



# ACWA – ENVIROMENT OBJECTIVE





## ACWA ENVIRONMENT OBJECTIVE

- ACWA's drought response is acknowledged as world best practice.
- Create a sustainable vehicle wash pollution policy as a second part to our overall environmental responsibility.
- **It is ACWA's objective to convince relevant State and Federal authorities to curtail home car washing and prohibit hard surface vehicle washing to stormwater as a fundamental requirement for a sustainable environment.**



## ACWA ENVIRONMENT OBJECTIVE

ACWA aims to achieve this objective by:

- Utilise Recycling Research and progress made with ACWA's Water Rating Scheme
- Research countries where this objective has been achieved
- Prepare scientific and overall justification for the restriction of any vehicle washing run-off into storm water systems
- Ensure the application of the Water Rating Scheme and curtailing home and hard surface vehicle washing are interlinked so both are in place in any jurisdiction



## ACWA ENVIRONMENT OBJECTIVE

- It is estimated that between 8Gl and 17 Gl of contaminated waste water is being directed into our stormwater systems across Australia as a result of vehicle washing at home on hard surfaces
- Stormwater in general is recognized as the biggest threat to marine environments.
- We use analysis of waste collected at commercial car washes and from cars washed in the street as indicator of contaminants going into stormwater
- All commercial car washes are required to treat their waste water and direct it to sewer
- ACWA is dedicated to work with authorities and organizations to change laws, improve awareness and public perception.



## STORMWATER POLLUTION

- The following information is from ACWA, ICA and local authority studies of effluent from car washing.
- Studies show there is a significant reduction in car washing during droughts
- Figures for annual mass loading given here show both drought and non drought volumes
- A single residential car wash might seem inconsequential, however, when extrapolated over an area and a year, the pollutant loading becomes significant.



## STORMWATER POLLUTION

The critical pollutants are summarised as follows;

- Petroleum hydrocarbon waste: gasoline, diesel, and motor oil
- Copper
- Lead
- Zinc
- Nutrients: phosphorous and nitrogen
- Surfactants
- Solids



## STORMWATER POLLUTION

- ANZECC Guidelines
  - Australian and New Zealand Environment and Conservation Council Guidelines for Fresh and Marine Water Quality
  - 95% in marine waters means that 95% of marine species in receiving waters are unaffected by stormwater runoff at stated levels



# STORMWATER POLLUTION

## ***Petroleum hydrocarbon waste: gasoline, diesel, and motor oil***

- *Estimated 76,000 to 166,00 litres of annual mass loading.*
- Compounds in petroleum hydrocarbons are highly toxic, and in the surface water environment, they can cause harm to wildlife through direct physical contact, contamination by ingestion, and the destruction of food sources and habitats.
- Bottom-dwelling or bottom-feeding aquatic organisms may ingest petroleum contaminants and transmit them up through the food chain.
- Hydrocarbons harm fish directly, and damaged fish eggs may not develop properly.
- Oil - a single spilled cup can contaminate the surface area of a water body the size of a football field.



# STORMWATER POLLUTION

## ***Dissolved copper***

- Estimated 1,061 kg to 2,320 kg of annual mass loading.
- Exposure to dissolved copper may be sufficient to impair the sensory biology of some fish and has other toxic impacts to a wide variety of marine life.
- Dissolved copper is also toxic to phytoplankton, the base of the aquatic food chain.
- The concentration of .17 mg/L exceeds the ANZECC Guidelines for 95% in marine waters of .0013 mg/L.



# STORMWATER POLLUTION

## ***Lead***

- Estimated 221 kg to 483 kg of annual mass loading
- Lead is a poisonous metal that can damage nervous connections (especially in young children) and cause blood and brain disorders.
- In marine environments it can cause anemia, depressed growth, fin degeneration and reduced egg hatching success.
- The concentration of .035 mg/L exceeds the ANZECC Guidelines for 95% in marine waters of .004 mg/L.



## STORMWATER POLLUTION

### Zinc

- Estimated 5,051 kg to 11,049 kg of annual mass loading
- Zinc is most toxic to microscopic organisms in the aquatic environments.
- The concentration of .8 mg/L exceeds the ANZECC Guidelines for 95% in marine waters of .015 mg/L.



## STORMWATER POLLUTION

### **Nutrients: phosphorous and nitrogen**

- Estimated 30,000 kg to 66,000 kg of annual mass loading.
- An increase in nutrient loading to a surface water body leads to excessive plant growth and decay.
- Creates low dissolved oxygen levels, changes in animal populations, and an overall degradation of water quality and aquatic habitat.



# STORMWATER POLLUTION

## Surfactants

- Estimated 170,000 kg to 373,000 kg of annual mass loading.
- In surface water environments, surfactants are acutely toxic to aquatic life, stripping fish gills of natural oils, thereby interrupting the normal transfer of oxygen.



# STORMWATER POLLUTION

## Solids

- Estimated 1,250,000 kg to 2,735,000 kg of annual mass loading.
- Sediment, the most common pollutant in stormwater runoff by volume and weight, makes streams and lakes less suitable for recreation, fish life, and plant growth.
- Sediment is of particular concern in fish-bearing streams where it can smother eggs, destroy habitat for insects (a food source for fish), and cover prime spawning areas.



## ACWA ENVIRONMENT OBJECTIVE

- Survey data indicates
  - The majority of home washers feel that residential car washing is better for the environment than commercial car washes
  - People will act more environmentally responsible as more accurate information is attained.



## ACWA ENVIRONMENT OBJECTIVE

- A dramatic amount of pollutants go into Australia's streams, rivers, estuaries and coastal waterways from home car washing.
- The ACWA aims to convince authorities restrict the activities which contribute to these pollutions events.



## ACWA ENVIRONMENT OBJECTIVE

Most effective ways to curtail this pollution are

- Make the practice of car washing on hard surfaces illegal
- Actively promote the washing of cars on porous surfaces
- Actively promote the environmentally more sustainable practice of washing cars at a commercial car wash.



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