



Glossary of Water Terms

100-year floodplain – The land area that a flood will cover for a flood that has a magnitude of 1 in a hundred (1 percent) chance of happening. It does not mean that the flood will happen once in a hundred years

404 permit – A permit granted by the Army Corps of Engineers that allows a landowner to put fill in a wetland

500-year floodplain - The land area that a flood will cover for a flood that has a magnitude of 1 in five hundred (.2 percent) chance of happening. It does not mean that the flood will happen once in 500 hundred years

Ag drainage wells or agricultural drainage wells – Shafts that are built from farm tile lines to aquifers.



Algae in a backwater of the Wapsipinicon River at Pinicon Ridge Park near Central City, Iowa. Photo credit: Pam Mackey-Taylor

They are used to drain rainwater or snow melt off the farm fields

Algae - Algae are microscopic plants that grow in water. With high levels of nutrients (phosphorus and nitrogen), the plants grow very thick and can reduce the amount of oxygen in the water. That makes the water toxic to fish and other animals, they can cause the water to have odors, and can reduce water quality

Antidegradation – Antidegradation is part of water quality standards. When permitted discharges are allowed into a water body, the discharge cannot degrade the existing quality of the water body

Aquifer – An underground body of materials that holds water that can be withdrawn into wells or that flows into springs and water bodies

Aquifer recharge – The flow of surface water into the aquifer

Army Corps of Engineers – Federal agency that issues dredge and fill discharge permits (404 permits)

Bioaccumulation – Bioaccumulation occurs when fish or other animals ingest or absorb pollutants and the pollutants are retained and accumulate in the animal's tissues

Bioswales – Vegetated drainage ways that are used to move storm water and to allow the infiltration of the storm water into the ground

Buffer strips – A strip of vegetation along a stream that is not plowed or planted in crops. The buffer slows water from running off farm fields or urban areas into the stream, preventing erosion and absorbing water

Bypass – A bypass is when wastewater treatment operators intentionally release untreated or partially treated sewage into a receiving stream. It is done after heavy storms result in the sewage treatment facility not having enough capacity to handle all of the sewage and storm water being sent to it

Channelization – Straightening and deepening streams so that water will move faster

Clean Water Act – A federal law that controls the discharge of pollutants into water bodies of the United States



Stream buffer. Photo credit: Lynn Betts, USDA NRCS

Combined sewer system – When storm water run-off is fed directly into the sewage treatment facility

Combined sewer overflow – When so much storm water enters a combined sewer system that partially treated or untreated effluent is discharged into a receiving stream, that action is called a combined sewer overflow

Concentrated animal feeding operations (CAFOs) - One form of CAFO is an open feedlot, where the animals are raised outdoors in pens. The second form is called a confined animal feeding operation, which consists of huge buildings where animals are housed

Conservation tillage – Methods for growing annual crops in the previous year's crop residue (such as stems and roots) which reduce soil erosion and retain water and nutrients on the land

Dead zone – see hypoxia

Denitrification – Natural biological processes that remove nitrates from water

Department of Natural Resources (DNR) – DNR is a division of Iowa government. The DNR administers the Clean Water Act programs, implements rules, conducts inspections, enforces rules and deals with violators and non-compliance

Detention basin – A depression that has been built to temporarily hold storm water, allowing it to be released slowly

Drainage – The removal of water off a landscape. It can be done naturally or via tile lines

Dredging – Removal of material (sediment or sand) from the bottom of a water body

Effluent – Wastewater that flows from a sewage treatment plant, a sewer, or an industrial pipe. It can be treated or untreated.

Environmental Protection Agency (EPA) – EPA is a division of the federal government. The role of EPA is to provide overall guidance for Iowa’s clean water program, to enforce the federal Clean Water Act, and to enforce the Clean Water Act. EPA also approves Iowa’s regulations covered under the clean water act

Environmental Protection Commission (EPC) – In Iowa, the Department of Natural Resources uses a board called the Environmental Protection Commission to make and approve rules affecting the implementation and enforcement of the Clean Water Act.

Eutrophication – The overloading of water bodies with nutrients such as nitrogen and phosphorus which leads to the overgrowth of plants and later to the water body developing into a marsh or bog

Federal Emergency Management Agency (FEMA) – FEMA is a federal government organization that is responsible for maintaining the floodplain maps and disaster planning. It also has responsibilities in assisting communities in recovery from natural disasters.

Fish consumption advisory – When unsafe levels of contaminants, such as mercury, PCBs, chlordane, are found in fish tissues from a given water body, the Iowa Department of Natural Resources issues a fish consumption advisory which tells the public how many meals of fish caught in the water body to eat a week and what fish are affected

Floodplain – Land near a river channel that is periodically covered with floodwater

Floodplain map – Federal Emergency Management Agency issues maps that show the floodplain along streams

Floodway – The stream channel and the surrounding shore that is covered under water during a flood

Green roof – A roof that has plants, usually sedum, that are used to hold storm water. It has an added benefit of serving as insulation

Groundwater – Water that is held below the surface of the ground; subsurface water

Groundwater discharge areas – A groundwater discharge area is a site where groundwater reaches the surface, such as a lake or stream

Hypoxia – An area in a water body where the oxygen is used faster than it can be replaced, which results in an area that cannot support living animals. It is also called a dead zone.

Iowa Department of Agriculture and Land Stewardship (IDALS) – The Iowa Department of Agriculture and Land Stewardship advocates for policies that support and protect farming activities in Iowa. IDALS has three committees that are involved in water issues – Watershed Planning Advisory Council, Iowa Watershed Improvement Review Board and Water Resources Coordinating Council.

Impaired waters – Water bodies that do not meet water quality standards are listed on an impaired waters list

Impaired waters list – The Department of Natural Resources is required to submit a list of impaired waters to the Environmental Protection Agency every even-numbered year. The impaired waters list is also called the 303(d) list.

Impermeable surface – A surface that does not allow rain water and snow melt to soak into the soil, such as a roof, concrete or asphalt

Lag time – The amount of time between implementation of measures to restore water quality and an observed measurable improvement in water quality

Municipal Separated Storm Sewer System (MS4) – A system of drains that discharges storm water and snow melt directly into a water body without being treated at a sewage treatment plant



Storm sewer. Photo credit: Pam Mackey-Taylor

National Pollutant Discharge Elimination System (NPDES) permits or permits to discharge – Permits issued by the Iowa Department of Natural Resources to industries and wastewater treatment facilities and some concentrated animal feeding operations which detail that maximum amounts of pollutants that can be discharged into a water body

Non-point source of contamination – Pollution that originates from a diverse source, such as runoff after a storm or agricultural practices

Nutrients – Nutrients include nitrogen and phosphorus. Excess amounts of nitrogen and phosphorus promote the growth of algae and the reduction of oxygen in the water. This condition leads to hypoxia.

Organic matter or organic material – Manure and particles of once-living plants and animals. When organic matter is found in streams or rivers, it is often seen as what appears to be foam or soap bubbles on the surface of the water.

Outstanding Iowa Waters – When the Iowa Department of Natural Resources implemented the federal Clean Water Act, the rules were written to include Tier 2.5 waters, also called Outstanding Iowa Waters, which are especially clean and meeting water quality standards. These waters also have significant recreation and fishing opportunities. The Outstanding Iowa Waters are given extra protection to limit discharging of pollutants into the waters, but the rule allows flexibility in accommodating compelling economic or social needs to discharge into the waters.

Permeable pavement, also called porous paving or pervious paving – A paved surface that allows water to seep through the surface and into the underlying soil

Phosphorus – A mineral used as fertilizer, the middle number on a fertilizer package. When found in water bodies, phosphorus is one of the pollutants called nutrients.

Point source of contamination – Contamination that can be clearly identified from a single source, such as a factory or a sewage treatment plant. Think of it as pollution coming from a pipe or a containment structure.

Pollutant – Chemicals, waste, garbage, soils that are discharged into a water body. Heat is also considered a pollutant, such as heat in cooling water.

