



METALS POLLUTION IN STORMWATER RUNOFF

Information Bulletin No. 40

CITY OF PACIFIC GROVE – COMMUNITY DEVELOPMENT DEPARTMENT

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Are Metals Polluting Urban Runoff in Pacific Grove?

Metals are currently the third overall leading cause of water quality impairment in the U.S., after pathogens and nutrients.ⁱ Recent monitoring in the Pacific Grove Area of Special Biological Significance (ASBS) concluded in 2016, found metal concentrations in exceedance of the natural ocean background water quality. Elevated concentrations of metals in stormwater runoff can harm aquatic life in the Monterey Bay.

How do Metals Enter the ASBS?

Along with brake pads and tires from cars, the exposure of building materials such as architectural copper to rain, can pollute stormwater runoff. Other potential metals sources include soil erosion, household chemicals, and pesticides.ⁱⁱ

Metals of Concern in Pacific Grove	Potential Sources
Zinc	Galvanized metals, paints and wood preservatives, roofing and gutters, tires
Silver	Diesel fuel, printing and publishing
Lead	Gasoline (prior to leaded gasoline phase out), paint, batteries
Copper	Building materials, paints and wood preservatives, algacides, brake pads
Arsenic	Timber products, atmospheric deposition from fossil fuels, insecticides
Mercury	Atmospheric deposition from fossil fuels

WHAT YOU CAN DO TO REDUCE METAL POLLUTION IN STORMWATER RUNOFF?

You can **PREVENT** metal pollution by not selecting products that introduce metals into stormwater runoff and you can **CONTROL SOURCES** to stop metals already in the urban environment from entering stormwater runoff.

PREVENTION: Conscientious Smart Selection of Building Materials

Copper roofing materials, shingles, downspouts, gutters, and copper light fixtures are very common in Pacific Grove and runoff from these surfaces is known to have elevated copper concentrations. **The City discourages the use of architectural copper in an effort to reduce copper concentrations in stormwater runoff.** The City recommends considering alternatives to Architectural Copper such as a:

- Coated steel roofs,
- Factory-supplied pre-patinated copper, and
- Aluminum or galvanized downspouts and gutters.

QUICK TIPS
<ul style="list-style-type: none"> • <i>Select Alternatives to Architectural Copper</i> • <i>Reduce Runoff from your Property</i> • <i>Avoid Fertilizers & Pesticides</i>



CONTROL SOURCES: Manage or Treat Runoff from Copper Building Materials

If Architectural Copper is present on your property:

- Direct runoff to planted areas, and/or
- Cover the copper feature with a clear coating.
- Do not use chemicals applied on-site to accelerate the development of copper patina.

“A copper roof on a new 2,500 square foot home has been estimated to initially corrode at a rate of 2.5 pounds of copper per year. About 20% of this amount dissolves and washes off the roof when it rains.”

(Palo Alto Regional Water Control Plant, 2006)

PREVENTION: Minimize use of Pesticides and Fertilizers

- Use herbicides, pesticides and fertilizers sparingly and if using, follow label instructions carefully.
- Use non-toxic alternatives to pesticides and organic gardening techniques.
- Do not apply chemicals if rain is forecast.
- Never dump chemicals in ditches, gutters, storm drains, or waterways.
- Take unwanted toxic products to local hazardous waste collection sites.

CONTROL SOURCES: Maintain your Automobile and Seek Alternative Transportation

- Wash cars at a commercial car wash or on unpaved surfaces. Leftover soapy water should be poured down a household sink or toilet (to be treated by the sewage plant), not the driveway, gutter, street, or storm drain which leads directly to the bay without treatment.
- Reduce automobile trips by walking, biking, carpooling, or using public transit.
- Inspect and maintain your car regularly to prevent leakage of oil, antifreeze and other toxic fluids. Use a drip tray to catch leaks where your car is parked.

“Pavement is usually identified as the most important source for metals above natural background levels.”

(International Stormwater Best Management Practices (BMP) Database, 2011)

CONTROL SOURCES: Reduce Runoff around Your Home

- Replace impervious surfaces around your home, like sidewalks and driveways, with pervious surfaces such as permeable pavement, clean stone, or mulch.
- Are your gutters, downspouts, or driveways directly discharging onto a paved surface that is connected to the storm drain system? Retrofit them to redirect runoff onto grassy areas, into a rain garden, or into a rain barrel.

For more information, visit the City’s excellent resource for implementing **Low Impact Development (LID) Techniques**: <http://www.cityofpacificgrove.org/living/community-economic-development/planning/stormwater>

ⁱ USEPA, National Summary of Impaired Waters and TMDL Information. Causes of Impairment for 303d Listed Waters, retrieved November 29, 2016, from: https://iaspub.epa.gov/waters10/attains_nation_cy.control?p_report_type=T#causes_303d

ⁱⁱ International Stormwater Best Management Practices (BMP) Database, Pollutant Category Summary: Metals, August 2011. <http://www.bmpdatabase.org/Docs/BMP%20Database%20Metals%20Final%20August%202011.pdf>