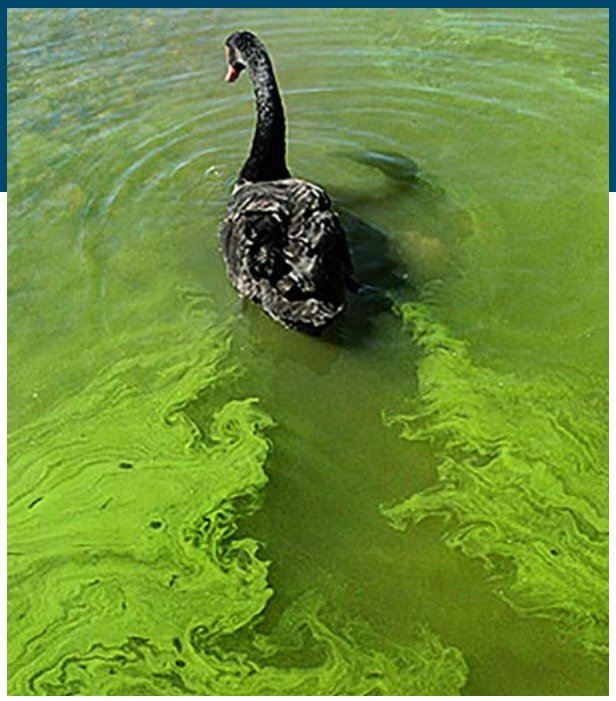
COMMON WATER QUALITY COMPLAINTS COLOR GUIDE



YOUR GUIDE TO IDENTIFY POSSIBLE SOURCES OF UNUSUAL APPEARANCES OF WATERWAYS

WATERSHED PROTECTION

GREEN

RED

ORANGE

YELLOW

BROWN

GREY

BLACK

FOAM Y

WHITE/ CLEAR

SWIRL

COLOR/APPEARANCE :

Fluorescent green (or other bright unnatural color)

ODOR:

None

DESCRIPTION:

Green, blue, red, violet are typical fluorescein dye colors

Can be any other bright color

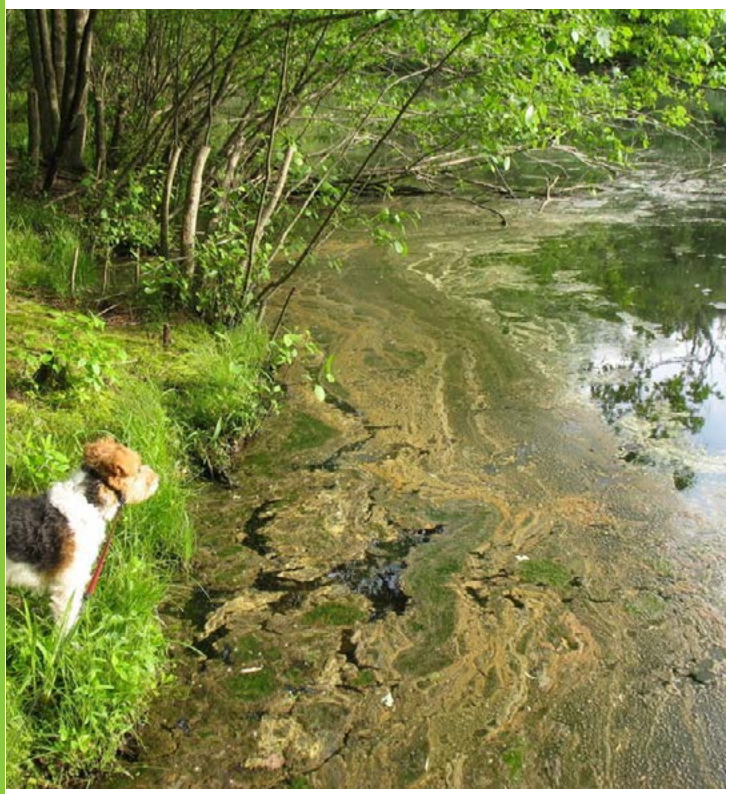
POSSIBLE SOURCE:

Uranine dye used in antifreeze (bright green)

Fluorescein dye used for testing sewer lines, storm drains, ground water systems, etc.

