



Gladstone Healthy
Harbour Partnership



THE CATCHMENT STORY

Gladstone Healthy Harbour Partnership

Second Edition

2023

Acknowledgements

Adapted from 'Catchment Story',
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Outcomes

Core Content:

Waste from resource use to relate pollution to contamination by unwanted substances.

Skills:

Demonstrate a commitment to conserving and improving the quality of society and the environment.

Time:

40 minutes.

Participants:

28-29

Preparation

1. Label each of the plastic tubs with a character's name from the story. Duplicate containers can be prepared to cater for all members in the group if necessary.
2. Place or pour the appropriate materials into each tub in accordance with the list.
3. Distribute the labelled tubs to people in the demonstration. Request that they be careful and keep the container closed until they are told to open it.
4. Give one student the spatula to act as the stirrer. The stirrer will change throughout the story.
5. Fill the large transparent container with clear, clean water and place in a prominent, visible, and accessible position. Float a plastic duck in the water (optional).
6. Introduce the catchment story.
7. Fill one large glass with water out of the aquarium, demonstrate its cleanliness and properties by pouring from one glass to another. Leave the glass aside for comparison at the end of the story.

The Catchment Story

Materials

- A large transparent container.
- Approx 21 small plastic sauce containers.
- Various materials to represent pollution as outlined in the list attached.
- Two large glasses.
- Paper towels and strainers for cleanup.
- Location close to tap water.
- Spatula or other stirrer to imitate water movement.

The People in the Catchment

Tub	Name	Position	Substance	Amount
1	Fiona Flower	Farmer	Flour	½ teaspoon
2	Dusty Boots	Quarry	Flour and soil	½ tub
3	Milton Moneybags	Industry	Paperclips	8 paperclips
4	Terry's Housing	Housing Developer	Soil	½ tub
5	John and Joy Citizen	New Home Builders	Soil and colouring	½ tub, 5 drops
6	Harry Hole-in-One	Golf Course Worker	Flour	½ teaspoon
7	Daniel Dunny's Plumbing	Plumber	Tea and toilet paper	½ tub
8	Ellen Espresso	Coffee Shop	Coffee cup lids	2 lids
9	Sandra Sudds	Mobile Car Wash	Water and green food colouring	½ tub, 2 drops
10	School	School	Juice bottles filled with sand	1 juice bottle
11	Eileen and Ernest Everyone	Community	Plastic toys	2-3 toys
12	Peter Potplant	Gardener	Grass clippings	½ tub
13	Guzzle Family	Picnicker	Bottle caps	3-4 caps
14	Birthday Boy Bill	Children	Half blown balloons	2-3 balloons
15	Playground	Playground	Green food colouring and salt	¼ tub
16	Maureen Shopalot	Shopper	Plastic bag	1 bag
17	Tracey's Takeway	Food Shop	Water and yellow food colouring	½ tub
18	Brianna Barker	Dog Owner	Cold tea and rolled up toilet paper	½ tub
19	Mike Marlin	Fisherman	Fishing line	Length of line
20	Buck Jones	Crabber	Fishing float	1 float
21	Owen Outdoors	4WD	Sand	½ tub



The Catchment Story

Introduction

This is a story that explains how all the members of our community can have an effect on the health of the harbour.

I have given many of you a small container or similar with a name on it. When I mention that name in the story, I want you to come up and empty what is in the container into the harbour. ***Show the children the transparent container filled with water.***

Before I start the story about our harbour and its catchment, let's have a think about what a catchment is. ***Ask for suggestions. Demonstrate a catchment by asking everyone to cup their hands and pretend they are standing in the rain. What would happen?*** This is a small example of a catchment and the Earth's surface is divided into lots of bowls just like that, with a river in the bottom of each bowl.

A catchment includes a river and all of the creeks, streams and other smaller rivers that run into it. Importantly, the catchment also includes the land around the waterways. Water runs off this land surface to enter the rivers and creeks.

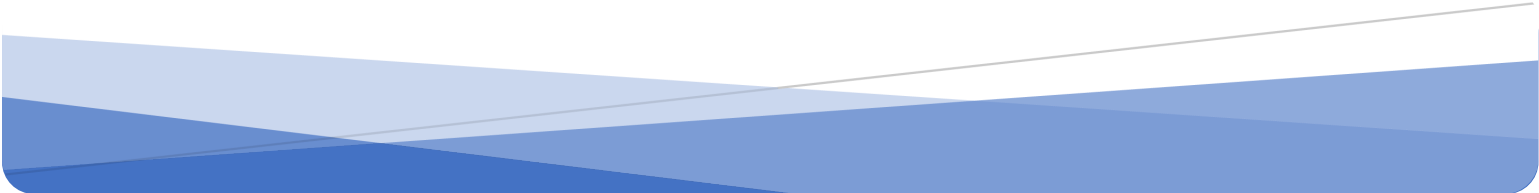
Can anyone tell me some ways in which we are linked to the harbour from our houses and schools?