Rain barrels – Containers that collect rainwater that can later be used for watering around the yard

Rain garden – A landscaped area that captures rainwater, holds the water and slowly allows the water to infiltrate the soil

Receiving water – Any water body that receives wastewater discharges, storm water runoff or agriculture runoff. The phrase “receiving stream” is used for either a river or stream.

Regulated community – The industries and sewage treatment plants that have permits to discharge treated wastewater

Retention basin – An artificial lake or pond that is used to hold storm water. It is designed to hold water throughout the year



Permeable pavement, Cedar Rapids, Iowa. Photo credit: Pam Mackey-Taylor



Riprap along the Cedar River in downtown Cedar Rapids, Iowa. Photo credit: Pam Mackey-Taylor

Riprap – Rocks or concrete that are placed along streams or bridges to prevent erosion

Runoff – Rain or snow melt that flows over lawns and fields until it flows into streams and lakes, infiltrates into the ground or evaporates

Sanitary sewer overflows – Untreated or partially treated sewage that escapes from a sewage treatment facility or the pipes carrying sewage. The escape can be caused by equipment failure, pipes breaking, lift station failure or inadequate capacity to handle the amount of waste.

Sediment – Soil that is released into a water body by either urban or agriculture storm water runoff. Sediment can carry toxic chemicals. The sediment deposits can destroy fish spawning areas.

Sediment basin or sediment trap – Sediment basins and sediment traps are ponds or dammed areas built on a construction site for the purpose of capturing stormwater that is laden with eroded soil. The sediment basin or trap will prevent the eroded soil from entering water bodies.



*Silt fence at a construction site.
Photo credit: Pam Mackey-Taylor*

Septic tank – A tank that holds sewage and a below-ground discharge system to dispose of waste from a home or business that does not have a connection to a municipal sewage treatment system. The septic must be pumped out every few years in order to keep the system functioning properly.

Silt fence – A fence consisting of a geotextile attached to stakes that is installed to catch stormwater laden with soil eroded from a construction site. The geotextile allows the water to filter through the material but traps the soil and prevents it from moving into a stream or lake.

Spread field – A farm field that is used to spread manure from a concentrated animal feeding operation



Storm water erosion on a construction site. Photo credit: Pam Mackey-Taylor

Storm drain or storm sewer – Pipelines that carry rain water or snow melt from an urban area to a lake or stream. The water is not treated at a sewage treatment plant

Storm water – Rainfall or snow melt that runs off the land, streets, parking lots

Stover or crop residue - The residue left on the fields after the grain is harvested, including stalks, leaves and roots

Stream flow – The cubic feet of water per second flowing down a stream

Surface water – Lakes, rivers and other water bodies that are open to the atmosphere

Thermal pollution – Heated water released into water bodies that changes the temperature of the receiving stream and comes from cooling towers or industrial processes

Tiling – Drainage pipes buried about three to four feet below the surface of agricultural fields to drain water off the fields; originally made of clay, but today made of permeable plastic

Total maximum daily load (TMDL) - When waters are impaired, a TMDL is written for that water body. The TMDL is written as a plan which will restore the water quality. It includes a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards.

Wasteload allocation – The amount of a pollutant allocated to each individual point-source discharger in a water body; used for TMDL goals so that water quality can be reached if each permittee reduces the designated amount discharge of the pollutant identified

Wastewater treatment plant or sewage treatment plant – A facility that accepts what is poured down drains and flushed down stools and removes solid materials and grease and treats the waste to remove harmful chemicals, bacteria and other organisms; once the water is treated, it is released into a stream or river

Water body – Rivers, streams, creeks, lakes

Water resources – The supply of groundwater and surface water in an area



*Cedar Rapids waste water treatment plant.
Photo credit: Pam Mackey-Taylor*

Water table – The top of water-saturated earth

Watershed – Land area that drains into a stream or other water body

Wetlands – Land that is saturated with water all of the time or part of the year, has hydric soils that were formed in a water environment and vegetation characteristic of a wetland environment