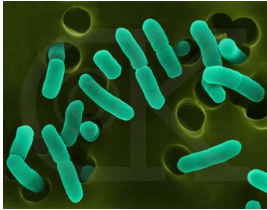




Bacteria

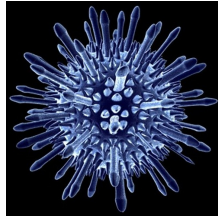


<http://www.ecoliblog.com/2006/06/>

E. Coli

Pathogens

Viruses



<http://www.turbosquid.com/3d-models/3d-adenovirus-science/484353>

Adenovirus

General Information

Bacteria and viruses are pathogens present in fecal matter which get into stormwater runoff as pet waste, wildlife scat, leaky septic systems, runoff from agriculture, broken sanitary sewers, and cross connections where sanitary lines tie into stormwater lines. Excess amounts of these pathogens can make water unsafe to drink and force the closure of water recreational areas, such as beaches. Indicator species are used to monitor beaches for unsafe levels of pathogens. The 3 main indicators used by the EPA (1986 standards) are E. coli, Enterococcus and fecal coliform. Many of these pathogens can cause severe stomach ailments and disease. If levels of indicator species get too high, officials often close down beaches, which can negatively impact local businesses.

Pet Waste and Wildlife



<http://www.geeserelief.net/>

Cross Connections

Ex. The sanitary line is connected to a dry well. The dry well drains to a roadside ditch, which is near a stream.



Leaky Septic Systems

Ex. This failing septic system is draining to a roadside ditch.



Best Management Practices

- Clean up after pets: flush waste down toilet; never put waste in storm drains; bag the waste.
- Monitor septic systems to ensure they are not cracked or leaking.
- Manage and control wildlife populations. Ex. Rats or raccoons in storm sewers and Canadian geese.
- Monitor agriculture waste storage areas and remove excess.
- Report suspicious odors to authorities.

Additional Information

EPA

http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=factsheet_results&view=specific&bmp=4

NYSDEC

Section 2.1 of the 2010 NYS Stormwater Management Design Manual - <http://www.dec.ny.gov/chemical/29072.html>

Other

<http://www.deq.state.or.us/wq/pubs/factsheets/willamette/bacteria.pdf>

<http://www.bae.ncsu.edu/stormwater/PublicationFiles/PathogensSW.2008.pdf>