

Evaluation of Stream Conditions

OBSERVABLE CONDITION	LIKELY CAUSES	FOR FURTHER INFORMATION
PHYSICAL		
<p>Sediment: the stream bottom is almost completely covered with deposition and there may be moving sand bars. Sedimentation may be associated with brown or reddish stream color during high flow conditions.</p>	<p>Mud, silt, or sand on the stream bottom may result from surface runoff from construction sites or exposed soils, channel alterations, or bank undercutting and slumping.</p>	<p>Examine upstream areas for development activities with inadequate sediment control, streambank modification, or severely undercut or slumping streambanks. Unpaved roads can also be a significant source of sediment.</p>
<p>Aquatic Weeds covering the water surface or stream bottom, especially in pond or slow moving areas with sunlight.</p>	<p>This may be a difficult problem to assess because aquatic plants can be indicators of a high quality habitat, such as a wetland or a shallow, muddy backwater. Sometimes, however, they are a symptom of excessive nutrients, especially when there are long streamers present.</p>	<p>Examine upstream areas for sources of nutrients such as sewage, heavily fertilized areas (e.g. golf courses or croplands), car washes, livestock areas, or washwater discharges from food processing industries.</p>
<p>Algae: floating or attached tiny plants which can color the water green, resemble seaweed when affixed to the stream bottom, form a surface scum, or have an oil-like appearance.</p>	<p>Algal growth indicates an upstream nutrient source.</p>	<p>Examine upstream areas for sources of nutrients (see above).</p>
<p>Foam or Bubbles floating on the water surface.</p>	<p>When foaming occurs in only a few scattered patches, is less than 3 inches high, and cream colored, it is probably natural. If the foaming is extensive, white in color, or thicker than 3 inches, it may be due to detergents or surfactants entering the stream. White foam can also be caused by fertilizer leachate.</p>	<p>Examine upstream areas for industrial, municipal, or residential wastewater sources or other sources of nutrients.</p>

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<p>Bank Stains or Dry Weather Discharges from Pipes: stains may be observed on streambanks (which would indicate a spill, leachate, or a sporadic discharge) or below pipes (which suggests an intermittent or periodic discharge). Dry weather flow may be discharged from pipes protruding from the streambank or from storm sewer pipes (normally large and composed of concrete).</p>	<p>Bank stains and mats of dried materials, especially below pipes, are likely to indicate sporadic discharges of oil, organic wastes, or the discharges of washwaters or process wastes. Dry weather flow from storm sewer pipes would suggest washwaters from paved areas or direct connections to commercial or industrial drains. Flow from other pipes along the streambanks may be non-contact cooling water (legal with a permit) or washwaters or process wastewaters from nearby activities.</p>	<p>Examine the stain or discharge and its texture. Is it familiar? Stains and discharges from pipes along the streambanks are likely to result from nearby or adjacent activities. However, dry weather flows discharged from storm sewers can come from remote locations. The procedure for locating the source of such discharges is to follow the storm sewer. Continue looking or listening for flow in curbside inlets or storm sewer manholes until you find the discharge source or identify the activity causing the discharge.</p>
<p>Leaking or Surcharging Sanitary Sewers or Manholes: white to gray musky smelling discharges from a joint or a crack in a pipe (normally-cast iron) or a sewer manhole. Sewage may be seen gushing from a manhole top. Grey mat materials draped on or deposited near a manhole may indicate past overflows.</p> <p>Dingy White or Grey (or even brown-stained) Cotton-like Tufts: hair-like growths which are attached to the stream bottom or objects in the stream.</p> <p>Red Mats on the stream bottom which appear to be shimmering with the current and disappear when disturbed. (Not to be confused with iron bacteria).</p>	<p>Sanitary sewers and manholes can fail or clog over the course of time and leak or surcharge from manholes.</p> <p>This growth is probably Sphaerotilus, a sheath or iron bacterium, which thrives on organic matter. When a continuing abundance of organic wastes is available they grow in colonies which resemble dingy cotton. This could sometimes be sulphur bacteria in south Georgia.</p> <p>These are colonies of aquatic, segmented worms called sludge worms. These individuals resemble small earthworms and are also an indication of heavy organic waste loads.</p>	<p>Report immediately to the local public works department.</p> <p>Look for nearby wastewater discharges or sources of nutrients and organic wastes such as food processing plants.</p> <p>Examine upstream areas for sources of organic wastes.</p>

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<p>Orange-Red Surface Film or Floc-like Deposits in slow-flowing or pond areas. The surface film breaks up when stirred.</p>	<p>This is normally a naturally occurring phenomenon resulting from iron bacteria growth. It is generally associated with acidic soils, or can be enhanced by iron in surface runoff or leachates.</p>	<p>Examine upstream areas for sources of organic wastes or wastewater.</p>
<p>Sludge Deposits/Bubbles Rising to Surface: normally deposits of thick dark gray to black, “mucky” material. The top few inches of sediment and objects in the water may be stained black. Sometimes bubbles may be observed rising to the surface.</p> <p>Oil Released from Sediment when sediment is stirred up.</p> <p>Barrels or Containers in stream or on streambanks.</p>	<p>Sludge deposits are the result of solid organic matter which has settled to the bottom in quiet areas. When the dissolved oxygen level in the water is severely depleted, anaerobic bacteria (they function without oxygen) reduce nitrogen and sulphur compounds creating gases which bubble to the surface and create the characteristic rotten egg (hydrogen sulfide) odor.</p> <p>Heavy oils may settle out and be deposited in sediment. When the sediment is stirred up the oil is re-suspended.</p> <p>Empty barrels and containers may contain traces of hazardous or polluting substances.</p>	<p>Examine upstream areas for sources of heavy oil such as industries or fuel storage areas. Bank stains are likely to be evident.</p> <p>Look for a label to identify the contents of the barrel or container. If there is no label or the barrel is labeled hazardous, call the EPD Hazardous Waste Program (404/656-7802) or Emergency Response Team (1-800-241-4113 or 656-4863 in the Atlanta area). DO NOT REMAIN NEAR OR ATTEMPT TO DEAL WITH HAZARDOUS MATERIALS AS THEY COULD BE DANGEROUS TO BREATHE OR TOUCH.</p>
<p>WATER COLOR</p>		
<p>Light Brown (muddy or cloudy), especially during high flows.</p>	<p>Mud, silt, sand on bottom or entering the stream from such sources such as surface runoff from construction activities, channel alterations, or bank undercutting and scouring is suspended in the water column.</p>	<p>Examine upstream areas for development activities with inadequate sediment control practices, streambank modifications, or severely undercut streambanks.</p>

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Green , especially deep green or blue-green.	If the stream is noticeably green, this could be an indication of “organic” pollution being released into the stream feeding algae (hence the term algal bloom) and other aquatic plants.	Examine upstream areas for sources of nutrient’s such as sewage, heavily fertilized areas like golf courses or croplands, car washes, livestock areas, or washwater discharges from food processing industries.
Multi-Colored Film or Reflection over an extensive portion of the stream surface which does not break apart when stirred.	This is typically a hydrocarbon product such as oil or gasoline resulting from spills, discharges, or runoff from vehicle maintenance areas.	If continuously flowing, follow the sheen back to its point of origin or look for dark bank stains, dripping pipes, stains in tributaries, or likely sources of oil and gas such as service stations, car dealers, storage tanks, or vehicle service areas.
Dark Red, Purple, Blue or Black in comparison to normal stream color in the area.	This would normally indicate organic dye from leather tanning or clothing manufacturers.	Examine upstream areas for potential sources such as pipes or ditches from industrial plants.
ODOR		
Rotten egg	This may indicate sewage pollution or sludge deposits, but this odor may also be present in swamps, marshlands, or slow moving streams where leaf litter and other organic matter has settled.	Examine upstream areas for a source of sewage, heavy organic wastes, or animal wastes.
Sewage		Examine upstream areas for raw wastewater discharges, gray discolored flows, septic tank leachate, or leaking sewers or manholes.