



In partnership with:



Woollahra
Municipal
Council

DEPARTMENT OF PLANNING, INDUSTRY & ENVIRONMENT

Towards safer swimming: Rose Bay

Understanding poor water quality



Recreational water quality in Sydney Harbour is monitored by the Department of Planning, Industry and Environment's (the Department) Beachwatch Program. Rose Bay Beach has been graded as Poor in the *NSW State of the Beaches* report since 2016-17 due to faecal contamination.

Beachwatch monitors recreational water quality in accordance with the *National Health and Medical Research Council's (2008) Guidelines for Managing Risks in Recreational Waters*. Water is tested for bacteria as its presence is an indicator of faecal matter in the water. Long-term testing measures the impact of pollution sources at the swimming site and highlights areas of poor water quality and where further investigation is needed. Monitoring is not comprehensive enough to show the scale or extent of the problem, nor the source of microbial contamination.

The Department is working with Woollahra Council and Sydney Water to investigate the extent and source of poor recreational water quality issues at Rose Bay to ensure the right solutions are delivered.

We began a water quality source audit in April 2019. It extended the existing Beachwatch sampling in Rose Bay to include more sites along the beach, along with sampling at stormwater drain exits when flow was present. Our scientists

also worked with researchers from the Climate Change Cluster at the University of Technology Sydney (UTS) using DNA markers to determine if the microbial contamination in the water was from human sewage or animal (e.g. bird and dog) faeces.

The audit then sampled systematically through the catchment from stormwater drain outlets, testing stormwater to find the areas where sewage contaminates stormwater. This information helps Council and Sydney Water prioritise those areas that need remediation.

When and where swimming water quality is poor

Our scientists collected water samples in wet and dry weather conditions from across the nearshore waters of Rose Bay Beach and out into the deeper waters of the broader bay to assess the scale and extent of the problem.

Water quality in Rose Bay is generally suitable for swimming in dry weather conditions. After rain, microbe levels in swimming waters increase, but poor water quality is largely confined to nearshore areas, particularly near stormwater outlets. Microbes return to safe levels a few days after the rain stops.



Drain outflow sampling in dry weather. C Gill/DPIE

Source of microbial pollution

Using state of the art DNA markers, our research partners from UTS identified that microbial pollution in Rose Bay is largely from human sewage, which contaminates stormwater particularly after rain. A very small contribution from dog faeces is likely washed from the catchment during wet weather. Bird faeces were detected but have little impact on water quality at Rose Bay and are the same as background levels found along the NSW coastline.

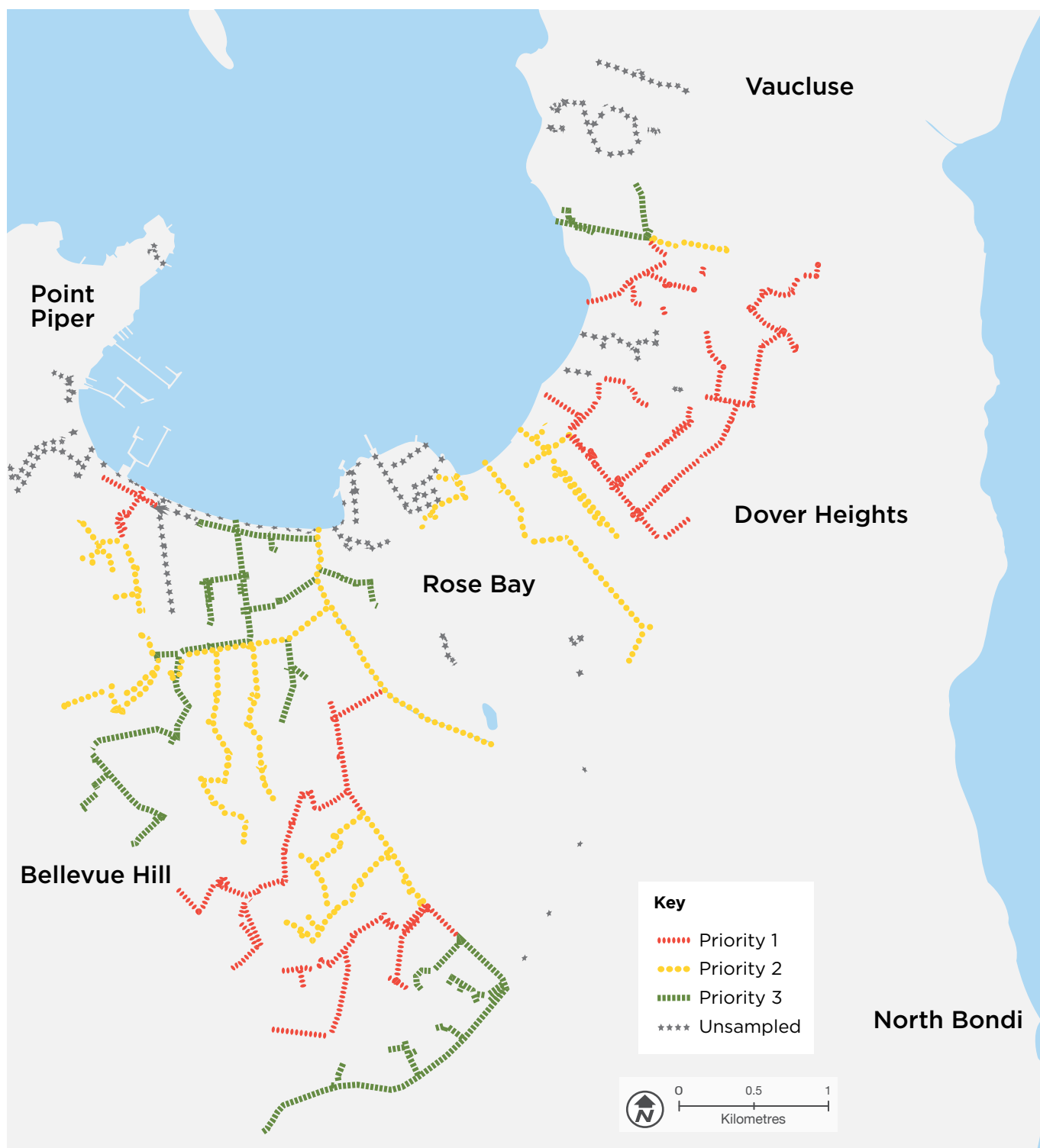


Figure 1. Priority drainage areas for investigation and remediation



Cause of microbial pollution

Sewerage leakages or overflows into the network of stormwater drains, which then discharge into the bay are the key causes of faecal contamination, rather than the surrounding beach environment or harbour. Extensive water quality testing in the drainage network found areas of elevated bacteria levels, indicating where sewage is entering the stormwater drains, and identifying priority areas for infrastructure investigation and remediation (see Figure 1).

These findings are currently being used to focus remediation efforts in the catchment and help Woollahra Council and Sydney Water design and implement management strategies to resolve water quality issues at the beach.

Safer swimming

To be safer when you swim:

- avoid swimming at Rose Bay beach during and up to three days after rainfall
- avoid swimming near flowing drains
- avoid swimming if there are signs of stormwater pollution such as discoloured water, odour or street litter floating in the water.

Find out more

The three technical reports produced as part of the water quality audit are available on the Environment, Energy and Science [Water quality investigations webpage](#).

Photos: Cover Rose Bay Beach, M Davis/DPIE, above left to right C May/DPIE, C Gill/DPIE and DPIE.

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