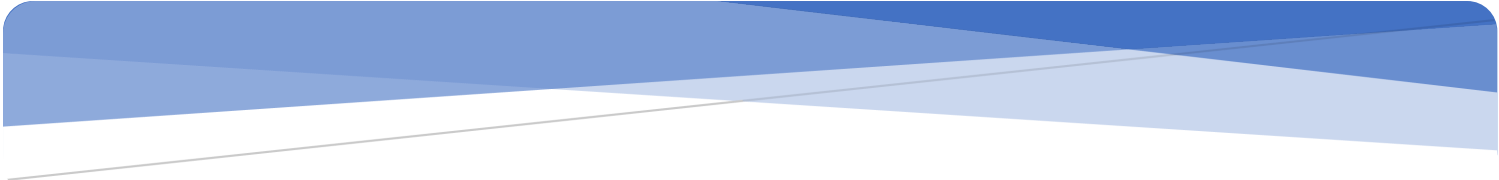
Stormwater drains. Who can tell me where water that enters stormwater drains goes? This means that whatever we drop into the stormwater drain, whether it be litter, paint, or detergent, it goes straight into our local waterway.

Streets. If we leave litter or oil from the family car on the road or in gutter, it can be washed into the stormwater drain and then into the harbour.

Sewerage systems. All the internal plumbing in your house is connected to the sewerage system. This means that everything which goes down the toilet, sink, bath, and laundry drains goes to a sewerage system, where most of it can be treated. However, some things such as fat, detergents, and chemicals are difficult to remove from the water before it is sent into our waterways and ocean. This is bad news for our fish and water plants such as seagrass. Also, during wet weather, it is possible for stormwater to enter the sewerage system causing it to overflow and allow raw sewerage to run into waterways.

So, these are just three ways in which our houses and schools are linked to the harbour. Think about farms, parks, and boats on the harbour.





Our story begins in the Awoonga Dam, the main water supply for the Gladstone region and home to many important species of animals.

Can anyone name some of the animals that might live in or around the Awoonga Dam?

Barramundi, mangrove jack, grey-headed flying fox, yellow-bellied glider, kangaroos, wallabies, greater gliders, brushtail possums, eels, turtles, and water dragons.

When it rains, Awoonga Dam overflows into the Boyne River, which runs between the towns of Boyne Island and Tannum Sands. Everybody in the catchment has an effect on the river. As the water flows downstream, it picks up contaminants. Our volunteer mixer will demonstrate the tumbling of water as it travels downstream and into the Gladstone harbour.

Let's take a ride with a drop of water that travels down the Awoonga Dam wall after a weekend of heavy rainfall. The water runs past **Fiona Flower's** farm, who has used fertiliser to help her plants grow, and pesticide to keep the hungry insects away. The rain washes the fertiliser and pesticides from the vegetable patch and into the river.

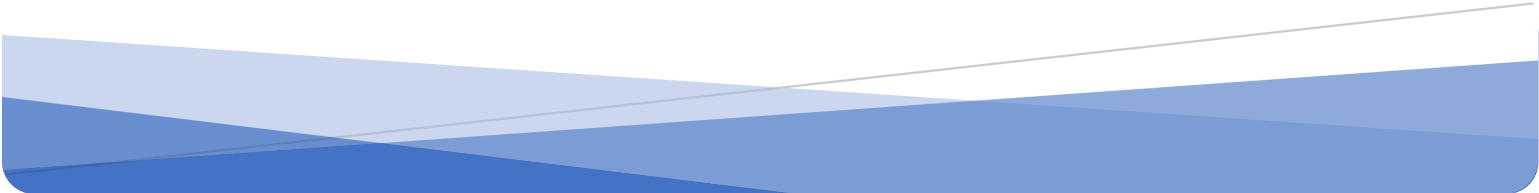
The river sweeps on and finds its way to **Dusty Boots** who excavates crushed gravel for road base. His trucks are diesel powered and leak oil into the creek. The swirling wind blows dust into the water as well. The quarry pumps water out of the creek to clean equipment. Off comes acids, oils, and crushed rock which all drain back into the river.

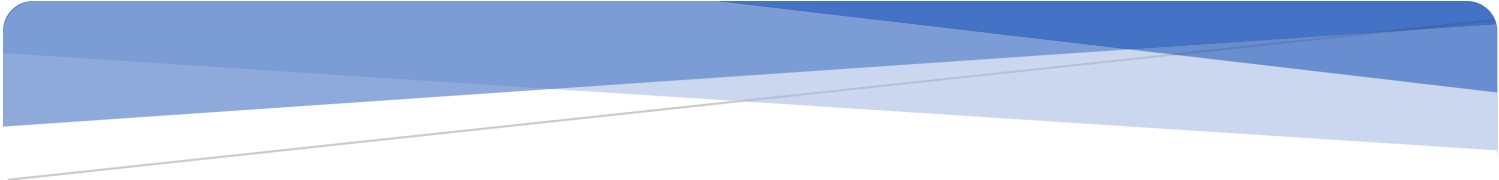
Milton Moneybags owns poorly maintained industrial premises and has just been fined for washing heavy metal contaminated water into the stormwater drain outside his factory. The water contains phosphates that cause an algal bloom in the river. Some algae is poisonous to humans and other animals. When algae dies and begins to rot, it uses up oxygen which animals in the water rely on, and they may suffocate as a result.

Look at how our once clean water now looks. What do you think is happening to the animals that live in the river? **New stirrer please.**

Further down the road, the new housing estate is being built by **Terry's Housing**, and acres of land has been cleared of all vegetation. Since there are no trees to drink the water, the water table has risen beneath the soil and brought up excess salt. Added salt to the ecosystem makes it hard for new plants to grow. The salt and the soil are washed into the river by the rain.

John and Joy Citizen are very proud of their newly cleared block of land. They aren't aware that the removal of trees and grass exposes and destabilises the soil, causing it to crumble and be washed away into the creek as it rains. John and Joy's new fence is built which they paint a wonderful colour. Afterwards, they wash their brushes in the gutter outside their new house.





As the river winds its way closer to the suburban centre, many smaller tributaries have joined with it, adding their pollution load to the water. One of these tributaries flows past a golf course where **Harry Hole-in-One**, the greenskeeper, is busy spreading fertiliser to help grow beautiful green grass. He then hoses the greens and washes the excess chemicals into the local waterway.

The water reaches the suburban area. *Can anyone tell me what sort of people or organisations they can find in a suburban area?* **New stirrer please.**

As the water passes through the suburbs, the river reaches **Daniel Dunny's Plumbing**. Here, the sewer drain is illegally connected to the stormwater drain. As it rains, the toilet overflows and sewerage escapes out to the main roads and river, spreading bacteria into the environment.

Ellen Espresso runs a very successful coffee shop nearby. Most of her customers visit on their way to work but forget to bring their keep cups! Instead, they use takeaway coffee cups. They responsibly put the takeaway cup into the bin where it will go to landfill, but the wind catches the lid which lands in the river.

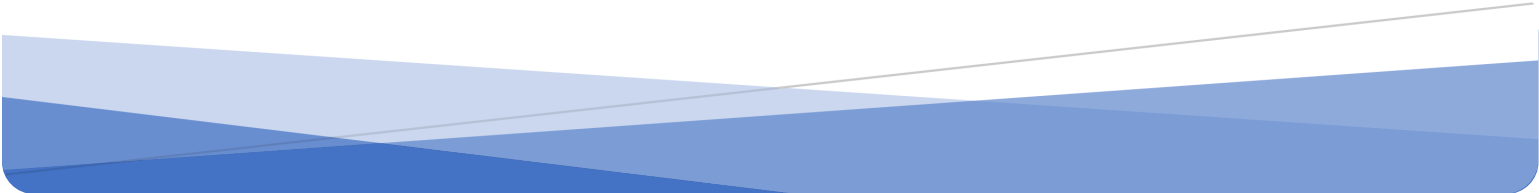
Sanda Sudds is very busy with her mobile car wash. She prides herself on providing quick cleaning services to her clients. After the first few washes of the day, she empties her tanks onto the street – detergent, waxes, oil, grease, and dirt pour into the stormwater drain by the road. The drains connect to the river, and the harmful chemicals and contaminants flow freely into the water.

How to do you think we contribute to poor river health? **New stirrer please.**

The river rushes past a large **school**. Students happily go for lunch, but in their excitement to play with their friends, their litter gets forgotten in the undercover area. Instead of going in the bin where it belongs, wrappers, bags, single use water bottles, and other litter gets blown into the river with the wind. Sand and wood chips from the oval also find their way into the water.

Eileen and Ernest Everyone are cleaning out the family car. Juice bottles from the last car trip, sand from the day at the beach, and plastic toys from a party all go into the kerbside bin which is then knocked over by the family dog while the family isn't looking. The next time it rains, all of this rubbish is washed into the ever-suffering river.

The river now flows past some established homes where **Peter Potplant** is mowing his lawn and weeding his garden. Instead of putting the clippings and waste into the bin or compost, he piles it all neatly next to the riverbank. He then hoses the gardens and washes everything into the river!



But the journey isn't over yet. *What sort of recreational or fun activities would you like to do near a river?* **New stirrer please.**

Coming up around the bend, there are people using the Boyne river and nearby parkland for recreation. The **Guzzle Family** are having a barbeque by the side of the river. They are having a lovely time, then suddenly, a big gust of wind comes along and blows their litter into the water. There are plastic sandwich bags which fish could swim into, and plastic lids from drink bottles and other containers.

It's Saturday afternoon and **Birthday Boy Bill** is having a party in the park! Bill has heaps of fun with all of his friends, eating lots of yummy cake, and opening all of his presents. A gust of winds tears at the balloons and several of them come free. Before anyone can catch them, they fly towards the river and join the water as it rushes downstream.

The **Playground** is very popular! Everybody loves the slides and the monkey bars, the swings, and the zip line. The developers decided to use synthetic grass for the playground to prevent the cost of maintenance, and it make it look really nice. Unfortunately, the fake grass breaks down into tiny little pieces called microplastics. The rain washes them away into the river.

How do you think the river looks and smells now? **New stirrer please.**

By now the river is looking and smelling quite bad, and it has still not quite finished its trip through the catchment. **Maureen Shopalot** loves to shop in the stores that fringe the river. She's always in a hurry to get the best discounts, and leaves behind some plastic bags that blow out of the shopping trolley. She drives off in her poorly maintained car which drips oil and radiator fluid onto the road. All of this is washed off the road and into the stormwater drain.


Tracey's Takeaway prides itself on the best fish and chips in Boyne Island. Delicious aromas drift out of the shop, where fresh hot chips are dipped in cooking oil, and fish fillets sizzle on the pan. Bottles and bottles of cooking oil are used, and Tracey has purchased more. As she transfers it from her car to the shop, she drops it and the container breaks! The oil oozes down the stormwater drain.

Along Ibis Park, **Brianna Barker** takes her dog for a walk every day. The dog often does his business during the walk, which Brianna decides not to pick up. This waste is washed into the stormwater drain when it rains, and then into the river. This is untreated sewerage. Along the edge of the river, there is an outbreak of the weed *Salvinia*. This has been caused by the build-up of nutrients in the river.

What are some activities that we like to do on the harbour? **New stirrer please.**

Closer to the harbour, **Mike Marlin** is fishing near the John Oxley Bridge. He throws out his fishing line and it whizzes off into the deep water. Oh no! Instead of a big fish, his line gets caught on an old tree branch and he has to cut the fishing line to get loose. The fishing line now floats in the water, where it may trap a fish or a turtle.

Buck Jones loves mud crabs. He merrily boats up and down the Boyne River, casting out crab pots in the best locations. Shh! They're a secret. Pulling up the pots, he sorts out the male



crabs to measure for size, and responsibly puts all of the female crabs back in the water. Excited by his catch, he leaves for home, but forgets a pot in the water!

Owen Outdoors is making his way onto Lilley's Beach. Vroom! His 4WD vehicle ploughs over the soft sandy entrance and he makes it onto the beach in victory. He loves adventure and decides to take a back route onto the dunes. His heavy car damages the fragile vegetation protecting the dunes from erosion. Later, the tide comes in and washes away the sand dunes.

Having left the catchment and run into the harbour, our once clean water is full of chemicals, litter, sewerage, and sediments. What do you think of the water now? ***Take a glass full and pretend to drink it. Compare it to the original water in the glass.***

Look at what we have done to the water in the harbour. Look at how dirty it looks. It doesn't smell too good either. The Gladstone Healthy Harbour Partnership is a team of people who want to keep Gladstone Harbor safe and healthy for all the plants, animals, and people that live there. We work with scientists to learn more about the harbour. ***Can anyone tell me what substances, plants, or animals we might monitor in the harbour?*** **Water quality, nutrients, sediment, metals, seagrass, coral, mangroves, fish health and baby fish, mud crab population and health.**

The people in our community are starting to realise what a problem this is and have begun to understand that the harbour and other urban rivers are not drains. Councils, local community groups, governments, and catchment trusts are cleaning up local waterways and returning them to their rightful place as important habitats, recreational areas, and scenic attractions.

Does anyone have an idea on how we can stop our catchment looking like this? **Ask someone to come up and conduct a 'clean-up' by scooping the water with the strainer.**

Take questions.

