Glossary

The terms in this glossary are defined for their intended use and purpose in the Basin Plan. There may be other definitions for these terms, particularly IF they are used for other planning or regulatory purposes. Additionally, there may be other terms in use to define these or similar concepts.

Acronyms

AHPS	Advanced Hydrologic Prediction Service
BMP	Best Management Practices
CCMP	Comprehensive Conservation and Management Plan
CZM	Coastal Zone Management
DELEP	Delaware Estuary Program
DRBC	Delaware River Basin Commission
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FISRWG	Federal Interagency Stream Restoration Working Group
GIS	Geographic Information System
HUC	Hydrologic Unit Code
mgd	Million Gallons per Day
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	National Resources Conservation Service
PCB	Polychlorinated Biphenyls
ppm	Parts Per Million
QA/QC	Quality Assurance/Quality Control
SCD	Soil Conservation District
TMDL	Total Maximum Daily Load
USGS	United States Geological Survey

Adequate Supply: A supply that is dependable and sufficient in both quantity and quality to meet the requirements of its users, even through periods of drought. The term can be used relative to human or ecosystem needs.

Aggradation: The long-term, persistent rise in the elevation of a streambed by deposition of sediment.

Algae: Chlorophyll bearing nonvascular, primarily aquatic species that have no true roots, stems, or leaves. Most algae are microscopic, but some species can be as large as vascular plants.

Allocation: See water allocation.

Ambient: Describes the surrounding environment (especially temperature and pressure) of an object or experiment. In particular an environment which affects the object or experiment but is not affected by it.

Anthropogenic: Occurring because of or influenced by human activity.

Anti-Degradation: A programmatic term meaning actions taken to maintain existing uses and water quality in the nation's waters. The concept and policy were created by the Department of the Interior in 1968 and have been included in

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EPA's water quality standards since 1975. The basic concept of anti-degradation is to promote the maintenance and protection of existing water quality and protection of existing uses for all surface waters because it recognizes that existing water quality and uses have inherent value worthy of protection and preservation.

Aquatic Ecosystem: The living and non-living natural components of a stream or other water body.

Aquifer: An underground geological formation of rock, sand or gravel, capable of storing water within cracks and pore spaces, and that yields water to springs and wells. The water contained in the aquifer is called ground water.

Assimilative Capacity: The amount of contaminant load that can be discharged into a water body without exceeding water quality standards or criteria. Assimilative capacity is used to define the ability of a water body to naturally absorb and use a discharged substance without impairing water quality or harming aquatic life.

Base Flow: Sustained, low flow in a stream; ground water in-flow is the source of base flow in most places. Base flow constitutes all the natural dry-weather flow.

Baseline Tasks: Inventory, characterization, and assessment activities providing data that support management strategies and decisions.

Basin: The drainage area of a river and its tributaries. See also Delaware River Basin

Basin Transfer: The transfer of water or wastewater into or out of the river Basin.

Benthos: Refers to plants or animals that live on the bottom of lakes, streams, or oceans.

Bioaccumulation: The biological sequestering of a substance at a higher concentration than it occurs in the surrounding environment or medium. Bioaccumulation is also the process whereby a substance enters organisms through the gills, epithelial tissues, dietary, or other sources.

Biological Diversity: An ecological concept that incorporates both the number of species in a particular sampling area (richness) and the evenness with which individuals are distributed among the various species.

Biological Integrity: The ability of an ecosystem to support and maintain a balanced, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of natural habitats within a region.

Best Management Practice (BMP): Methods, measures, or practices determined to be reasonable and cost-effective means to meet certain, generally nonpoint source, and pollution control needs. BMPs include structural and non-structural controls and operation and maintenance procedures.

Buffer: An area situated between two areas in possible conflict. The objective of establishing a buffer zone is to reduce the possibility of adverse impacts of land use upon water quality.

Channelization: Modification of a stream, typically by straightening the channel, to provide better uniform flow. Channelization is often employed for flood control or to improve drainage or irrigation of agricultural land.

Coastal Zone: The lands and waters adjacent to the coast that exert an influence on the uses of the sea and its ecology, or whose uses and ecology are affected by the sea. Coastal Zone refers to the area under the influence or responsibility of state or federal coastal zone management programs.

Conjunctive Use: The coordinated use of surface water and ground water, which derives from the recognized interconnection between both resources.

Conservation Pricing: A schedule of water charges designed to encourage conservation by pricing water to reflect its scarcity and economic value.

Consumptive Use: The quantity of water that is effectively removed from surface or ground water resources because it has been evaporated, transpired, or incorporated into products, or plant or animal tissue as a result of human intervention in the water cycle.

Criterion: A standard rule or test on which a judgment or decision can be based. Water quality criteria is based on specific levels of pollutants that would make the water harmful if used for drinking, swimming, farming, fish and aquatic life production, or industrial processes.

Delaware River Basin: The drainage area of the Delaware River and its tributaries. See also Basin.

Degradation: (1) a decline in the viability of ecosystem functions and processes; (2) a geologic process by which streambeds and floodplains are lowered in elevation by the removal of material. Severe forms of non-natural degradation are associated with land disturbance and urbanization, including channel incision, down cutting, widening, and associated floodplain abandonment and habitat loss.

Designated Uses: Those water uses identified in state, federal and DRBC water quality standards that must be achieved and maintained as required by the Clean Water Act. Uses include aquatic life, fish consumption, recreation, agricultural and industrial use and potable water supply.

Ecological Integrity: The presence of structural, compositional, and functional characteristics throughout the natural range of variability for a particular ecosystem. Ecological integrity can be assessed by comparing biological, chemical, and physical structures and functions to those of unimpacted, least impacted or representative ("reference") systems or sites within a region. Ecological integrity requires both the integrity of the individual chemical, biological and physical components of the ecosystem, as well as integrity of the functional relationships among those components. Biological and hydrological integrity describe some of those important relationships. In assessing the ecological integrity of an ecosystem or region, it is important to address both biological and hydrological integrity.

Ecoregion: An area of similar climate, landform, soil, potential natural vegetation, hydrology, or other ecologically relevant variables.

Ecosystem: The interacting populations of plants, animals, and microorganisms occupying an area, plus their physical environment.

Encroachment: Any physical object placed in the floodplain that hinders the passage of water or otherwise affects flood flows, such as fill, excavation, storage of equipment and materials, or buildings.

Environmental Inventory: Identification and assessment of natural and human-related features of the land and hydrologic system, such as geology, land use, water use, demographics, habitat, plants, and animals that provide a unifying framework

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for making comparative assessments of the factors that govern water quality, water quantity, and biological conditions among study areas.

Erosion: The process whereby materials of the Earth's crust are loosened, dissolved, or worn away and simultaneously moved from one place to another.

Estuary: Brackish-water area influenced by tides where the mouth of a river meets the sea.

Eutrophication: The process by which water becomes enriched with plant nutrients, most commonly phosphorus and nitrogen, which cause increases in plant and algal growth. Such increases reduce clarity and the availability of oxygen for other organisms. During eutrophication, a lake or reservoir may become so rich in nutritive compounds that algae and other microscopic plant life become superabundant, decreasing oxygen for other aquatic life and thereby "choking" the lake or reservoir.

Evapotranspiration (ET): A collective term that includes water lost through evaporation from the soil and surface water bodies and by plant transpiration.

Export: Water or wastewater originating from one watershed or basin, but ultimately discharged in another, is termed an export from the sending watershed or basin.

Feasibility: The level to which an appropriate and desirable action can be accomplished without having to overcome onerous practical, technical or economic obstacles that might cause undue negative repercussions. The measure of feasibility changes over time, and from one situation to another, because it requires weighing the relative advantages and disadvantages of a proposed action.

Floodplain: The relatively level area of land bordering a stream channel and inundated during moderate to severe floods.

Floodplain Function: The ability of riparian zones to convey and filter flood waters, dissipate flood energy, and provide in-stream and streamside habitat in the absence of encroachment or obstruction. Natural vegetative cover along stream banks and riparian land, riparian open space, strong floodplain regulations, and stormwater management enhance floodplain function.

Flow Regime: The magnitude, timing, duration, rate of change and frequency of flows.

Freshwater Inflow Needs: The quantity and timing of freshwater delivery to an estuary, which is fundamental to its health.

