

# GEOGRAPHY

## Stage 3 Factors that Shape Places

Humans shape places

Stormwater Impacts  
the Georges River



This resource supports the Georges Riverkeeper Stage 3 Education Module 5: Water for Living Cities

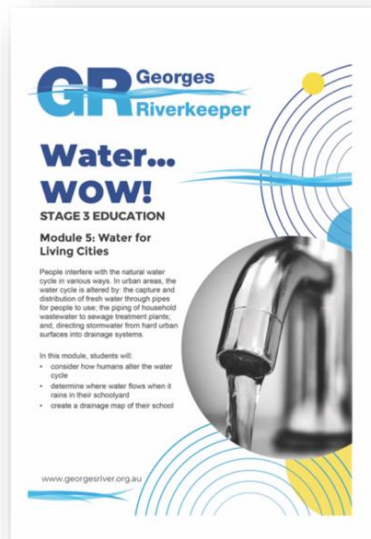
**Outcome:** Compares and contrasts influences on the management of places and environments GE3-3

**Key Inquiry Questions:** How do people and environments influence one another? How do people influence places and the management of spaces within them?

**Learning Intensions:** I can explain how people influence places and contribute to sustainability. I can help solve stormwater issues in the catchment.

**Success Criteria:** I can name some ways people contaminate stormwater. I can create a stormwater map as part of a stormwater audit of the school grounds. I can suggest solutions to stormwater issues at my school.

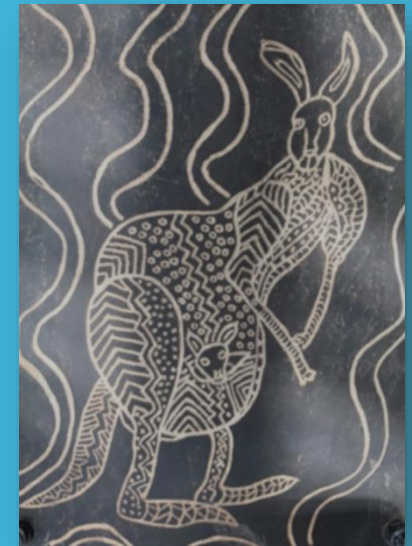
**Overview:** The Georges River is an urban river in southern Sydney that flows from the headwaters on the Illawarra escarpment and Appin down to the river mouth at Botany Bay. The total length of the Georges River is around 100 km long. The water is fresh above Liverpool Weir and is tidal and saltier below the weir down to Botany Bay. The Georges River catchment is home to almost 1.4 million people, 454 species of fauna (including aquatic and land animals), 30 riparian or riverside vegetation communities and 29 Endangered Ecological Communities ([source](#)). Water pollution causes major damage to the Georges River. It harms native biodiversity as well as limits our enjoyment of river activities such as fishing and swimming. What is being done about reducing pollution? Check out "[Preventing Pollution in the Georges River](#)".



**Aboriginal and Torres Strait Islander Histories and Cultures**

People, plants, and animals have always interacted, and their relationships have changed over time. The influx of Europeans since 1788 has accelerated this process dramatically. At the time of settlement, the mangroves lived on the edge of the Georges River, their roots partially submerged, while the salt marsh spread out low wherever there was flat land behind the mangroves. The boundary between mangrove and saltmarsh is not stable or fixed. Instead it depended always on the interaction of water, sediments, plants, animals, and humans.

The mangroves could always advance into the salt marsh habitat, except that the swamp wallaby, in one example of the pressures on the plants, fed on both young mangroves and salt marsh but preferred mangroves. So as long as there were plenty of swamp wallabies, the salt marsh would have some advantage over the mangroves. An increase in the human population hunting wallabies, however, would reduce the pressure on mangroves and consequently threaten the salt marsh, ([source](#)). Coastal salt marsh is an Endangered Ecological Community. The 'Targeted improvement of the Georges River estuarine food web' project aims to expand populations of the salt marsh species *S.virginicus*.



The \$40,000 project is a joint partnership between Conservations Australia Volunteers, Georges Riverkeeper and Bayside Council, City of Canterbury-Bankstown Council, Fairfield City Council, Georges River Council, Liverpool City Council, and Sutherland Shire Council ([source](#)).

Photo: An artwork of a swamp wallaby created by Bankstown Koori Elders.





# Stormwater Impacts the Georges River

## Solutions to Stormwater

### How people influence Georges River water quality?

Most of the water-borne pollution that enters the Georges River comes from stormwater runoff. When it rains, water flows across hard surfaces that have no capacity for filtration (roofs, paths and roads) and carries pollutants to the waterways. Stormwater is not treated before it enters the Georges River, so everything that goes into the gutter is destined to enter the river ([source](#)). A [stormwater audit](#) will help identify problems in your school or home. “[What happens to the rain](#)” is a free iBook created by a teacher at [Brewongle EEC](#) that helps explain stormwater.



### ACTIVITY 1: Where does the rain go at our schools?

If you are a Department of Education school, you can get access to school and building maps (via Staff Portal – My Essentials – AMS Application Portal – AMS on the web – PDF Sites and Building Plans). Or you could use [Google Maps](#) to print a map of the school grounds and buildings. Draw the location of all the stormwater pipes and drains, and number each one. With supervision from adults, and the appropriate safety precautions, lift the drain cover at each point and scoop out anything collected in the drain. Use the [Stormwater Audit sheet](#) to record what pollutants are contaminating the stormwater.

Photo: sample stormwater audit map ([source](#)).



### ACTIVITY 2: What is Water Sensitive Urban Design (WSUD)?

WSUD aims to improve the ability to capture, treat and productively use stormwater before it pollutes natural waterways. WSUD reduces flooding impacts and the amount of water that needs to be supplied by water utilities. WSUD also provides wildlife habitat, public open space, recreational opportunities, and visual amenity. Some examples of WSUD include rainwater tanks, rain gardens, swales and constructed wetlands. Check out the [fact sheet](#), [WSUD examples](#) and [video](#) to assess if you could use these ideas at your school to reduce stormwater contamination. Draw these solutions on your school map.



### ACTIVITY 3: What are rain gardens?

Rain gardens can help reduce the amount of rainwater entering the stormwater system. This [video](#) explains how rain gardens work. Dulwich Public School used Water Sensitive Urban Design (WSUD) to create rain gardens in their school. This [video](#) help showcase their achievements and the solutions to their school stormwater issues. More information on rain gardens is available from [Melbourne Water](#). Record on your school map where you could locate rain gardens in your school grounds.



Look into what materials you need to build a rain garden and who could help you.



These are free water education resources for teachers and students about water in the Georges River catchment in Southern Sydney, and more generally, in Australia. These education modules have been prepared for Stage 3 in primary schools.

They cover facts for kids about drinking water, water uses, the water cycle, water pollution, water conservation, rainfall, drought, floods, aquatic food webs, and how to measure water conditions using waterbugs, plus much more.

[www.georgesriver.org.au/learn-about-the-river/schools](http://www.georgesriver.org.au/learn-about-the-river/schools)

There are many different stakeholders and landowners in the Georges River Catchment who all have a responsibility to manage their land in a way that ensures there is a minimal impact on the river and its ecosystems.

#### Georges Riverkeeper's Members:



#### Georges Riverkeeper's Partners:

