WHAT IS STORMWATER POLLUTION?

Publication 976

May 2005

Clean stormwater helps keep our creeks, rivers and lakes, beaches and oceans healthy. Keeping our stormwater clean also provides us with new opportunities for stormwater harvesting and reuse. This helps us to protect our precious water reserves.

What is stormwater?

When rain falls on your home, garden or business, it runs into your downpipe or the nearest stormwater drain. The stormwater system, designed to prevent urban flooding, drains to the nearest creek, river, lake or bay. There are more than 100,000 drain inlets in Melbourne alone, and 300 outlets to Port Phillip Bay, as well as drains to Western Port Bay and country creeks and rivers.

Stormwater is not treated to remove pollution before it reaches our waterways. This pollution can make our beaches unsafe to swim in and seriously damage our environment if we are careless about how we use and dispose of many substances.

Most stormwater pollution is caused by everyday activities, not by major spills or industrial accidents. That's why it is important for all of us to do our bit, especially in urban areas. What seems like a little bit of waste from your home or business is a very serious problem when multiplied by every house in your city or town.

The stormwater system is separate from the sewage system, which carries water from our sinks, bathrooms and toilets and sends it to a sewage treatment plant.

What are the major stormwater pollutants and what damage to they do?

Stormwater pollution includes many human-produced wastes such as litter, grease and oil, paint, garden pesticides, detergents, concrete and many products we use in our homes and at work.

Even seemingly 'natural' waste, such as soil, sand, pet droppings, grass clippings and fallen leaves, can create major problems in our waterways because they become much more concentrated in our urban areas than they would be in nature.

A 1996 study of Port Phillip Bay found that stormwater is now the largest source of many pollutants in the bay, including litter, metal toxicants (such as arsenic, iron, lead, zinc and mercury) and organic contaminants (including hydrocarbons, pesticides and detergents).

Stormwater pollutants

- **Litter** from our streets is washed into our bays and oceans. This litter includes lolly wrappers and cigarette butts, which take years to decompose and can choke marine animals. Larger pieces of litter block drains and cause flooding or entangle and disable thousands of Victorian animals every year. Litter also spoils the visual appeal of our rivers and beaches.
- **Leaves and grass clippings** use up oxygen in the water as they decompose, suffocating fish and water animals. They can also block drains, causing flooding.
- **Pathogens** are micro organisms such as viruses and bacteria, which can cause disease. Many live in soil or animal faeces that get washed into our waterways.
- **Nutrients** from garden fertiliser, detergents and pet droppings can cause toxic algal blooms (blue-green algae), which release toxins that can harm wildlife, stock, pets

and humans. The Port Phillip Bay study estimated that 3500 tonnes of nitrogen is washed into the Bay through stormwater drains every year. Excess nutrients can also cause excessive plant growth – which can choke the waterway.

- **Toxins and heavy metals** such as garden pesticides, herbicides, paint, motor oil and detergent all contain heavy metals and other poisons that harm aquatic life or cause disease. Pesticides and herbicides attack aquatic plants and animals in the same way that they attack your garden pests. Heavy metals can accumulate in shellfish and fish and can make them unsafe for humans to eat.
- **Contaminated sediment** is the most concentrated water pollutant. Soil and sand from gardens, building sites and roads can make water so turbid (muddy) that water plants don't get enough sunlight and die. It can reduce the oxygen dissolved in water, smothering aquatic animals. Sediment can also erode riverbanks and destroy habitat. Building sites often release plasterboard and concrete cuttings as sediment. Sediment soaks up heavy metals (such as lead) and other poisons as it travels.
- **Concrete** can change the pH (acidity) of water, making it dangerous for fish and other water animals.
- **Oil and grease** can leave a film on the water that sticks to plants and animals and makes it hard for them to breathe and swim. Even small amounts can do serious damage - one litre of motor oil will make one million litres (or an Olympic swimming pool) of water unsafe for plants and animals.

What is 'first flush'?

The 'first flush' of the stormwater system is the first water after rain. It carries most of the pollution that has built up in the drains since the last time it rained. Pollution can be up to three times more concentrated in first flush than during ongoing rain and lasts about 48 hours. This can cause damage, such as fish kills and habitat destruction, that lasts long after the first flush passes.

This is why it is important to avoid polluting our drains all the time, not only during wet weather. The problem is not the rain; it's the material it carries.

Where can stormwater pollution be reduced?

We can all take action to reduce stormwater pollution from our homes and businesses and from public places such as parks. Contact EPA Victoria or your local council for more information in this series about what you can do.

EPA VICTORIA

EPA INFORMATION CENTRE

40 City Road Southbank Victoria 3006 Telephone 03 9695 2722 Facsimile 03 9695 2780

Printed on recycled paper