Geographic Information System (GIS): A system of hardware and software used for storage, retrieval, mapping, and analysis of geographic data. Spatial features are stored in a coordinate system (latitude/longitude, state plane, etc.), which references a particular place on the earth. Descriptive attributes in tabular form are associated with spatial features. Spatial data and associated attributes in the same coordinate system can then be layered together for mapping and analysis. GIS can be used for scientific investigations, resource management, and development planning.

Greenway: A corridor of open land that provides one or more of the following benefits: (1) protection and management of natural and cultural resources; (2) provision of recreational opportunities; and (3) enhancement of the quality of life and the aesthetic appeal of neighborhoods and communities.

Ground Water: In general, any water that exists beneath the land surface, but more commonly applied to water in fully saturated soils and geologic formations.

Growth Management: Deliberate public efforts to induce, restrain, or accommodate development and redevelopment in any geographic setting. Growth management addresses the problems that can accompany growth through an integrated system of administrative, financial and regulatory programs.

Habitat: The part of the physical environment where plants and animals live. Aquatic habitat includes all nonliving, or physical, aspects of the aquatic ecosystem. Some living components such as aquatic plants and riparian vegetation also provide structural habitat for aquatic biota.

Headwater Streams: The source and upper part of a stream. All first order streams that are delineated as a blue line on a 1:24,000 7.5 minute United States Geologic Survey quadrangle maps, up to and including their point of origin, such as seeps and springs along with their adjoining riparian corridors including perennial and intermittent.

Heat Island: The area of increased temperatures, and sometimes increased wind turbulence, that is formed over cities and other highly developed areas.

High Value Water Resource Landscapes: Areas of the landscape determined to be of great importance, Basin-wide or locally, for the maintenance of quality and availability of water resources. For more discussion, see "Key Result Area 3: Linking Land and Water Resource Management."

Hydric Soils: Soils at or near the surface that are saturated (by flooding or high ground water tables) frequently and long enough to promote the development of anaerobic reducing conditions that affect plant growth and promote the establishment of erect (self-supporting) plants that prefer such soils.

Hydrologic Cycle: The circulation of water from the sea, through the atmosphere, to the land, and back to the sea by overland and subterranean routes.

Hydrological Integrity: A condition under which streams actively function to transport, store and remobilize water, sediment, and nutrients in ways that provide for natural changes in fluvial landscapes and riparian habitats over time. Streams with hydrological integrity have short-term fluctuations in flow and have annual water yields, annual mean flows, timing of peak and low flows, and magnitudes of peak and low flows that approach natural conditions.

Hydrological Modification: Any alteration of the terrain, such as construction of dams, levees, channels, stream crossings or paving, that results in change in movement, distribution, flow or circulation of surface or ground water.

Hydrograph: Graph of variation of water flow intensity over time.

Impervious Surface: A paved or compacted land surface that prevents infiltration of precipitation through soils and into the ground water. Impervious surfaces exacerbate stormwater runoff, reduce water availability, contribute pollutants to water bodies, and short circuit the natural hydrologic cycle.

Imports: Water or wastewater originating from one watershed or basin, but ultimately ending up in another, is termed an import for the receiving watershed.

Infiltration: Movement of water, typically downward, into soil or porous rock.

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Instream Flow Needs: Use of water taking place within the stream channel (instream use) for such purposes as fish and aquatic life propagation, recreation, water quality improvement, hydroelectric power generation, and navigation.

Integrated Management: Acknowledging links between topics or concerns and combining or incorporating this consideration when assessing options, and developing policy and management plans. For application of the concept of integrated management in water resource management, see Guiding Principles and related discussion in the narrative for each Key Result Area.

Interstate Waters: Waters that form the boundary between two or more states; flow from one state into another state; or are tidal tributaries of interstate waters.

Invasive Species: Any species that may aggressively and negatively alter the functioning of an existing ecosystem. Exotic invasive species include any non-native plant, animal, or other viable biological material that enters an ecosystem beyond its historic range.

Isochlor: The "salt front" or 7 day average location of the 250 milligrams per liter chloride concentration; used in drought operation rules for reservoir releases and maintenance of flow objectives at key locations along the Delaware River.