"Zep" brand commercial detergent – an orange colored powder that turns bright green when mixed with water

Can be fabric dyes or inks from printers or paper and cardboard manufacturers



COLOR/APPEARANCE :

Dark green (brown or golden) algae or "pea soup" color

ODOR:

None (sometimes musty or fishy)

DESCRIPTION:

Fibrous, slimy, or hairy layers of algae, possibly with air bubbles in daylight hours

Usually one predominant species of blue-green algae that creates the water color

Convulsive, erratic swimming and lethargic behavior in fish

Sometimes associated with fish kills due to high pH (>9.5) and extremely fluctuating dissolved oxygen, along with producing toxins harmful to living organisms

POSSIBLE SOURCE:

Excessive algal growth most frequently caused or made worse by nutrients or fertilizers in conjunction with slow moving water and sunlight

COLOR/APPEARANCE :

Red to orange to purple (variable)

ODOR:

None to slightly sweet or fermented

DESCRIPTION:

Found only in standing water

Color is pH dependent

Sometimes seen as strip of color along stream banks containing dense vegetation

POSSIBLE SOURCE:

Natural berry extract, look for berries such as mulberry, persimmon, etc.

COLOR/APPEARANCE :

Shades of red or rainbow sheen with droplets colored red, blue or yellow

ODOR:

Diesel odor

DESCRIPTION:

FCan be bright blood red for new fluid or dark red to brown for older fluid in large amounts

Can be a thin sheen on surface for small quantities

POSSIBLE SOURCE:

Diesel is sold color coded depending on federal fuel taxes paid:

- o Red – for use off-road in construction machinery or generators
- o Blue – for use in farm machinery
- o Yellow – for use as motor fuel on roads
- o Purple, green, orange are obtained by illegally mixing fuels

If highly viscous and red, it could be transmission fluid

RED

COLOR/APPEARANCE :

Reddish-orange (sometimes iridescent) gelatinous deposits; spongy growth

ODOR:

None

DESCRIPTION:

Usually at small seeps, springs, or storm sewer outfalls

Iridescent sheen breaks into irregularly shaped “plates” when disturbed, does not swirl (Note: if swirls, see rainbow sheen)

POSSIBLE SOURCE:

Iron with metabolizing bacteria

Could be natural or corroding metal (i.e. dump site or landfill)

ORANGE

COLOR/APPEARANCE :

Orange-red

ODOR:

None

DESCRIPTION:

Can occur naturally as part of rock (high in sulfide minerals) weathering process but exacerbated by large-scale earth disturbances

Can have good water clarity

Low pH

POSSIBLE SOURCE:

Acid drainage associated with mining or industrial waste drainage to the waterway

COLOR/APPEARANCE :

Orange-brown with thick floating mats; can have a rainbow sheen

ODOR:

None to petroleum or diesel odor

POSSIBLE SOURCE:

Old diesel from an illegal discharge

COLOR/APPEARANCE :

Yellow coating on stream bed

ODOR:

Rotten egg odor

POSSIBLE SOURCE:

Sulfur entering the stream from upstream industrial waste or coal-using operation

COLOR/APPEARANCE :

Yellow scum, film or suds

ODOR:

None to pine-like

DESCRIPTION:

Usually in stagnant water or non-flowing pools, or slow moving streams

Typically in spring

POSSIBLE SOURCE:

Pollen from flowering trees or evergreens like oaks, junipers/cedar, and pines

YELLOW

COLOR/APPEARANCE :

Yellowish-brown, lumpy and immiscible in water

ODOR:

Oily

DESCRIPTION:

Material clumps and can be somewhat frothy

POSSIBLE SOURCE:

Emulsified oil or lubricant

COLOR/APPEARANCE :

Yellow-brown to dark brown

ODOR:

Rotten egg odor

DESCRIPTION:

Common in streams during the fall

Common in streams draining marsh and swampland

POSSIBLE SOURCE:

Occurs naturally each fall when dead leaves collect in the stream

BROWN

COLOR/APPEARANCE :

Brown tea-like, transparent

ODOR:

None

DESCRIPTION:

Found only in standing water

Presence of an abundance of leaves, organic matter in area

Associated with woodlands or swampy areas

Can appear like tea or coffee

Common in Fall

Low DO and pH and may see large fish at surface gulping air

POSSIBLE SOURCE:

Naturally occurring Tanning

Extract from decaying plant parts such as leaves, acorns, galls, etc.

