

Target: A water quality goal based upon interpretation of a narrative criterion or an endpoint used to derive total maximum daily load reductions.

Total Coliform: A group of 16 different bacteria that have similar properties and are found in soils, plants, and in the intestines and waste of warm-blooded and cold-blooded animals.

Total Maximum Daily Loads (TMDLs): 1. A TMDL is a calculation of the maximum amount of a pollutant (examples are sediment, phosphorus, and bacteria) that a stream or lake can receive and still meet water quality standards. 2. A TMDL may also refer to a written report, which includes detailed assessment information of site-specific impaired waters, watershed information, mathematical modeling and the calculated number of a pollutant load.

Total Suspended Solids: A measure of the suspended solids in wastewater, effluent, or water bodies, determined by tests for "total suspended non-filterable solids." Suspended solids are small particles of solid pollutants that float on the surface of, or are suspended in, sewage or other liquids.

Transpiration: The process by which water vapor is lost to the atmosphere from living plants. The term can also be applied to the quantity of water thus dissipated

Tributary: A stream that flows into another stream or into another waterbody.

Turbidity: A cloudy condition in water due to suspended silt or organic matter.

Validation: The process of making sure that the model accurately predicts the parameters used in the model. This can be done by comparing the results of the model to actual data that was not used in the calibration process.

Warm Water Aquatic Habitat (WAH): A surface waterbody and associated substrate capable of supporting native warm water aquatic life.

Wasteload Allocation: The allowable loading of pollutants into the stream from KPDES-permitted sources (e.g. wastewater treatment plants).

Wastewater treatment facilities: A facility containing a series of tanks, screens, filters, and other processes by which pollutants are removed from water. Most treatments include chlorination to attain safe drinking water standards.

Water cycle: See hydrologic cycle.

Water Quality Analysis Simulation Program (WASP): A model that helps users predict water quality responses to pollutants for various management decisions. It includes interactions in the water column as well as in the bottom sediments.

Water Quality Standards: Standards that set the goals, pollution limits, and protection requirements for each waterbody. These standards are composed of designated uses, numeric and narrative criteria, and antidegradation policies and procedures.

Watershed: The area of land that drains to a specific stream; watersheds join together to form larger watersheds; a major river will encompass many smaller watersheds.

Water table: The boundary in a geologic formation below which the rock is saturated and groundwater exists.

Weathering: The process where rock is dissolved by the acidity in precipitation and groundwater.

Wetland: A natural area that is covered with water or soggy, but may not be wet all year round.