Karst: A type of topography that results from dissolution and collapse of carbonate rocks such as limestone and dolomite, and characterized by closed depressions of sinkholes, caves, and underground drainage.

Mitigation: Actions taken to avoid, reduce, or compensate for the effects of environmental damage. Among the broad spectrum of possible actions are those that restore, enhance, create, or replace damaged ecosystems.

Morphology, Stream or River: The dimensions, forms and patterns of channels and landforms created by rainfall and runoff.

Natural Flow Regime: Equivalent to a natural hydrograph, which shows the variation in stream discharge (or river stage) that exists in the absence of any human alteration, over a specific time period. A natural flow regime is fully and optimally supportive of native biota and ecosystem functions.

Natural Stream Channel Stability: A stream that over time (in the present climate) transports the sediments and flows produced by its watershed in such a manner that the dimension, pattern and profile are maintained without either aggrading or degrading.

Natural Variability: Refers to the variation or changes in natural systems expected to occur under normal conditions. This variability can be measured in a variety of time frames. Between seasons, for example, there is a range of expected variation in temperature and precipitation. However, within the expected range of variability, more severe events can occur. Periods of extreme temperature and precipitation (or lack of precipitation) are inevitable over time and can stress natural and human-created systems. One challenge in managing water resources is to protect against disruption to human activity caused by extreme events (such as flooding and drought) while minimizing disruption to the natural systems.

No Adverse Impact: A floodplain management policy to ensure that the action of one property owner does not adversely impact the rights of other property owners,

as measured by increased flood peaks, flood stage, flood velocity, and erosion and sedimentation.

Nonpoint Source: A pollution source that cannot be defined as originating from discrete points such as pipe discharge. Areas of fertilizer and pesticide applications, atmospheric deposition, manure, and natural inputs from plants and trees are types of nonpoint source pollution.

Nuisance Plant Growth: Overabundance of aquatic vegetation and algae usually resulting from eutrophication in a water body. Nuisance plant growth can cause fish kills, taste and odor problems in potable water supplies, navigation and recreation hazards, and water quality violations.

Nutrient: Element or compound essential for plant and animal growth. Common nutrients in fertilizer include nitrogen, phosphorus, and potassium.

Open Space: Land or water areas in a mostly natural, essentially unimproved or undeveloped state that are set aside, dedicated, designated or reserved for the protection of natural resources, farmland or rural character; or for the prevention of potentially conflicting land uses. Open space may include parkland, green spaces or greenways; ecologically sensitive areas important to water resource protection such as wetlands, recharge areas and reservoirs; sites of exceptional flora and wildlife habitat; and landscapes of scenic, historic and cultural value. Such lands may afford public outdoor passive recreational opportunities.

Polychlorinated Biphenyls (PCBs): Mixtures of synthetic organic chemicals with the same basic chemical structure and similar physical properties. PCBs have been demonstrated to cause a variety of adverse health effects in animals including cancer, and effects on the immune system, reproductive system, nervous system, and endocrine system. Studies in humans provide supportive evidence for potential carcinogenic and non-carcinogenic effects of PCBs.

Performance Standard: A statement of general criteria that defines a desired result without specifying the techniques for achieving that result. Synonym: performance-based standard.

Pesticide: A chemical applied to crops, rights of way, or lawns, to control weeds, insects, fungi, nematodes, rodents, or other 'pests.'

Point Source: A pollution source that can be defined as originating from discrete points such as pipe discharge, drainage ditch, tunnel, well, concentrated livestock operation, or watercraft.

Pollutant: Any substance that, when present in a hydrologic system at sufficient concentration, degrades water quality in ways that are or could become harmful to human and/or ecological health or that impair the use of water for recreation, agriculture, industry, commerce, or domestic purposes.

Pollutant Load: Refers to a material or constituent in solution, in suspension, or in transport; usually expressed in terms of mass or volume.

Pollutant Loading: Refers to the rate of transport of a pollutant load; usually expressed in terms of mass or volume per unit time.

Pollutant Sink: Areas where pollutants such as sediment, nutrients, and bacteria accumulate and concentrate. Common pollutant sinks include depositional areas of streams and rivers, reservoirs, and storage or sequestration areas.

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Public Water Supply: Under the Safe Drinking Water Act (SDWA), public water supply systems are defined as those regularly serving at least 25 people or having more than 15 piped connections. Systems providing water to the public may be publicly or privately owned.

Range of Variability: An approach for setting stream flow-based river ecosystem management targets. Derived from aquatic ecological theory concerning the critical role of hydrological variability, and associated characteristics of timing, frequency, duration, and rates of change, in sustaining aquatic ecosystems.

Recharge: Water that infiltrates the ground and reaches the saturated zone.

Recharge Area: An area of land where there is a net annual transfer of water from the surface to ground water; where rainwater soaks through the earth to reach an aquifer.

Reclaimed Water: See reuse.

Redevelopment: The reuse of an existing structure or previously developed land.

Resilience: The ability to rebound or recover from stress and trauma. Resilience in a natural system is related to the proper functioning of its components and to the state of its diversity. Diversity is the degree of variation and interconnections within a plant or animal community. Generally, systems with greater diversity are more resilient. A mature forest is more diverse than a field of corn or a lawn, for example, and a forest is expected to recover from a prolonged drought with less damage than a non-irrigated farm field, orchard or lawn. One of the reasons to maintain diversity in natural systems is so they can recover from extreme events and continue to provide their important functions.

Restore: To re-establish, to an approximation of a reference condition, the chemical, physical, and biological components of an ecosystem that have been compromised by stressors such as point or nonpoint sources of pollution, habitat degradation, hydromodification, etc.

Restoration: Return of an ecosystem or a site to a close approximation of its presumed condition prior to disturbance.

Retrofit: To modify a facility or a site to meet new environmental requirements or to enhance its function for improved environmental outcomes. Especially, the addition of a pollution control device on an existing facility or installation without making major changes to the original facility or installation.

Reuse: The terms "wastewater reuse," "recycled water" and "reclaimed water" are used to refer to water which, as a result of treatment, is suitable for a direct beneficial use. An example is wastewater treatment plant effluent used directly for irrigation use, replacing a new withdrawal.

Riparian: Areas adjacent to rivers and streams.

Riparian Zone: Three-dimensional zones of direct interaction between the terrestrial and aquatic ecosystems. Boundaries of riparian zones extend outward to the limits of flooding and upward into the canopy of streamside vegetation. Riparian zones contain a high density, diversity, and productivity of both wetland and upland plant and animal species. These areas have high water tables and support plants that require saturated soils all or part of the year.

Runoff: That part of precipitation, snow melt, or irrigation water that is transported to streams or other surface water by overland flow, tile drains, or ground water.

Runoff can cause water quality problems in receiving waters and/or physical changes to stream corridor morphology.

Sediment: Particles derived from rocks or biological materials that have been transported by a fluid or other natural process, suspended or settled in water.

Shared Waters: Interstate surface waters that form the boundary between two or more states.

Source Water: An aquifer or surface water body from which water is taken either periodically or continuously for off-stream uses.

Source Water Assessment Plan: A plan to assess the susceptibility of public drinking water supplies to pollution, as part of the Source Water Assessment Program (SWAP) required of all primacy states by the 1996 amendments to the Federal Safe Drinking Water Act. The assessment program is used as a basis for building voluntary, community-based protection efforts to ensure safe drinking water.

Standard: State-adopted and U.S. Environmental Protection Agency-approved ambient standards for water bodies. Standards include the designated use of the water body and the water quality criteria that must be met to protect the designated use or uses.

Stormwater Runoff: Runoff generated by a storm event. See runoff.

Suitable Water Quality: Water quality that protects existing and designated uses.

Surface Water: An open body of water such as a lake, river, or stream.

Solids, Dissolved: Amount of minerals, such as salt, that are dissolved in water. Indicates salinity or hardness of water.

Solids, Suspended: Also suspended sediment, dependent upon the sampling method. Particles of rock, sand, soil, and organic detritus carried in suspension in the water column. In contrast with solids or sediment that moves on or near the streambed.

Steward: A careful and responsible manager of something entrusted to one's care.

Stressor: Any agent, cause or active power that causes physical, biological or chemical stress to an organism or system.