COLOR/APPEARANCE :

Brown, black or gray

ODOR:

None

DESCRIPTION:

Suspended sediments are common after rainfall

Sediment will eventually settle on the stream bottom in low flows

POSSIBLE SOURCE:

Natural sediments in stormwater

Excessive amounts in stormwater can indicate inadequate erosion and sedimentation controls at upstream construction sites

Soil erosion caused by vegetation removal from a riparian zone

Can indicate improper dewatering or washing practices at upstream construction sites during dry periods

Can result from a water line break

COLOR/APPEARANCE :

Brown, black or gray

ODOR:

None to rotten egg odor

DESCRIPTION:

Usually seen in the evening and early morning hours

Fish gasping and swimming at the surface of the water

Often associated with fish kills due to low dissolved oxygen (<2 ppm) with pH of 6.0 – 7.5

POSSIBLE SOURCE:

Large amount of dying algae, frequently occurs after an algae bloom

GREY

COLOR/APPEARANCE :

Gray or black film or scum

ODOR:

Strong “sewer” , ammonia, rotten-egg, or hydrogen sulfide odor; can have chlorine odor

DESCRIPTION:

Usually easy to follow upstream to the source

Can appear as a film on the surface or scum on the bottom

Can consist of solids or appear clear with no solids

Can appear milky-gray or black

Can see fish kills and large fish coming to surface and gulping air

POSSIBLE SOURCE:

Indicative of sewage leak or overflow, or other oxygen demanding waste

If solids are in the form of small “pellet”, it could be bat guano (typically late spring to early fall)

Food, grain, or animal processing industrym construction sites during dry periods

Can result from a water line break

COLOR/APPEARANCE :

Clear Black

ODOR:

None

DESCRIPTION:

Often results in distressed or dead fish

Seen in the Fall when temperatures drop and the heavier water falls to the bottom, forcing the bottom, less-oxygenated waters to the top where they get re-oxygenated

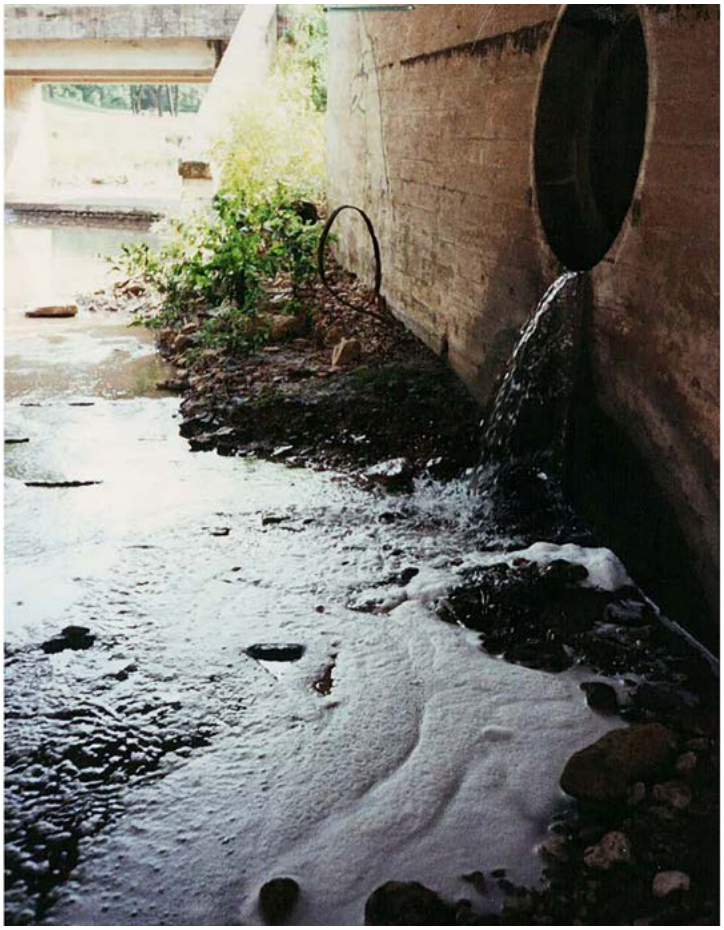
Also seen in Spring as surface waters warm

POSSIBLE SOURCE:

Turnover of oxygen-depleted bottom waters

Sulfuric acid spill

BLACK



COLOR/APPEARANCE :

White (sometimes tinted green or blue) and sudsy

ODOR:

Detergent or cleaner odor; may smell like solvent or have no odor at all

DESCRIPTION:

Can be bright green or blue tinted with some heavy-duty detergents

If stormwater runoff, suds tend to be more “tan” in color

POSSIBLE SOURCE:

Usually associated with home car washing or other detergent discharge activity

Industrial strength floor cleaners and waxes usually form more tenacious suds

Can naturally occur as first flush stage of stormwater runoff with high velocity and sufficient agitation

COLOR/APPEARANCE :

Milky white and cloudy (no identifiable solids); sometimes chalky where dry

NOTE: color can very widely

ODOR:

None or faint to strong paint or solvent cleaner odor

DESCRIPTION:

In flowing water, will mix through entire water column

In still water, can settle as layer on stream bottom

POSSIBLE SOURCE:

Can be illegal discharge of floor stripper to storm drain

Can be illegal discharge of paint or solvent (i.e. from washing of paint equipment to storm drain)

Milk from food processing discharge

COLOR/APPEARANCE :

White and cloudy (no identifiable solids); chalky where dry

ODOR:

None or chlorine odor

DESCRIPTION:

Suspended in flowing water; can settle out in still water

Usually in an easy to follow trail to source

POSSIBLE SOURCE:

Typical runoff from concrete pouring, washing or cutting

Swimming pool backwash from DE filter media

COLOR/APPEARANCE :

Clear with dead aquatic life

ODOR:

None to sharp, pungent odor; chemical or chlorine odor

DESCRIPTION:

Water may appear clear; no unusual color

Water may contain debris

Fish may have bleeding from the gills

Fish may be schooling near the shore and have sluggish behavior

May see algae if herbicide

POSSIBLE SOURCE:

Chemical spills

Pesticides from application just before heavy rain – see fish dying after heavy rain

Upstream fire discharged debris and fire-fighting chemicals

High temperature of water in hot, summer months, particularly in shallow, low-flow areas

Swimming pool water discharge

Chlorinated water line break

COLOR/APPEARANCE :

White cottony masses on stream beds

ODOR:

Rotten egg odor

DESCRIPTION:

Can appear like long mop strings attached to rocks and stream bottom

POSSIBLE SOURCE:

Usually indicative of sewage fungus; its presence indicates illegal discharges of wastewater or other organic pollutants

COLOR/APPEARANCE :

Variable-colored scum floating on the surface

ODOR:

None to faint organic solvent

DESCRIPTION:

Can cause coloring of the water but usually appears as a separate colored layer that floats on the surface

POSSIBLE SOURCE:

Indicative of oil-based paints that are immiscible with water

Can also be indicative of paint sprayed directly onto water surface

Some floating small plants such as “mosquito fern” (Azolla sp.) can look like red or green scum

COLOR/APPEARANCE :

Dull sheen, swirls or plates when disturbed

ODOR:

None to rotten egg odor

DESCRIPTION:

Light layer on the stream surface

Seen best in standing water

POSSIBLE SOURCE:

Bacterial or fungal scum associated with decaying organic matter or fish kills

COLOR/APPEARANCE :

Whitish to brownish, lumpy or filmy

ODOR:

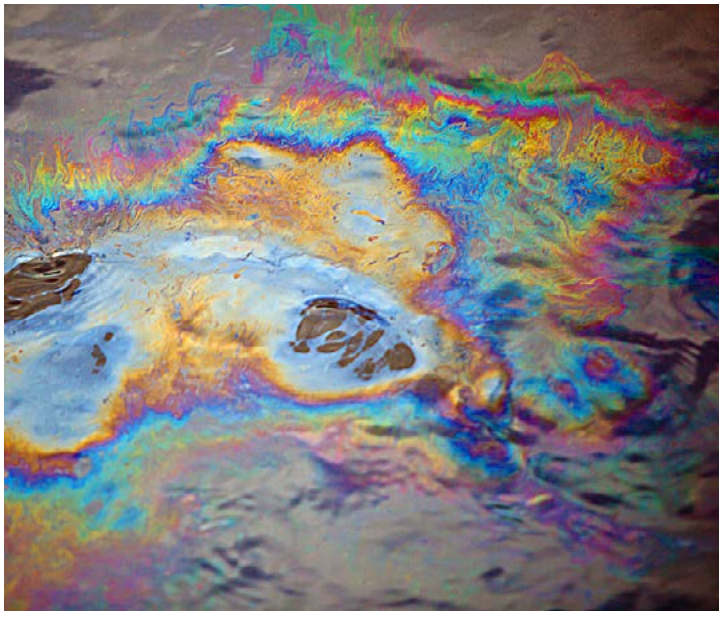
Rancid cooking grease odor

DESCRIPTION:

Swirls of light and dark brown colors

POSSIBLE SOURCE:

Typically from restaurant used cooking oil bin or improper disposal and washing practices



COLOR/APPEARANCE :

Rainbow sheen, swirls when disturbed

ODOR:

None to oil, gasoline or diesel odor

DESCRIPTION:

Thin film that floats on top of the water

POSSIBLE SOURCE:

Typical in stormwater runoff from streets and parking lots

In non-stormwater runoff, could indicate a petroleum spill