CSUDH | ENVIRONMENTAL HEALTH & SAFETY

Stormwater Awareness

Helping to Keep our Waterways Safe

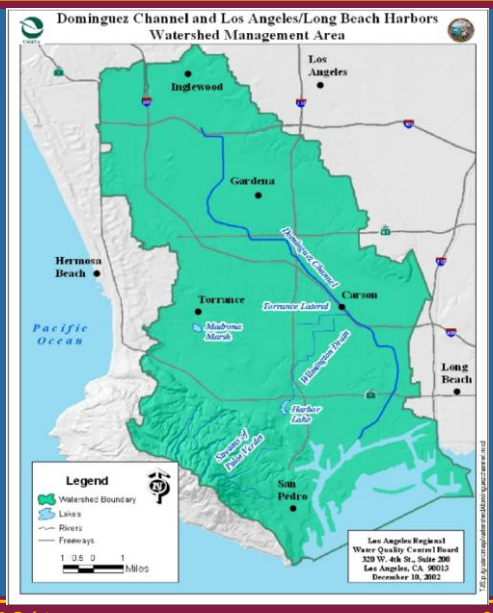
1

DOMINGUEZ CHANNEL WATERSHED

CSUDH

A watershed is an area of land where rainwater or snow melt drains into a body of water like a river, lake, or ocean.

The Dominguez Channel Watershed is an area of 834 square miles. One inch of rain in this area equates to 260 million gallons of water.



2

WHAT IS STORMWATER?

You probably haven't paid much attention to them, but there are storm drains all over campus - over 50 of them.

These drains are designed to carry rainwater directly to the ocean, rivers, or lakes.

3

WHAT GOES DOWN A STORMDRAIN?

In addition to rainwater, the following are considered natural water sources and can go directly down the storm drain:

- Potable water source (for example, from a garden hose)
- Overflow from landscape sprinklers
- Non-commercial vehicle washing (at home, for example)
- Drainage from **de-chlorinated** swimming pools
- Air conditioning condensation
- Foundation drain, crawl space pump, or footing drain
- Flow from a riparian habitat, diverted stream, natural spring or wetland

4

WHAT GOES DOWN A STORMDRAIN?

CSUDH

The following water sources are also permitted to go down the storm drain:

- Emergency fire fighting
- Hydrant flushing and testing
- Agricultural storm water runoff

Some discharges can be authorized by a permit issued by the Regional Water Quality Control Board. These are usually commercial industries with a wastewater filtration system that meets state standards.

All discharges other than clean, clear stormwater are considered ILLEGAL DISCHARGES

5

STORMDRAINS VS. SANITARY SEWERS

CSUDH

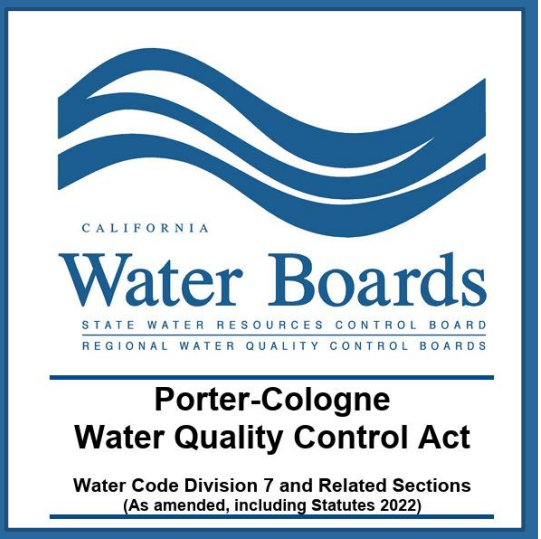
The water that goes down toilets, sinks, and showers flow to an entirely different system. The sanitary sewer takes wastes to a treatment plant before draining into the ocean.

6

REGULATIONS

The **Clean Water Act** is the primary federal law in the United States regulating the quality of US waters.

California has its own regulation called the **Porter-Cologne Water Quality Control Act**. It is considered one of the nation's strongest anti-pollution acts.



7

WHAT IS MS4?

In California, stormwater laws differ for three groups:

Municipal or Industrial or Construction

Municipal water systems are for cities. CSUDH is considered small municipalities because we must regulate our own

Separate **S**torm **S**ewer **S**ystems. Four S's, one M. (MS4).

8

MS4 REQUIREMENTS

CSUDH

The state of California requires CSUDH's to conduct stormwater testing and laboratory analysis twice yearly after a rain event.

The campus also must have a written:

- Stormwater Management Plan
- Sewer System Management Plan
- Spill Emergency Response Plan
- Oil Spill Emergency Plan
- Spill Prevention Control and Countermeasure Plan

Each of these plans address measures that the campus follows to prevent stormwater contamination. Contractors performing work on campus must submit their own Stormwater Pollution Prevention Plan whenever soil is disturbed in affected areas.

9

STORMWATER POLLUTION

CSUDH

Storm drains are easily accessible and can be polluted, whether irresponsibly or criminally intentional. Here are some examples:

Roadwork – Paving or resurfacing operations may discharge materials to the storm drain system

Landscaping - Fertilizer, herbicide, pesticide application and vegetation removal may contribute pollutants to the storm drain

Fountain or pool maintenance - Chlorine or chloramines in pool water can be toxic to aquatic life. Most cities prohibit draining to the storm drain. Fountains may contain algaecides to keep the water clear, but it is also dangerous to aquatic life.

10

STORMWATER POLLUTION

Here are a few more ways storm drains may be polluted:

- Animal waste
- Litter
- Leaves and lawn clippings
- Sewer backups
- Illegal dumping

11

URBAN RUNOFF

Urban Runoff is water that flows over hard surfaces like streets, sidewalks and rooftops. Especially during heavy rain, the runoff can pick up pollutants along the way like grease, oil, pesticides, and trash and carry them directly to the ocean.

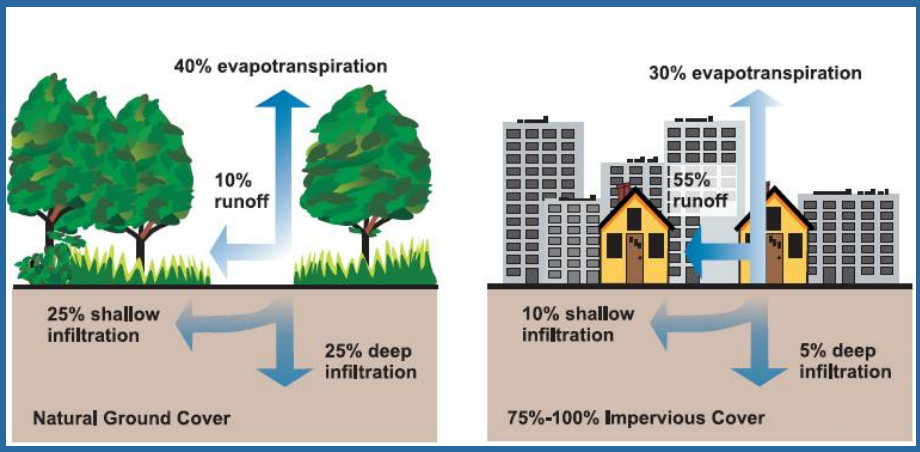
It moves fast and is high in volume, causing potential contamination near the shoreline.

Because of this, the Los Angeles River was converted to a Flood Control Channel. This reduces the risk of flooding in urban areas.

12

EVAPOTRANSPIRATION

This diagram compares how water is transferred from the Earth's surface into the atmosphere. See the difference in areas that have less ground cover and more concrete.



RESULTS OF URBAN RUNOFF

The Los Angeles Regional Water Quality Control Board has reported that pollutants to the LA River have included:

Ammonia	Oil
Metals	Chlorpyrifos
Coliforms	Pesticides
Trash	Volatile Organics
Algae	

PRACTICAL SOLUTIONS

CSUDH

Best Management Practices (BMPs) are ways to reduce stormwater pollution, whether a homeowner or business.

The following are engineering controls:

- Storm drain inserts or silt fences
- Oil separators
- Bioswales
- Equipment/vehicle rinsing areas

Bioswales are manmade ditches or depressions that uses plants and soil to capture, filter, and direct runoff.

15

PRACTICAL SOLUTIONS

CSUDH

Many of the solutions require good sanitation practices:

- Keep garbage in clean, covered containers
- Keep the area around buildings clean
- Keep vegetation trimmed and swept
- Cover exposed dirt piles
- Use drip pans when working on cars
- Wash vehicles in designated areas

16

SOLUTIONS FOR BUSINESSES

CSUDH

California has strict regulations for businesses.

- Provide secondary containment
- Cover chemical storage areas
- Cover loose soil or materials with tarp
- Avoid using water to clean up
- Do not wash residue down storm drains

Businesses with over 1320 gallons of oil or oil-based chemicals are required to have a Spill Prevention and Countermeasure Plan.

SOLUTIONS FOR LANDSCAPERS

CSUDH

Landscaping companies must conduct their work responsibly:

- Apply pesticides and herbicides in accordance with state requirements
- Follow manufacturers instruction
- Reduce sprinkler overspray into gutter
- Use less hazardous alternatives as much as possible

An insecticidal soap is safer to use

GROUNDSKEEPING DEPARTMENT

CSUDH

The groundskeeping department at CSUDH plays an important role in stormwater protection. They work near drains, spray pesticides, fertilize plant material, and clean up lawn clippings and waste.

We follow best practices to:

- Evaluate chemicals for environmental impact
- Use pesticides, fertilizer, and herbicides sparingly
- Cover storm drains during dry seasons
- Mulch our grass and leaves & minimize irrigation runoff
- Refrain from applying chemicals when rain is expected
- Sweep our streets

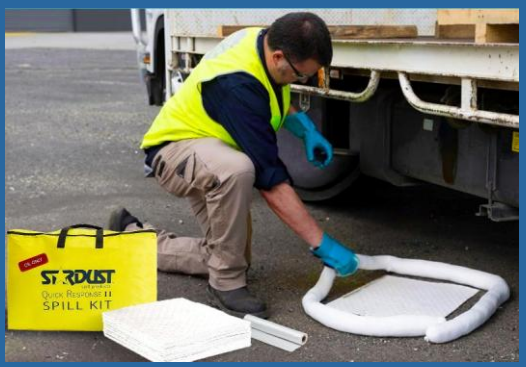
SMALL SPILLS

CSUDH

CSUDH addresses spills depending upon the material spilled, and the quantity.

Spill kits with absorbent materials are available around campus where spills are likely to occur.

Never throw the absorbent material away. Contact EHS for disposal.



In this example, the truck has leaked some oil onto the pavement. Note that the employee is using gloves included in the kit.

LARGE SPILLS

CSUDH

Exercise caution and do not take risks. Do not go near the spill. Contact the Facilities Department. They have been trained to:

- Notify EHS of the spill
- Protect the storm drain and sewer
- Spread absorbent materials when possible
- Contact outside contractors when needed

21

SUMMARY

CSUDH

We can all play a part to keep our storm drains clear and reduce the pollution that flows into the ocean. Stormwater awareness is a big first step.

22

QUESTIONS?

CSUDH

Environmental Health and Safety manages the Stormwater Program and all Environmental Compliance. Check out our webpage at https://www.csudh.edu/ehs/

If you have any questions, contact us any time at ehs@csudh.edu

CSUDH | ENVIRONMENTAL HEALTH & SAFETY