

Stormwater

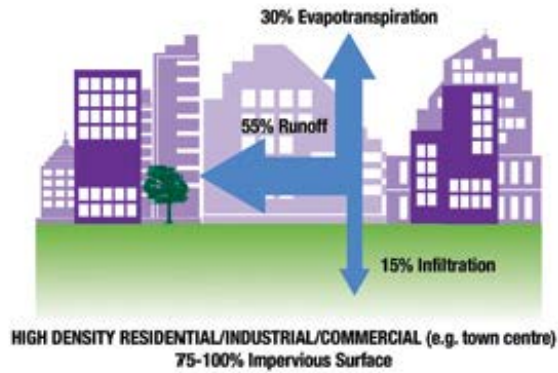
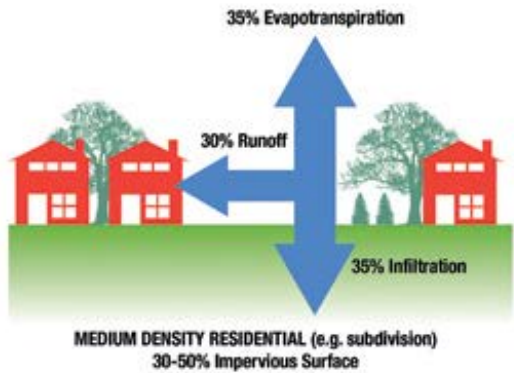
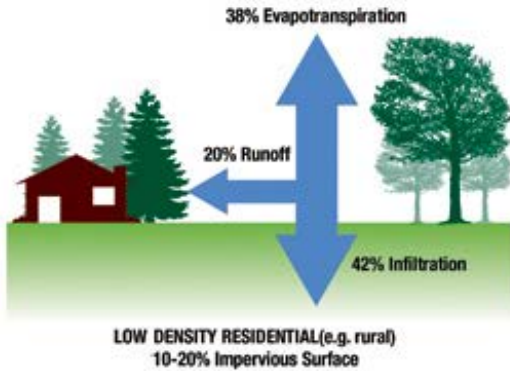
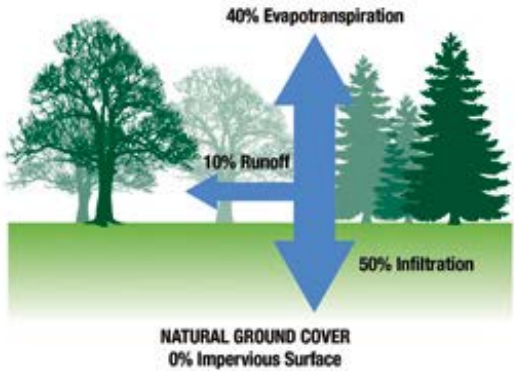
General Awareness Training



Water Regulatory History

- **1972 – Congress enacts Clean Water Act**
 - Regulates wastewater pollution
- **1987 – Congress amends Clean Water Act**
 - *Stormwater pollution regulation added*
- **1990 – Industrial, Construction and Municipal Stormwater Permits**
 - 1990 - Municipal Phase I Populations > 100,000
 - 1999 - Municipal Phase II Populations < 100,000
 - Traditional (Cities)
- **2013 – Municipal Phase II, Non-Traditional (Campuses)**

Urbanization and Runoff



Source: Arnold and Gibbens (1996) Impervious Surface Coverage.

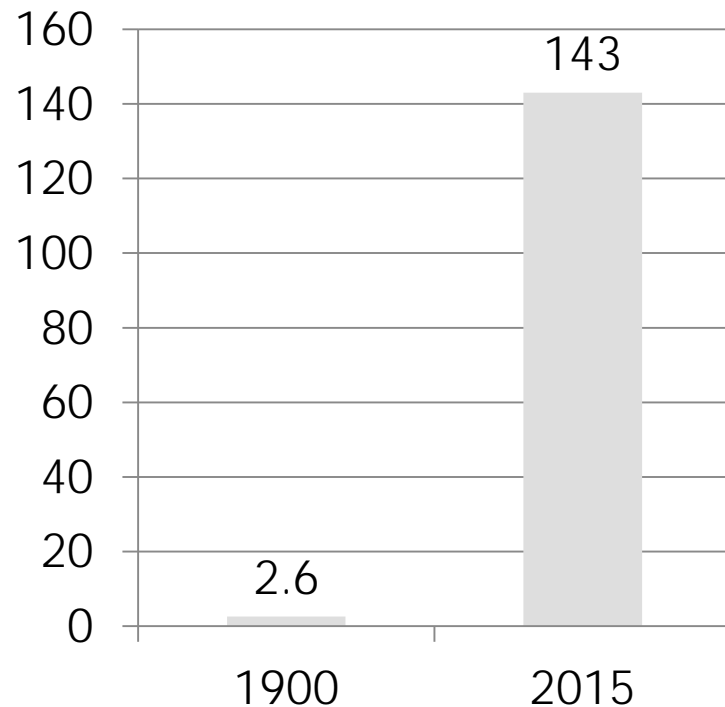
Urban Runoff

- **Urban Runoff** is surface runoff of stormwater created by urbanization.
- It is high volume, fast moving water that can overwhelm storm drain systems causing flooding.
- Fast moving water picks up trash and debris and carries it down river.
 - it “washes” everything along the way picking up surface contaminants

Stormwater Runoff

- 1 inch of rain over the LA River Watershed was **260 million gallons** of water.
- 1900 - **2.6 million gallons** of Stormwater runoff went to the ocean.
- 2015 - **143 million gallons** of Stormwater runoff rushes to the ocean.
- More than **50 times** the volume of Stormwater/Urban runoff since Urbanization

Runoff Towards Ocean (MG)





Pollutants of Concern

- **Trash**
 - Sediment, debris, vegetation and litter from the influence of human beings on nature
- **Nutrients (nitrogen and phosphorus)**
 - Lawn fertilizers, atmospheric deposition, automobile exhaust, soil erosion, animal waste, detergents
- **Bacteria and Viruses**
 - Leaky sanitary sewer lines, sanitary sewer cross-connections, animal waste, septic systems
- **Metals**
 - Automobiles, atmospheric deposition, industrial areas, soil erosion, corroding metal surfaces, combustion processes

Effects of Urban Runoff



After less than an inch of rain

NEWS RELEASE



313 N. Figueroa Street, Room 806 • Los Angeles, CA 90012 • (213) 240-8144 • media@ph.lacounty.gov
[Facebook.com/LAPublicHealth](https://www.facebook.com/LAPublicHealth) • [Twitter.com/LAPublicHealth](https://twitter.com/LAPublicHealth)

For Immediate Release:
October 06, 2015

For more information contact:
Public Health Communications
(213) 240-8144
media@ph.lacounty.gov

Rain Advisory

Advisory for all Los Angeles County beaches in effect until Friday, October 9 at 7:00 a.m.

LOS ANGELES – Because of current rainfall, the County Interim Health Officer, Dr. Jeffrey Gunzenhauser, is cautioning residents who are planning to visit Los Angeles County beaches to be careful of swimming, surfing, and playing in ocean waters around discharging storm drains, creeks, and rivers. Bacteria, debris, trash, and other public health hazards from city streets and mountain areas are likely to enter ocean waters through these outlets.

Discharging storm drains, creeks, and rivers only comprise a small portion of the beach; therefore, anybody who wants to go to the beach will still be able to enjoy their outing. Swimmers and surfers are advised to stay away from discharge sites. There is the possibility of bacterium or chemicals from debris and trash could contaminate the water near and around discharge sites, and individuals who enter the water in these areas could become ill. Areas of the beach apart from discharging storm drains, creeks, and rivers are exempted from this advisory. This advisory will be in effect until at least, Friday, October 9 at 7:00 a.m. This advisory may be extended depending on further rainfall.

Recorded information on beach conditions is available 24-hours a day on the County's beach closure hotline: 1-800- 525-5662. Information is also available online at our website: PublicHealth.LACounty.gov/Beach/.

The Department of Public Health is committed to protecting and improving the health of the nearly 10 million residents of Los Angeles County. Through a variety of programs, community partnerships and services, Public Health oversees environmental health, disease control, and community and family health. Public Health comprises nearly 4,000 employees and has an annual budget exceeding \$900 million. To learn more about the LA County Department of Public Health and the work they do, visit PublicHealth.LACounty.gov, and follow Public Health on social media at twitter.com/LAPublicHealth, [facebook.com/LAPublicHealth](https://www.facebook.com/LAPublicHealth), and [youtube.com/LAPublicHealth](https://www.youtube.com/LAPublicHealth).



Best Management Practices (BMP's)

- A BMP is a method used to prevent or control stormwater runoff and / or the discharge of pollutants in stormwater runoff.
- Types of BMP's
 - Structural: Physical Devices
 - Procedural: Activities/Practices
- BMP awareness and usage is everyone's responsibility.

Structural BMPs

- Equipment/vehicle rinsing area (wash rack)
- Storm drain inserts/silt fences
- Bioswales
- Oil Separators
- Carbon Filters





Procedural BMPs

- Containerize all trash and garbage
 - Keep dumpsters closed when not being actively filled
- General Housekeeping - Keep areas around the buildings/ structures clean.
- Fertilizer, herbicide and insecticide application
- Keep sediment out of storm drains
 - Cover exposed dirt piles to prevent erosion
- Maintain all equipment to ensure proper operations.



MS4 Implementation

- Implementation is phased over 5 years
 - We are in the third year
- Key Elements of the third year
 - Education and Outreach
 - Training for Permittee Staff
 - Illicit Discharge Detection and Elimination
 - Review and assessment of facilities
 - Inspection of storm drain systems



Illicit Discharge Detection and Elimination

- There are two (2) types of **NON** Storm Water Discharges:
 - Authorized Non Storm water Discharges:
 - fire hydrant flushing
 - drinking fountain water
 - air conditioning condensation
 - ground water
 - Non-Authorized storm water or Illicit Discharges
 - Sanitary wastewater, effluent from septic tanks.
 - Car / equipment wash wastewaters.
 - Custodial / Laundry wastewaters.
 - Sediment and pollutants from construction sites.
 - Hosing down roads and sidewalks.
 - Everything except clean storm water and authorized non-storm water discharges may be considered an Illicit discharge



Illicit Discharge Notification and Reporting

- If you observe a non authorized or illicit storm water discharge you should:
 - Report the illicit discharge to
 - Supervisor, work control or EH&S
 - Report **severe** illicit discharges to
 - Supervisor, EH&S and potentially Police Services
 - **Severe illicit discharges** are high volume or highly polluting or toxic
 - e.g. Sanitary Sewer Overflow

Review

- Storm Water
 - water that originates during precipitation
- Storm Water Runoff
 - Storm water that does not soak in or is not absorbed into the soil. Most run off does NOT receive treatment
- Pollutants of Concern
 - **Trash, Nutrients**, Bacteria and Metals
 - ***Goal – reduce the amount of storm water runoff and improve the quality of runoff***