Sustainability: Refers to the use of a resource in a manner that meets current needs without compromising the ability to adequately meet the needs of future generations. Sustainability means making choices to use a natural resource base in a manner to ensure that yields in economic prosperity, social improvement, environmental quality and natural beauty will go on — tomorrow and forever — to be passed on to our children and subsequent generations.

Total Maximum Daily Load (TMDL): The sum of the individual wasteload allocations (WLA's) for point sources, load allocations (LA's) for nonpoint sources and natural background, plus a margin of safety (MOS). TMDL's can be expressed in terms of mass per time, toxicity, or other appropriate measures that relate to a state's water quality standard.

Toxic Substances: Substances, such as pesticides, plastics, heavy metals, detergent, solvent, or any other natural or man-made materials, that are poisonous, carcinogenic, or otherwise directly harmful to human health and the environment.

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Unstable Stream: Any stream that is unable to maintain natural hydrologic and hydraulic function (dynamic equilibrium) due to loss of balance between interrelated controlling variables. Instability is a loss of equilibrium associated with streambed degradation, aggradation or lateral channel migration. Causes include localized upstream changes in sinuosity, slope, resistance of bed materials; increased flood frequency, magnitude, or duration; increase or loss of sediment transport capacity; floodplain development; stream channel confinement or widening; and loss of streamside vegetation or riparian buffers. Instability impacts habitat and biological function in streams.

Water Allocation: Generally, a regulated withdrawal of water from a ground or surface source on the basis of total volume and/or rate of withdrawal. This term is also applied to designated amounts of storage in a reservoir, including the amount to be released to protect fisheries and recreational uses. This is not to be confused with the terms load allocation or waste load allocation which are permitted discharges regulated as part of a TMDL. See Total Maximum Daily Load.

Water Budget: A water budget is an account of all the water inflow, outflow, and storage changes in a watershed. It describes and quantifies the pathways water takes as it moves through the hydrologic system, including precipitation, infiltration, run-off, evapotranspiration, consumptive use, recharge, etc.

Water Quality-Based Trading: Watershed-based trading arrangements among point source dischargers, nonpoint sources, and indirect dischargers. 'Buyers' purchase pollutant reductions at a lower cost than what they would spend to achieve the reductions themselves. Sellers provide pollutant reductions and may receive compensation. The total pollutant reduction must be the same or greater than what would be achieved if no trade occurred. The U.S. EPA considers trading as an efficient, market-based approach to pollution reduction that encourages innovation in meeting water quality goals, with commitment to enforcement and compliance responsibilities under the Clean Water Act.

Water Quality Criteria: Numeric or narrative value designed to protect and support a designated use of a water body.

Water Quality Standards: Includes the designated uses, criteria, and anti-degradation policy that define the water quality goals of a water body.

Water Supply: This term is typically used to describe the sum of all water sources available for use. It can be understood in the context of balancing available water supply (what we have) with water demand (what we want). It is distinct from the term Public Water Supply that refers to a specific category of water use.

Water Trail: A continuous stretch of waterway for canoeing, including such amenities as special access points and informative signage.

Watershed Transfer: The movement of water or wastewater across a watershed boundary or divide from one (source) watershed for use within another (receiving) watershed.

Water Resource Considerations: The aspects of water resources relating to their use, quality and value that should be taken into consideration when making land use and growth management plans and decisions. These aspects include, but may not be limited to: water supply availability; wastewater treatment availability and capacity; direct and indirect impacts to water quality; water use and its related

impacts to hydrological and ecological systems; impacts upon High Value Water Resource Areas; recreational potential.

Watershed: The total area above a given point on a watercourse that contributes water to its flow; the entire region drained by a waterway or watercourse that drains into a lake, reservoir or bay.

Watershed Community: The group of residents, landowners, businesses and the units that use, govern, and make decisions about resources and development within a watershed.

Waterway Corridor: A stream and the portion of its adjacent landscape that directly affects and is affected by, its hydrology and ecology.

Wellhead Protection: Involves the delineation of the area contributing water to the point of extraction (withdrawal) of ground water and steps taken to mitigate potential contaminant sources in that area. The development of wellhead protection programs to protect public ground water sources from contamination is required of states under Section 1428 of the Safe Drinking Water Act. In most states, the local adoption of wellhead protection measures is voluntary.

Wetlands: Areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation