



DEPARTMENT OF PLANNING, INDUSTRY & ENVIRONMENT

# State of the beaches 2018-2019

Sydney region

Beachwatch



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Recreational water quality has been monitored in the Sydney region since 1989 by the Department of Planning, Industry and Environment's Beachwatch program. This report summarises the performance of 97 swimming sites in the Sydney region, providing a long-term assessment of how suitable a site is for swimming. Monitored sites include ocean beaches, a lagoon, a rockpool and estuarine sites in Pittwater, Sydney Harbour, Botany Bay, lower Georges River and Port Hacking.

In 2018–2019, 90% of swimming sites in the Sydney region were graded as Good or Very Good. These sites were suitable for swimming for most or almost all of the time. This is an excellent result and is a similar performance to the previous year, reflecting periods of prolonged dry weather conditions. The Sydney region has a large proportion of lagoon and estuarine swimming locations, which have been most susceptible to impacts from significant rain events.

# Sydney region summary 2018–2019

## Beach monitoring in New South Wales



Coogee Beach  
Photo: Cameron Board/EES,  
DPIE

The water quality of beaches and other swimming locations is monitored under the NSW Government's Beachwatch programs to provide the community with accurate information on the cleanliness of the water and to enable individuals to make informed decisions about where and when to swim. Routine assessment also measures the impact of pollution sources, enables the effectiveness of stormwater and wastewater management practices to be assessed and highlights areas where further work is needed.

Swimming sites in New South Wales are graded as Very Good, Good, Fair, Poor or Very Poor in accordance with the National Health and Medical Research Council's 2008 *Guidelines for Managing Risks in Recreational Waters*. These Beach Suitability Grades provide a long-term assessment of how suitable a beach is for swimming. The grades are determined from the most recent 100 water quality results (two to four years' worth of data depending on the sampling frequency) and a risk assessment of potential pollution sources.

See the section on **Quality assurance** in the Statewide Summary for results of the quality assurance program.

Recreational water quality has been monitored in the Sydney region since 1989 by the Department of Planning, Industry and Environment's Beachwatch program.

A **quality assurance** program ensures the information collected and reported by Beachwatch is accurate and reliable.

During 2018–2019, 97 swimming sites were monitored including ocean beaches, a lagoon, a rockpool and estuarine sites in Pittwater, Sydney Harbour, Botany Bay, lower Georges River and Port Hacking.

## Rainfall impacts

Rainfall is the major driver of pollution to recreational waters, generating stormwater runoff and triggering untreated discharges from the wastewater treatment and transport systems. Changes in rainfall patterns are reflected in beach water quality over time due to variation in the frequency and extent of stormwater and wastewater inputs.

The Beach Suitability Grades for 2018–2019 are based on water quality data collected over the last two to four years. Rainfall over this period has been diverse:

- 2015–2016: wet summer, with well above average rainfall during January, including significant storm events causing heavy rain and flooding in coastal areas



- 2016–2017: the wettest March on record for many coastal areas and intense storm activity over summer
- 2017–2018: prolonged dry weather periods broken by heavy rain at times
- 2018–2019: variable rainfall, with a mix of extended dry weather periods and some very wet months.

See the section on **How to read this report** on page 137 for an explanation of the graphs, tables and Beach Suitability Grades.

Sydney experienced a dry winter season, well below the long-term average. Despite the above average rainfall in June 2018, July and August were very dry, with most sites recording less than 20% of their long-term monthly totals.

Wet weather conditions followed with average to well above average rainfall recorded during September to November 2018. It was the wettest spring at Sydney Observatory Hill since 1995, with a total of 395mm of rainfall. Notably, many sites recorded more than double the long-term monthly average in October, with Mona Vale recording its highest total October rainfall since 1987 of 227mm.

While rainfall over summer was slightly below the long-term average, it was still wetter than last summer. Notably, heavy rain fell over two days from 28–29 November, with 136mm at Sydney Observatory Hill, 83mm at Randwick and 91mm at Mona Vale.

Rainfall between January and April was average to below average, except for March. Most of March's rain fell between the 15th and 18th with heavy rain and hail triggering flash flooding to the Sydney coast. Four-day rain totals were 226mm at Mona Vale, 157mm at Randwick and 110mm at San Souci.

Beachwatch issues daily **beach pollution forecasts** to enable beachgoers to make informed decisions about where and when to swim.

Pollution forecasts for the Sydney region can be accessed via the Beachwatch website, [email subscription](#), [Twitter](#) and [Facebook](#).

[www.environment.nsw.gov.au/beachwatch](http://www.environment.nsw.gov.au/beachwatch)

## Health risks

Contamination of recreational waters with faecal material from animal and human sources can pose significant health problems to beach users owing to the presence of pathogens (disease-causing micro-organisms) in the faecal material. The most common groups of pathogens found in recreational waters are bacteria, protozoans and viruses.

Exposure to contaminated water can cause gastroenteritis, with symptoms including vomiting, diarrhoea, stomach-ache, nausea, headache and fever. Eye, ear, skin and upper respiratory tract infections can also be contracted when pathogens come into contact with small breaks and tears in the skin or ruptures of the delicate membranes in the ear or nose.

Certain groups of users may be more vulnerable to microbial infection than others. Children, the elderly, people with compromised immune systems, tourists, and people from culturally and linguistically diverse backgrounds are generally most at risk.





## Beach Suitability Grades for swimming sites in the Sydney region









Swimming site	Site type	Beach Suitability Grade	Change
<b>Northern Sydney – Ocean beaches</b>			
Palm Beach	Ocean beach	VG	●
Whale Beach	Ocean beach	VG	●
Avalon Beach	Ocean beach	VG	●
Bilgola Beach	Ocean beach	VG	●
Newport Beach	Ocean beach	VG	●
Bungan Beach	Ocean beach	VG	●
Mona Vale Beach	Ocean beach	VG	●
Warriewood Beach	Ocean beach	G	●
Turimetta Beach	Ocean beach	G	●
North Narrabeen Beach	Ocean beach	G	●
Narrabeen Lagoon (Birdwood Park)	Lagoon	G	●
Bilarong Reserve	Lagoon	P	↓
Collaroy Beach	Ocean beach	G	●
Long Reef Beach	Ocean beach	G	●
Dee Why Beach	Ocean beach	VG	↑
North Curl Curl Beach	Ocean beach	G	●
South Curl Curl Beach	Ocean beach	VG	●
Freshwater Beach	Ocean beach	G	●
Queenscliff Beach	Ocean beach	G	●
North Steyne Beach	Ocean beach	G	●
South Steyne Beach	Ocean beach	G	●
Shelly Beach	Ocean beach	VG	↑
<b>Northern Sydney – Pittwater</b>			
Barrenjoey Beach	Estuarine	G	●
Paradise Beach Baths	Estuarine	G	●

Swimming site	Site type	Beach Suitability Grade	Change
<b>Northern Sydney – Pittwater (continued)</b>			
Clareville Beach	Estuarine	G	●
Taylor's Point Baths	Estuarine	G	●
Bayview Baths	Estuarine	G	●
Elvina Bay	Estuarine	G	●
North Scotland Island	Estuarine	G	●
South Scotland Island	Estuarine	G	●
The Basin	Estuarine	VG	●
Great Mackerel Beach	Estuarine	VG	●
<b>Central Sydney – Ocean beaches</b>			
Bondi Beach	Ocean beach	G	●
Tamarama Beach	Ocean beach	G	●
Bronte Beach	Ocean beach	G	●
Clovelly Beach	Ocean beach	VG	●
Gordons Bay	Ocean beach	G	●
Coogee Beach	Ocean beach	G	●
Maroubra Beach	Ocean beach	VG	▲
South Maroubra Beach	Ocean beach	G	●
South Maroubra Rockpool	Ocean baths	G	●
Malabar Beach	Ocean beach	P	●
Little Bay Beach	Ocean beach	G	●
<b>Central Sydney – Sydney Harbour</b>			
Camp Cove	Estuarine	VG	●
Watsons Bay	Estuarine	G	●
Parsley Bay	Estuarine	G	●
Nielsen Park	Estuarine	VG	●
Rose Bay Beach	Estuarine	P	●

Swimming site	Site type	Beach Suitability Grade	Change
<b>Central Sydney – Sydney Harbour (continued)</b>			
Murray Rose Pool	Estuarine	G	●
Dawn Fraser Pool	Estuarine	G	●
Chiswick Baths	Estuarine	G	●
Cabarita Beach	Estuarine	G	●
Woolwich Baths	Estuarine	G	●
Tambourine Bay	Estuarine	G	●
Woodford Bay	Estuarine	G	●
Greenwich Baths	Estuarine	G	●
Hayes St Beach	Estuarine	G	▲
Clifton Gardens	Estuarine	G	●
Balmoral Baths	Estuarine	G	●
Edwards Beach	Estuarine	G	●
Chinamans Beach	Estuarine	G	●
Northbridge Baths	Estuarine	F	●
Davidson Reserve	Estuarine	P	●
Gurney Crescent Baths	Estuarine	F	●
Clontarf Pool	Estuarine	G	●
Forty Baskets Pool	Estuarine	G	●
Fairlight Beach	Estuarine	G	●
Manly Cove	Estuarine	G	●
Little Manly Cove	Estuarine	G	●
<b>Southern Sydney – Ocean beaches</b>			
Boat Harbour	Ocean beach	G	●
Greenhills Beach	Ocean beach	VG	●
Wanda Beach	Ocean beach	VG	●
Elouera Beach	Ocean beach	VG	●

Swimming site	Site type	Beach Suitability Grade	Change
<b>Southern Sydney – Ocean beaches (continued)</b>			
North Cronulla Beach	Ocean beach	VG	●
South Cronulla Beach	Ocean beach	VG	●
Shelly Beach	Ocean beach	VG	●
Oak Park	Ocean beach	VG	●
<b>Southern Sydney – Botany Bay and lower Georges River</b>			
Silver Beach	Estuarine	G	●
Como Baths	Estuarine	G	●
Jew Fish Bay Baths	Estuarine	G	●
Oatley Bay Baths	Estuarine	P	●
Carss Point Baths	Estuarine	P	●
Sandringham Baths	Estuarine	G	●
Dolls Point Baths	Estuarine	G	●
Ramsgate Baths	Estuarine	G	●
Monterey Baths	Estuarine	G	●
Brighton-Le-Sands Baths	Estuarine	G	●
Kyeemagh Baths	Estuarine	G	●
Foreshores Beach	Estuarine	VP	●
Yarra Bay	Estuarine	G	●
Frenchmans Bay	Estuarine	G	●
Congwong Bay	Estuarine	G	●
<b>Southern Sydney – Port Hacking</b>			
Jibbon Beach	Estuarine	VG	↑
Horderns Beach	Estuarine	G	●
GyMEA Bay Baths	Estuarine	F	↑

Swimming site	Site type	Beach Suitability Grade	Change
<b>Southern Sydney – Port Hacking (continued)</b>			
Lilli Pilli Baths	Estuarine		
Gunnamatta Bay Baths	Estuarine		

Beach Suitability Grade					Change		
							
Very Good	Good	Fair	Poor	Very Poor	Improved	Stable	Declined

# Northern Sydney (Pittwater to Manly)



Beachwatch samples the ocean beaches and Narrabeen Lagoon every sixth day throughout the year, and estuarine beaches every sixth day between October and April, and monthly from May to September.

## Overall results

Thirty-one of the 32 swimming sites were graded as Very Good or Good in 2018–2019. While this is a slight decline in performance from the previous year, it is still an excellent result.

Percentage of sites graded as Very Good or Good:

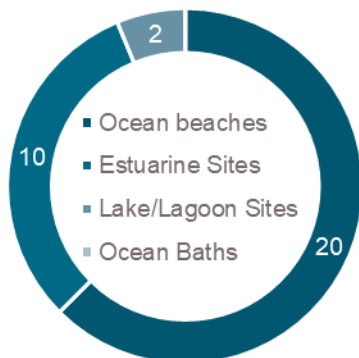
- 2018–2019: 97%
- 2017–2018: 100%
- 2016–2017: 91%
- 2015–2016: 88%.

See the section on **How to read this report** on page 137 for an explanation of the graphs, tables and Beach Suitability Grades.

### Best beaches

Palm Beach, Whale Beach, Avalon Beach, Bilgola Beach, Newport Beach, Bungan Beach, Mona Vale Beach, Dee Why Beach, South Curl Curl Beach, Shelly Beach, The Basin and Great Mackerel Beach.

These sites had excellent water quality and were suitable for swimming almost all of the time.



Site types in Northern Sydney region

Swimming sites monitored in the Northern Sydney region include ocean beaches, estuarine areas in Pittwater and lagoon sites in Narrabeen Lagoon, with each site type having a different response to rainfall-related impacts.

Estuarine and lagoon swimming sites did not perform as well as ocean beaches due to lower levels of flushing, which increase the time needed to disperse and dilute pollution inputs, taking longer to recover from stormwater events.

As a general precaution swimming should be avoided during and for at least one day after heavy rain at ocean beaches, and for up to three days in estuarine and lagoon areas, or if there are signs of stormwater pollution such as discoloured water or floating debris.

Swimming is not recommended at ocean beaches located near lagoon entrances if the lagoon is open, due to the possibility of pollution from the outflow.

## Ocean beaches

All 20 ocean beaches were graded as Very Good or Good.

Palm, Whale, Avalon, Bilgola, Newport, Bungan, Mona Vale, Dee Why, South Curl Curl and Shelly (Manly) beaches were graded as Very Good. The water quality at these sites was of a very high standard and suitable for swimming almost all of the time.

Warriewood, Turimetta, North Narrabeen, Collaroy, Long Reef, North Curl Curl, Freshwater, Queenscliff, North Steyne and South Steyne beaches were graded as Good. Water quality was suitable for swimming during dry weather conditions, but swimming should be avoided during and for up to one day following heavy rainfall.



**Beach Suitability Grades for Northern Sydney ocean beaches**

## Estuarine beaches

The Basin and Great Mackerel Beach were graded as Very Good, a similar result to previous years. These sites had excellent water quality and were suitable for swimming almost all of the time.

Barrenjoey Beach, Paradise Beach Baths, Clareville Beach, Taylors Point Baths, Bayview Baths, Elvina Bay, North Scotland Island and South Scotland Island were graded as Good. Water quality at these sites was suitable for swimming most of the time, with elevated levels of enterococci mostly recorded following rainfall.



**Beach Suitability Grades for Northern Sydney estuarine beaches**

While Bayview Baths and Barrenjoey Beach continued to be graded Good this year, elevated enterococci levels were occasionally recorded during dry weather conditions. Water quality at these sites can take longer to recover from stormwater events than other Pittwater swimming sites due to lower levels of flushing.



## Lake/lagoon swimming sites



**Beach Suitability Grades for Northern Sydney lake/lagoon swimming sites**

Birdwood Park in Narrabeen Lagoon was graded as Good, a similar result to the previous year. While the microbial water quality has increased slightly from the previous year, water quality was of a good standard with 89% of dry weather samples suitable for swimming. This site is located at the entrance to the lagoon and water quality at this site is influenced by wet weather events and whether the lagoon is open to the ocean. Discharge from Narrabeen Lagoon is a significant source of faecal contamination.

Bilarong Reserve in Narrabeen Lagoon was downgraded to Poor in 2018–2019 from Good in the previous year. While water quality is susceptible to pollution during and following rainfall at this site, water quality during dry weather was suitable for swimming 87% of the time. The swimming site retains pollution inputs because it is located away from the lagoon entrance and is not well flushed by clean ocean water. A significant source of faecal contamination is from stormwater runoff to the lagoon.

Water quality at Birdwood Park and Bilarong Reserve lagoon sites has declined from the previous year. During the assessment period, Narrabeen Lagoon has closed naturally for extended periods and been mechanically opened by council on several occasions. While the entrance to the lagoon remains closed, water quality is likely to decline as pollution inputs are not as readily dissipated or flushed. Between September and December 2018, council undertook large scale clearance works, with the lagoon entrance anticipated to remain open for some time. This will allow the lagoon to be well flushed by clean ocean water.

## Management



Patrolled ocean beach  
Photo: Beachwatch/EES,  
DPIE

A **Coastal Management Program (CMP)** outlines a long-term strategy for managing the coast, in line with the *Coastal Management Act 2016*.

The NSW Government provides guidance and funding through the Coastal and Estuary Grants Program for local councils to prepare and implement CMPs.

Under the previous *Coastal Protection Act 1979*, councils developed a **Coastal Zone Management Plan (CZMP)** to address coastal issues. Councils can continue to implement priority actions from certified CZMPs with funding assistance from the NSW Government's Coastal and Estuary Grants Program until 2021.

Under the NSW Government's Coastal and Estuary Grants Program, funding has been given to relevant councils (including Northern Beaches Council) to prepare the first stage of the Hawkesbury River System Coastal Management Program (CMP), the scoping study. The development of a CMP will allow councils to identify catchment pressures in the system, including Pittwater, and prioritise management initiatives to manage issues relating to coastal and estuary health. Water quality management actions such as stormwater infrastructure improvements, restoring and maintaining riparian areas and strategic land-use planning will be considered during the process.

The NSW National Parks and Wildlife Service has decommissioned septic systems and installed a number of sewer pumping stations to service Barrenjoey Head, located at the northern end of Barrenjoey Beach. The lighthouse and Fisherman's Cottages were decommissioned in July 2016, and Boatman's Cottage in November 2016. Final connection of the Barrenjoey Head sewer system to the reticulated sewerage system should be completed by late 2019.

### Northern Beaches Council

Northern Beaches Council proactively inspects and cleans out 242 stormwater quality improvement devices. Work is continuing to standardise measurement of gross pollutants and debris and improve data management across the amalgamated council. During 2018–2019, a new gross pollutant trap was constructed, six end-of-pipe trash nets were replaced, and other minor renewal works were completed in the local government area.

Two major sediment removal projects took place in 2018–2019, removing thousands of tonnes of sediment from Burnt Bridge Creek, which feeds into Manly Lagoon and Queenscliff Beach, and at South Creek, which leads to Narrabeen Lagoon. Removal of excess sediment is important, as high sediment loads can cloud waterways, affecting vegetation and fish health. Sediment can also carry pollutants such as faecal bacteria, toxins and nutrients that encourage algal growth.

Northern Beaches Council and Sydney Water collaborated in 2016–2017 to assess dry and wet weather stormwater quality around Bayview Baths, Bayview. The area was found to be impacted by diffuse stormwater pollution, and therefore swimming at Bayview Baths should be avoided for at least three days after heavy rain.



Warriewood Beach  
Photo: Cameron Board/EES,  
DPIE

Water sensitive urban design has been implemented across the local government area and particularly in the Warriewood land release area, where it improves water quality prior to discharge into Narrabeen Lagoon.

A large baseline water quality monitoring program has been completed in the creeks in and around Ingleside in preparation for future development in the area. This will help Northern Beaches Council respond to sources of pollution during any future construction activities and will inform catchment planning for Narrabeen Lagoon and Pittwater.

Northern Beaches Council has also completed a water quality study in the Nareen Creek, located in the Narrabeen Lagoon catchment, which will be used for targeted education in the catchment. Sources of sediment were identified, with a number of areas added to the future program for rectification and rehabilitation works.

In late 2018, Northern Beaches Council cleared the entrance of Narrabeen Lagoon to reduce flood risk, using the sand to replenish sand lost from Collaroy–Narrabeen Beach. This lagoon entrance is usually cleared about every four years or when required to prevent flooding to nearby properties.



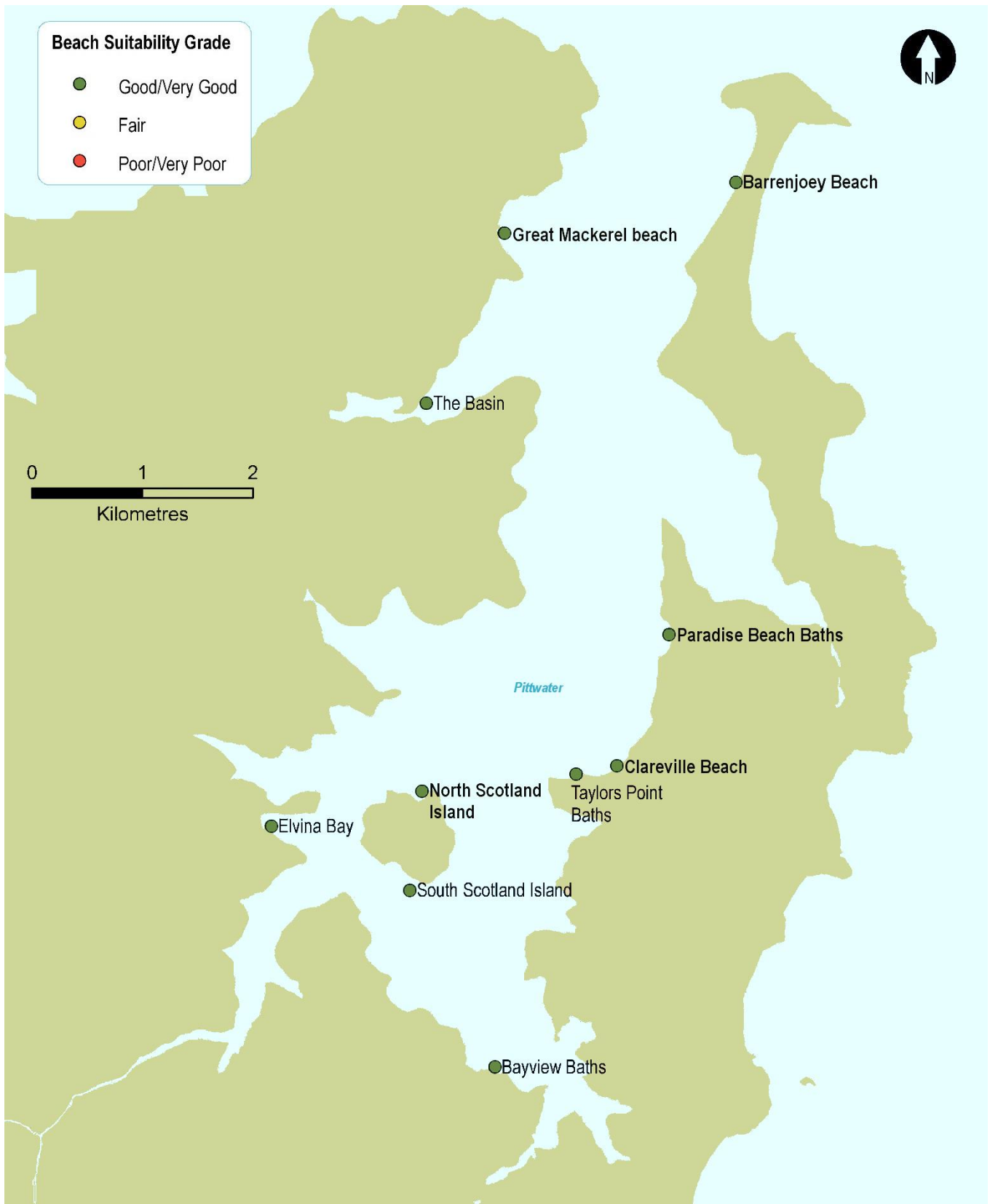
Clareville Beach  
Photo: Cameron Board/EES,  
DPIE

## Sydney Water

Sydney Water has inspected, cleaned and repaired sewer mains that have a high likelihood of discharging sewage to waterways if they become blocked. When significant tree root intrusion to the public sewer from the private sewer was identified, property owners were requested to remedy the problem.



Sampling sites and Beach Suitability Grades at Sydney's Northern Beaches



**Sampling sites and Beach Suitability Grades in Pittwater**

# Palm Beach

Beach grade: **VG**



Palm Beach is 2.3 kilometres long, with rock baths in the southern corner. Lifeguards patrol the beach from September to April.

The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of faecal contamination.

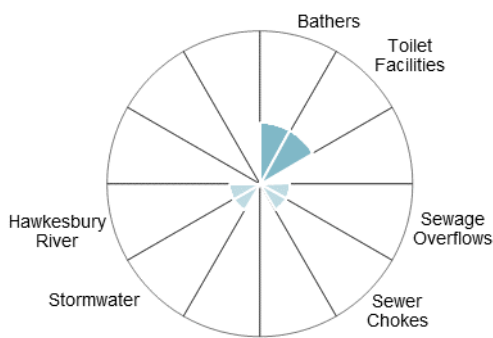
Enterococci levels increased slightly with increasing rainfall, occasionally exceeding the swimming limit after 5mm or more of rainfall.

The site has been monitored since 1989.

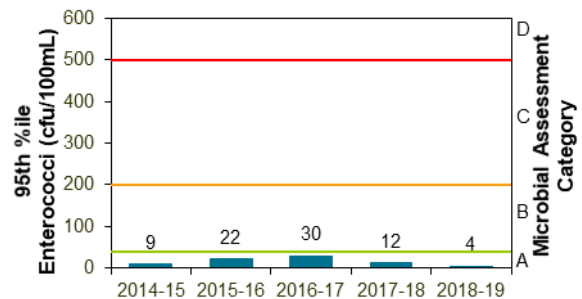
See 'How to read this report' for key to map.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Sep 2017 to Apr 2019	98%	100	Stable <span style="color: green;">●</span>

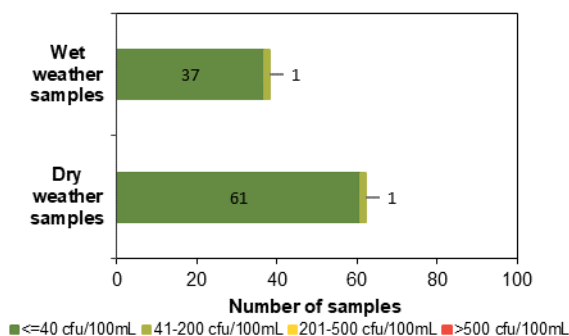
### Sanitary inspection: Low



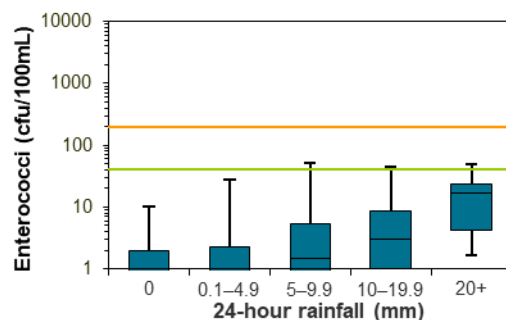
### Microbial Assessment Category: A



### Dry and wet weather water quality

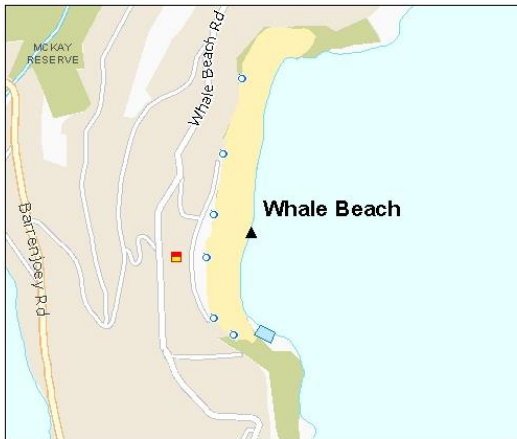


### Water quality in response to rainfall



# Whale Beach

Beach grade: **VG**



Whale Beach is 600 metres long, with rock baths at the southern rock platform. Lifeguards patrol the beach from September to April.

The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of faecal contamination.

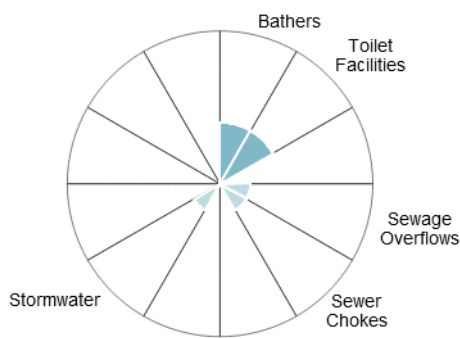
Enterococci levels increased slightly with increasing rainfall, but usually remained below the safe swimming limit across all rainfall categories.

The site has been monitored since 1989.

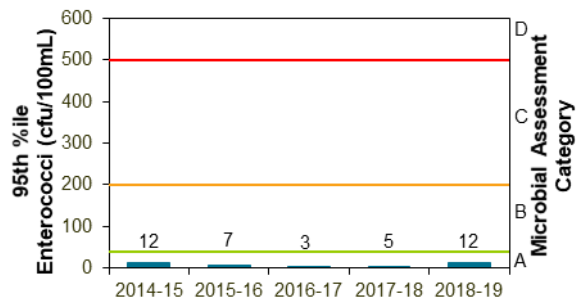
See 'How to read this report' for key to map.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Aug 2017 to Apr 2019	97%	100	Stable <span style="color: green;">●</span>

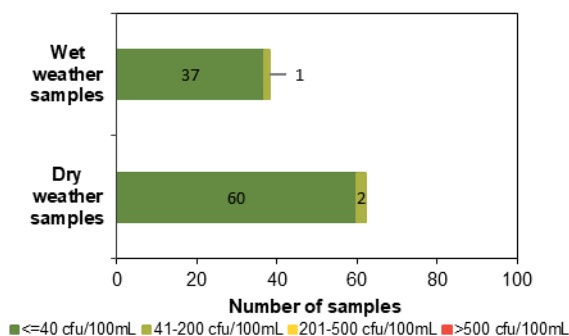
## Sanitary inspection: Low



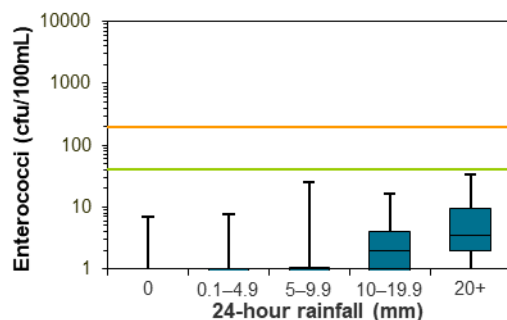
## Microbial Assessment Category: A



## Dry and wet weather water quality



## Water quality in response to rainfall



# Avalon Beach

Beach grade: **VG**



Avalon Beach is 500 metres long and backed by a park and picnic area. Lifeguards patrol the beach from September to April.

The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of faecal contamination.

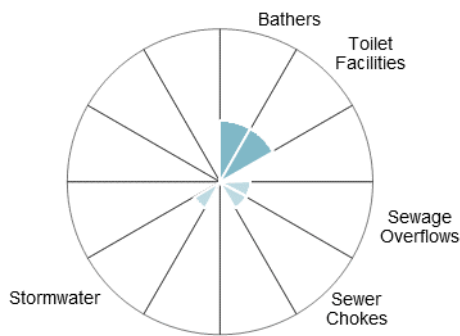
Enterococci levels increased slightly with increasing rainfall, occasionally exceeding the safe swimming in response to 5mm or more of rainfall.

The site has been monitored since 1989.

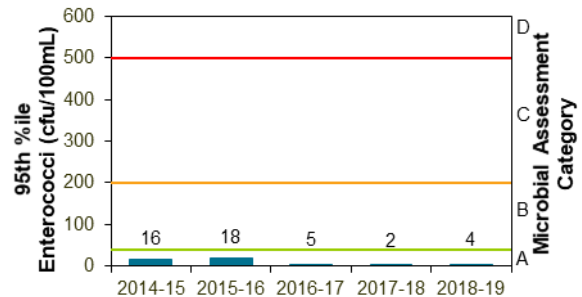
See 'How to read this report' for key to map.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Sep 2017 to Apr 2019	98%	100	Stable <span style="color: green;">●</span>

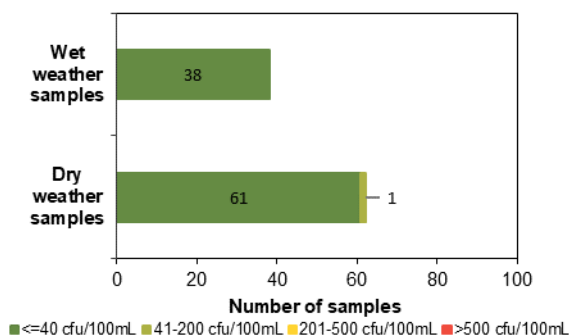
## Sanitary inspection: Low



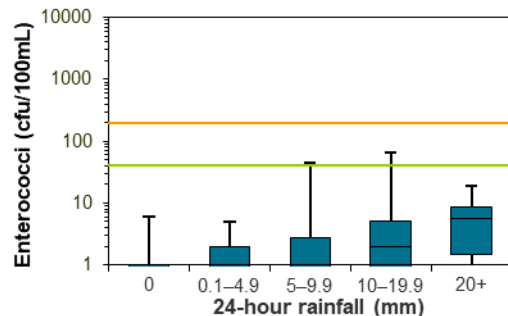
## Microbial Assessment Category: A



## Dry and wet weather water quality



## Water quality in response to rainfall





# Bilgola Beach

Beach grade: **VG**



Bilgola Beach is 500 metres long, with rock baths located at the southern end. Lifeguards patrol the beach from September to April.

The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of faecal contamination.

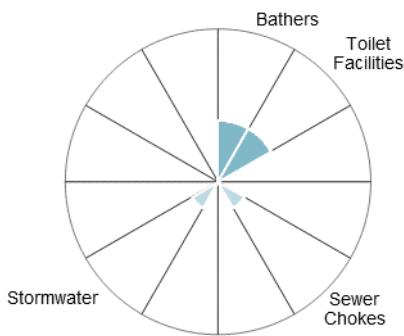
Enterococci levels generally increased with increasing rainfall, occasionally exceeding the safe swimming limit after 5mm or more of rain, and regularly after 20mm or more of rainfall.

See 'How to read this report' for key to map.

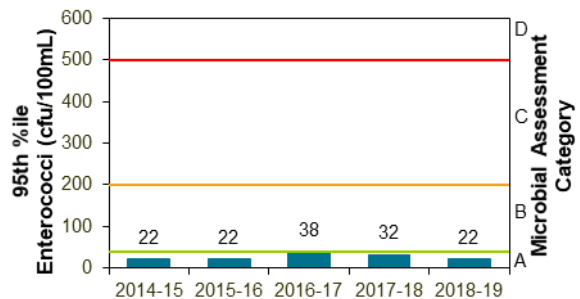
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Aug 2017 to Apr 2019	100%	100	Stable <span style="color: blue;">●</span>

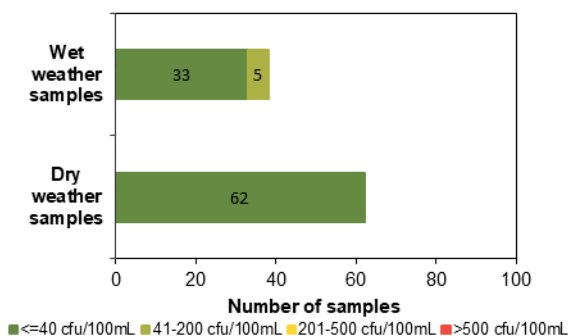
## Sanitary inspection: Low



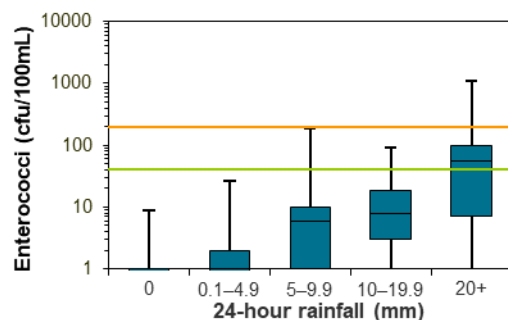
## Microbial Assessment Category: A



## Dry and wet weather water quality

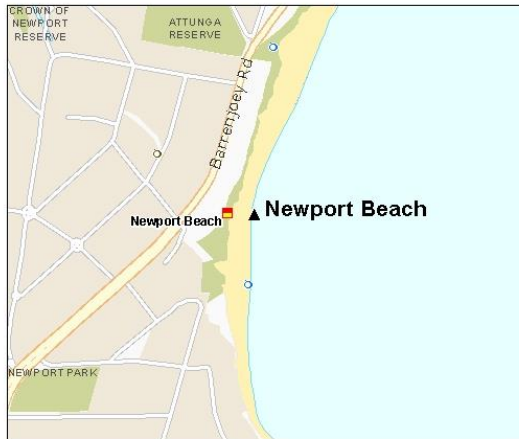


## Water quality in response to rainfall



# Newport Beach

Beach grade: **VG**



Newport Beach is an open, east facing beach around 1.3 kilometres long. Lifeguards patrol the beach from September to April.

The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of significant faecal contamination.

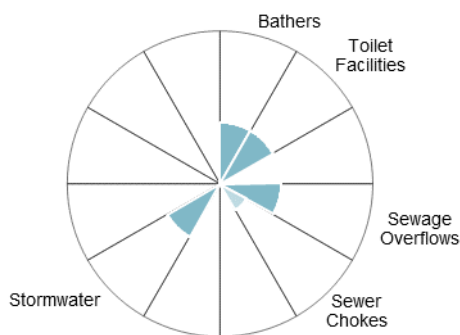
Enterococci levels generally increased with increasing rainfall, occasionally exceeding the safe swimming limit after light rain, and often after 20mm or more of rainfall.

See 'How to read this report' for key to map.

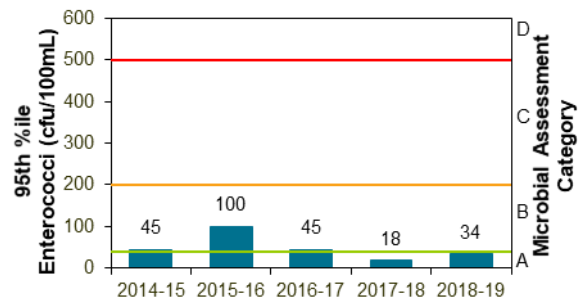
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Sep 2017 to Apr 2019	97%	100	Stable <span style="color: green;">●</span>

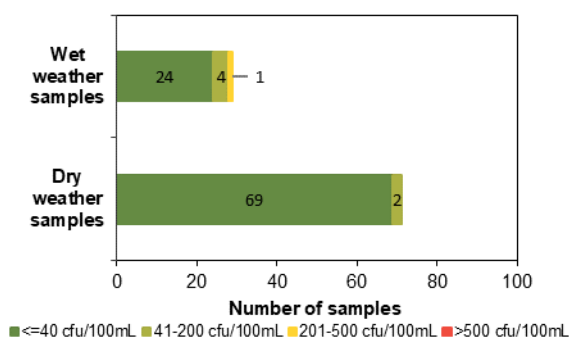
## Sanitary inspection: Low



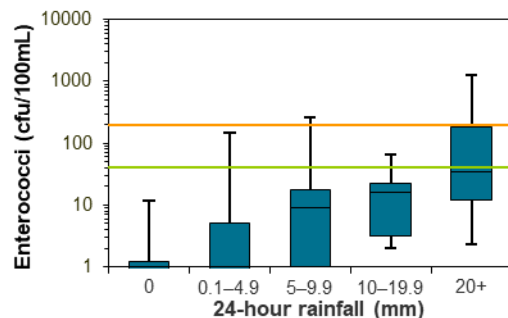
## Microbial Assessment Category: A



## Dry and wet weather water quality



## Water quality in response to rainfall



# Bungan Beach

Beach grade: **VG**



Bungan Beach is 600 metres long and backed by a steep escarpment. Lifeguards patrol the beach from late December to the end of January.

The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of significant faecal contamination.

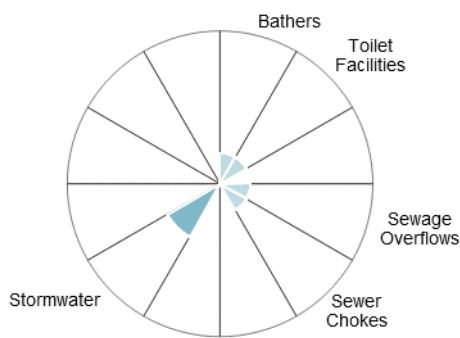
Enterococci levels increased slightly with increasing rainfall, often exceeding the safe swimming limit in response to 20mm or more of rainfall.

The site has been monitored since 1989.

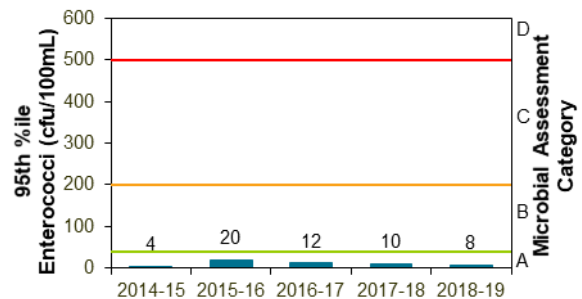
See 'How to read this report' for key to map.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Sep 2017 to Apr 2019	99%	100	Stable <span style="color: blue;">●</span>

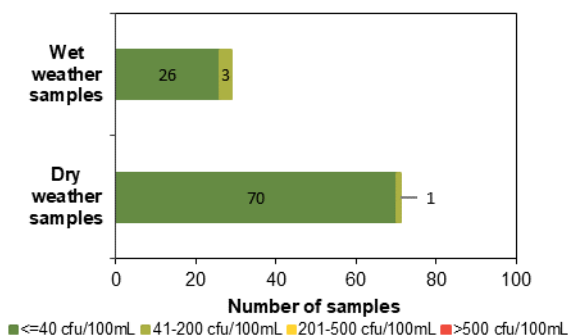
## Sanitary inspection: Low



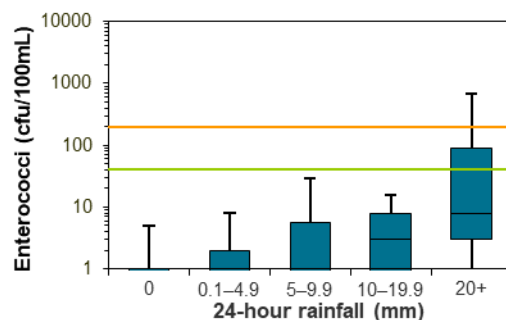
## Microbial Assessment Category: A



## Dry and wet weather water quality



## Water quality in response to rainfall



# Mona Vale Beach

Beach grade: **VG**



Mona Vale Beach is one kilometre long. Lifeguards patrol the beach from September to April.

The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of significant faecal contamination.

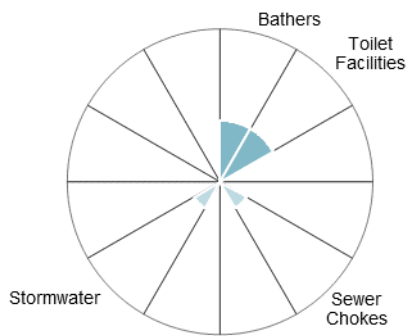
Enterococci levels increased slightly with increasing rainfall, occasionally exceeding the safe swimming limit after light rain, and often after 20mm or more of rainfall.

The site has been monitored since 1989.

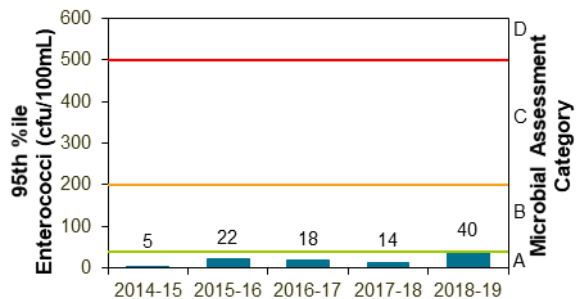
See 'How to read this report' for key to map.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Sep 2017 to Apr 2019	99%	100	Stable <span style="color: blue;">●</span>

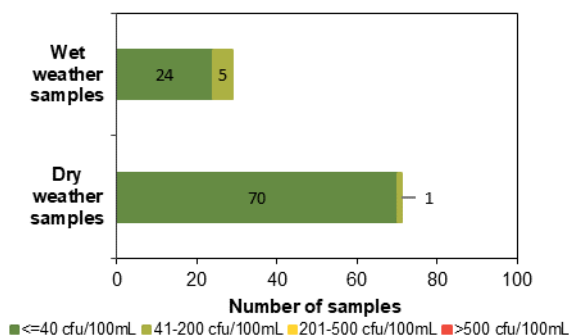
## Sanitary inspection: Low



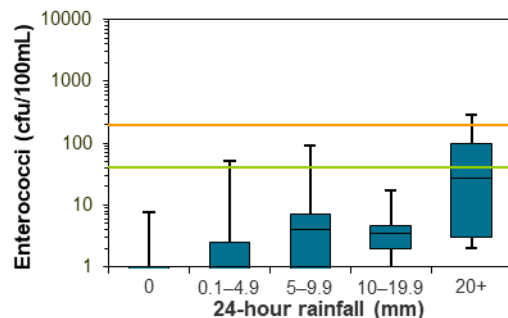
## Microbial Assessment Category: A



## Dry and wet weather water quality

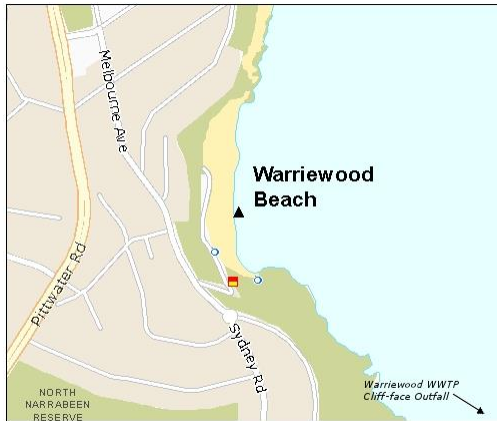


## Water quality in response to rainfall



# Warriewood Beach

Beach grade: **G**



Warriewood Beach is 500 metres long and located below a steep bluff. The beach is patrolled during holiday periods.

The Beach Suitability Grade of Good indicates microbial water quality is suitable for swimming most of the time but can be susceptible to pollution after rain, with several potential sources of faecal contamination including Warriewood Wastewater Treatment Plant (WWTP).

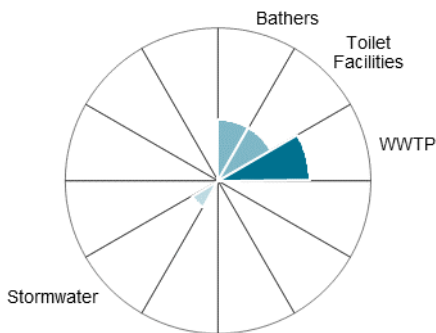
Enterococci levels increased slightly with increasing rainfall, occasionally exceeding the safe swimming limit after 20mm or more of rainfall.

See 'How to read this report' for key to map.

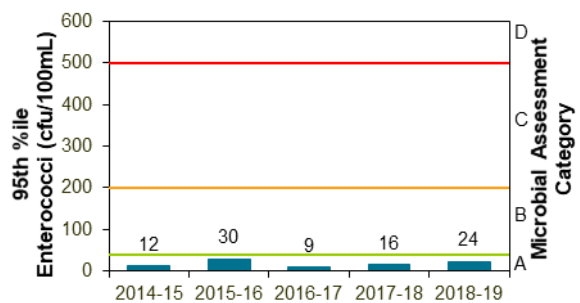
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Sep 2017 to Apr 2019	99%	100	Stable <span style="color: green;">●</span>

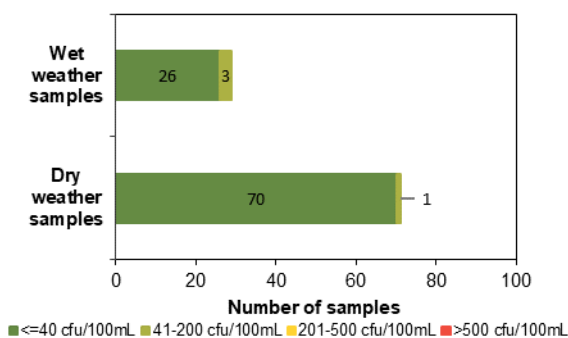
## Sanitary inspection: Moderate



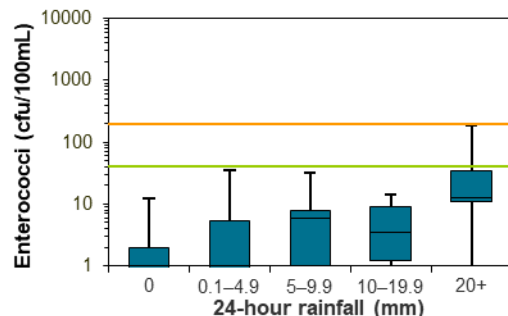
## Microbial Assessment Category: A



## Dry and wet weather water quality

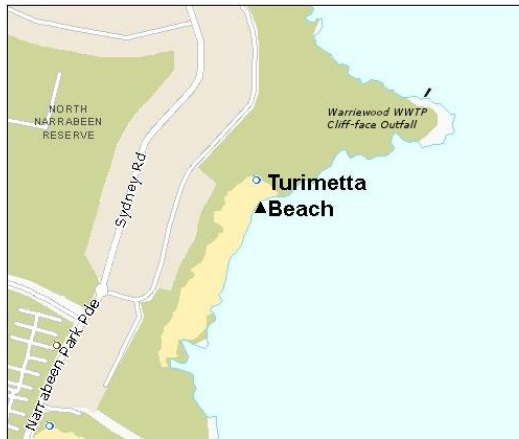


## Water quality in response to rainfall



# Turimetta Beach

Beach grade: G



Turimetta Beach is 350 metres long and is backed by steep bluffs. This beach is not patrolled by lifeguards.

The Beach Suitability Grade of Good indicates microbial water quality is suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including Warriewood WWTP.

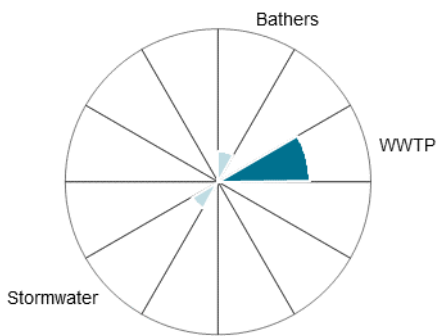
Enterococci levels increased slightly with increasing rainfall, occasionally exceeding the safe swimming limit after 20mm or more of rainfall.

The site has been monitored since 1994.

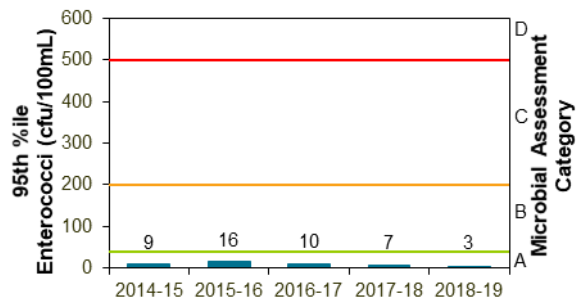
See 'How to read this report' for key to map.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Aug 2017 to Apr 2019	100%	100	Stable <span style="background-color: #4CAF50; border-radius: 50%; padding: 2px 8px; font-weight: bold;">●</span>

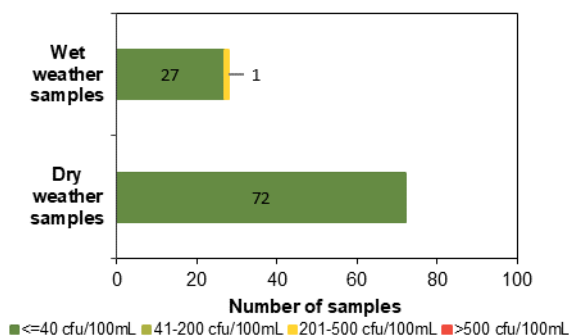
## Sanitary inspection: Moderate



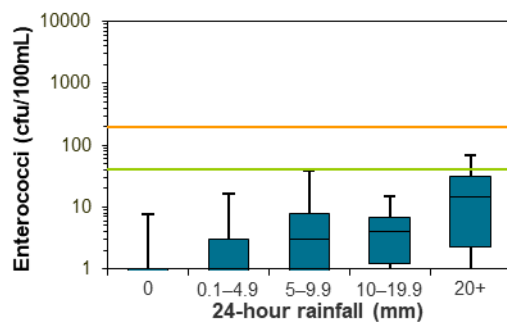
## Microbial Assessment Category: A



## Dry and wet weather water quality

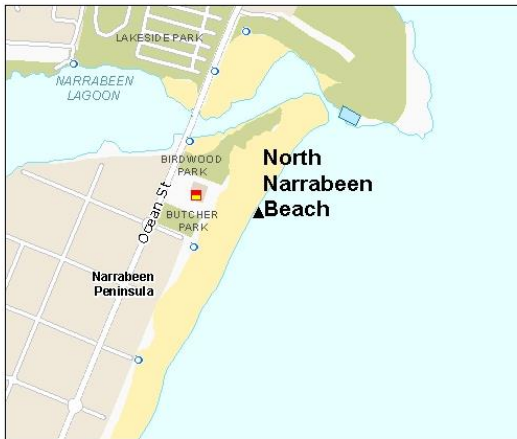


## Water quality in response to rainfall



# North Narrabeen Beach

Beach grade: G



North Narrabeen Beach is located at the northern end of the 3.5 kilometre-long beach and is patrolled from September to April.

The Beach Suitability Grade of Good indicates microbial water quality is suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including discharge from Narrabeen Lagoon.

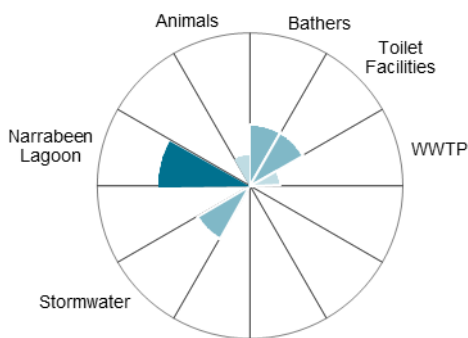
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit in response to 5mm or more of rain, and often after 10mm or more of rainfall.

The site has been monitored since 1989.

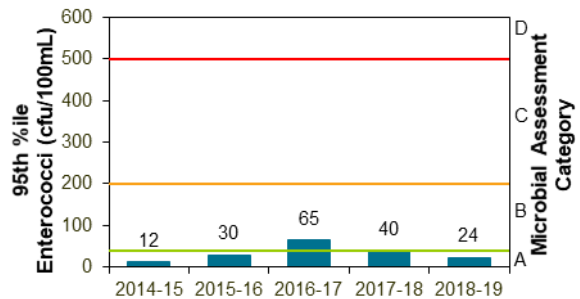
See 'How to read this report' for key to map.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Sep 2017 to Apr 2019	97%	100	Stable <span style="background-color: #4CAF50; border-radius: 50%; padding: 2px 6px; font-weight: bold;">●</span>

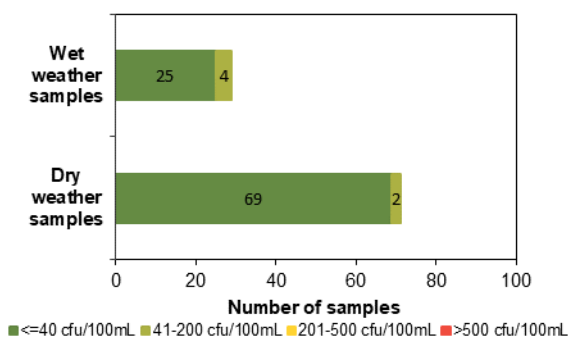
## Sanitary inspection: Moderate



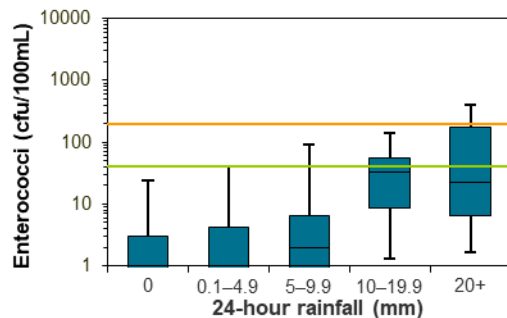
## Microbial Assessment Category: A



## Dry and wet weather water quality



## Water quality in response to rainfall



# Narrabeen Lagoon (Birdwood Park)

Beach grade: G



The Birdwood Park swimming site is a sandy beach located on the southern side of the entrance to Narrabeen Lagoon. The lagoon entrance has been periodically open and closed at times.

The Beach Suitability Grade of Good indicates microbial water quality is suitable for swimming most of the time but can be susceptible to pollution after rain, with several potential sources of faecal contamination including the lagoon itself.

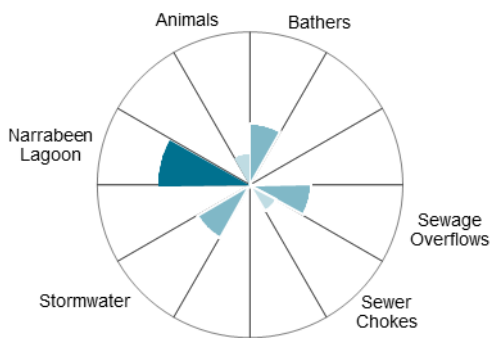
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after little or no rain, and regularly after 5mm or more of rain.

See 'How to read this report' for key to map.

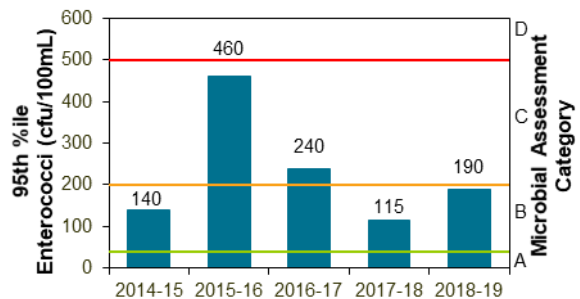
The site has been monitored since 2004.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Lagoon	Sep 2017 to Apr 2019	89%	100	Stable <span style="background-color: #4CAF50; border-radius: 50%; padding: 2px 8px; font-weight: bold;">●</span>

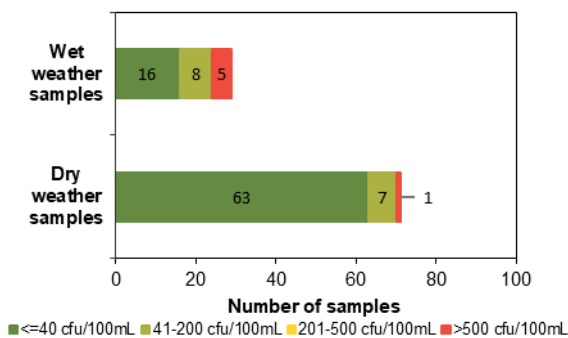
## Sanitary inspection: Moderate



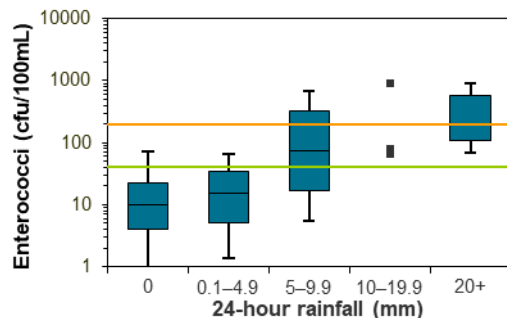
## Microbial Assessment Category: B



## Dry and wet weather water quality



## Water quality in response to rainfall





# Bilarong Reserve

Beach grade: P



Bilarong Reserve is located on the northern shoreline of Narrabeen Lagoon.

The Beach Suitability Grade of Poor indicates microbial water quality is susceptible to faecal pollution, particularly after rainfall and occasionally during dry weather conditions, with potential faecal contamination including the lagoon itself.

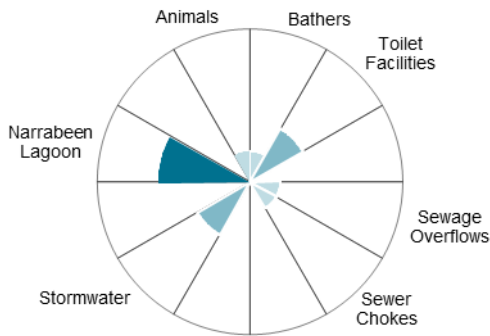
Enterococci levels generally increased with increasing rainfall, occasionally exceeding the safe swimming limit in response to little or no rain, and regularly after 5mm or more of rainfall.

See 'How to read this report' for key to map.

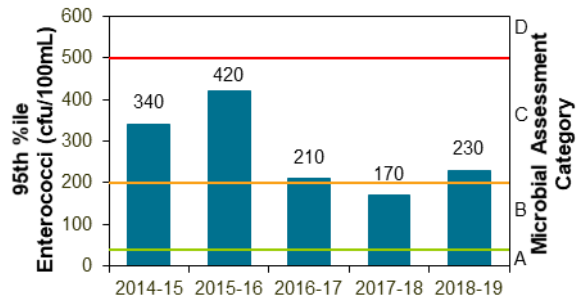
The site has been monitored since 2014.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Lagoon	Aug 2017 to Apr 2019	87%	100	Declined <span style="color: red;">↓</span>

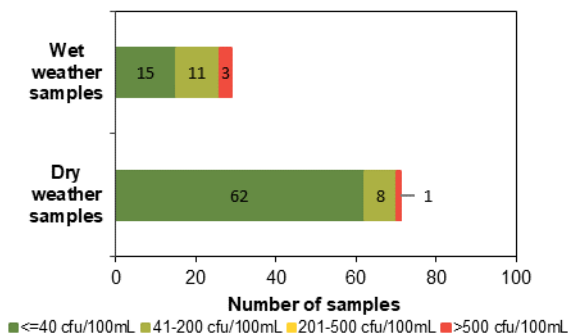
## Sanitary inspection: Moderate



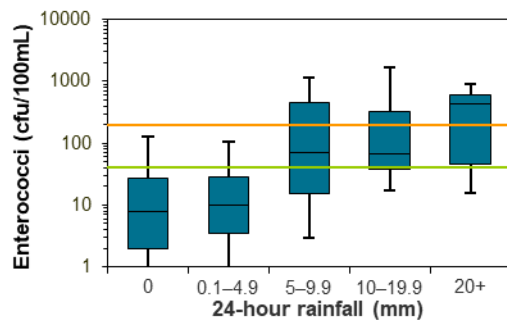
## Microbial Assessment Category: C



## Dry and wet weather water quality

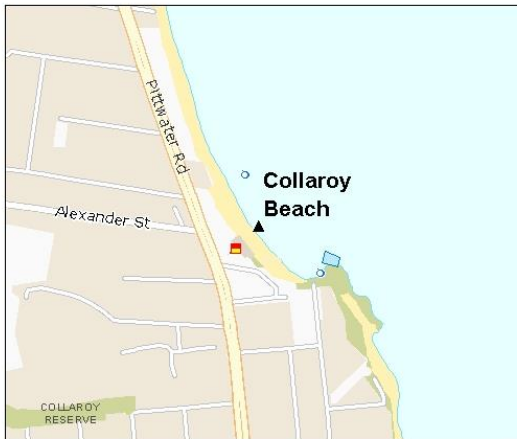


## Water quality in response to rainfall



# Collaroy Beach

Beach grade: **G**



Collaroy Beach is backed by a park and picnic area. Lifeguards patrol the beach from September to April.

The Beach Suitability Grade of Good indicates microbial water quality is suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

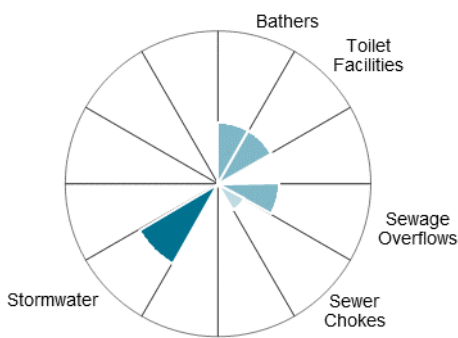
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after light rain and often after 5mm or more of rainfall.

The site has been monitored since 1989.

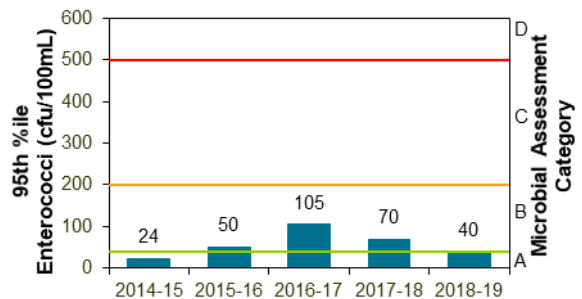
See 'How to read this report' for key to map.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Sep 2017 to Apr 2019	98%	100	Stable <span style="color: blue;">●</span>

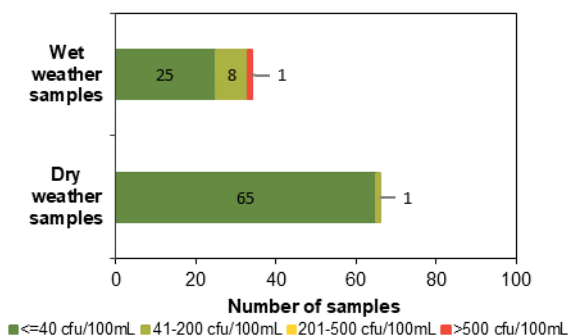
## Sanitary inspection: Moderate



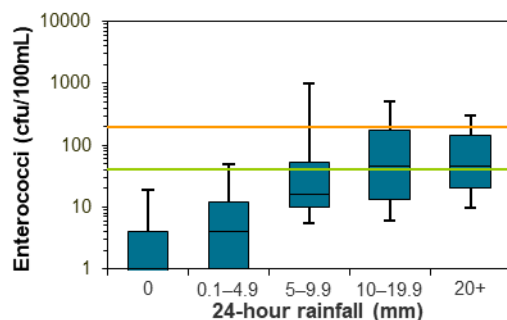
## Microbial Assessment Category: A



## Dry and wet weather water quality



## Water quality in response to rainfall



# Long Reef Beach

Beach grade: **G**



Long Reef Beach is located near the entrance of Dee Why Lagoon. Lifeguards patrol the beach from September to April.

The Beach Suitability Grade of Good indicates microbial water quality is suitable for swimming most of the time but may be susceptible to pollution after rain, with potential faecal contamination from discharge from Dee Why Lagoon.

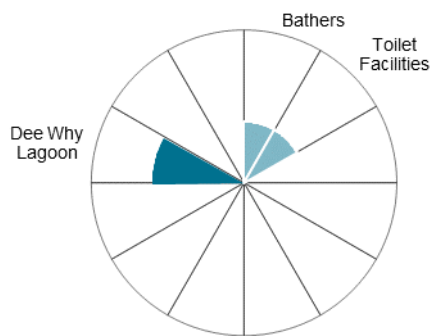
Enterococci levels generally increased with increasing rainfall, occasionally exceeding the safe swimming limit in response to 5mm or more of rain.

See 'How to read this report' for key to map.

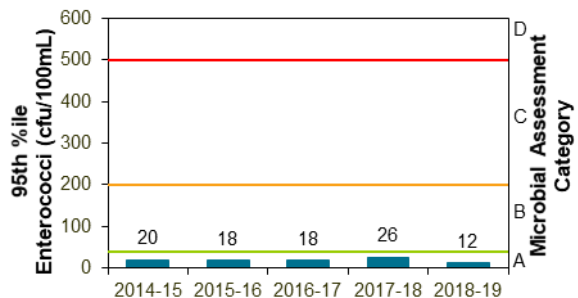
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Sep 2017 to Apr 2019	98%	100	Stable

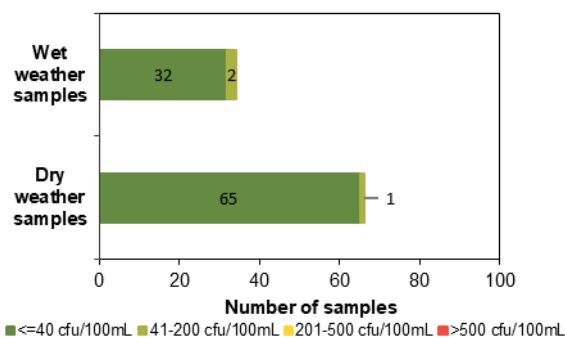
## Sanitary inspection: Moderate



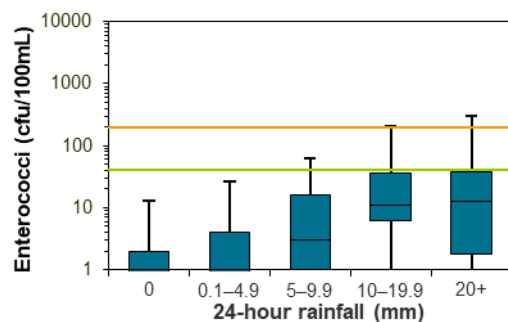
## Microbial Assessment Category: A



## Dry and wet weather water quality

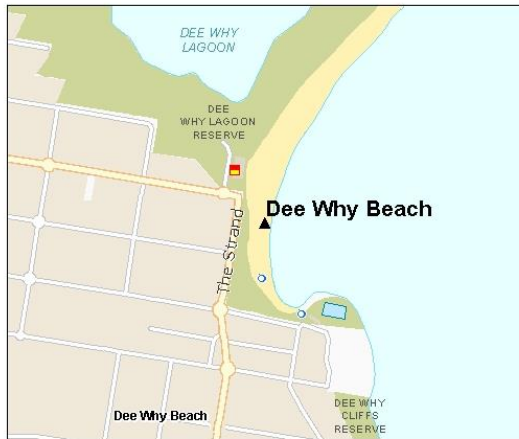


## Water quality in response to rainfall



# Dee Why Beach

Beach grade: **VG**



Dee Why Beach is located at the southern end of the stretch of beach and is patrolled by lifeguards from late August to May.

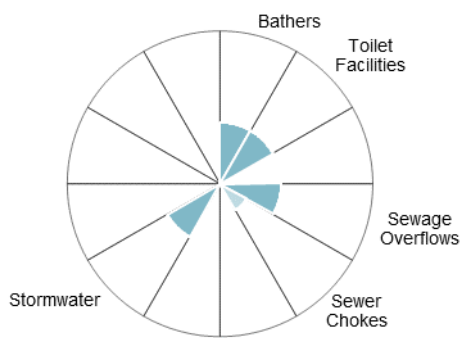
The Beach Suitability Grade of Very Good indicates microbial water quality is suitable for swimming almost all of the time, with few potential sources of significant faecal contamination.

Enterococci levels increased slightly with increasing rainfall, occasionally exceeding the safe swimming limit in response to light rain and often after 20mm or more of rainfall.

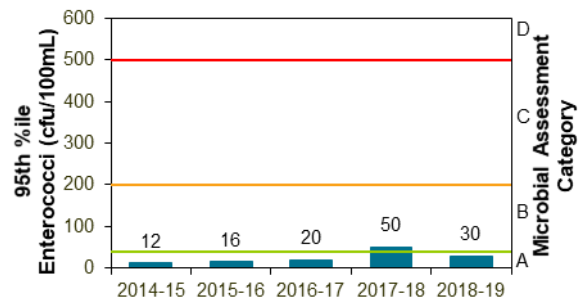
See 'How to read this report' for key to map. The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Sep 2017 to Apr 2019	98%	100	Improved

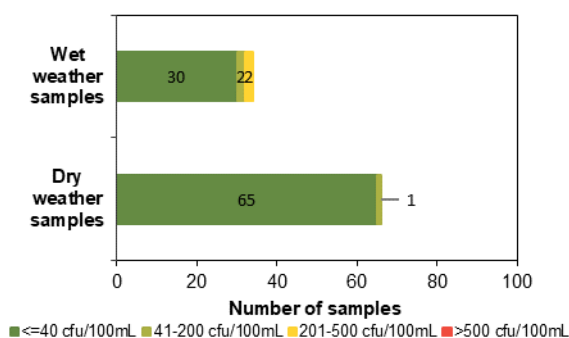
## Sanitary inspection: Low



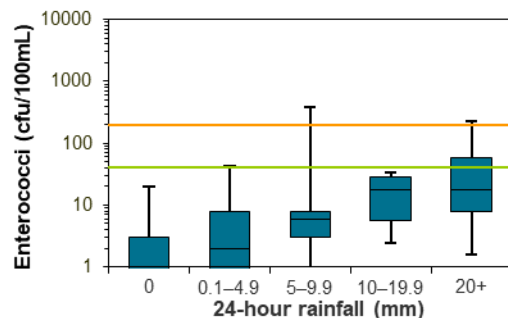
## Microbial Assessment Category: A



## Dry and wet weather water quality



## Water quality in response to rainfall



# North Curl Curl Beach

Beach grade: G



North Curl Curl Beach is located near the entrance to Curl Curl Lagoon. Lifeguards patrol the beach from September to April.

The Beach Suitability Grade of Good indicates microbial water quality is suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including discharge from Curl Curl Lagoon.

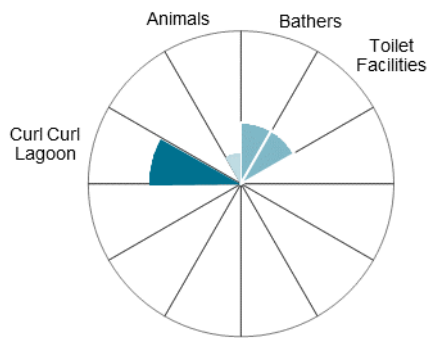
Enterococci levels increased with increasing rainfall, often exceeding the safe swimming limit after 5mm or more of rain and regularly after 20mm or more of rainfall.

See 'How to read this report' for key to map.

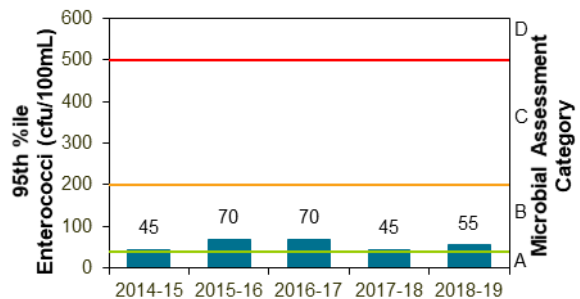
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Sep 2017 to Apr 2019	97%	100	Stable <span style="background-color: #4CAF50; border-radius: 50%; padding: 2px 6px; font-weight: bold;">●</span>

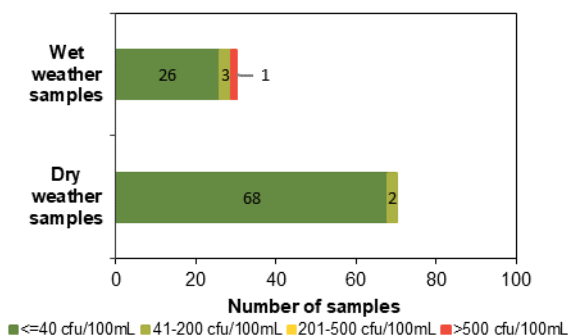
## Sanitary inspection: Moderate



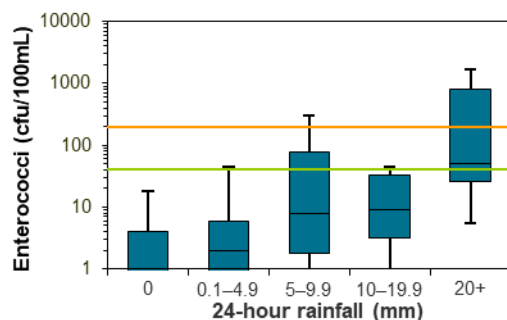
## Microbial Assessment Category: B



## Dry and wet weather water quality



## Water quality in response to rainfall



# South Curl Curl Beach

Beach grade: **VG**



South Curl Curl Beach is at the southern end of Curl Curl Beach and is patrolled by lifeguards from September to April.

The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of faecal contamination.

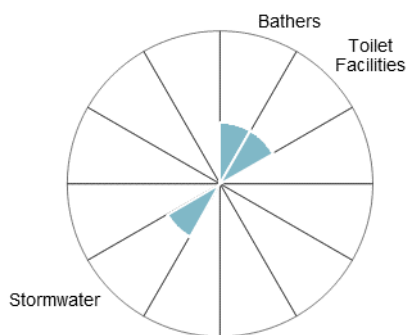
Enterococci levels increased slightly with increasing rainfall, occasionally exceeding the safe swimming limit in response to 10mm or more of rain, and often after 20mm or more of rainfall.

See 'How to read this report' for key to map.

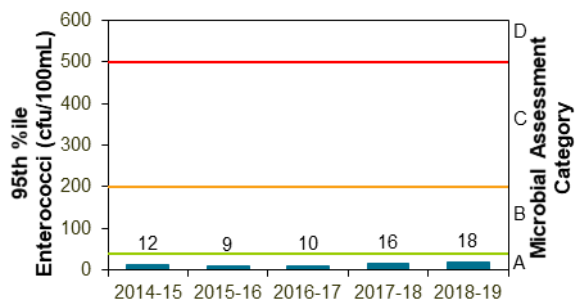
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Aug 2017 to Apr 2019	99%	100	Stable <span style="color: green;">●</span>

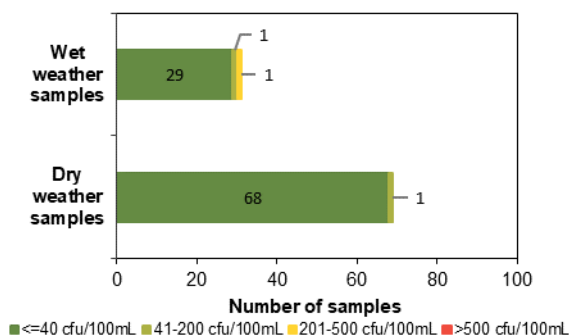
## Sanitary inspection: Low



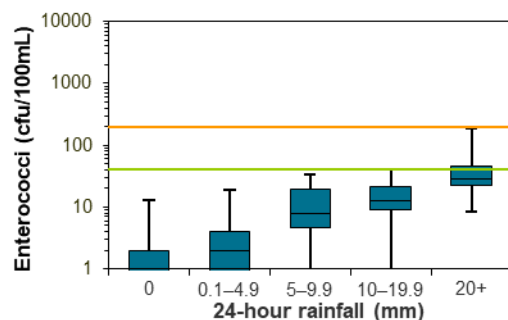
## Microbial Assessment Category: A



## Dry and wet weather water quality



## Water quality in response to rainfall



# Freshwater Beach

Beach grade: G



Freshwater Beach is approximately 350 metres long and is patrolled by lifeguards from late August to May.

The Beach Suitability Grade of Good indicates microbial water quality is suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

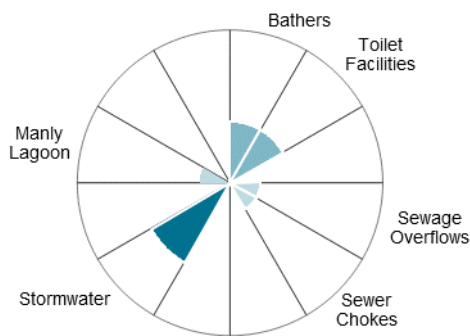
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after light rain, and regularly after 20mm or more of rainfall.

See 'How to read this report' for key to map.

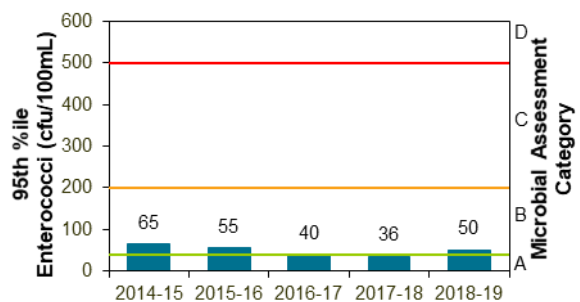
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Sep 2017 to Apr 2019	96%	100	Stable <span style="background-color: #4CAF50; border-radius: 50%; padding: 2px 6px;">●</span>

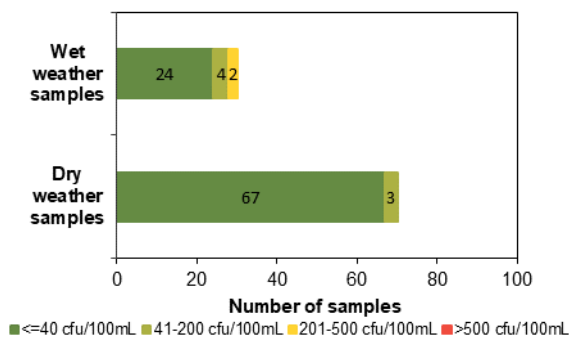
## Sanitary inspection: Moderate



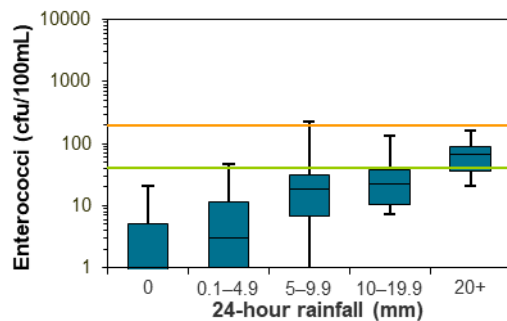
## Microbial Assessment Category: B



## Dry and wet weather water quality



## Water quality in response to rainfall



# Queenscliff Beach

Beach grade: G



Queenscliff Beach is located at the northern end of Manly Beach. Lifeguards patrol the beach from September to April.

The Beach Suitability Grade of Good indicates microbial water quality is suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination, including discharge from Manly Lagoon.

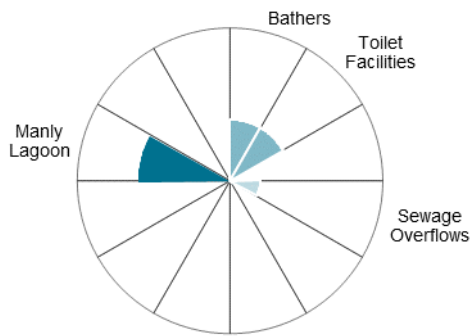
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after light rain, and often after 5mm or more of rainfall.

See 'How to read this report' for key to map.

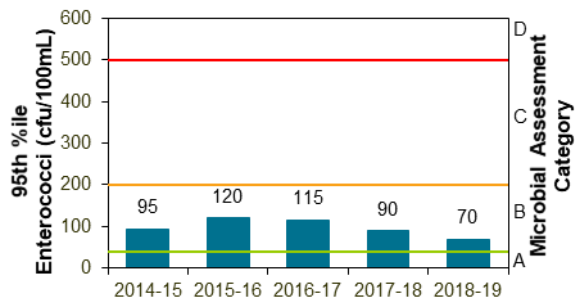
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Sep 2017 to Apr 2019	97%	100	Stable <span style="background-color: #4CAF50; border-radius: 50%; padding: 2px 6px; font-weight: bold;">●</span>

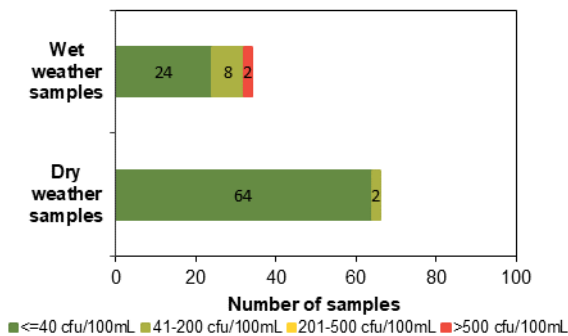
## Sanitary inspection: Moderate



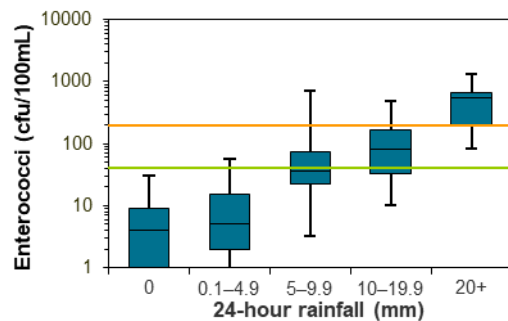
## Microbial Assessment Category: B



## Dry and wet weather water quality



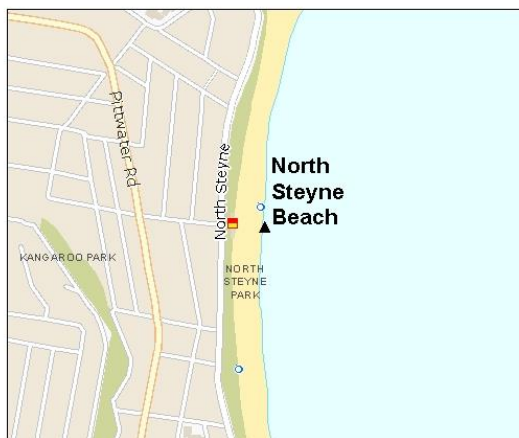
## Water quality in response to rainfall





# North Steyne Beach

Beach grade: G



North Steyne Beach is the middle section of Manly Beach. Lifeguards patrol the beach from September to April.

The Beach Suitability Grade of Good indicates microbial water quality is suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater and discharge from Manly Lagoon.

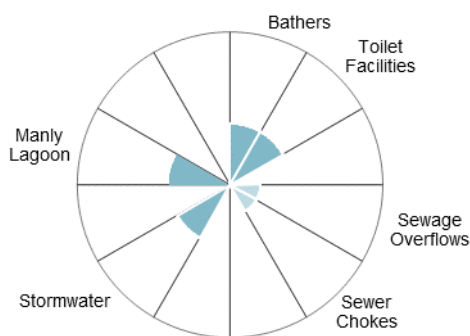
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after 5mm or more of rain, and often after 10mm or more rainfall.

See 'How to read this report' for key to map.

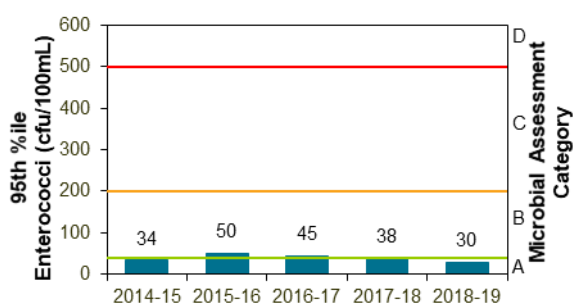
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Sep 2017 to Apr 2019	97%	100	Stable <span style="background-color: #4CAF50; border-radius: 50%; padding: 2px 6px; font-weight: bold;">●</span>

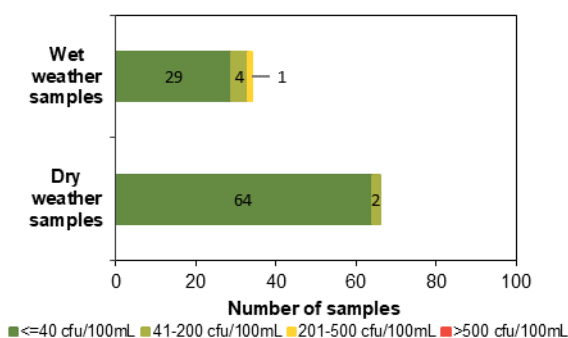
## Sanitary inspection: Moderate



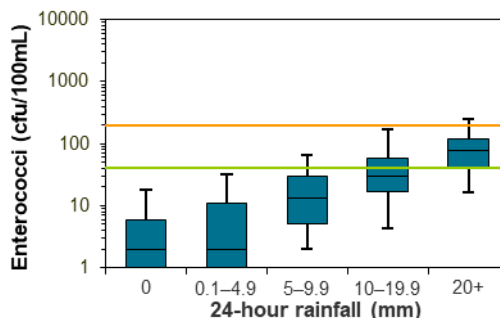
## Microbial Assessment Category: A



## Dry and wet weather water quality



## Water quality in response to rainfall



# South Steyne Beach

Beach grade: **G**



South Steyne Beach is at the southern end of Manly Beach. Lifeguards patrol the beach year-round.

The Beach Suitability Grade of Good indicates microbial water quality is suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

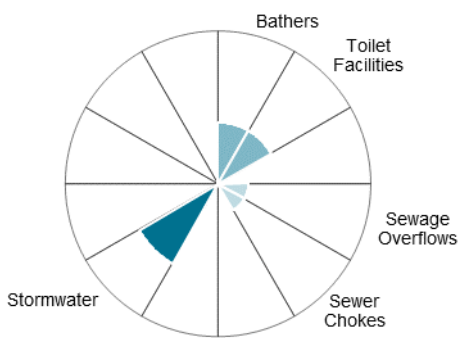
Enterococci levels increased with increasing rainfall, often exceeding the safe swimming limit after 10mm or more of rainfall.

The site has been monitored since 1989.

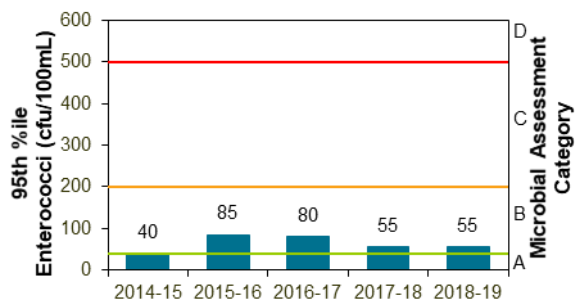
See 'How to read this report' for key to map.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Sep 2017 to Apr 2019	94%	100	Stable

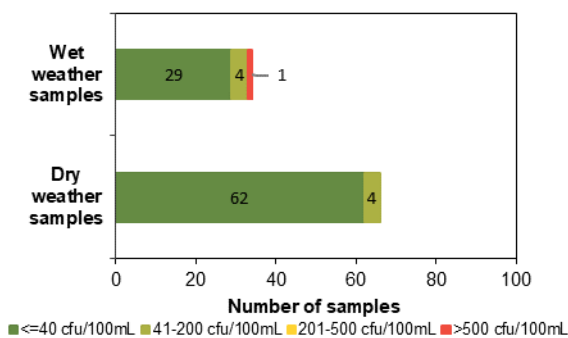
## Sanitary inspection: Moderate



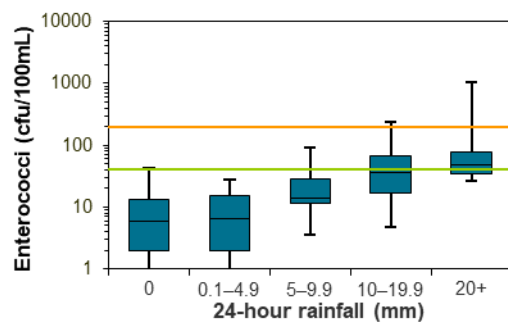
## Microbial Assessment Category: B



## Dry and wet weather water quality



## Water quality in response to rainfall



# Shelly Beach

Beach grade: **VG**




Shelly Beach is backed by a picnic area and reserve and is not patrolled by lifeguards.

The Beach Suitability Grade of Very Good indicates microbial water quality is suitable for swimming almost all of the time, with few potential sources of significant faecal contamination.

Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after light rain, and often after 5mm or more of rainfall.

The site has been monitored since 1989.

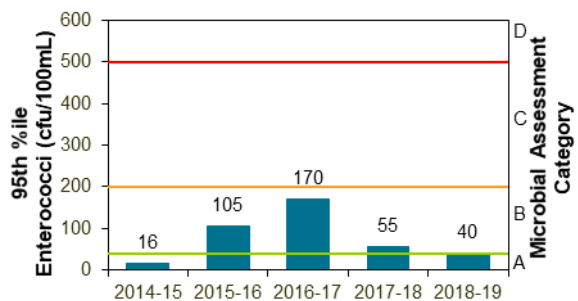
See 'How to read this report' for key to map.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Sep 2017 to Apr 2019	97%	100	Improved 

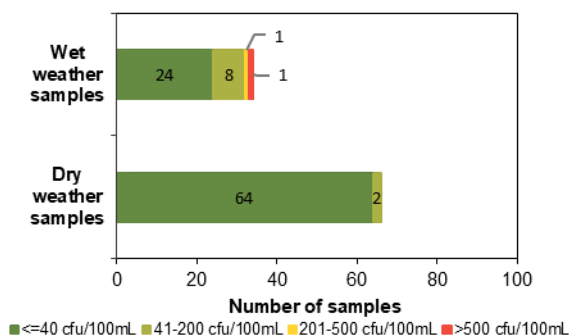
## Sanitary inspection: Low



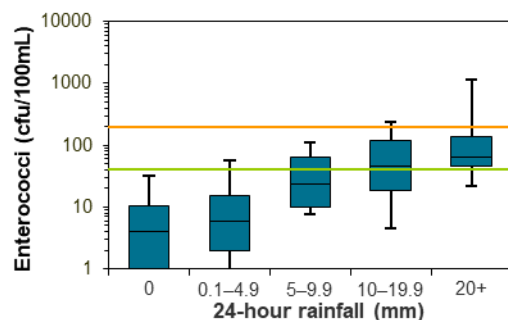
## Microbial Assessment Category: A



## Dry and wet weather water quality



## Water quality in response to rainfall



# Barrenjoey Beach

Beach grade:



Barrenjoey Beach is approximately 1.5 kilometres long and located on the north-eastern foreshore of Pittwater.

The Beach Suitability Grade of Good indicates microbial water quality is suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination.

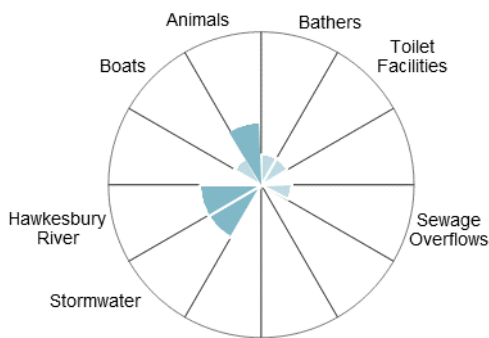
Enterococci levels increased slightly with increasing rainfall, occasionally exceeding the safe swimming limit after little or no rain.

The site has been monitored since 1996. Since 2014 samples are collected either from the shoreline or boat depending on access to the site.

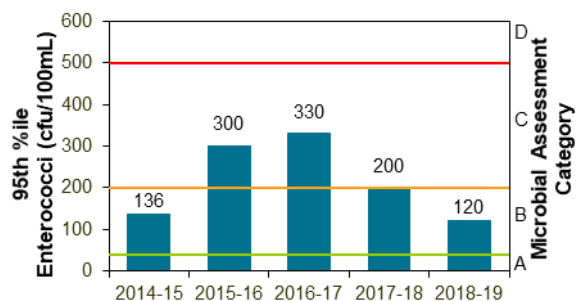
See 'How to read this report' for key to map.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Apr 2017 to Apr 2019	81%	100	Stable

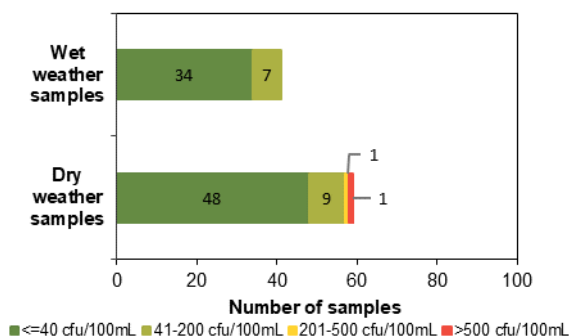
## Sanitary inspection: Moderate



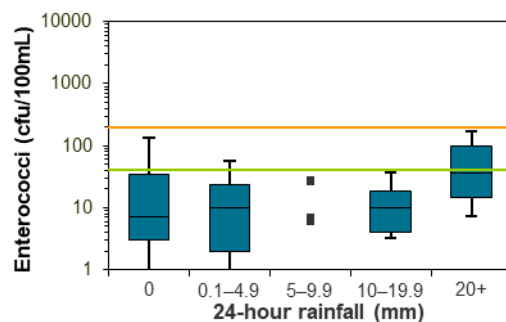
## Microbial Assessment Category: B



## Dry and wet weather water quality

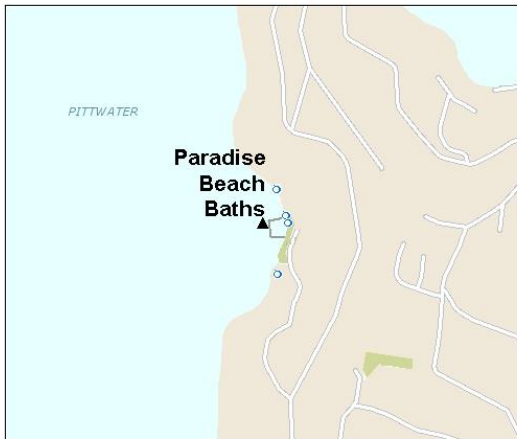


## Water quality in response to rainfall



# Paradise Beach Baths

Beach grade: **G**



Paradise Beach Baths is a 30 by 20 metre netted swimming enclosure on the eastern foreshore of Pittwater.

The Beach Suitability Grade of Good indicates microbial water quality is suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

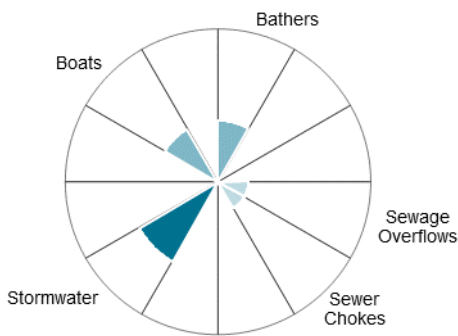
Enterococci levels increased with increasing rainfall, often exceeding the safe swimming limit in response to 10mm or more of rainfall.

See 'How to read this report' for key to map.

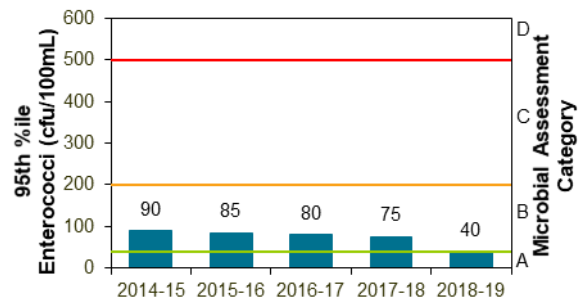
The site has been monitored since 1996.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	100%	100	Stable <span style="color: blue;">●</span>

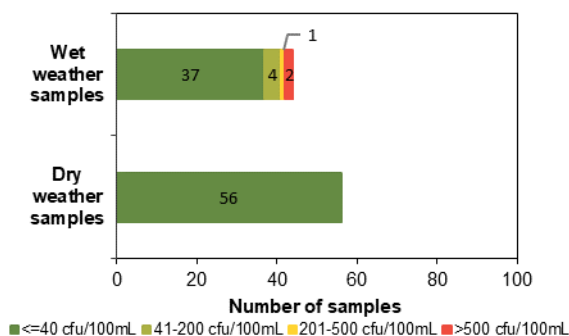
## Sanitary inspection: Moderate



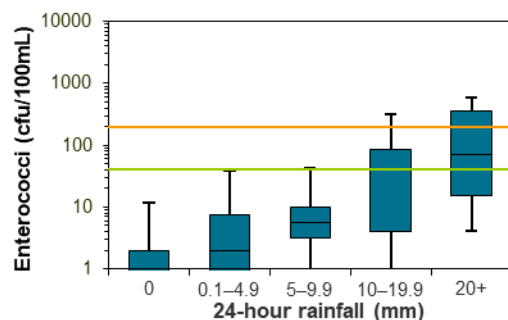
## Microbial Assessment Category: A



## Dry and wet weather water quality

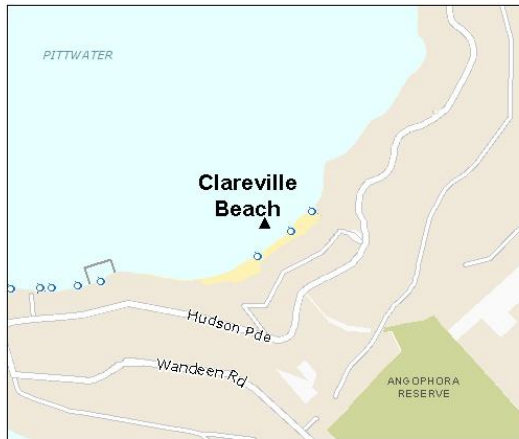


## Water quality in response to rainfall



# Clareville Beach

Beach grade: **G**



Clareville Beach is a narrow 250 metre long beach located on the eastern foreshore of Pittwater.

The Beach Suitability Grade of Good indicates microbial water quality is suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

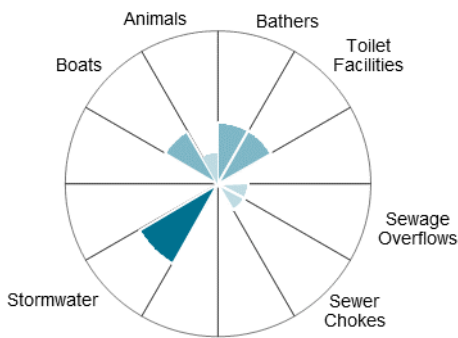
Enterococci levels generally increased with increasing rainfall, often exceeding the safe swimming limit after 5mm or more of rain, and regularly after 20mm or more of rainfall.

See 'How to read this report' for key to map.

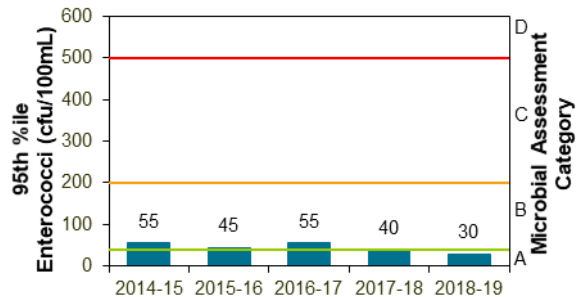
The site has been monitored since 1995.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	100%	100	Stable <span style="color: blue;">●</span>

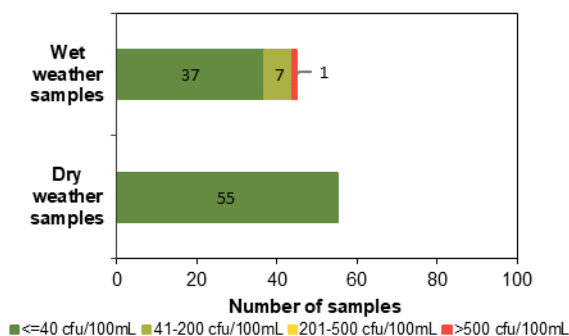
## Sanitary inspection: Moderate



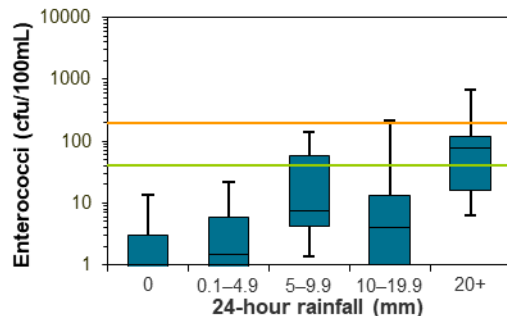
## Microbial Assessment Category: A



## Dry and wet weather water quality

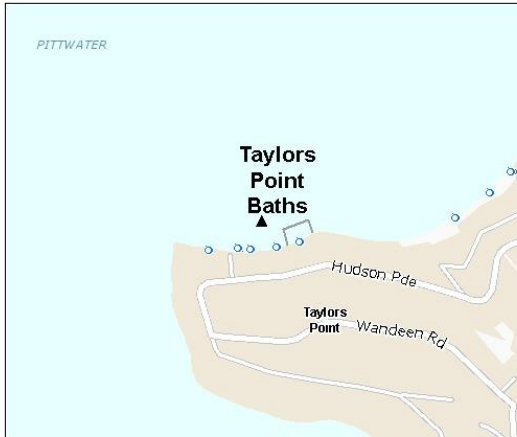


## Water quality in response to rainfall



# Taylor's Point Baths

Beach grade:



Taylor's Point Baths is a 15 by 20 metre netted swimming enclosure on the eastern foreshore of Pittwater.

The Beach Suitability Grade of Good indicates microbial water quality is suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

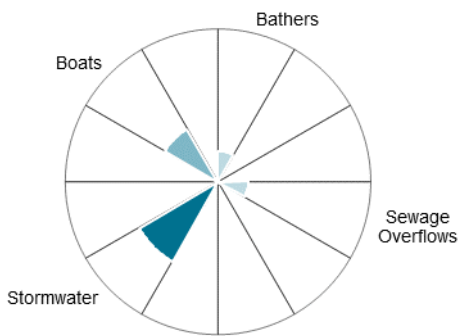
Enterococci levels generally increased with increasing rainfall, occasionally exceeding the safe swimming limit after 5mm or more of rain, and regularly after 20mm or more of rainfall.

The site has been monitored since 2010.

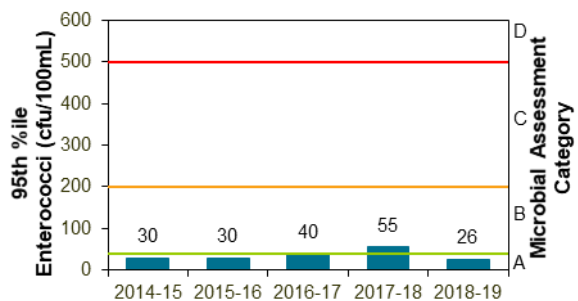
See 'How to read this report' for key to map.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	100%	100	Stable

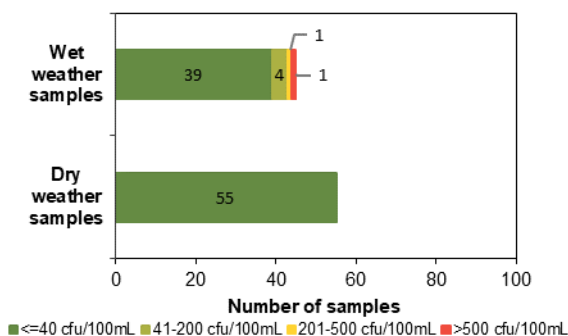
## Sanitary inspection: Moderate



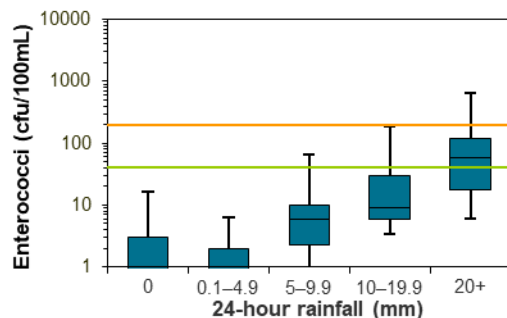
## Microbial Assessment Category: A



## Dry and wet weather water quality



## Water quality in response to rainfall



# Bayview Baths

Beach grade: G



Bayview Baths is a 20 by 40 metre swimming enclosure on the southern foreshore of Pittwater.

The Beach Suitability Grade of Good indicates microbial water quality is suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater and sewage overflows.

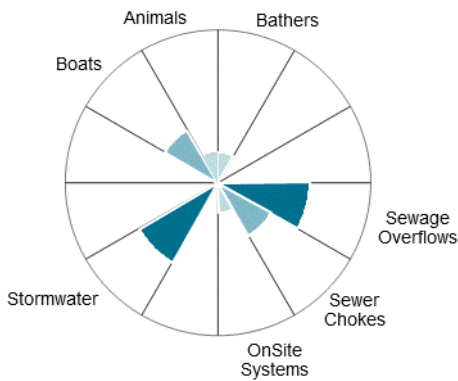
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after little or no rain, and often after 10mm or more of rainfall.

See 'How to read this report' for key to map.

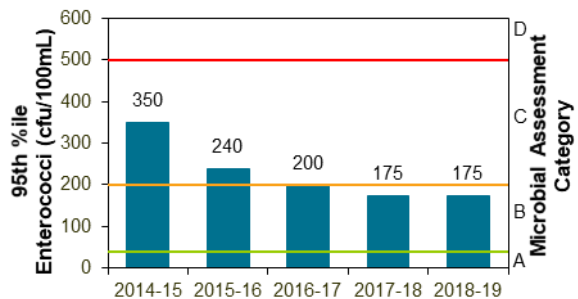
The site has been monitored since 1995.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	84%	100	Stable <span style="background-color: #4CAF50; border-radius: 50%; padding: 2px 6px; font-weight: bold;">●</span>

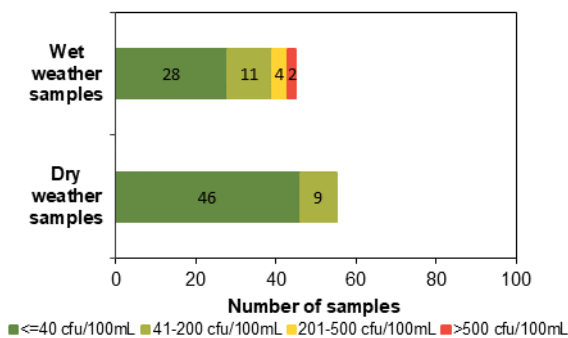
## Sanitary inspection: Moderate



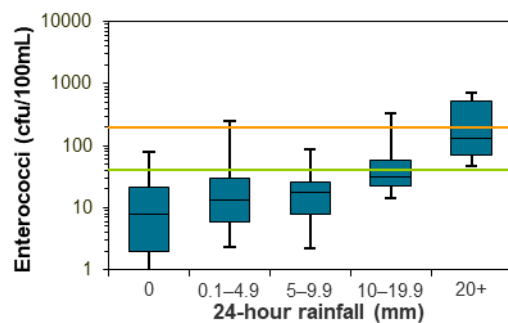
## Microbial Assessment Category: B



## Dry and wet weather water quality



## Water quality in response to rainfall





# Elvina Bay

Beach grade: **G**



Elvina Bay is located on the south-western foreshore of Pittwater. The swimming area is not netted.

The Beach Suitability Grade of Good indicates microbial water quality is suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of minor faecal contamination.

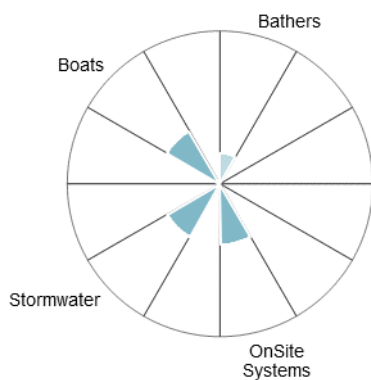
Enterococci levels generally increased with increasing rainfall, occasionally exceeding the safe swimming limit after 10mm or more of rain, and regularly after 20mm or more of rainfall.

See 'How to read this report' for key to map.

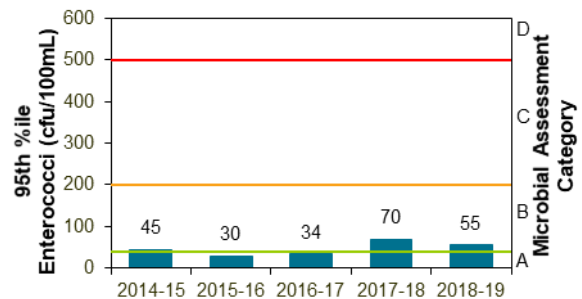
The site has been monitored since 1995.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	100%	100	Stable

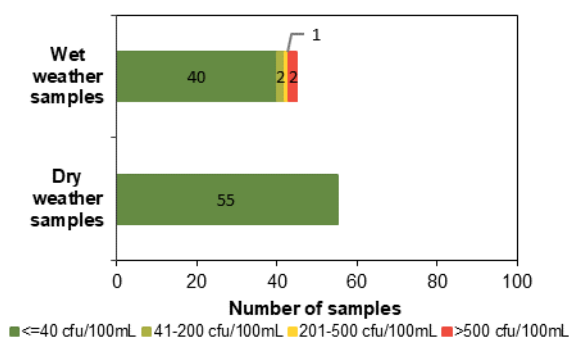
## Sanitary inspection: Low



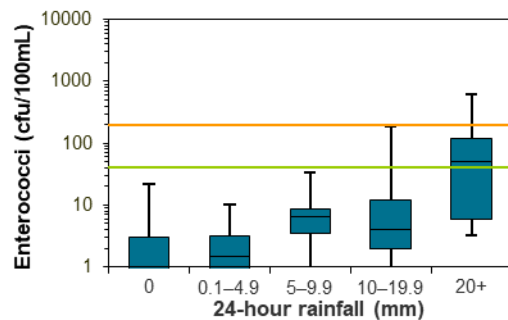
## Microbial Assessment Category: B



## Dry and wet weather water quality

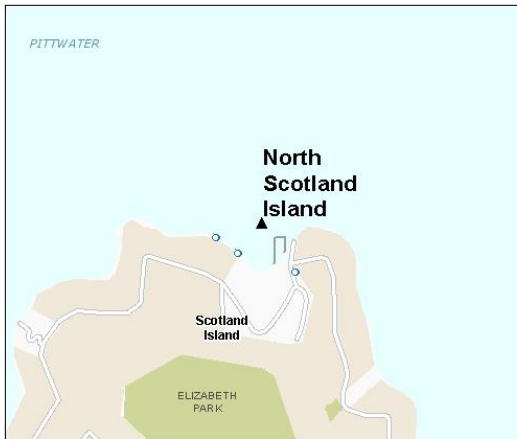


## Water quality in response to rainfall



# North Scotland Island

Beach grade: G



The North Scotland Island swimming site is a 15 by 50 metre netted enclosure located on the north side of Scotland Island in Pittwater.

The Beach Suitability Grade of Good indicates microbial water quality is suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including onsite systems.

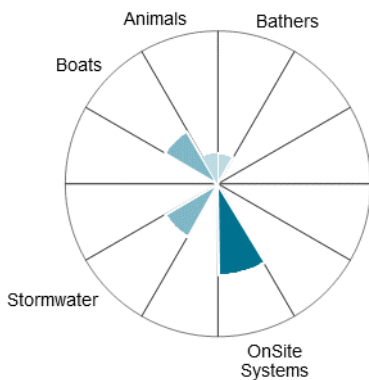
Enterococci levels generally increased with increasing rainfall, occasionally exceeding the safe swimming limit after 10mm or more of rain, and often after 20mm or more of rainfall.

See 'How to read this report' for key to map.

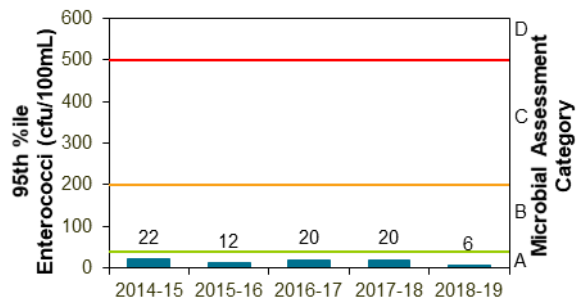
The site has been monitored since 1995.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	100%	100	Stable <span style="background-color: #4CAF50; border-radius: 50%; padding: 2px 6px;">●</span>

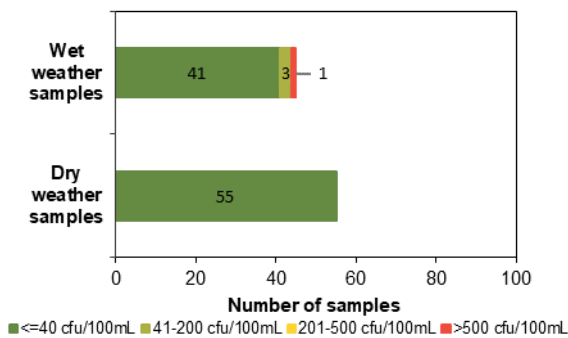
## Sanitary inspection: Moderate



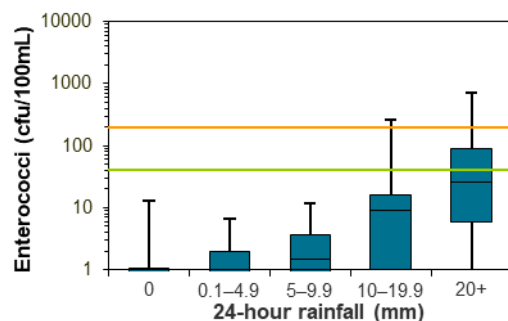
## Microbial Assessment Category: A



## Dry and wet weather water quality



## Water quality in response to rainfall



# South Scotland Island

Beach grade: G



The South Scotland Island swimming site is located at Carols Wharf on the southern side of Scotland Island. The location is not netted and is backed by a reserve.

The Beach Suitability Grade of Good indicates microbial water quality is suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including onsite systems.

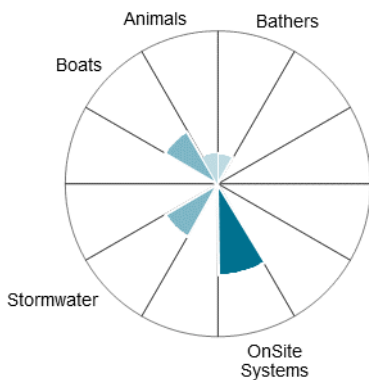
Enterococci levels generally increased with increasing rainfall, occasionally exceeding the safe swimming limit after 10mm or more of rain, and regularly after 20mm or more of rainfall.

The site has been monitored since 1996.

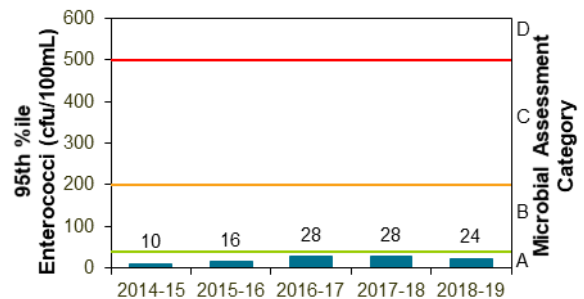
See 'How to read this report' for key to map.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	98%	100	Stable <span style="background-color: #4CAF50; border-radius: 50%; padding: 2px 6px; font-weight: bold;">●</span>

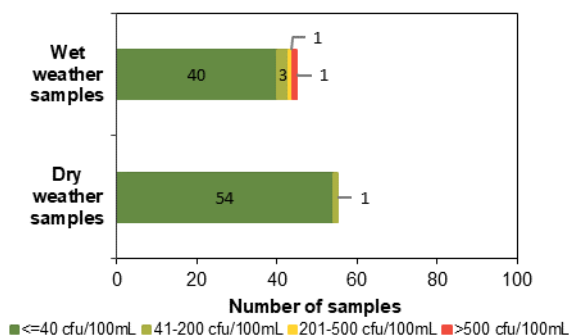
## Sanitary inspection: Moderate



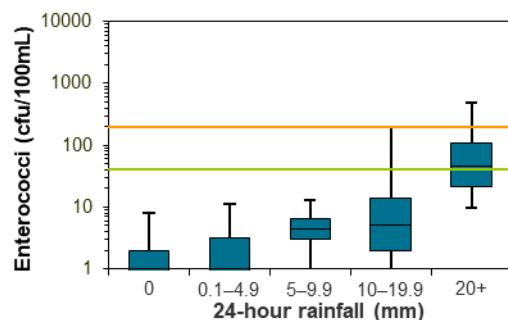
## Microbial Assessment Category: A



## Dry and wet weather water quality



## Water quality in response to rainfall



# The Basin

Beach grade: **VG**



The Basin is a 500 metre sandy beach on the western side of Pittwater, backed by Ku-ring-gai Chase National Park.

The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time with few potential sources of significant faecal contamination.

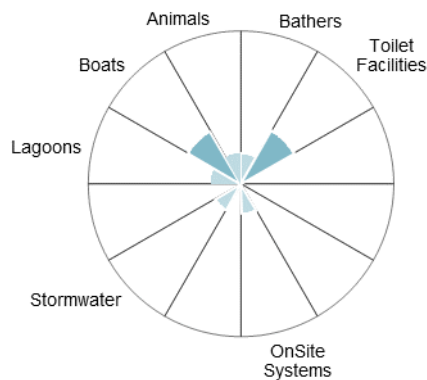
Enterococci levels increased slightly with increasing rainfall, occasionally exceeding the safe swimming limit in response to 10mm or more of rainfall.

The site has been monitored since 1999.

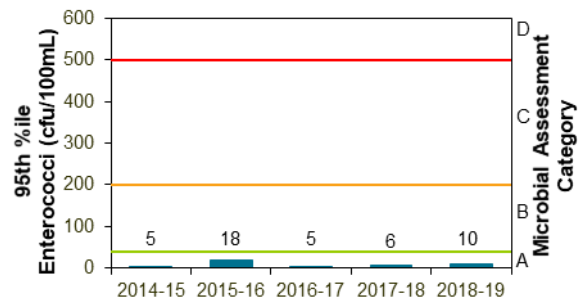
See 'How to read this report' for key to map.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	100%	100	Stable <span style="color: green;">●</span>

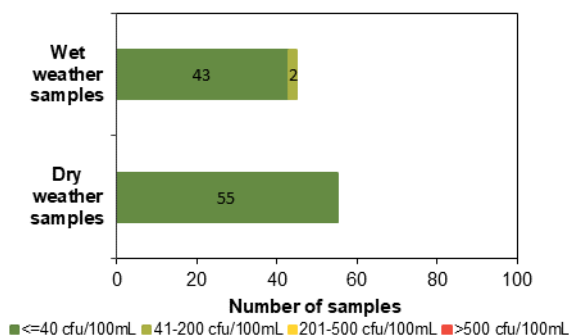
## Sanitary inspection: Low



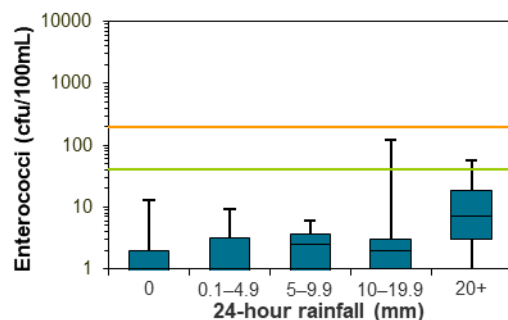
## Microbial Assessment Category: A



## Dry and wet weather water quality



## Water quality in response to rainfall



# Great Mackerel Beach

Beach grade: **VG**



Great Mackerel Beach is a 500 metre long sandy beach on the north-western side of Pittwater.

The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time with few potential sources of significant faecal contamination.

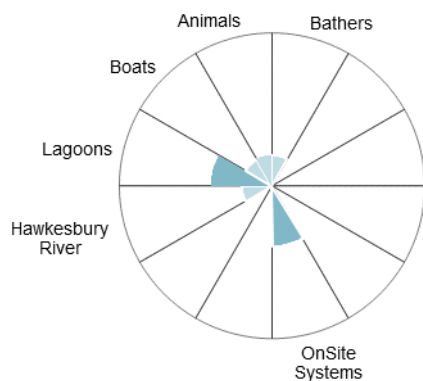
Enterococci levels increased slightly with increasing rainfall, occasionally exceeding the safe swimming limit in response to 10mm or more of rainfall.

The site has been monitored since 1999.

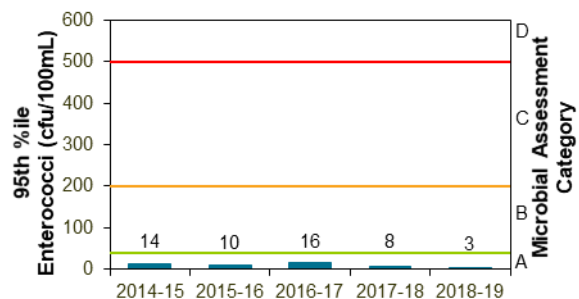
See 'How to read this report' for key to map.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	100%	100	Stable <span style="color: green;">●</span>

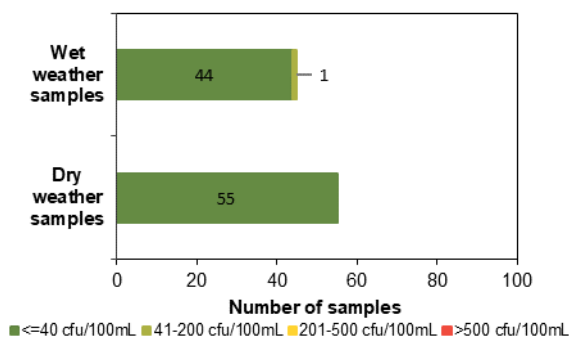
## Sanitary inspection: Low



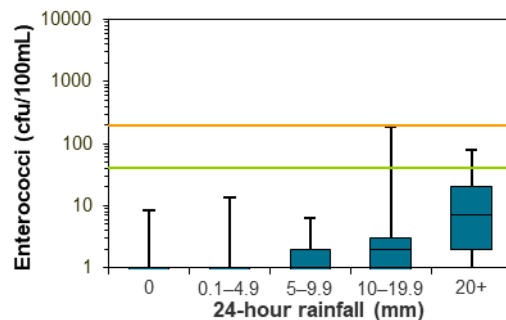
## Microbial Assessment Category: A



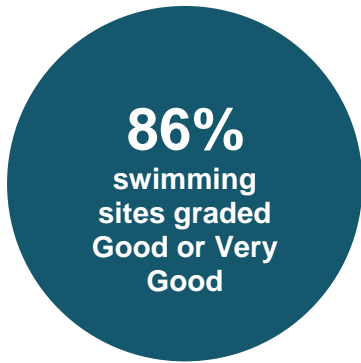
## Dry and wet weather water quality



## Water quality in response to rainfall



# Central Sydney (Bondi to Little Bay & Sydney Harbour)



Beachwatch samples the ocean beaches every sixth day throughout the year, and the estuarine beaches every sixth day between October and April, and monthly from May to September.

## Overall results

Thirty-two of the 37 swimming sites were graded as Very Good or Good in 2018–2019, an improvement in performance from the previous year.

Percentage of sites graded as Very Good or Good:

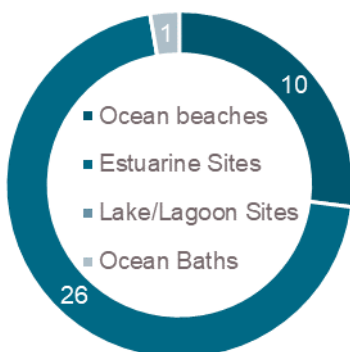
- 2018–2019: 86%
- 2017–2018: 84%
- 2016–2017: 81%
- 2015–2016: 83%.

See the section on **How to read this report** on page 137 for an explanation of the graphs, tables and Beach Suitability Grades.

### Best beaches

Clovelly Beach, Maroubra Beach, Nielsen Park and Camp Cove.

These sites had excellent water quality and were suitable for swimming almost all of the time.



Site types in Central Sydney region

Swimming sites monitored in the Central Sydney region include ocean beaches, an ocean baths, and estuarine areas in Sydney Harbour and lower Parramatta River, with each site type having a different response to rainfall-related impacts.

Estuarine swimming sites did not perform as well as ocean beaches due to lower levels of flushing, which increase the time needed to disperse and dilute pollution inputs, taking longer to recover from stormwater events.

As a general precaution swimming should be avoided during and for at least one day after heavy rain at ocean beaches, and for up to three days at harbour beaches, or if there are signs of stormwater pollution such as discoloured water or floating debris.

## Ocean beaches



**Beach Suitability Grades for Central Sydney ocean beaches**

Nine of the 10 ocean beaches were graded as Very Good or Good.

Clovelly and Maroubra beaches were graded as Very Good in 2018–2019. Maroubra Beach was upgraded from Good in the previous year. Water quality is excellent at these sites and is suitable for swimming almost all of the time.

Bondi, Tamarama, Bronte, Gordons Bay, Coogee, South Maroubra and Little Bay beaches were graded as Good, similar to the previous year. These sites were mostly suitable for swimming during dry weather conditions but recorded elevated enterococci levels following rainfall.

Malabar Beach continued to be graded as Poor, a similar result to the previous four years. Elevated enterococci levels were occasionally measured during dry weather and often following light rainfall. This beach takes longer to recover from stormwater events than surrounding areas. Lower levels of flushing increase the time needed to disperse and dilute pollution inputs, with elevated bacteria levels often recorded up to two days after rainfall.



**Beach Suitability Grades for Central Sydney estuarine beaches**

## Estuarine beaches

Nielsen Park and Camp Cove in Sydney Harbour were graded as Very Good, a similar result to the previous year. These sites have excellent water quality, with few potential sources of faecal contamination and are suitable for swimming almost all of the time. These swimming sites are located closer to the open ocean allowing any pollution inputs to be quickly diluted and dispersed.

Twenty of the 26 estuarine swimming sites in Sydney Harbour were graded as Good: Watsons Bay, Parsley Bay, Murray Rose Pool, Dawn Fraser Pool, Chiswick Baths, Cabarita Beach, Woolwich Baths, Tambourine Bay, Woodford Bay, Greenwich Baths, Hayes St Beach, Clifton Gardens, Balmoral Baths, Edwards Beach, Chinamans Beach, Clontarf Pool, Forty Baskets Pool, Fairlight Beach, Manly Cove and Little Manly Cove. These sites had mostly good water quality, although elevated enterococci levels were recorded following rainfall. Water quality at Hayes Street Beach in Sydney Harbour improved slightly from the previous year and was upgraded to Good from Poor, reflecting a higher number of samples collected in dry weather conditions than in 2017–2018.

Two estuarine swimming sites continued to be graded Fair: Northbridge Baths and Gurney Crescent Baths. These sites have generally good water quality but more significant

sources of microbial contamination including upstream sources in Middle Harbour.

Rose Bay Beach in Port Jackson and Davidson Reserve in the upper reaches of Middle Harbour were graded as Poor in 2018–2019, a similar result to the previous year. While 86% of Rose Bay Beach’s dry weather samples and 92% of Davidson Reserve’s dry weather samples were within the safe swimming limit, elevated bacterial levels were recorded for up to three days after rainfall. These sites have several significant sources of faecal contamination including upstream sources, stormwater and sewage overflows. Pollution inputs take longer to disperse and dilute at these sites as they are in less well flushed areas of the estuary.

Estuarine sites are not as well flushed as ocean beaches, and so can take longer to recover from stormwater events. As a precaution, swimming should be avoided at Sydney Harbour swimming sites during and for up to three days following rainfall or if there are signs of pollution such as discoloured water, flowing stormwater drains or floating debris.



**Beach Suitability Grades for Central Sydney ocean baths**

## Ocean baths

South Maroubra Rockpool was graded as Good in 2018–2019, consistent with previous years. Water quality is mostly suitable for swimming during dry weather conditions, with 90% of dry weather samples within the safe swimming limit. Elevated enterococci levels were often recorded during and for up to one day following rainfall. Swimming should be avoided when the stormwater drain is discharging to the site, or if there are any signs of pollution such as discoloured water or floating debris.



## Management

### Ocean beaches



Patrolled ocean beach  
Photo: Beachwatch/EES,  
DPIE

A **Coastal Management Program (CMP)** outlines a long-term strategy for managing the coast, in line with the *Coastal Management Act 2016*.

The NSW Government provides guidance and funding through the Coastal and Estuary Grants Program for local councils to prepare and implement CMPs.

Under the previous *Coastal Protection Act 1979*, councils developed a **Coastal Zone Management Plan (CZMP)** to address coastal issues. Councils can continue to implement priority actions from certified CZMPs with funding assistance from the NSW Government's Coastal and Estuary Grants Program until 2021.

In 2019, the NSW Government committed \$2.5 million for the diversion of stormwater from Coogee Beach to improve water quality and the marine environment. The NSW Government has provided \$500,000 to Randwick City Council for project planning and detailed design of the preferred option to divert stormwater from Coogee Beach. The intention of the Government is that further payment will be subsequent to negotiation and agreement to the project design by the Coogee Beach Working Group.

Under the NSW Government's Coastal and Estuary Grants Program, funding has been given to Woollahra, Waverley and Randwick City councils to prepare the first stage of the Eastern Sydney Beaches Coastal Management Program (CMP), the scoping study. The development of a CMP will allow the councils to identify coastal hazards (which could include some water quality management actions) and prioritise initiatives to manage these.

#### Waverley Council

Gross pollutant traps (GPTs) have been installed in the Bondi Beach, Bronte Beach, Clovelly Beach, Coogee Beach, Maroubra Beach, Malabar Beach and Little Bay catchments.

The Bronte Stormwater Harvesting Scheme collects and treats stormwater which is then re-used for toilets, park irrigation and ocean pool cleaning. The scheme saves over 16 million litres of water each year and reduces the volume of stormwater discharged to Bronte Beach.

The Bondi Stormwater Harvesting Scheme commenced in 2012 and supplies approximately 50 million litres of treated stormwater for park irrigation and toilets in Bondi Pavilion and South Bondi. An underground filtration system has also been installed to treat excess stormwater runoff from Campbell Parade, resulting in cleaner water at Bondi Beach.



Bronte Beach  
Photo: Beachwatch/EES,  
DPIE

The Tamarama Stormwater Harvesting Scheme commenced operation in December 2015 supplying treated stormwater for park irrigation and toilets in Tamarama Park. The scheme supplies approximately 14 million litres of water each year and reduces the volume of stormwater discharged to Tamarama Beach. As part of the scheme, a large capacity underground sediment basin has also been installed to prevent sediment and other pollutants from entering the ocean at Tamarama Beach.

Both Bronte and Bondi stormwater schemes were built by Waverley Council with support from the NSW Government's Climate Change Fund.

### **Randwick City Council**

Randwick City Council operates and maintains 13 stormwater harvesting treatment systems with UV filtration across the local government area. These systems treat stormwater by removing suspended solids, bacteria and other organic and inorganic materials before it is used for irrigation in surrounding landscaped and garden areas, saving Randwick City Council approximately 455 megalitres of water (which equates to 187 Olympic sized swimming pools or \$1 million cost savings).

Randwick City Council has completed the design for a new stormwater harvesting system at Maroubra foreshore to improve the water quality at Maroubra Beach and South Maroubra Rockpool. Construction of this harvesting system is anticipated to commence in the 2019–2020 financial year.

Randwick City Council maintains 34 GPTs on stormwater lines leading to the local bays, which are all cleaned regularly. Randwick City Council conducted a GPT audit in 2017 to assess the condition of all GPTs to ensure they are working efficiently and propose rectification work where required. In the last year, approximately 230 tonnes of material was removed from these GPTs. There is also a systematic cleaning program for all drainage pits including a regular street sweeping program which assists with reducing stormwater pollution to the local bays. Randwick City Council continues to conduct litter education campaigns throughout the local government area to educate residents on the proper disposal of waste. This program aims to reduce the amount of litter disposed on beaches and entering the ocean. The council also commenced a cigarette butt litter program in April 2018, aiming to reduce cigarette litter at beaches.

Randwick City Council has a strategic program and reactive process to monitor and assess the condition of the stormwater pipes in the local area using CCTV.

The Coogee Beach Stormwater Quality Working Group was established in 2017 to improve water quality at Coogee Beach. The group consists of representatives from the community, Sydney Water, Beachwatch, University of NSW, council staff and the State Member for Coogee. In August 2017, the working group put recommendations to council, which have been adopted and are being implemented. This includes investigating the feasibility of diverting more stormwater from the beach, and the development of a community education and marketing campaign to better inform the local community about stormwater and its impact on local beaches. The campaign aims to empower local residents to take action to reduce stormwater pollution and is planned to be launched for the 2019–2020 summer period.



Coogee Beach  
Photo: Beachwatch/EES,  
DPIE

Council officers undertake their routine inspections and regulatory duties to ensure stormwater pollution is investigated and mitigated to reduce impacts to the water quality of local recreational waterways.

In 2015–2016 the Commonwealth Government installed a leachate control system on the southern boundary of Malabar Headland (which is on the northern side of the Malabar Wastewater Treatment Plant) to address the leachate impacted groundwater that migrates across the site towards Long Bay. The works will mitigate health and safety risks by containing contaminants on the Malabar Headland site and will improve the environmental values on Malabar Beach.

### **Sydney Water**

Sydney Water investigated wet weather sewage overflows in the Coogee Beach catchment and found that silt was accumulating within the Coogee Diversion Sewer (CDS) due to the very low slope of this sewer. As a result, Sydney Water is undertaking more frequent de-silting of the CDS and the grit pits at the northern end of the beach. This work will increase the capacity of the CDS and reduce the occurrence of overflows.

Sydney Water has inspected, cleaned and repaired sewer mains that have a high likelihood of discharging sewage to waterways if they become blocked. When significant tree root intrusion to the public sewer from the private sewer was identified, property owners were requested to remedy the problem.

Waverley and Randwick City councils and Sydney Water have been collaborating since 2015 on a dry weather stormwater monitoring program to identify sewer leaks. Leaks from public sewers are repaired by Sydney Water and leaks from private sewers are addressed by the relevant council.

## Sydney Harbour

In 2019, the NSW Government committed \$150,000 to address the poor recreational water quality at Rose Bay Beach. The NSW Department of Planning, Industry and Environment, in collaboration with the University of Technology, Sydney are undertaking a catchment investigation applying enterococci and genetic marker assay methods for a detailed audit of sources of contamination. The project will identify the sources of microbial contamination (such as humans or animals) and sub-catchments discharging the highest loads of microbial pollutants to the bay. The outcomes of the investigation will assist council in identifying and evaluating management options to improve water quality at Rose Bay.

Under the NSW Government's Coastal and Estuary Grants Program, funding was provided to Sydney Harbour councils to prepare the scoping study for Greater Sydney Harbour Coastal Management Program (CMP). Work is progressing to develop the remainder of the CMP. The program will identify catchment pressures and prioritise management initiatives to manage issues relating to coastal and estuary health. Water quality management actions such as stormwater infrastructure improvements, restoring and maintaining riparian areas and strategic land-use planning will be considered during the process.

The Lane Cove River Coastal Zone Management Plan (CZMP) is implemented by local councils including Lane Cove, Hunters Hill and Willoughby City.

Several Sydney councils implement the Parramatta River Estuary CZMP, including City of Canada Bay, Hunters Hill and Inner West councils. With funding from the NSW Government's Coastal and Estuary Grants Program, a number of actions from the CZMP have been completed, including the installation of a GPT and bush regeneration to improve water quality in Tarban Creek in the Hunters Hill local government area. Further sediment and weed removal work is being undertaken at Tarban Creek to remediate the coastal saltmarsh and mangroves.



Manly Cove  
Photo: Beachwatch/EES,  
DPIE

### **Northern Beaches Council**

Northern Beaches Council proactively inspects and cleans out 242 stormwater quality improvement devices in the local government area. Work is continuing to standardise measurement of gross pollutants and debris and improve data management across the amalgamated council. During 2018–2019, a new GPT was constructed at East Esplanade, Manly to reduce litter, leaf litter and sediment entering North Harbour. Council also replaced six end-of-pipe trash nets

and completed other minor renewal works in the local government area.

Northern Beaches Council maintains a constructed raingarden within East Esplanade Reserve. The raingarden eases localised flooding and removes nutrient loads from stormwater before it enters Manly Cove.

### **Mosman Council**

Mosman Council's Botanic Road Stormwater Re-use Scheme is an underground storage system which captures stormwater and provides UV disinfection, after which it is pumped to Balmoral Oval and Balmoral Reserve for irrigation.



Clifton Gardens  
Photo: Beachwatch/EES,  
DPIE

Mosman Council has installed educational signage at beaches in the area advising not to swim for up to three days after heavy rain due to the potential for pollution from stormwater. Stormwater quality improvement devices are installed at Balmoral Beach, Clifton Gardens, Edwards Beach and Chinamans Beach to capture sediment and floating debris.

Mosman Council implemented the 'There's no such thing as the Dog Poo Fairy' education campaign to raise awareness amongst dog owners of their responsibilities in picking up after their dog, which has led to an increase in responsible behaviour that assists in keeping the beaches and waterways clean. Over the past five years, since program implementation, there has been significantly less dog poo found in reserves and parks. Council also offers residents pooch pouches that tie onto the leash and make dog poo bags easily accessible.

Mosman Council has implemented HarbourCare and HarbourCare teen volunteer programs. The programs help residents and teenagers be actively involved in collecting rubbish along the Mosman foreshore. Data on the rubbish collected is collated and reported back to council. Mosman Council then uses this data to help in the development of education programs.

Mosman Council runs a series of Beach Pop Up stalls and events promoting litter reduction, specially targeting cigarette butts, fishing tackle and outdoor party litter.

### **Willoughby City Council**

Willoughby City Council has signage at Northbridge Baths to advise the community not to swim during and for up to 48 hours after rainfall due to potential stormwater pollution.

The council has a draft water plan that includes the management of GPTs. Council is almost halfway through a four-year schedule of works, repairing and building new GPTs throughout the local government area. Council has increased its cleansing of GPTs and has contractors undertaking regular hand cleaning of creeks.

Willoughby City Council is undertaking water quantity and quality monitoring in Flat Rock Creek to obtain data for a future stormwater harvesting project at Bicentennial Oval. This will complement council's existing stormwater harvesting plant at Artarmon reserve.

### **North Sydney Council**

North Sydney Council's Stormwater Re-use Project continues to harvest, treat and re-use stormwater for the irrigation of sports fields and recreational parks, including St Leonards Park, Cammeray Park, Forsyth Park, Primrose Park and Tunks Park. This saves millions of litres of potable water, improves the quality and reduces the amount of stormwater entering the waterways.

In 2018 North Sydney Council's GPTs and litter baskets intercepted an average of 0.81 tonnes per hectare from reaching the harbour.

North Sydney Council has constructed several raingardens and other water sensitive urban design structures to improve stormwater quality and reduce its velocity to receiving waters. The council undertakes regular catchment water quality monitoring. Council also supports beach, foreshore and water clean-ups, including through HarbourCare volunteers, who are concerned about pollution in Sydney Harbour and its effect on marine and bird life.



Woolwich Baths  
Photo: Beachwatch/EES,  
DPIE

### **Lane Cove Council**

Lane Cove Council maintains a number of GPTs in the catchment to reduce the impact of stormwater to the waterways. In 2018–2019 more than 80 cubic metres of material (over 38 tonnes) was prevented from entering the Lane Cove River. Over 80% of this material was recycled.

With funding from the NSW Government's Coastal and Estuary Grants Program, Lane Cove Council completed stage 2 of the stormwater improvement works at Lane Cove Bushland Park, an action from the Lane Cove CZMP. This work will improve the infrastructure for three drainage lines into Gore Creek, as well as stabilise the creek bed and protect endangered ecological communities in the vicinity.

### **Hunters Hill Council**

Hunters Hill Council maintains 24 stormwater quality improvement devices in the local government area.

### **City of Canada Bay Council**

The City of Canada Bay maintains over 27 stormwater quality improvement devices which prevent over 150 tonnes of pollutants (sediments, leaves and litter) from reaching the Parramatta River each year. Stormwater harvesting, rainwater re-use and raingardens have been constructed in the Drummoyne Oval precinct to reduce stormwater and pollutant loads reaching Five Dock Bay. The *Our Water for Our Community* stormwater recycling scheme at Cintra Park, completed in October 2015, harvests and re-uses stormwater for irrigation. This reduces the City of Canada Bay's reliance on potable water by 180 million litres each year, and improves the quality and reduces the quantity of runoff into Canada Bay itself.

### **Woollahra Municipal Council**

Woollahra Municipal Council undertakes a range of projects to improve water quality at its harbour beaches. Council is continually upgrading stormwater infrastructure, installing and maintaining GPTs, litter nets, raingardens to remove contaminants from stormwater, porous paving infiltration systems, and stormwater harvesting systems. Street sweeping, beach cleaning, riparian vegetation and terrestrial bushland regeneration activities continue to contribute to improved stormwater quality at Woollahra's beaches.



Camp Cove  
Photo: Beachwatch/EES,  
DPIE

The Rose Bay Beach Working Party was established in 2017 to address water quality issues at Rose Bay Beach. The working party consists of representatives from the Department of Planning, Industry and Environment, Roads and Maritime Services, council, Sydney Water and the Member for Vaucluse.

Woollahra Council undertakes a range of programs to educate the community about ways they can improve water quality, from picking up dog droppings to undertaking water sensitive urban design. In addition, council has implemented a HarbourCare program, which supports volunteers to undertake clean-ups of beachside areas.

### **Inner West Council**

Inner West Council has collaboratively developed sub-catchment plans, public domain plans and parks plans of management. These strategic plans integrate green

infrastructure (including water sensitive urban design) to minimise impacts to nearby waterways. The council owns and maintains several stormwater quality improvement features including raingardens, constructed wetlands and GPTs to filter and clean stormwater runoff in the catchments before discharging to Parramatta River, Sydney Harbour and the Cooks River.

Inner West Council constructed new raingardens and swales along the Bay Run and at locations within Leichhardt and Balmain between June 2018 and July 2019. This will improve the quality of stormwater entering the Parramatta River.

In 2018 the Blackmore Oval Constructed Wetland and Stormwater Harvesting project was completed. This wetland takes runoff from the City West Link and the adjoining catchment, filters and allows sediments to settle, before discharging the treated water into Hawthorne Canal and beyond to the Parramatta River. The stormwater harvesting system collects base flow from the canal, which is then treated and used to irrigate Blackmore Oval, significantly reducing the potable water demand.



Dawn Fraser Pool  
Photo: Beachwatch/EES,  
DPIE

Inner West Council currently has 26 GPTs across its local government area and is investigating options to improve the ongoing maintenance and management of these to ensure their performance. In addition, council is reviewing the design and viability of four new GPTs in locations across the Parramatta River, for construction in future years.

To support and incentivise the community, Inner West Council provides a rainwater tank rebate, and workshops for rainwater harvesting and water sensitive urban design on your property. The workshops include information on reducing potable water use and rainwater, stormwater and greywater re-use.

### **Parramatta River Catchment Group**

The Parramatta River Catchment Group (PRCG) is comprised of Sydney Water, the NSW Environment Protection Authority, Department of Planning, Industry and Environment and local councils including Blacktown City, Burwood, City of Canada Bay, City of Canterbury Bankstown, Cumberland, Hunters Hill, Inner West, City of Parramatta, City of Ryde, Strathfield and The Hills Shire. The group has produced a 10-step masterplan (10 recommendations) for improving the suitability of the river for swimming and its ecosystem health. The plan includes targets to improve waterway outcomes across the catchment, including stormwater and wastewater.

*Sydney Water*



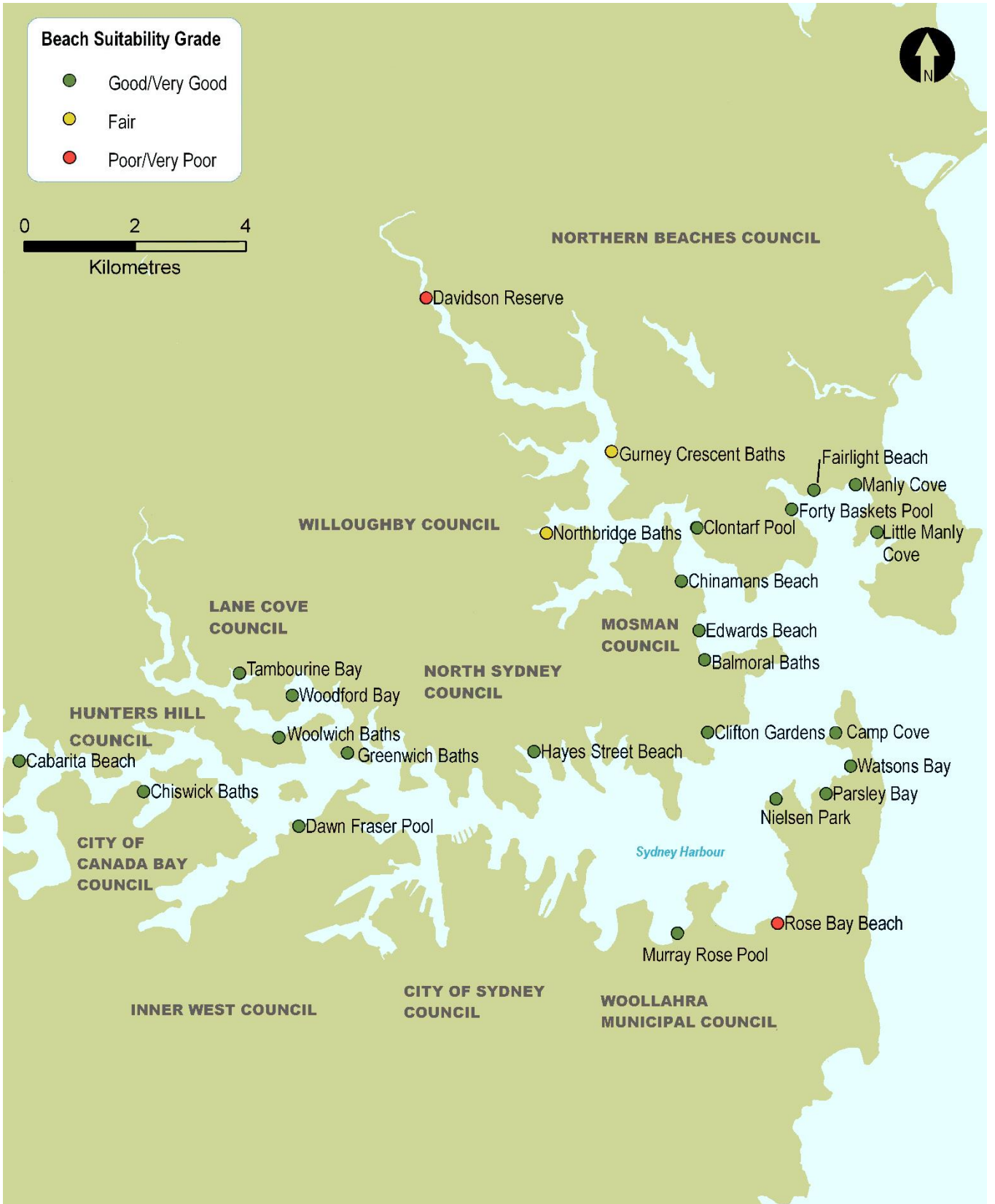
Sydney Water is progressing a project to reduce the occurrence of wastewater overflows discharging to Rose Bay, Port Jackson. This work is an action from the Rose Bay Beach Working Party and will assist with improving the water quality at Rose Bay Beach.

Sydney Water is the lead coordinating agency driving the delivery of Parramatta River Catchments Group's Parramatta River Masterplan.

Sydney Water has inspected, cleaned and repaired sewer mains on the northern and southern side of Port Jackson that have a high likelihood of discharging sewage to waterways if they become blocked. Where significant tree root intrusion to the public sewer from the private sewer was identified, property owners were requested to remedy the problem.



Sampling sites and Beach Suitability Grades at Sydney's central beaches



Sampling sites and Beach Suitability Grades in Sydney Harbour

# Bondi Beach

Beach grade: **G**



Bondi Beach is 800 metres long and backed by a promenade, carpark and parklands, and lifeguards patrol the beach year-round.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

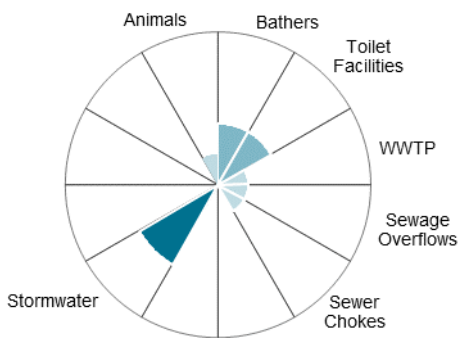
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after light rainfall, and often after 20mm or more of rainfall.

See 'How to read this report' for key to map.

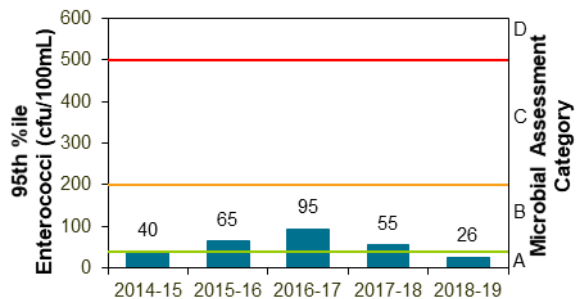
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Aug 2017 to Apr 2019	99%	100	Stable <span style="color: blue;">●</span>

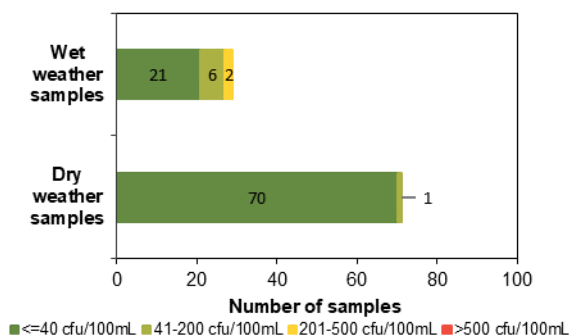
## Sanitary inspection: Moderate



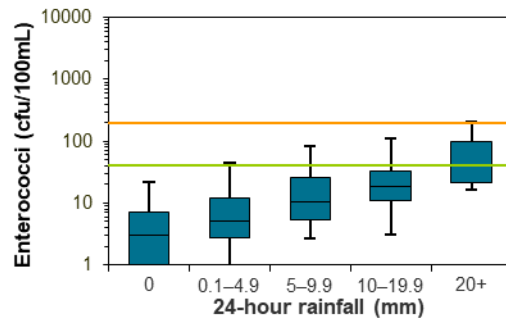
## Microbial Assessment Category: A



## Dry and wet weather water quality



## Water quality in response to rainfall



# Tamarama Beach

Beach grade: **G**



Tamarama Beach is approximately 80 metres long and lifeguards patrol the beach from late September to April.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

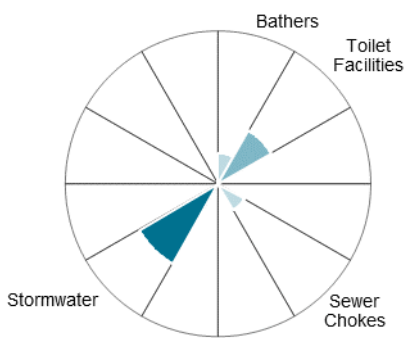
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after light rain, and often in response to 5mm or more of rainfall.

See 'How to read this report' for key to map.

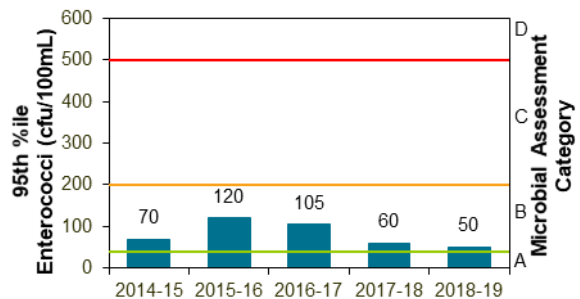
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Sep 2017 to Apr 2019	99%	100	Stable <span style="color: green;">●</span>

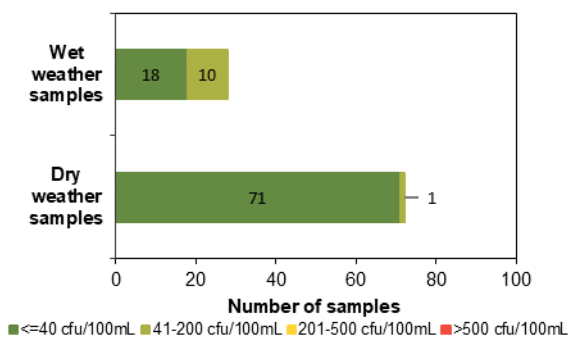
## Sanitary inspection: Moderate



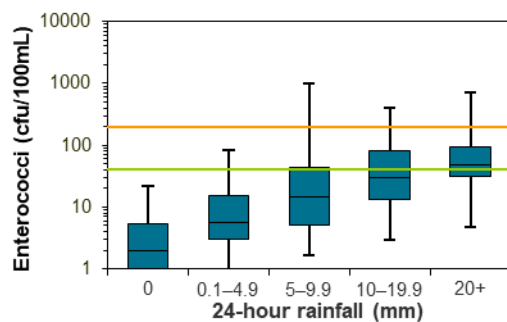
## Microbial Assessment Category: B



## Dry and wet weather water quality



## Water quality in response to rainfall



# Bronte Beach

**Beach grade:** G



Bronte Beach is 250 metres long and backed by a large park and picnic area. Lifeguards patrol the beach from September to May.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

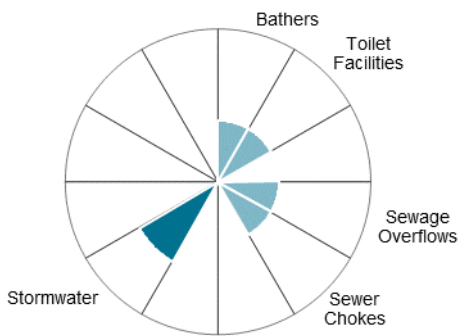
Enterococci levels generally increased with increasing rainfall, occasionally exceeding the safe swimming limit after light rain, and often after 10mm or more of rainfall.

See 'How to read this report' for key to map.

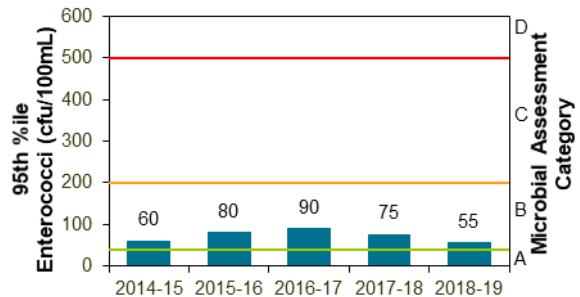
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Sep 2017 to Apr 2019	97%	100	Stable <span style="background-color: #4CAF50; border-radius: 50%; padding: 2px 8px; font-weight: bold;">●</span>

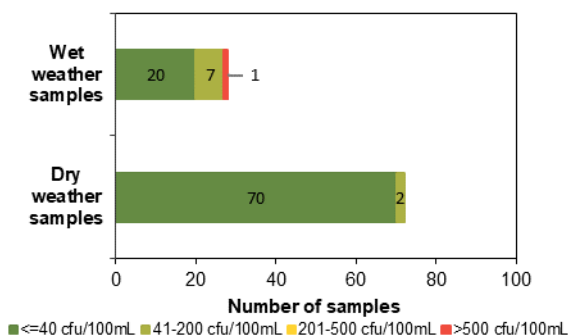
## Sanitary inspection: Moderate



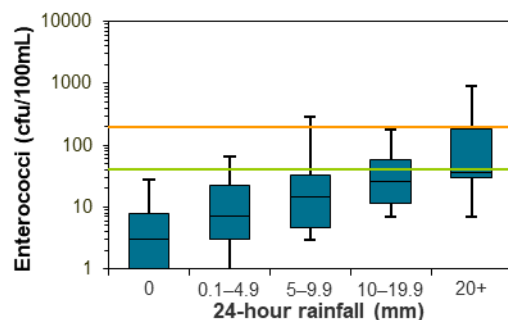
## Microbial Assessment Category: B



## Dry and wet weather water quality



## Water quality in response to rainfall



# Clovelly Beach

Beach grade: **VG**



Clovelly Beach is at the end of a long and narrow bay and is protected from ocean swells, and is patrolled from late September to April.

The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of significant faecal contamination.

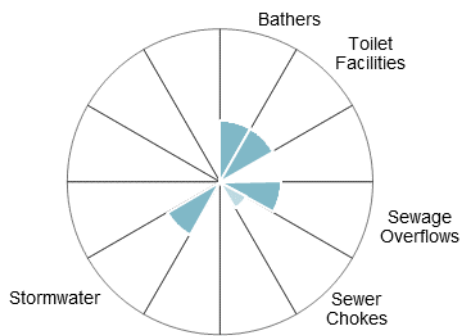
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after 5mm or more of rain, and often after 20mm or more of rainfall.

See 'How to read this report' for key to map.

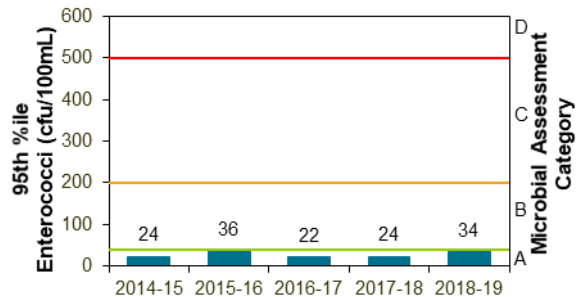
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Aug 2017 to Apr 2019	99%	100	Stable <span style="color: green;">●</span>

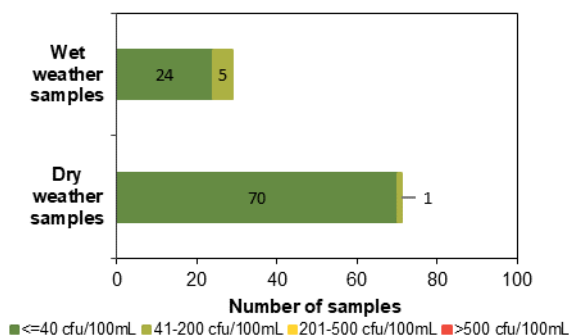
### Sanitary inspection: Low



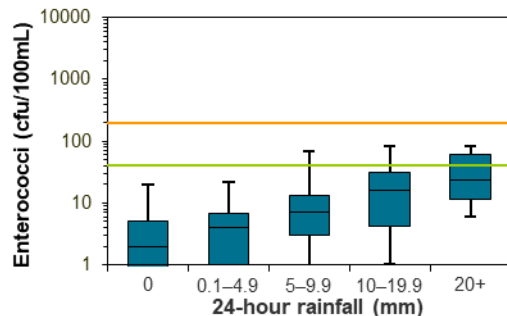
### Microbial Assessment Category: A



### Dry and wet weather water quality



### Water quality in response to rainfall



# Gordons Bay

Beach grade: **G**



Gordons Bay is long and narrow with a small beach located at the end of the bay and is not patrolled by lifeguards.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with potential faecal contamination from stormwater.

Enterococci levels generally increased with increasing rainfall, occasionally exceeding the safe swimming limit after light rain, and often after 20mm or more of rain.

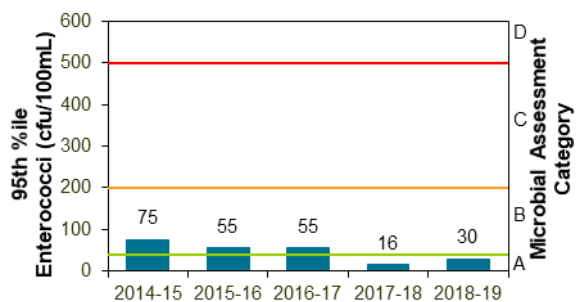
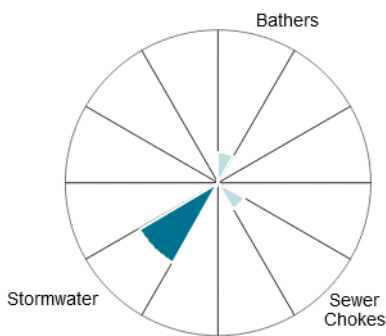
See 'How to read this report' for key to map.

The site has been monitored since 2013.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Sep 2017 to Apr 2019	96%	100	Stable

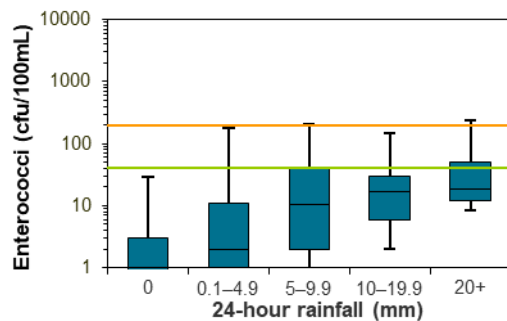
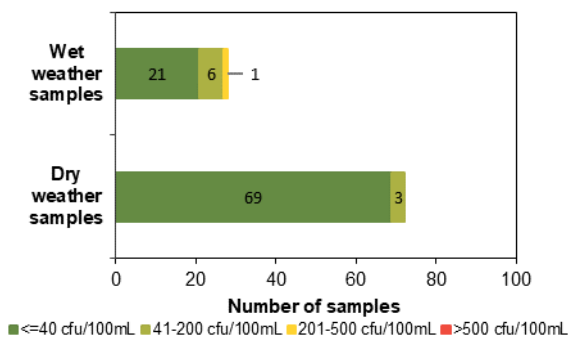
## Sanitary inspection: Moderate

## Microbial Assessment Category: A



## Dry and wet weather water quality

## Water quality in response to rainfall





# Coogee Beach

Beach grade: **G**



Coogee Beach is 400 metres long and is backed by a promenade and parklands and is patrolled by lifeguards all year round.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

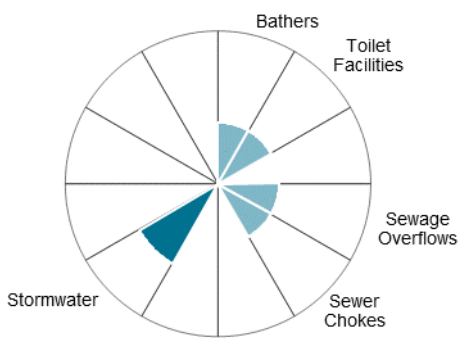
Enterococci levels increased with increasing rainfall, often exceeding the safe swimming limit after 5mm or more of rainfall and regularly after 10mm or more.

See 'How to read this report' for key to map.

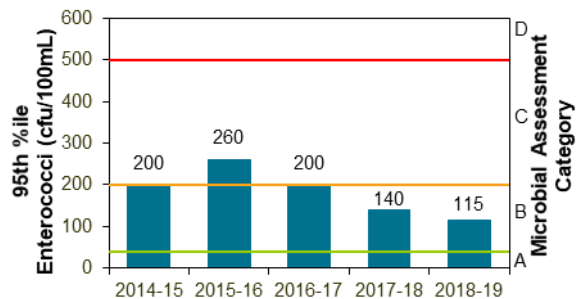
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Sep 2017 to Apr 2019	93%	100	Stable <span style="color: blue;">●</span>

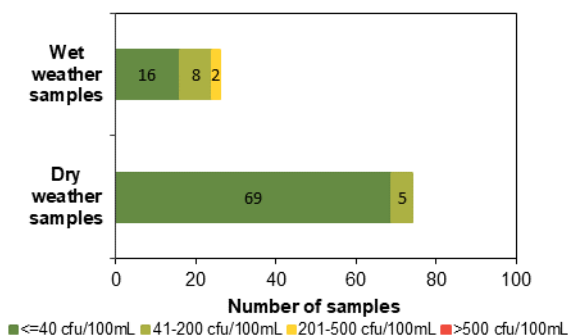
## Sanitary inspection: Moderate



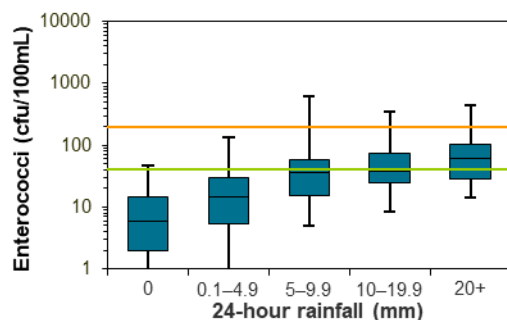
## Microbial Assessment Category: B



## Dry and wet weather water quality



## Water quality in response to rainfall



# Maroubra Beach

Beach grade: **VG**



Maroubra Beach is one kilometre long and lifeguards patrol the beach all year round.

The Beach Suitability Grade of Very Good indicates microbial water quality is suitable for swimming almost all of the time, with several potential sources of minor faecal contamination.

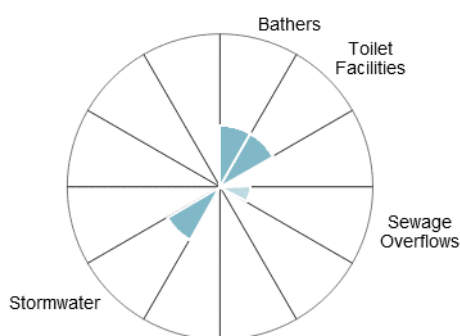
Enterococci levels generally increased with increasing rainfall, occasionally exceeding the safe swimming limit after 10mm or more of rain, and often after 20mm or more of rainfall.

The site has been monitored since 1989.

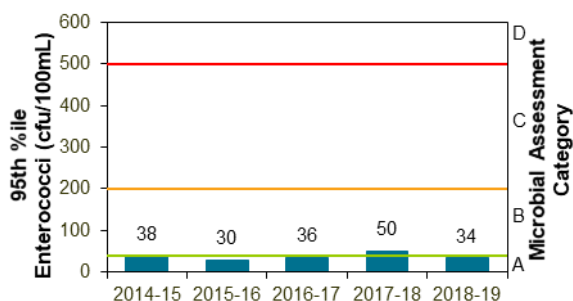
See 'How to read this report' for key to map.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Sep 2017 to Apr 2019	97%	100	Improved

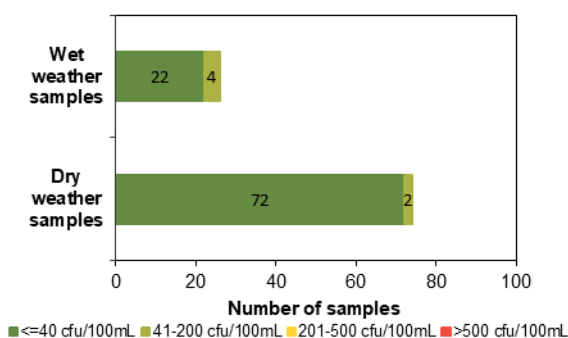
## Sanitary inspection: Low



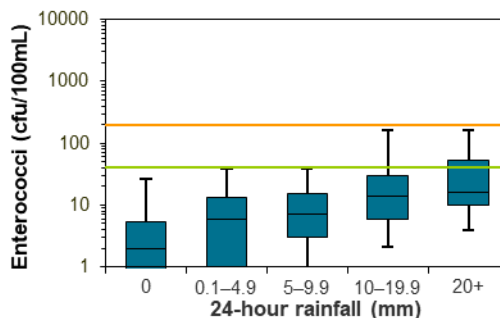
## Microbial Assessment Category: A



## Dry and wet weather water quality



## Water quality in response to rainfall



# South Maroubra Beach

Beach grade: **G**



South Maroubra Beach is located at the southern end of Maroubra Beach and lifeguards patrol the beach all year round.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

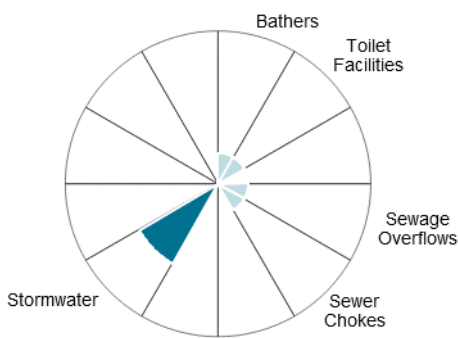
Enterococci levels increased slightly with increasing rainfall, occasionally exceeding the safe swimming limit in response to 5mm or more of rainfall.

See 'How to read this report' for key to map.

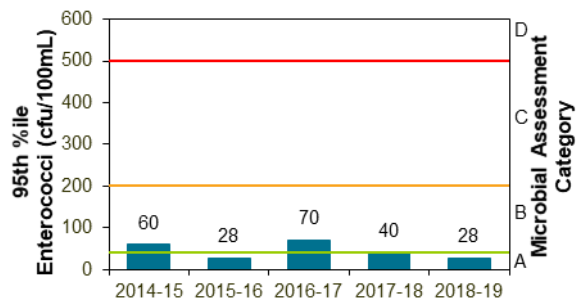
The site has been monitored since 2012.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Sep 2017 to Apr 2019	96%	100	Stable <span style="color: green;">●</span>

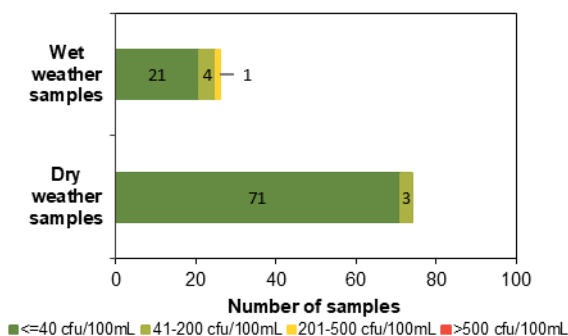
### Sanitary inspection: Moderate



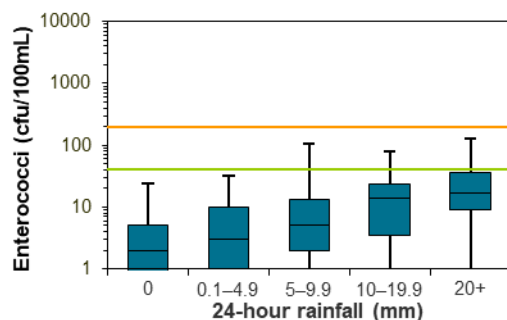
### Microbial Assessment Category: A



### Dry and wet weather water quality



### Water quality in response to rainfall



# South Maroubra Rockpool

Beach grade:



South Maroubra Rockpool is located at the southern end of Maroubra Beach and is not patrolled. During very low tides, the rockpool may be empty.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

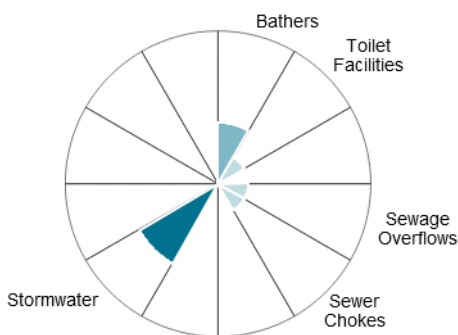
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after little or no rain, and often after 5mm or more of rain.

See 'How to read this report' for key to map.

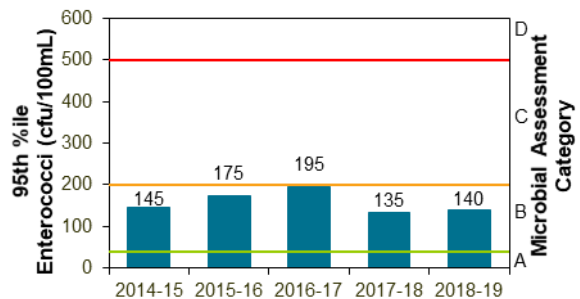
The site has been monitored since 2012.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean baths	Sep 2017 to Apr 2019	90%	100	Stable

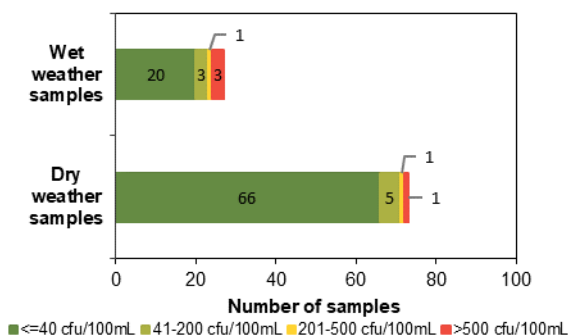
## Sanitary inspection: Moderate



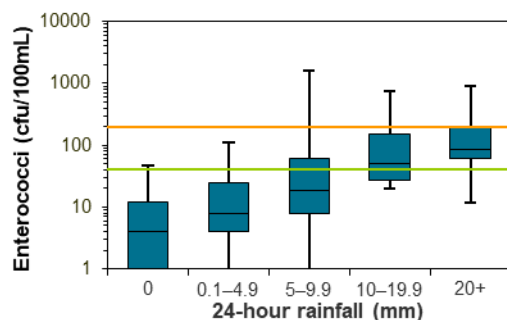
## Microbial Assessment Category: B



## Dry and wet weather water quality

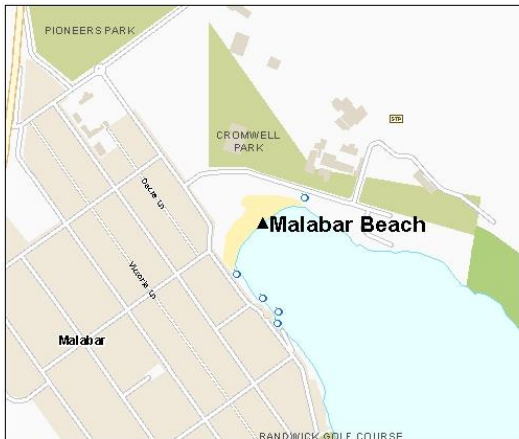


## Water quality in response to rainfall



# Malabar Beach

**Beach grade:** P



Malabar Beach is 150 metres long and located at the end of a long, narrow bay and is not patrolled by lifeguards.

The Beach Suitability Grade of Poor indicates microbial water quality is susceptible to faecal pollution, particularly after rainfall and occasionally during dry weather conditions, with several potential sources of faecal contamination including stormwater.

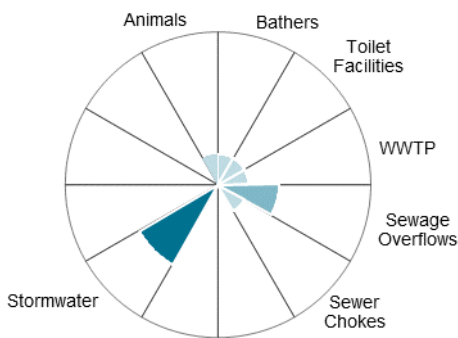
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after no rain and often after light rainfall.

See 'How to read this report' for key to map.

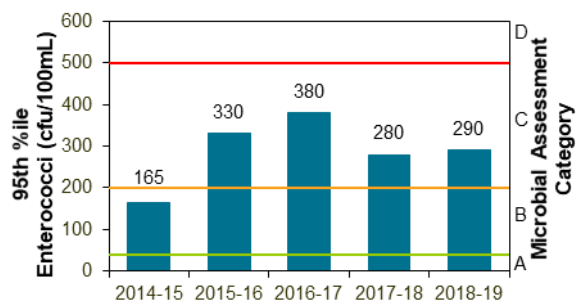
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Sep 2017 to Apr 2019	76%	100	Stable <span style="color: blue; font-weight: bold;">●</span>

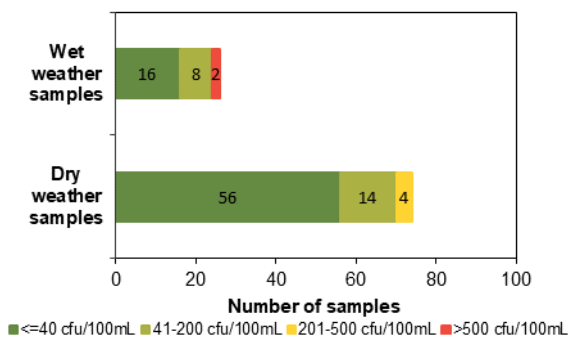
## Sanitary inspection: Moderate



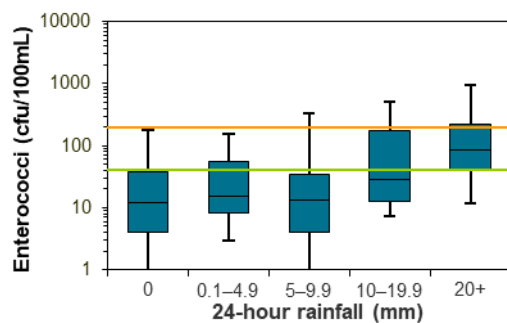
## Microbial Assessment Category: C



## Dry and wet weather water quality



## Water quality in response to rainfall



# Little Bay Beach

Beach grade: **G**



Little Bay Beach is a small, crescent-shaped beach bounded by rocky headlands to the north and south and is not patrolled.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but can be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

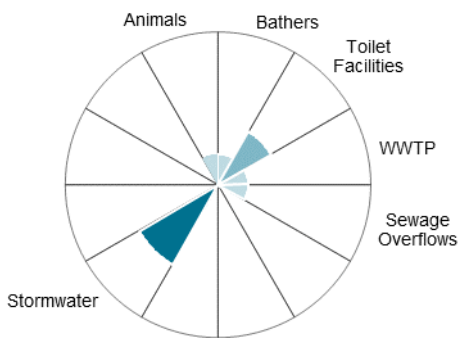
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after little or no rain, and often after 10mm or more of rain.

See 'How to read this report' for key to map.

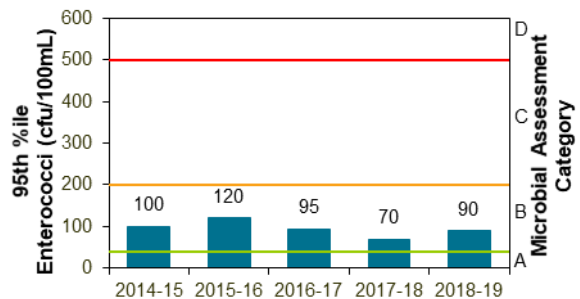
The site was monitored from 1989 until 1995, and since 2006.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Sep 2017 to Apr 2019	88%	100	Stable <span style="color: blue;">●</span>

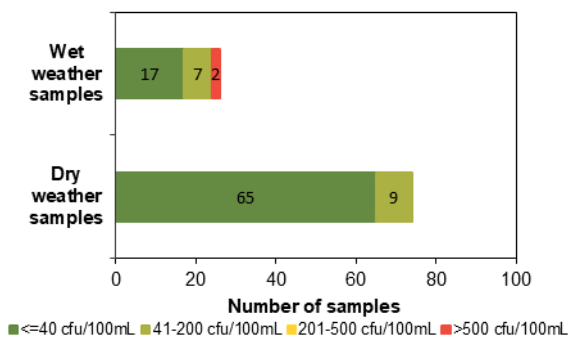
### Sanitary inspection: Moderate



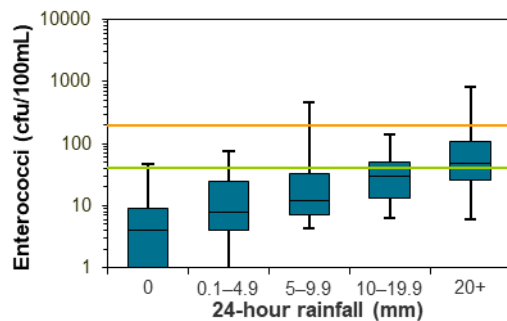
### Microbial Assessment Category: B



### Dry and wet weather water quality



### Water quality in response to rainfall



# Camp Cove

Beach grade: **VG**



The Camp Cove swimming area is not netted and is backed by a narrow stretch of beach. Lifeguards patrol this swimming site during the summer period.

The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of faecal contamination.

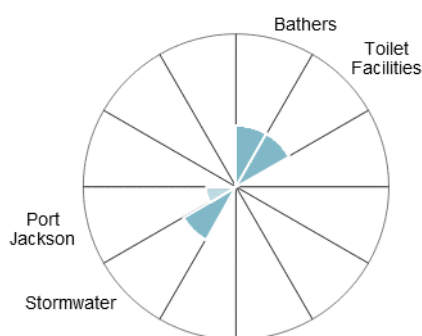
Enterococci levels increased slightly with increasing rainfall, occasionally exceeding the safe swimming limit in response to 5mm or more of rainfall.

The site was monitored since 2015.

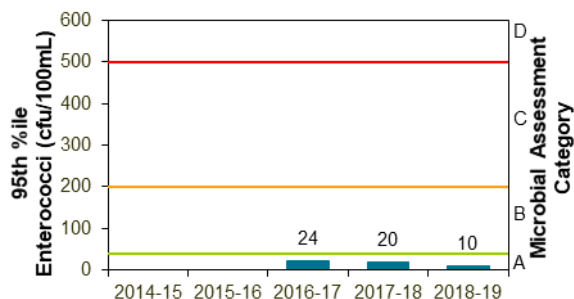
See 'How to read this report' for key to map.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	99%	100	Stable <span style="color: green;">●</span>

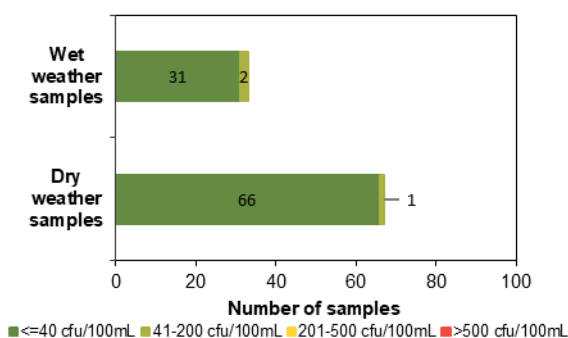
## Sanitary inspection: Low



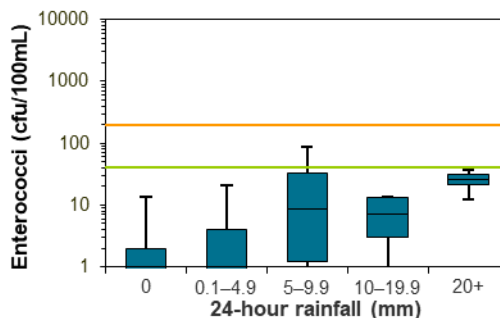
## Microbial Assessment Category: A



## Dry and wet weather water quality

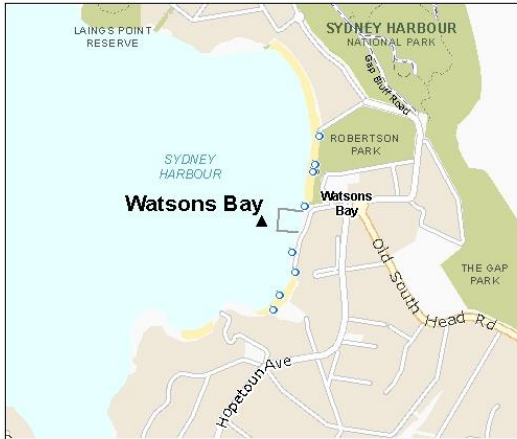


## Water quality in response to rainfall



# Watsons Bay

Beach grade:



The swimming site is a 20 by 40 metre enclosed tidal swimming area with a narrow sandy beach and is backed by parklands with picnic facilities.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but can be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

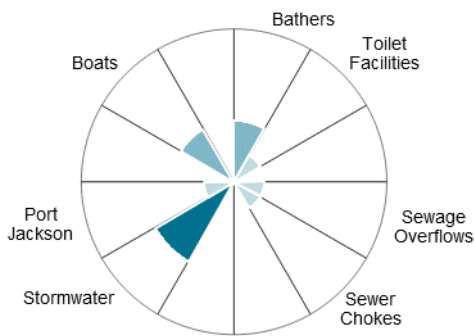
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after light rain, and often after 5mm or more of rain.

See 'How to read this report' for key to map.

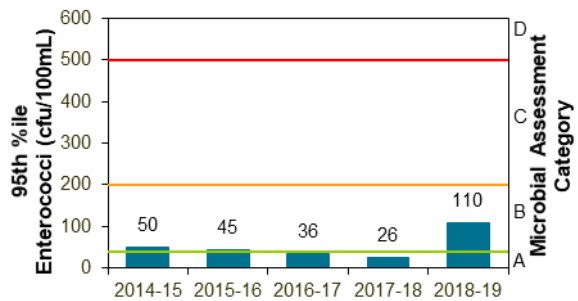
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	97%	100	Stable

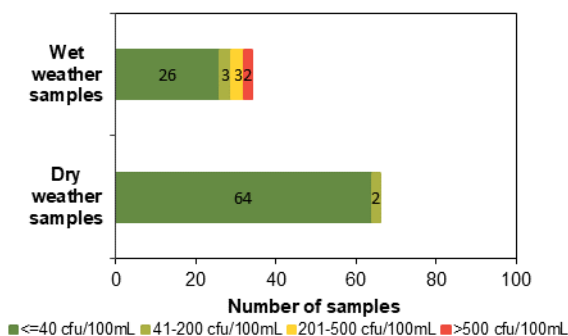
## Sanitary inspection: Moderate



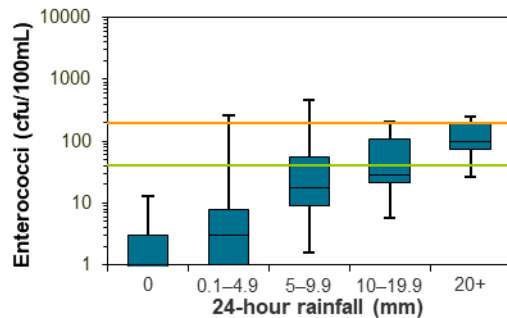
## Microbial Assessment Category: B



## Dry and wet weather water quality



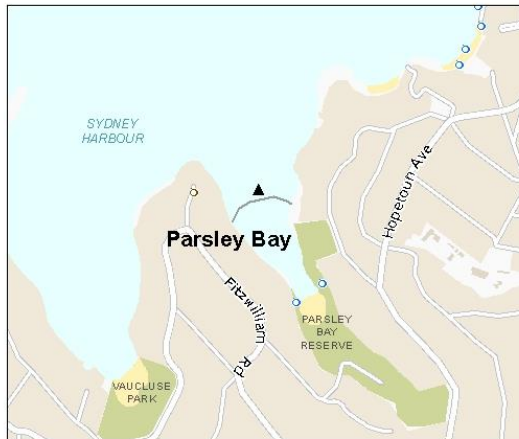
## Water quality in response to rainfall





# Parsley Bay

Beach grade:



The swimming site is a netted swimming area backed by a sandy beach and reserve with picnic facilities and a playground.

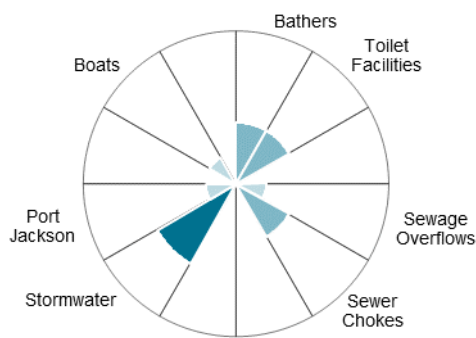
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after light rain and often after 5mm or more of rainfall.

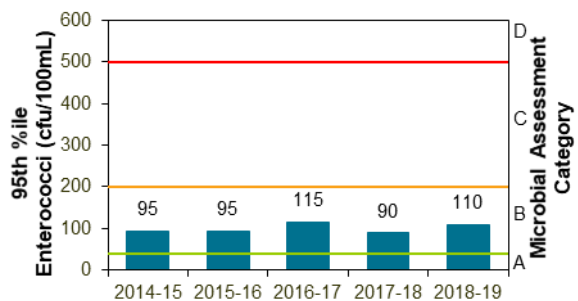
See 'How to read this report' for key to map. The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	95%	100	Stable

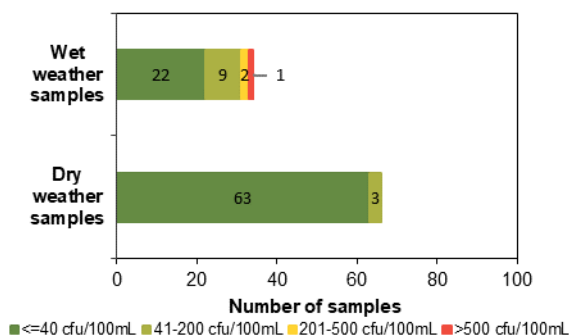
## Sanitary inspection: Moderate



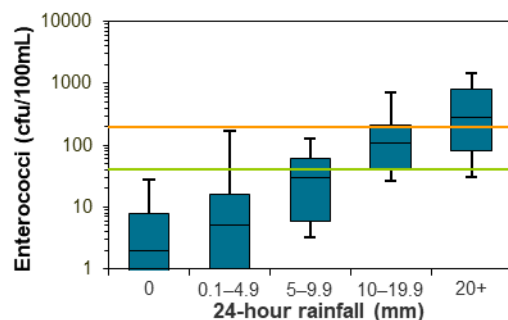
## Microbial Assessment Category: B



## Dry and wet weather water quality

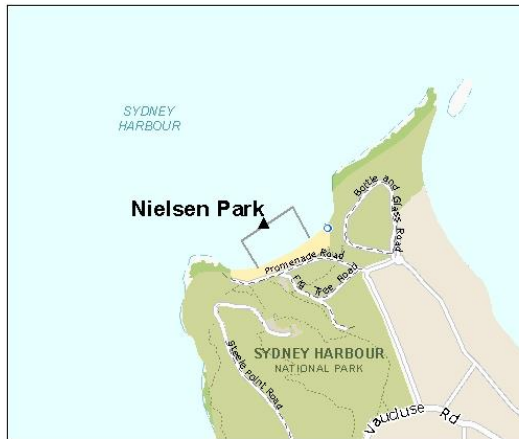


## Water quality in response to rainfall



# Nielsen Park

Beach grade: **VG**



See 'How to read this report' for key to map.

Nielsen Park swimming area is approximately 150 metres long and is netted from October to April. It is backed by a sandy beach and Sydney Harbour National Park.

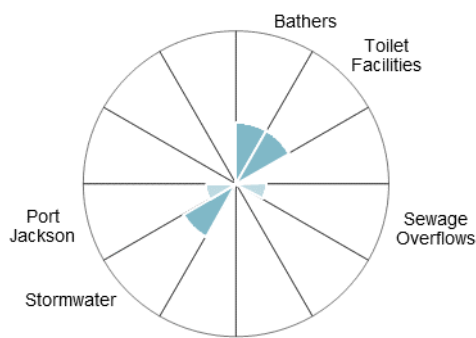
The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with several potential sources of minor faecal contamination.

Enterococci levels increased slightly with increasing rainfall, often exceeding the safe swimming limit after 5mm or more of rain, and regularly after 20mm or more of rainfall.

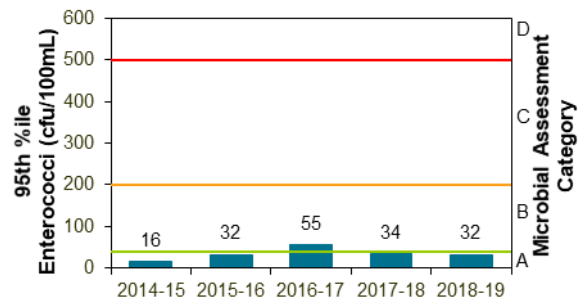
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	98%	100	Stable <span style="color: green;">●</span>

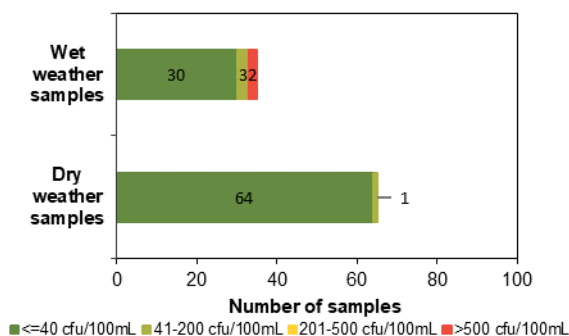
## Sanitary inspection: Low



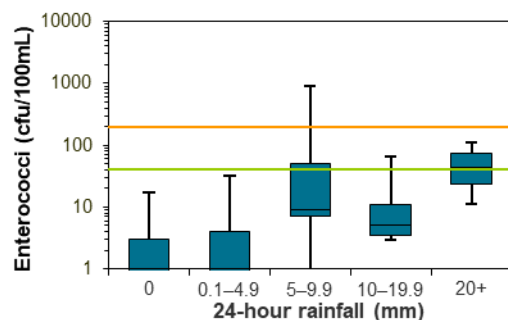
## Microbial Assessment Category: A



## Dry and wet weather water quality

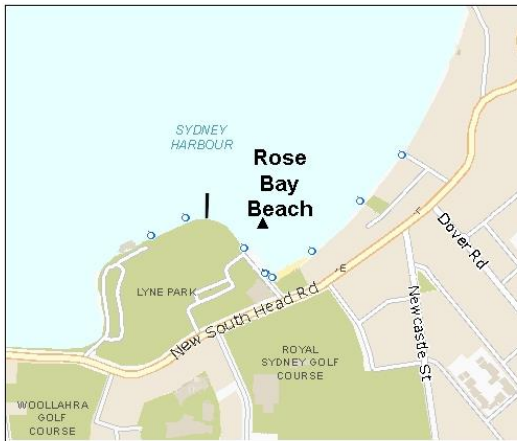


## Water quality in response to rainfall



# Rose Bay Beach

Beach grade: P



Rose Bay Beach is approximately 500 metres long and the swimming area is not netted.

The Beach Suitability Grade of Poor indicates microbial water quality is susceptible to faecal pollution, particularly after rainfall and occasionally during dry weather conditions, with potential faecal contamination from several sources including stormwater and sewer chokes.

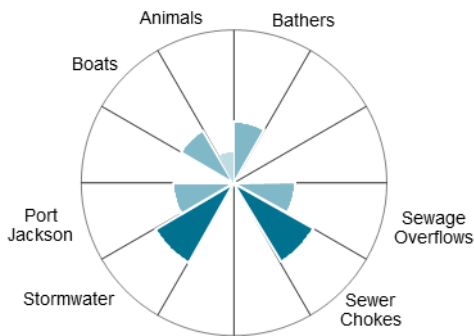
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after little or no rain, and regularly after 5mm or more of rain.

See 'How to read this report' for key to map.

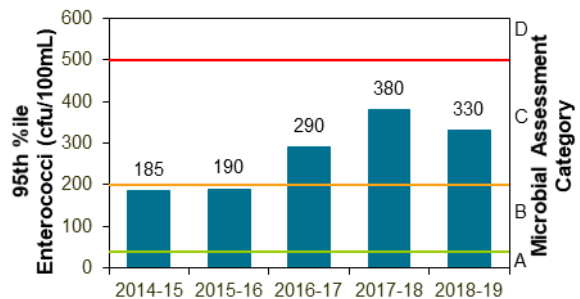
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	86%	100	Stable <span style="background-color: black; color: black;">●</span>

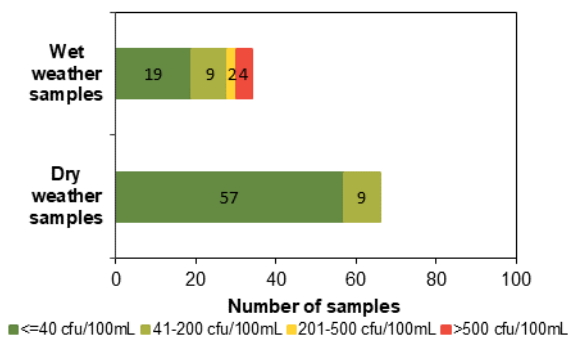
## Sanitary inspection: Moderate



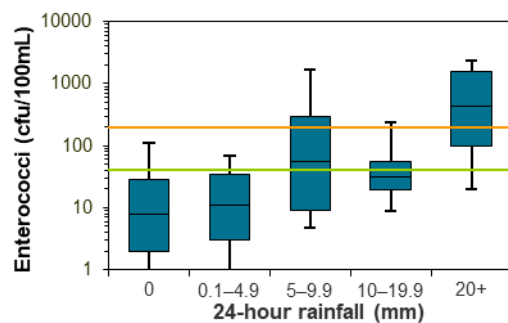
## Microbial Assessment Category: C



## Dry and wet weather water quality

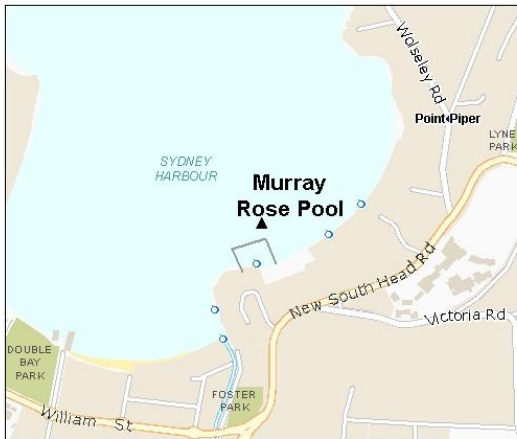


## Water quality in response to rainfall



# Murray Rose Pool

Beach grade:



Murray Rose Pool (formerly Redleaf Pool) is a netted swimming enclosure located in Double Bay, at the end of Seven Shillings Beach.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

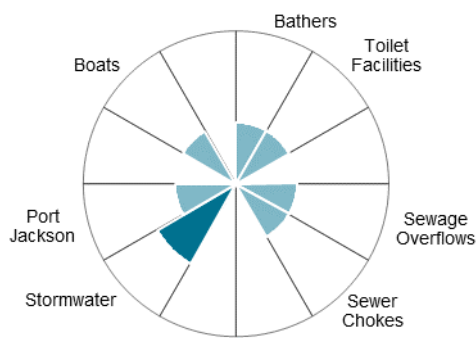
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after light rain, and often after 5mm or more of rainfall.

See 'How to read this report' for key to map.

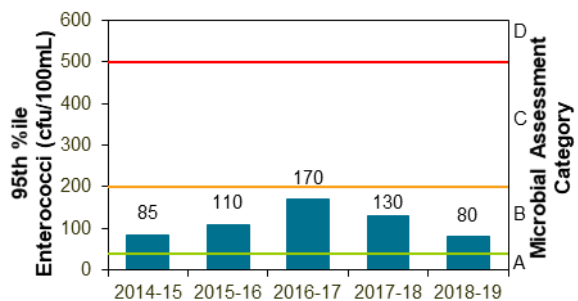
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	95%	100	Stable

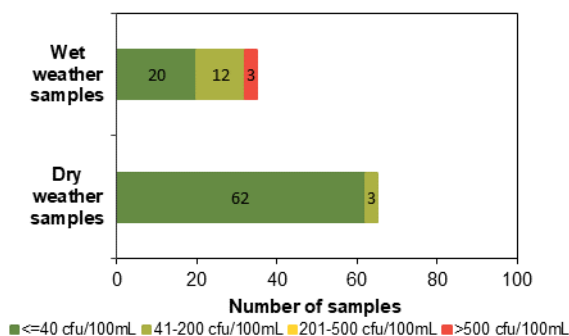
## Sanitary inspection: Moderate



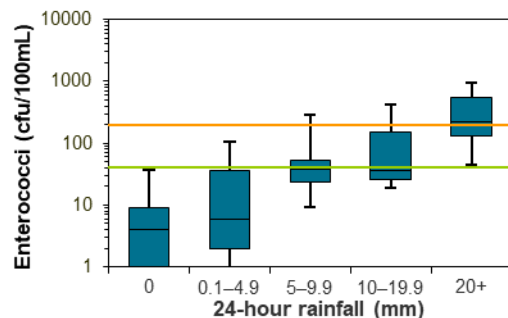
## Microbial Assessment Category: B



## Dry and wet weather water quality



## Water quality in response to rainfall



# Dawn Fraser Pool

Beach grade:



Dawn Fraser Pool is an enclosed swimming area located in the Parramatta River and is open between October and April each year.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including upstream sources in the Parramatta River.

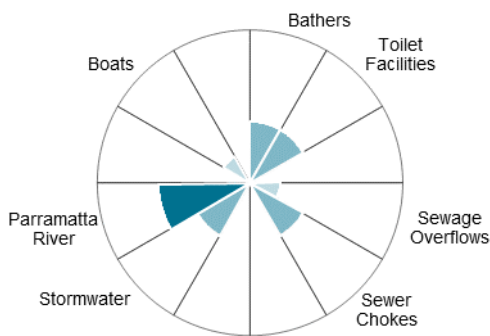
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after light rain and often after 5mm or more of rainfall.

See 'How to read this report' for key to map.

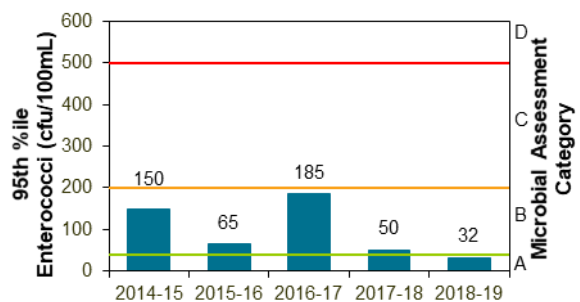
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	97%	100	Stable

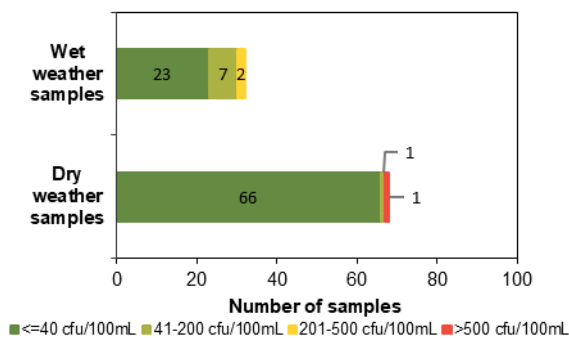
## Sanitary inspection: Moderate



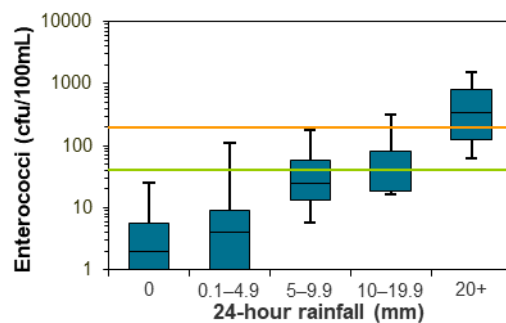
## Microbial Assessment Category: A



## Dry and wet weather water quality

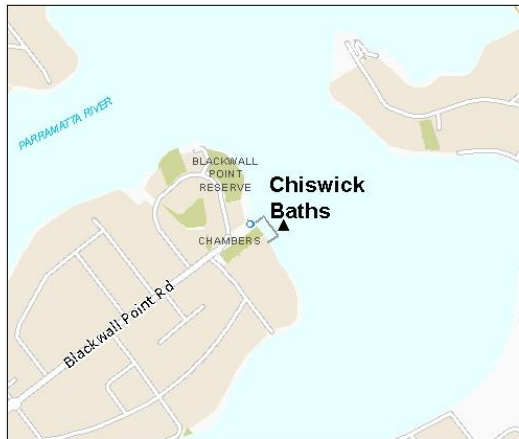


## Water quality in response to rainfall



# Chiswick Baths

Beach grade: G



Chiswick Baths is a netted swimming enclosure in Five Dock Bay and is backed by a narrow sandy beach and a park.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but can be susceptible to pollution after rain, with several potential sources of faecal contamination including upstream sources in the Parramatta River.

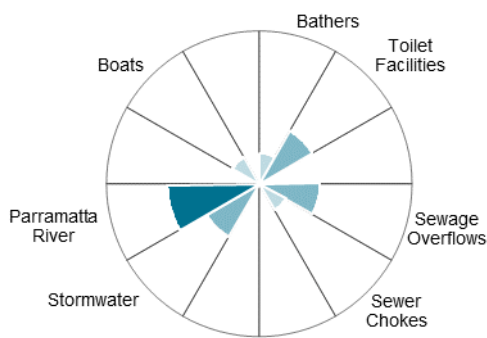
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after little or no rain, and regularly after 10mm or more of rainfall.

See 'How to read this report' for key to map.

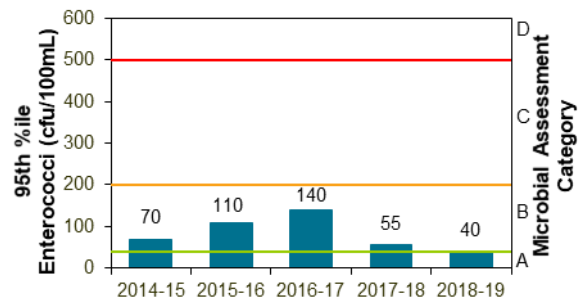
The site has been monitored since 1999.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Nov 2016 to Apr 2019	96%	100	Stable <span style="background-color: #4CAF50; border-radius: 50%; padding: 2px 6px; font-weight: bold;">●</span>

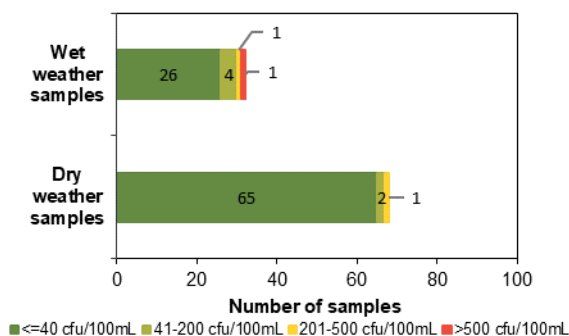
## Sanitary inspection: Moderate



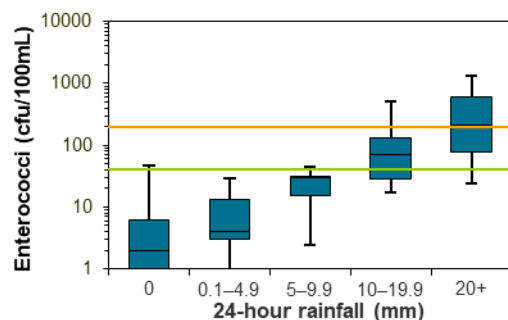
## Microbial Assessment Category: A



## Dry and wet weather water quality



## Water quality in response to rainfall



# Cabarita Beach

Beach grade: **G**



Cabarita Beach is a 120 metre long sandy beach and is backed by parklands.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but can be susceptible to pollution after rain, with potential faecal contamination from sewage overflows and upstream sources in the Parramatta River.

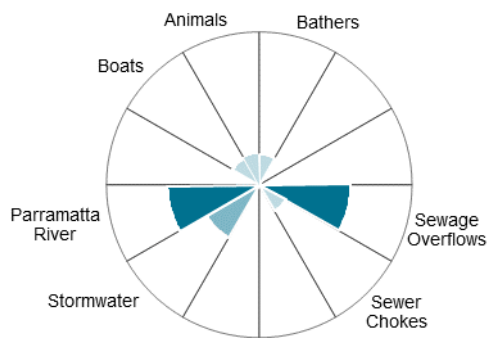
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit in response to 5mm or more of rain, and regularly after 10mm or more of rainfall.

See 'How to read this report' for key to map.

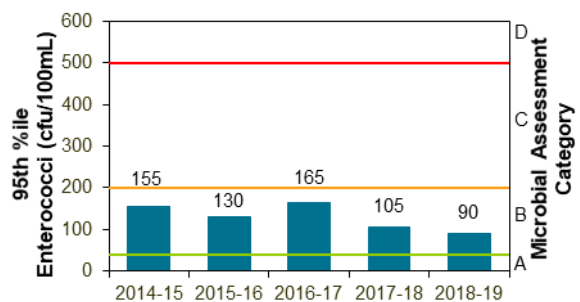
The site has been monitored since 1996.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	97%	100	Stable <span style="color: blue;">●</span>

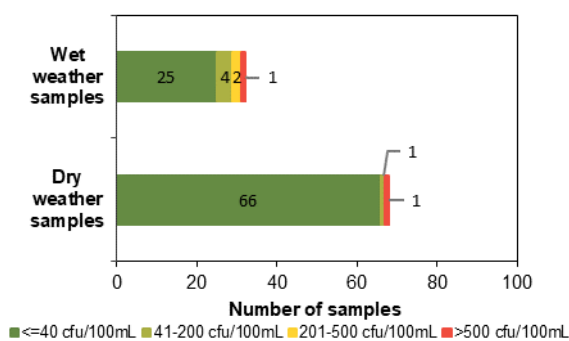
## Sanitary inspection: Moderate



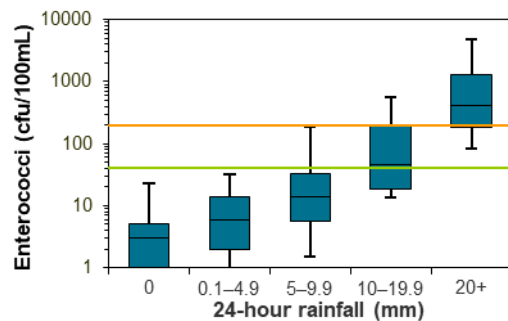
## Microbial Assessment Category: B



## Dry and wet weather water quality



## Water quality in response to rainfall



# Woolwich Baths

Beach grade:



Woolwich Baths is a 20 by 30 metre netted swimming area in the lower Lane Cove River with a narrow sandy beach.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but can be susceptible to pollution after rain, with potential faecal contamination from stormwater and discharge from the Lane Cove River.

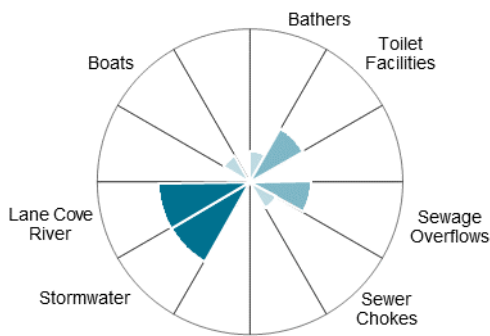
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit with little or no rain, and frequently after 10mm or more of rainfall.

See 'How to read this report' for key to map.

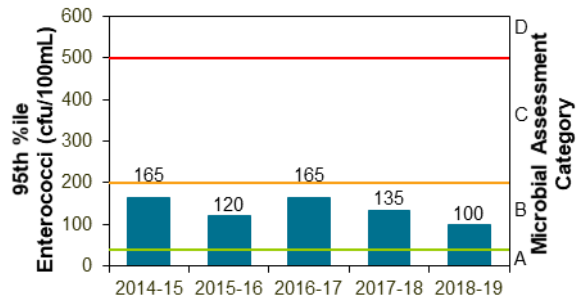
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	96%	100	Stable

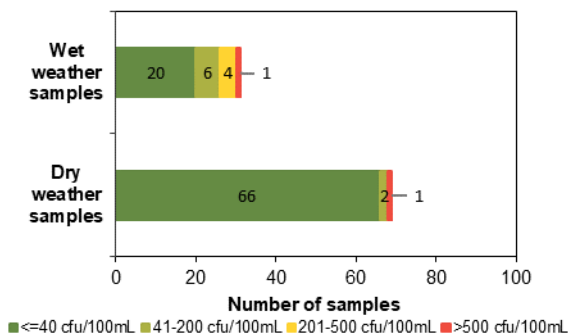
## Sanitary inspection: Moderate



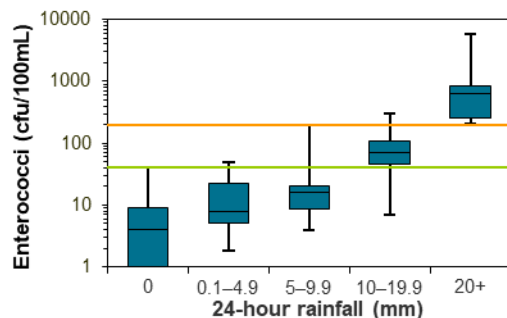
## Microbial Assessment Category: B



## Dry and wet weather water quality



## Water quality in response to rainfall





# Tambourine Bay

Beach grade:



Tambourine Bay is in the lower Lane Cove River. The swimming enclosure has been removed and access to the water is limited.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with potential faecal contamination from stormwater and discharge from the Lane Cove River.

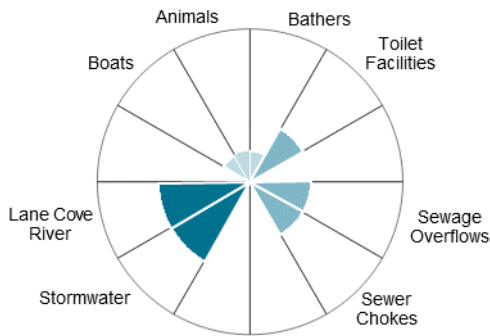
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after little or no rain, and regularly after 5mm or more of rainfall.

See 'How to read this report' for key to map.

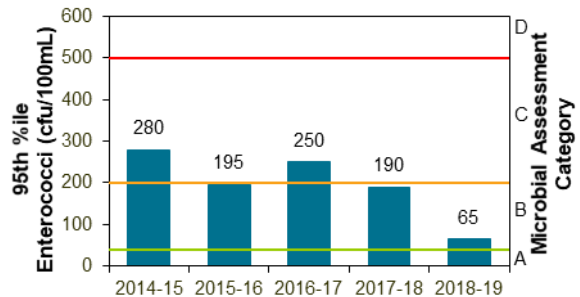
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	94%	100	Stable

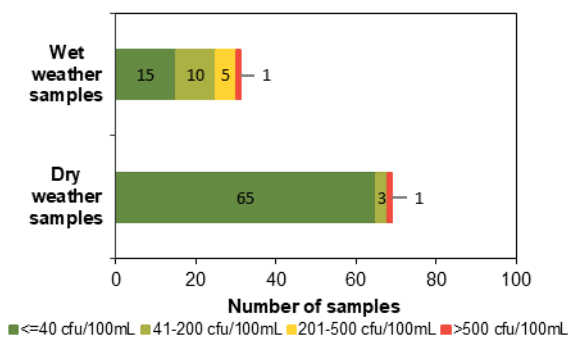
## Sanitary inspection: Moderate



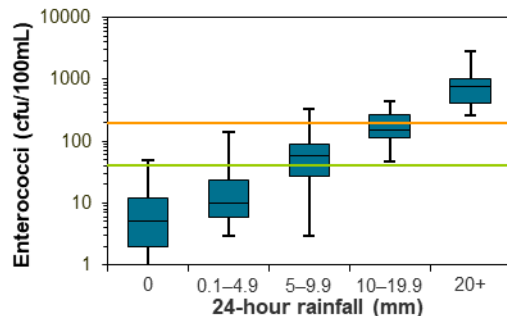
## Microbial Assessment Category: B



## Dry and wet weather water quality

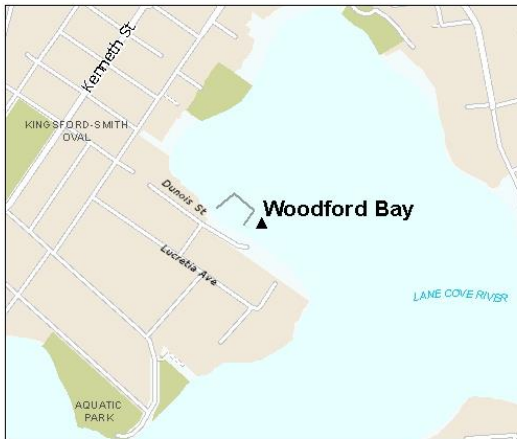


## Water quality in response to rainfall



# Woodford Bay

Beach grade:



This site is a 20 by 25 metre swimming enclosure on the western side of Woodford Bay in the lower Lane Cove River.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including discharge from Lane Cove River.

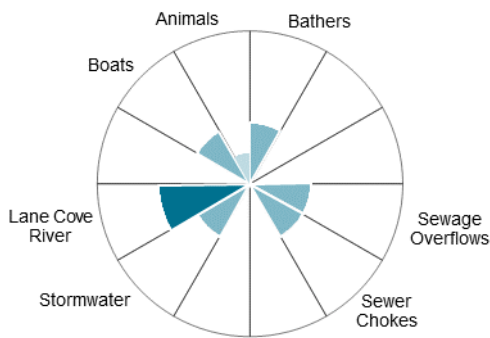
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after little or no rain, and often after 5mm or more of rainfall.

See 'How to read this report' for key to map.

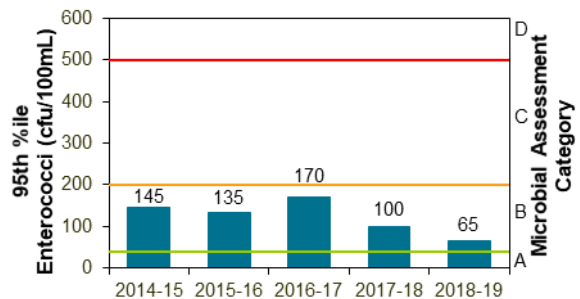
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	96%	100	Stable

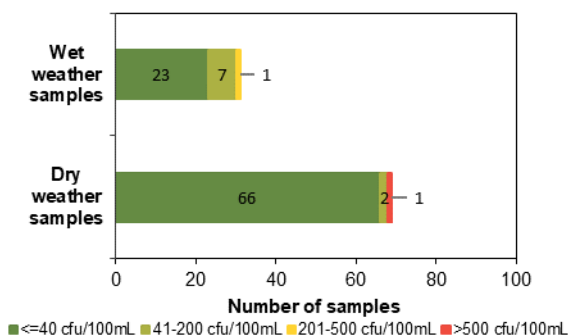
## Sanitary inspection: Moderate



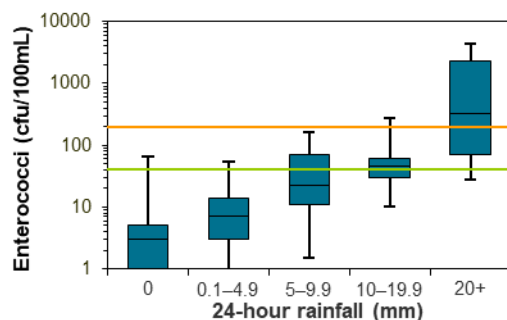
## Microbial Assessment Category: B



## Dry and wet weather water quality

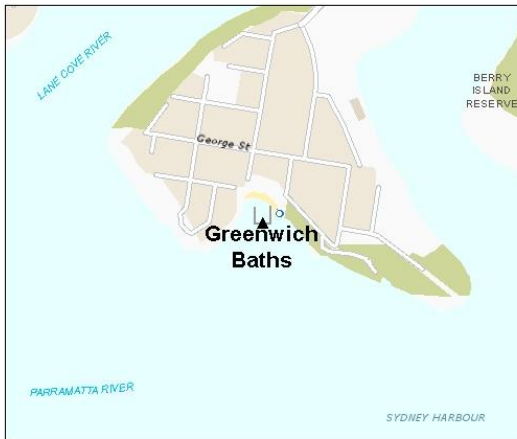


## Water quality in response to rainfall



# Greenwich Baths

Beach grade: G



Greenwich Baths is a 40 metre long netted swimming area backed by a sandy beach and is open during the swimming season.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including discharge from Lane Cove River.

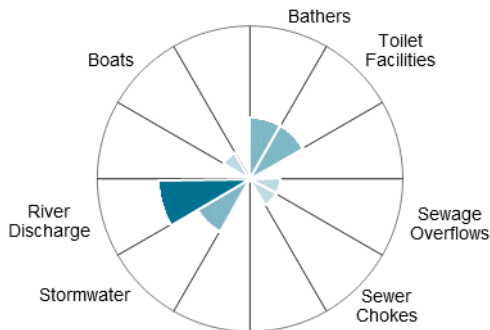
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after light rain, and usually after 20mm or more of rainfall.

See 'How to read this report' for key to map.

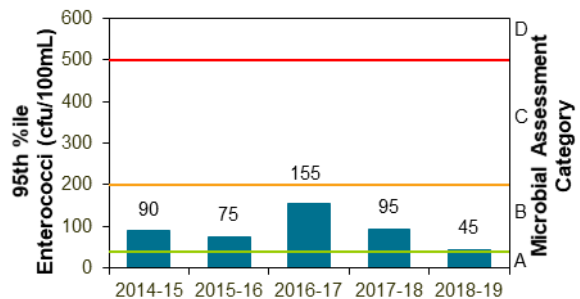
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	96%	100	Stable <span style="background-color: #4CAF50; border-radius: 50%; padding: 2px 6px; font-weight: bold;">●</span>

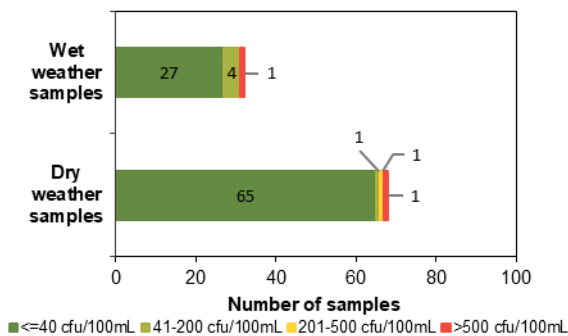
## Sanitary inspection: Moderate



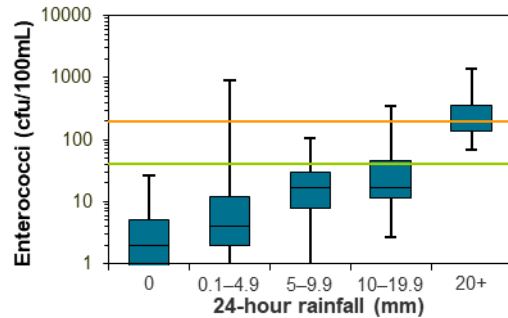
## Microbial Assessment Category: B



## Dry and wet weather water quality

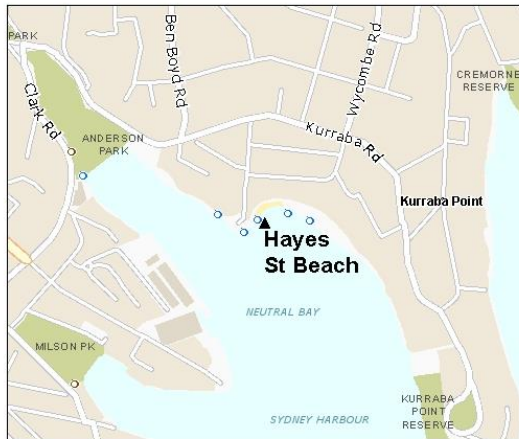


## Water quality in response to rainfall



# Hayes Street Beach

Beach grade: **G**




Hayes Street Beach is approximately 50 metres long and is located adjacent to the Hayes Street Ferry Wharf in Neutral Bay and is not netted.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

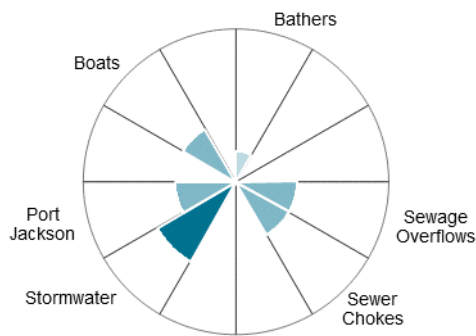
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after little or no rain, and regularly after 5mm or more of rain.

See 'How to read this report' for key to map.

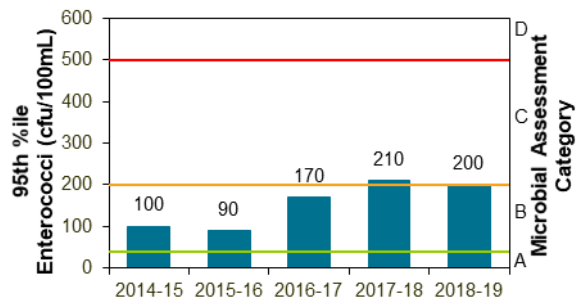
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	92%	100	Improved 

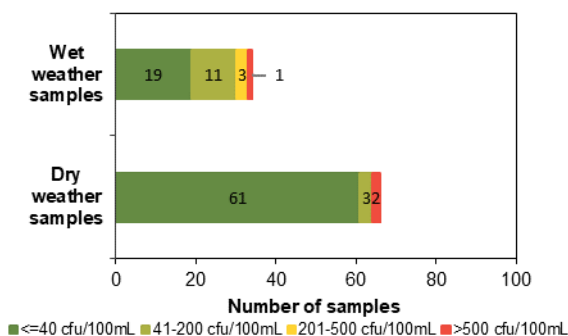
## Sanitary inspection: Moderate



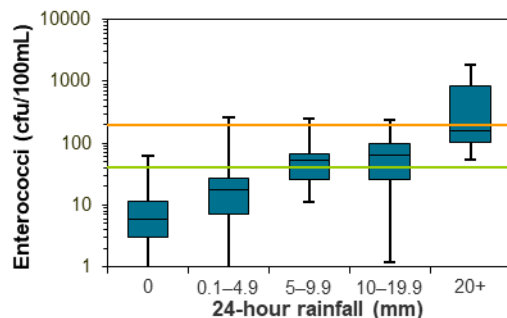
## Microbial Assessment Category: B



## Dry and wet weather water quality



## Water quality in response to rainfall



# Clifton Gardens

Beach grade:



Clifton Gardens is a large netted swimming area at the western end of a 250 metre beach in Chowder Bay and is backed by Sydney Harbour National Park and a park.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of minor faecal contamination.

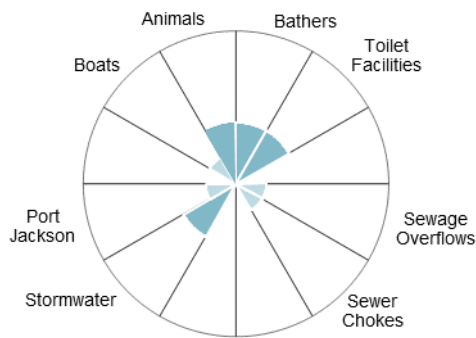
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after 5mm or more of rain, and regularly after 20mm or more of rainfall.

See 'How to read this report' for key to map.

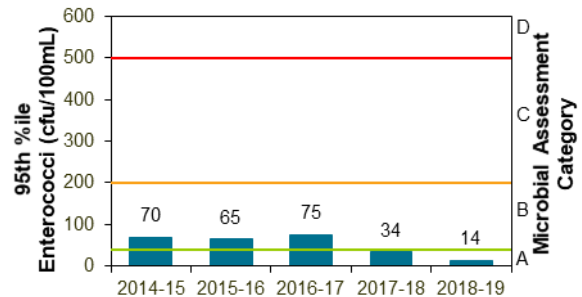
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	98%	100	Stable

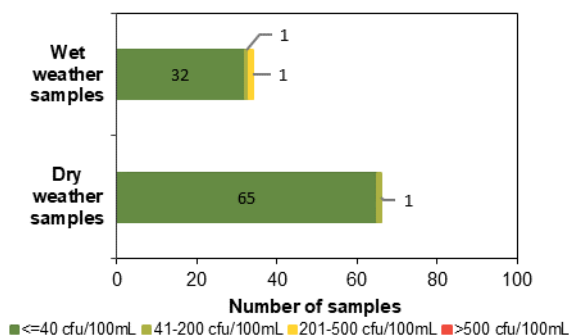
## Sanitary inspection: Moderate



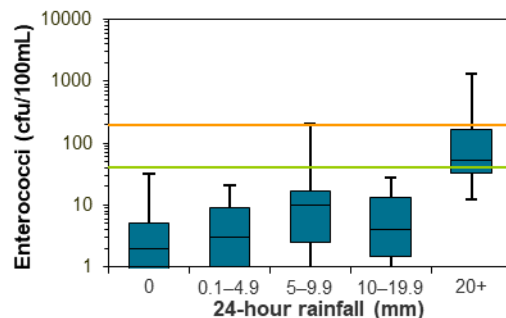
## Microbial Assessment Category: A



## Dry and wet weather water quality

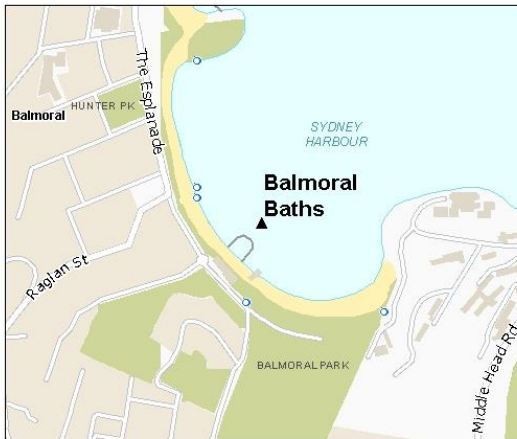


## Water quality in response to rainfall



# Balmoral Baths

Beach grade:



Balmoral Baths is a netted swimming area at the eastern end of Balmoral Beach and is backed by a park.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

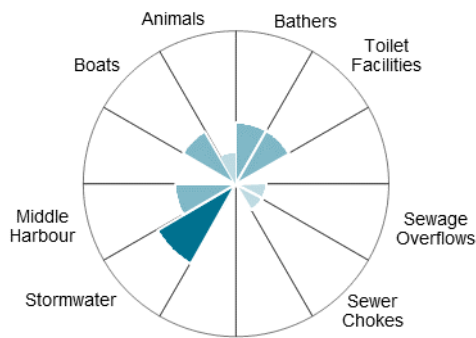
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after light rain and often after 5mm or more of rainfall.

See 'How to read this report' for key to map.

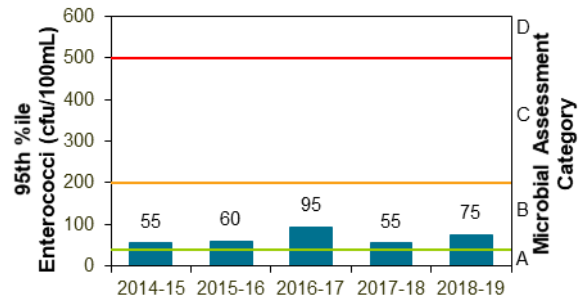
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	97%	100	Stable

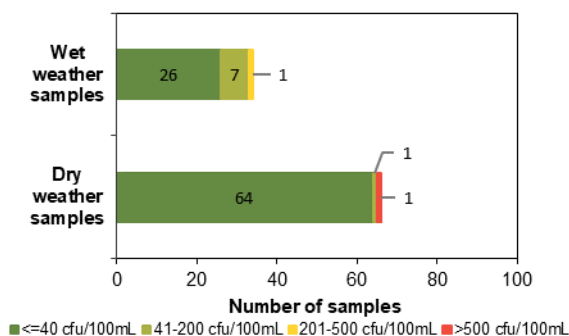
## Sanitary inspection: Moderate



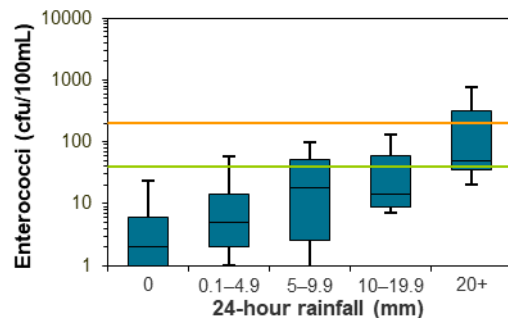
## Microbial Assessment Category: B



## Dry and wet weather water quality



## Water quality in response to rainfall



# Edwards Beach

Beach grade:

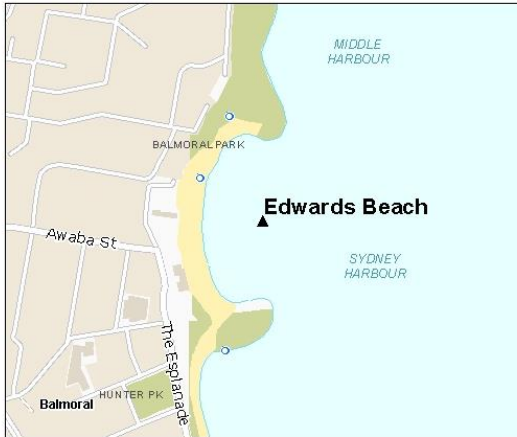


Edwards Beach is a popular swimming area backed by a walking track, park and café facilities.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of minor faecal contamination.

Enterococci levels increased slightly with increasing rainfall, occasionally exceeding the safe swimming limit in response to 10mm or more of rainfall.

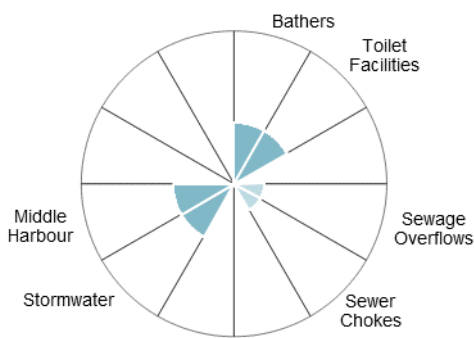
The site has been monitored since 1994.



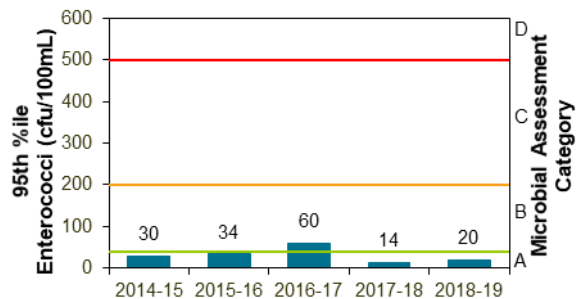
See 'How to read this report' for key to map.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	100%	100	Stable

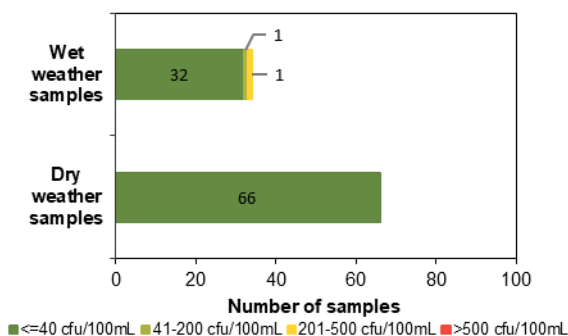
## Sanitary inspection: Moderate



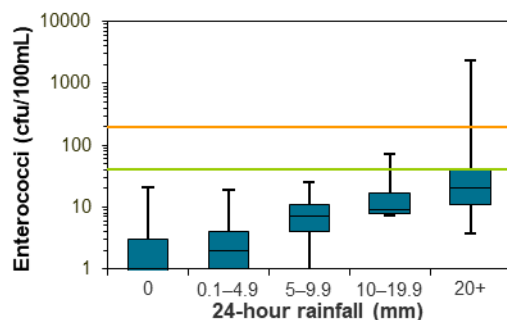
## Microbial Assessment Category: A



## Dry and wet weather water quality

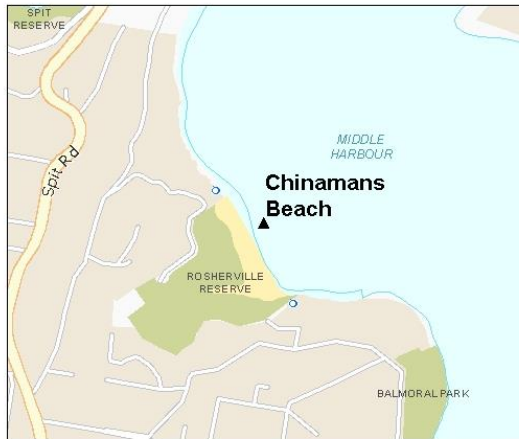


## Water quality in response to rainfall



# Chinamans Beach

Beach grade: **G**



Chinamans Beach is approximately 250 metres long and is a popular swimming area in Middle Harbour. It is backed by Rosherville Reserve.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including discharge from Middle Harbour.

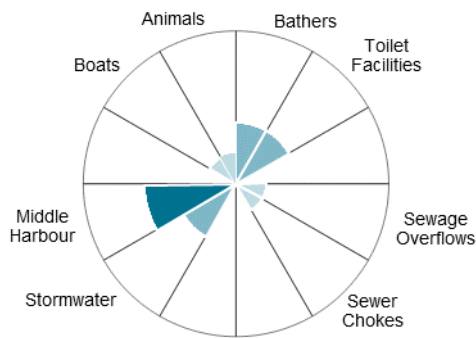
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit in response to 10mm or more of rain, and regularly after 20mm or more of rain.

See 'How to read this report' for key to map.

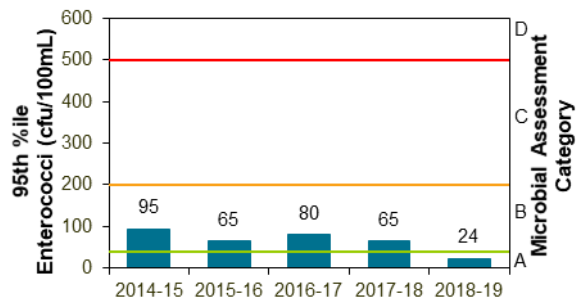
The site has been monitored since 1998.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	98%	100	Stable <span style="color: blue;">●</span>

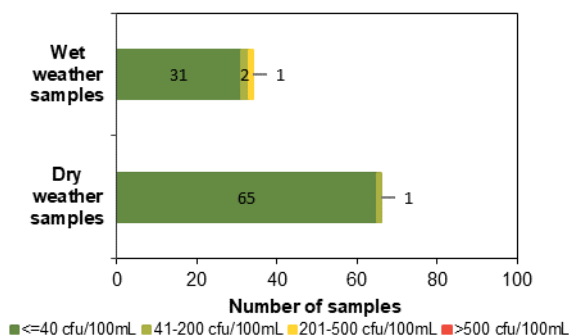
## Sanitary inspection: Moderate



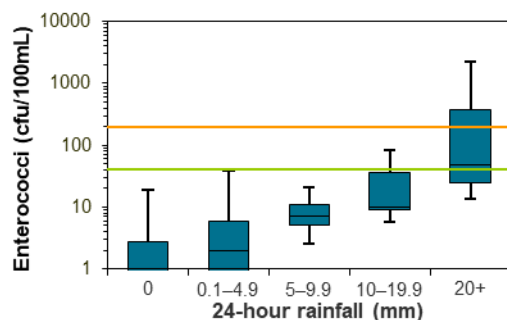
## Microbial Assessment Category: A



## Dry and wet weather water quality



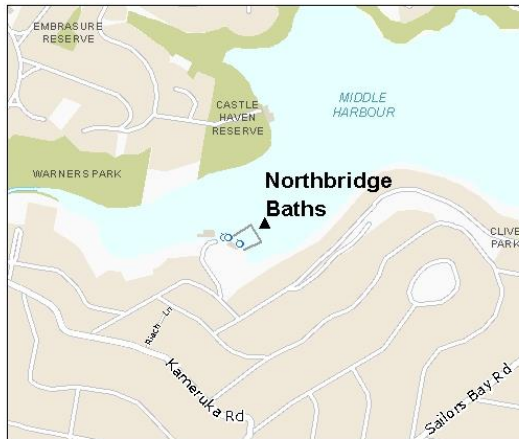
## Water quality in response to rainfall





# Northbridge Baths

Beach grade: **F**



Northbridge Baths is a 30 by 65 metre enclosed swimming area in Sailors Bay, Middle Harbour and is open year-round.

The Beach Suitability Grade of Fair indicates microbial water quality is occasionally susceptible to faecal pollution, usually triggered by rainfall, with several potential sources of faecal contamination including stormwater and upstream sources in Middle Harbour.

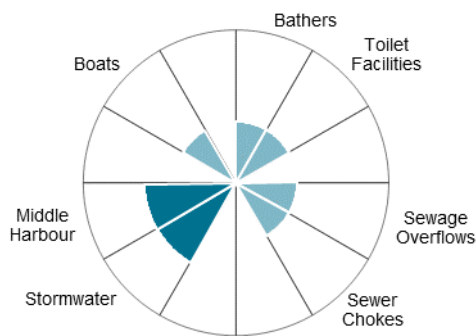
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit in response to light rain, and regularly after 5mm or more of rainfall.

See 'How to read this report' for key to map.

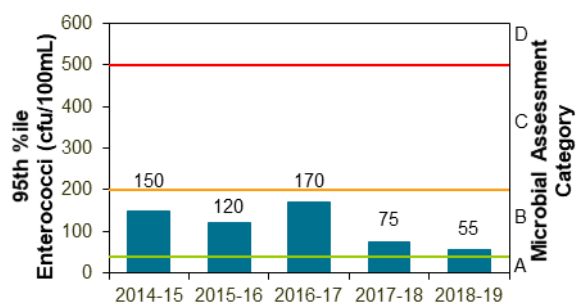
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	98%	100	Stable <span style="color: blue;">●</span>

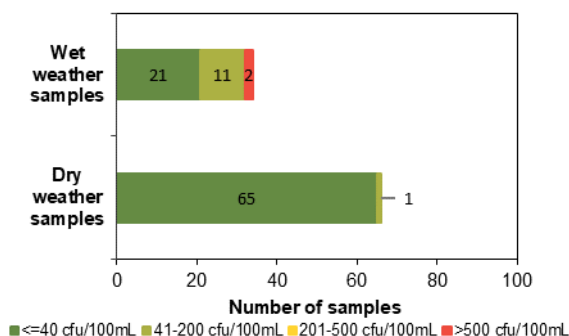
## Sanitary inspection: High



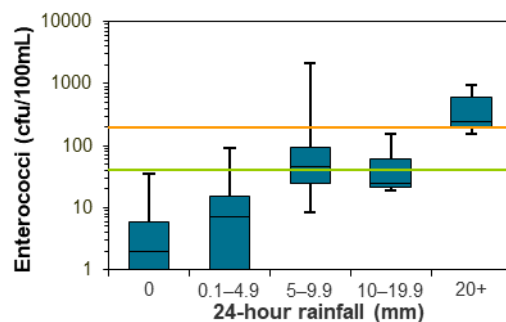
## Microbial Assessment Category: B



## Dry and wet weather water quality

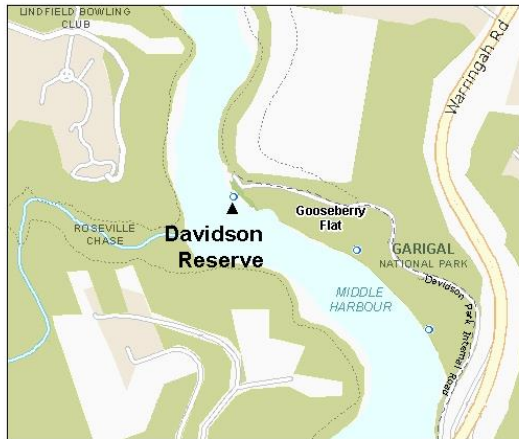


## Water quality in response to rainfall



# Davidson Reserve

Beach grade: P



Davidson Reserve is a 25 metre long swimming area situated in Middle Harbour and is backed by Garigal National Park and picnic area.

The Beach Suitability Grade of Poor indicates microbial water quality is susceptible to faecal pollution, particularly after rainfall and occasionally during dry weather conditions, with several potential sources of faecal contamination including sewage overflows and upstream sources in Middle Harbour.

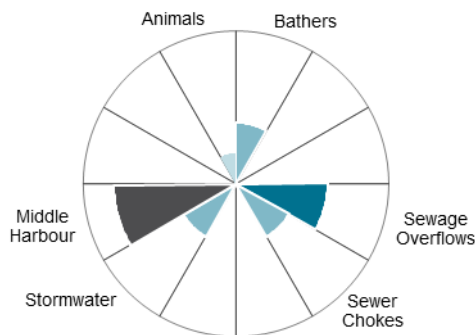
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after no rain and regularly after 5mm or more of rainfall.

The site has been monitored since 1994.

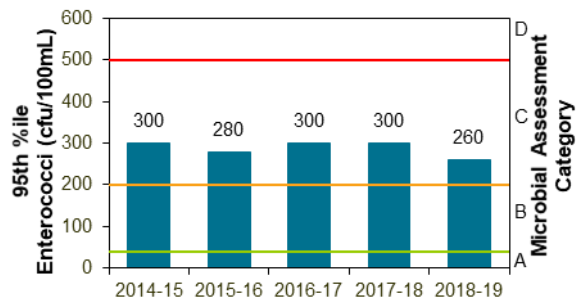
See 'How to read this report' for key to map.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	92%	100	Stable <span style="background-color: black; color: black;">●</span>

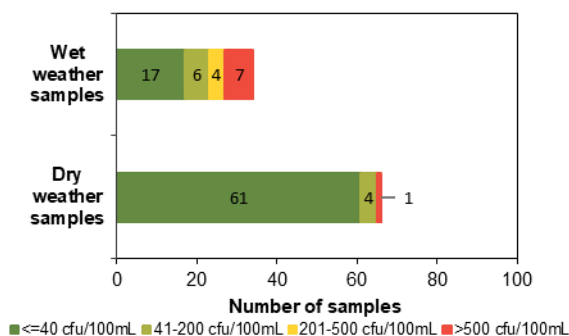
## Sanitary inspection: High



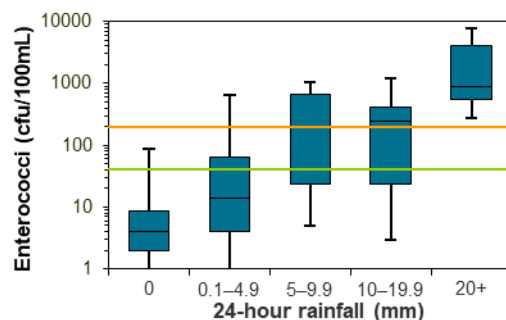
## Microbial Assessment Category: C



## Dry and wet weather water quality



## Water quality in response to rainfall



# Gurney Crescent Baths

Beach grade: **F**



Gurney Crescent Baths is a 20 metre square netted swimming area located at Pickering Point in Middle Harbour.

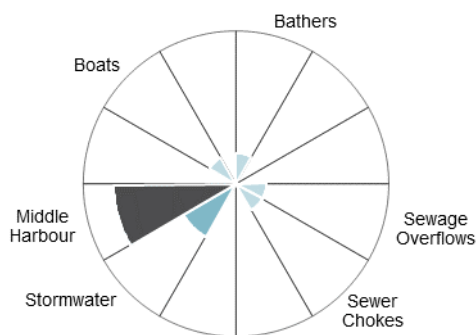
The Beach Suitability Grade of Fair indicates microbial water quality is occasionally susceptible to faecal pollution, usually triggered by rainfall, with several potential sources of faecal contamination including upstream sources in Middle Harbour and stormwater.

Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after light rain, and often after 5mm or more of rainfall.

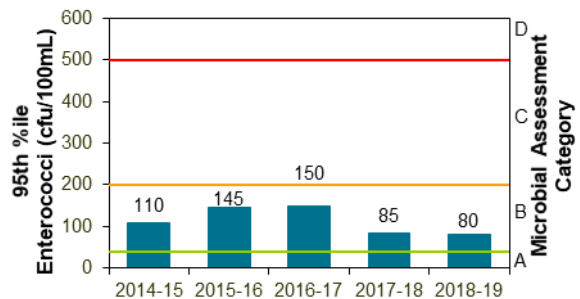
See 'How to read this report' for key to map. The site has been monitored since 1996.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	97%	100	Stable <span style="color: blue;">●</span>

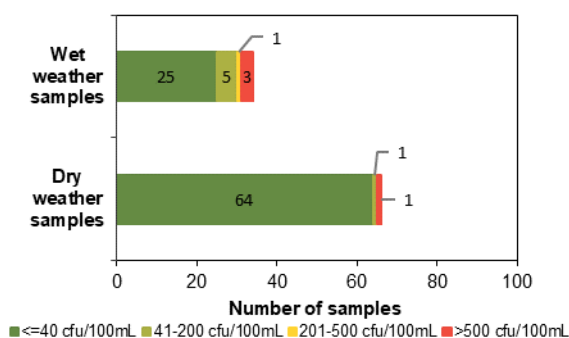
## Sanitary inspection: High



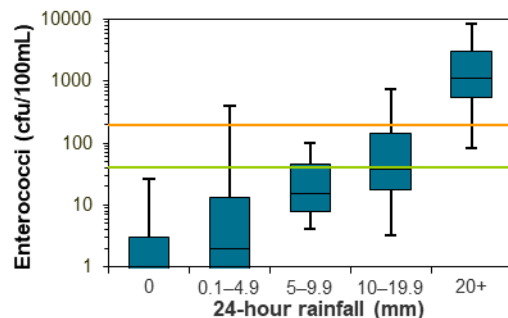
## Microbial Assessment Category: B



## Dry and wet weather water quality

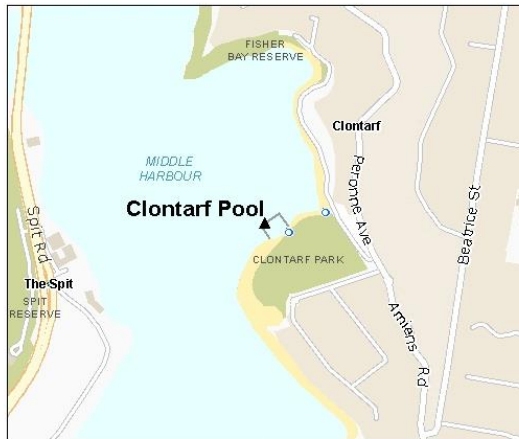


## Water quality in response to rainfall



# Clontarf Pool

Beach grade:



Clontarf Pool is a small netted swimming area in Middle Harbour backed by a narrow sandy beach and a park.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including upstream sources in Middle Harbour and stormwater.

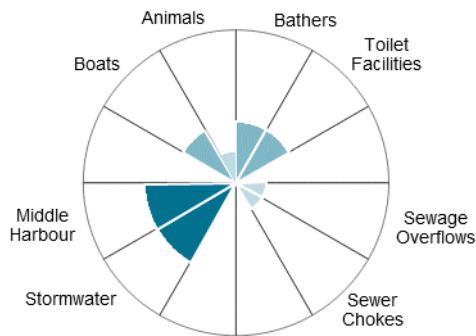
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after light rain, and frequently after 20mm or more of rain.

See 'How to read this report' for key to map.

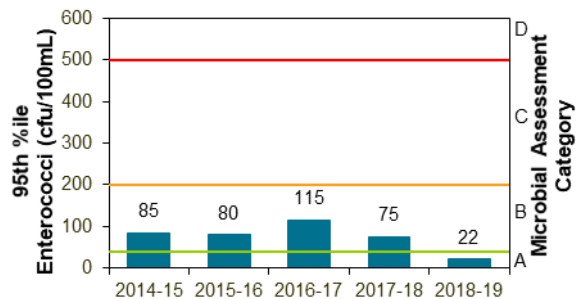
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	97%	100	Stable

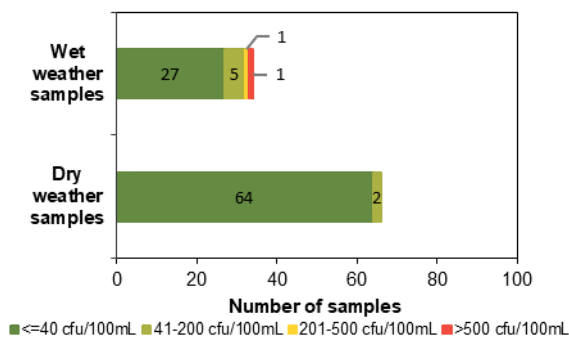
## Sanitary inspection: Moderate



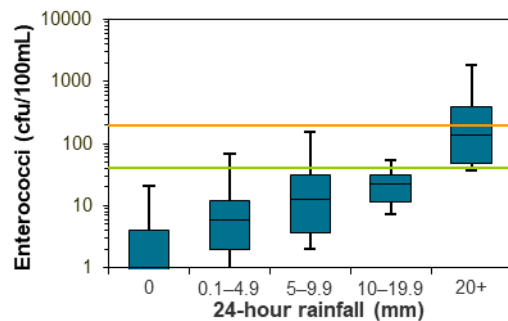
## Microbial Assessment Category: A



## Dry and wet weather water quality

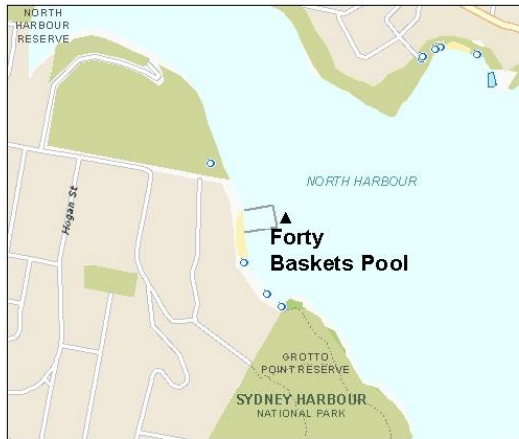


## Water quality in response to rainfall



# Forty Baskets Pool

Beach grade:



Forty Baskets Pool is a 20 by 40 metre netted swimming area at the northern end of Forty Baskets Beach in North Harbour.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of minor faecal contamination.

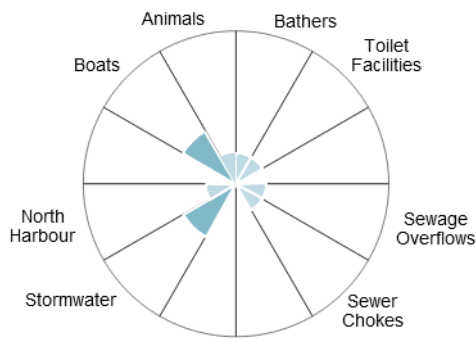
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after light rain, and often after 10mm or more of rainfall.

See 'How to read this report' for key to map.

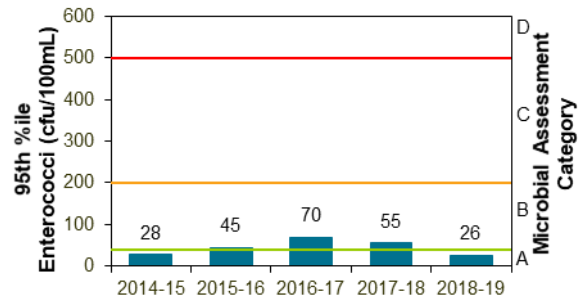
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	100%	100	Stable

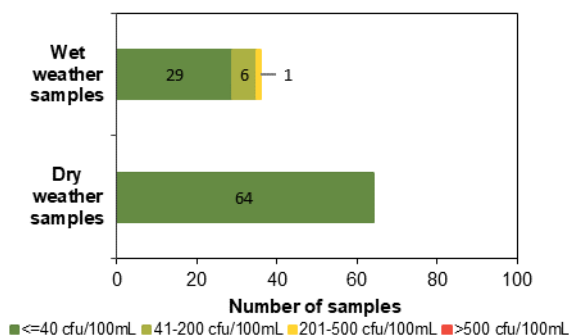
## Sanitary inspection: Moderate



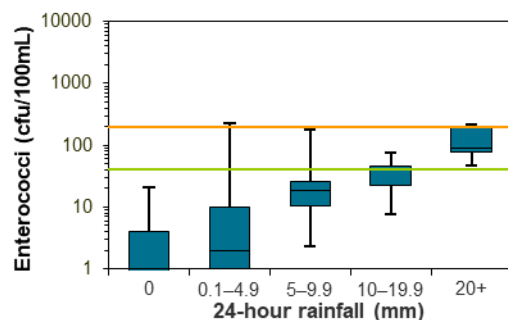
## Microbial Assessment Category: A



## Dry and wet weather water quality



## Water quality in response to rainfall



# Fairlight Beach

Beach grade: **G**



Fairlight Beach is a narrow beach located in North Harbour. A 25-metre pool filled with water from the harbour is adjacent to the beach.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of minor faecal contamination.

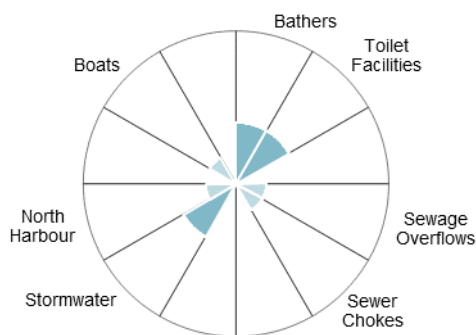
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after light rain and regularly after 20mm or more of rainfall.

See 'How to read this report' for key to map.

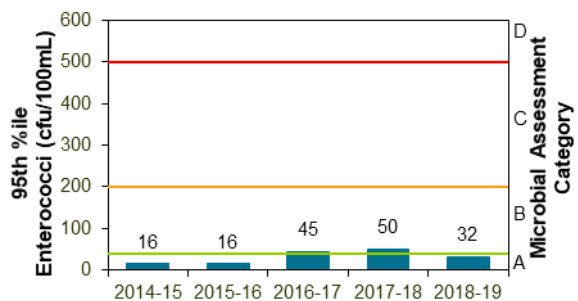
The site has been monitored since 1996.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	97%	100	Stable <b>G</b>

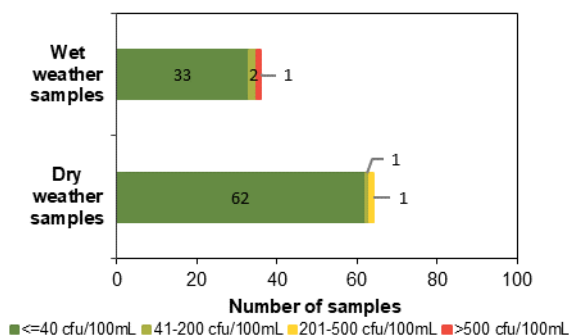
## Sanitary inspection: Moderate



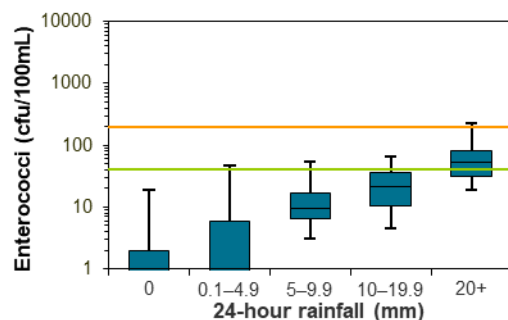
## Microbial Assessment Category: A



## Dry and wet weather water quality

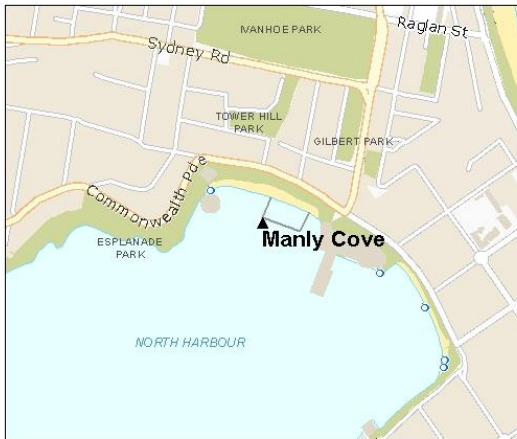


## Water quality in response to rainfall



# Manly Cove

Beach grade: G



Manly Cove is a netted swimming enclosure at the centre of the 250-metre long beach, adjacent to the Manly Ferry Terminal.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of minor faecal contamination.

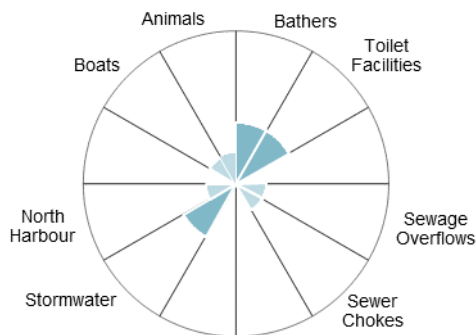
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after light rain, and regularly after 10mm or more of rain.

See 'How to read this report' for key to map.

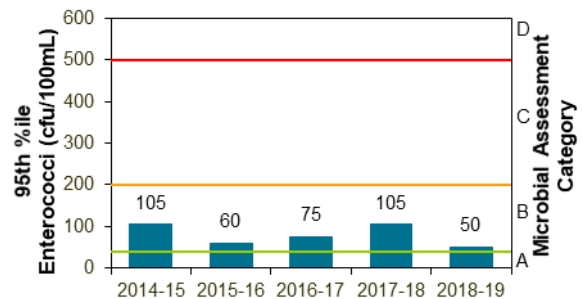
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	97%	100	Stable <span style="background-color: #4CAF50; border-radius: 50%; padding: 2px 6px; font-weight: bold;">●</span>

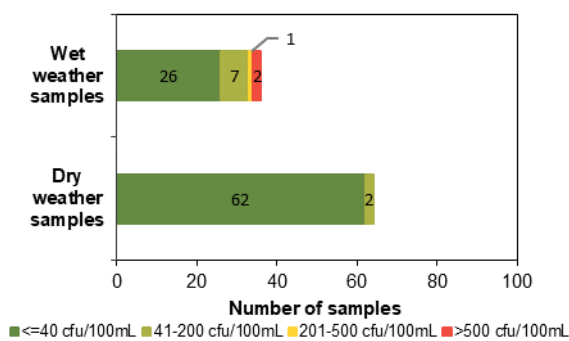
### Sanitary inspection: Moderate



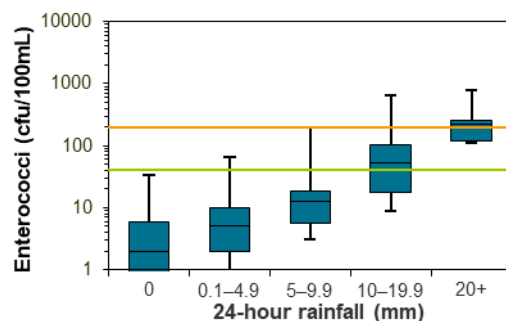
### Microbial Assessment Category: B



### Dry and wet weather water quality

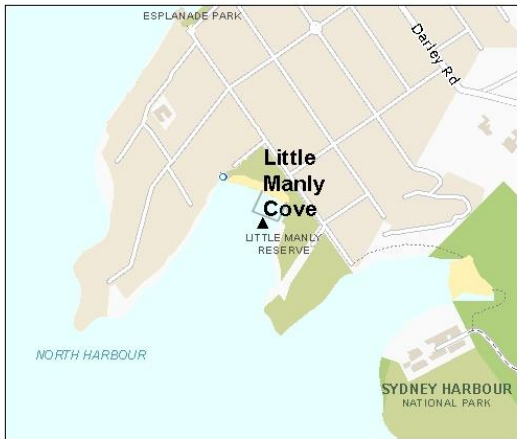


### Water quality in response to rainfall



# Little Manly Cove

Beach grade:



The 30-metre square swimming enclosure is at the eastern end of the sandy beach in Little Manly Cove.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of minor faecal contamination.

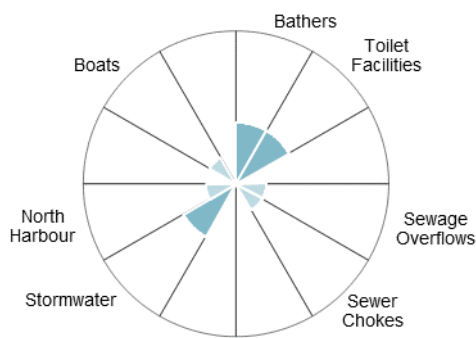
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after little or no rain, and often after 5mm or more of rain.

The site has been monitored since 1994.

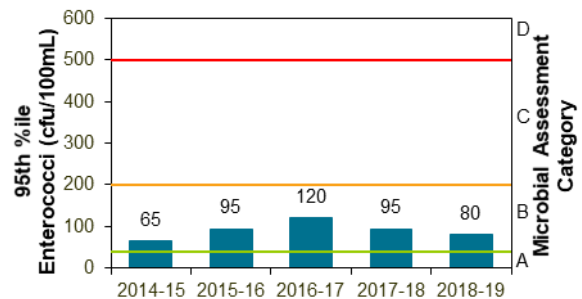
See 'How to read this report' for key to map.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	97%	100	Stable

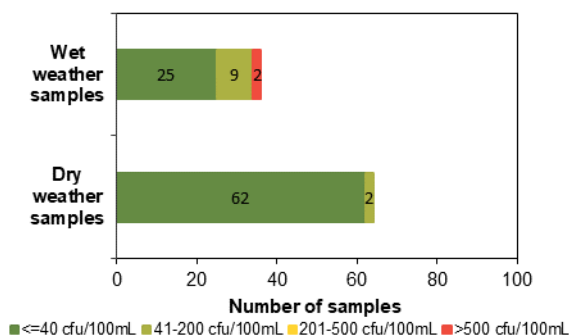
## Sanitary inspection: Moderate



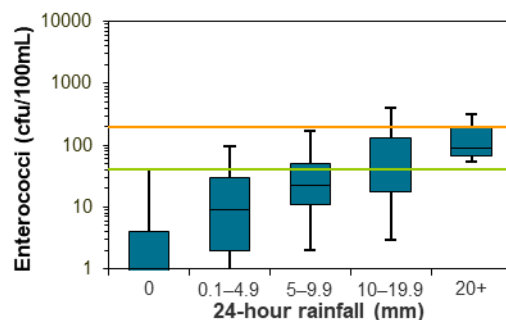
## Microbial Assessment Category: B



## Dry and wet weather water quality

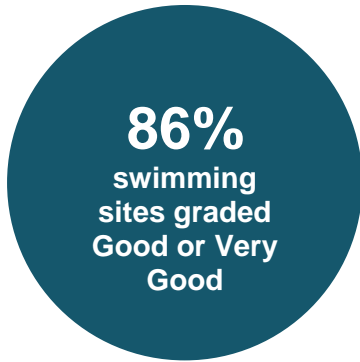


## Water quality in response to rainfall





# Southern Sydney (Sutherland beaches, lower Georges River, Botany Bay & Port Hacking)



Beachwatch samples the ocean beaches every sixth day throughout the year, and estuarine beaches every sixth day between October and April, and monthly from May to September.

## Overall results

Twenty-four of the 28 swimming sites were graded as Very Good or Good in 2018–2019. This is a similar performance to the previous year.

Percentage of sites graded as Very Good or Good:

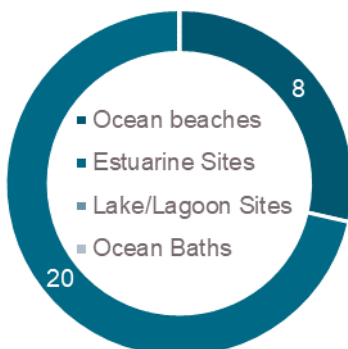
- 2018–2019: 86%
- 2017–2018: 86%
- 2016–2017: 79%
- 2015–2016: 86%.

See the section on **How to read this report** on page 137 for an explanation of the graphs, tables and Beach Suitability Grades.

## Best beaches

Greenhills Beach, Wanda Beach, Elouera Beach, North Cronulla Beach, South Cronulla Beach, Shelly Beach, Oak Park and Jibbon Beach.

These sites had excellent water quality and were suitable for swimming almost all of the time.



Site types in Southern Sydney region

Swimming sites monitored in the Southern Sydney region include ocean beaches and estuarine areas in Botany Bay, lower Georges River and Port Hacking, with each site type having a different response to rainfall-related impacts.

Estuarine swimming sites did not perform as well as ocean beaches due to lower levels of flushing, which increases the time needed to disperse and dilute pollution inputs, taking longer to recover from stormwater events.

As a general precaution swimming should be avoided during and for at least one day after heavy rain at ocean beaches, and for up to three days in estuarine areas, or if there are signs of stormwater pollution such as discoloured water or floating debris.

## Ocean beaches

All eight southern Sydney ocean beaches were graded as Very Good or Good in 2018–2019.



**Beach Suitability Grades for Southern Sydney ocean beaches**

Greenhills, Wanda, Elouera, North Cronulla, South Cronulla, Shelly and Oak Park beaches were graded as Very Good. Water quality at these sites has been consistently excellent for many years and is suitable for swimming almost all of the time.

Boat Harbour continued to be graded as Good. Water quality was suitable for swimming most of the time, with 85% of dry weather samples within the safe swimming limit; however, elevated enterococci levels were occasionally recorded during dry weather or after light rainfall.

## Estuarine beaches

Sixteen of the 20 estuarine sites were graded as Very Good or Good in 2018–2019.



**Beach Suitability Grades for Southern Sydney estuarine beaches**

Jibbon Beach was graded Very Good, upgraded from Good in the previous year. Water quality at this site was excellent, with few potential sources of minor faecal contamination.

Silver Beach, Como Baths, Jew Fish Bay Baths, Sandringham Baths, Dolls Point Baths, Ramsgate Baths, Monterey Baths, Brighton-Le-Sands Baths, Kyeemagh Baths, Yarra Bay, Frenchmans Bay, Congwong Bay, Horderns Beach, Lilli Pilli Baths and Gunnamatta Bay Baths were graded Good. These sites had mostly good water quality, although elevated enterococci levels were recorded following rainfall.

GyMEA Bay Baths was graded Fair in 2018–2019, an improvement from the previous year's Poor grade. While water quality at this site is mostly suitable for swimming during dry weather conditions, elevated enterococci levels were recorded following rainfall.

Oatley Bay Baths and Carss Point Baths were graded Poor, the same as in previous years. These sites are susceptible to pollution during and following rainfall. During dry weather conditions, water quality was mostly suitable for swimming with 91% and 88% of dry weather samples within the safe swimming limit at Oatley Bay Baths and Carss Point Baths respectively.

Foreshores Beach in Botany Bay continued to be graded as Very Poor. While water quality was often suitable for swimming in dry weather, with 81% of dry weather samples

within the safe swimming limit during the assessment period, water quality was significantly impacted during and following rainfall. The site is very susceptible to faecal contamination from the sewage overflows which discharge into Mill Stream. Swimming should be avoided during and for up to three days following light rainfall, or if there are signs of pollution such as discoloured water, odours or floating debris.

## Management

### Ocean beaches

#### Sutherland Shire Council

Under the NSW Government's Coastal and Estuary Grants Program, funding has been given to Sutherland Shire Council to prepare the Bate Bay Coastal Management Program (CMP). The program will identify coastal hazards (which could include some water quality management actions) and prioritise initiatives to manage these.

Sutherland Shire Council's Stormwater and Waterways Asset Class Management Plan (ACMP) identifies 'swimmability' of the beaches and rivers as an important community service. Council has proposed using the Beachwatch gradings as an indicator of swimmability with the aim to consistently achieve a Very Good grading. Council plans to implement initiatives to reduce gross pollutants, sediment, nutrient and bacteriological loads entering the waterways.

Sutherland Shire Council continues to see the ongoing benefits from the Cronulla water recycling scheme. The system has seen a reduction in the demand for potable water and helped to reduce the level of treated effluent discharge to ocean outfalls. The Cronulla water recycling scheme provides treated wastewater for irrigation purposes to selected private sites and council's own recreational facilities within the Cronulla and Woollooware area.

The council has installed more than 250 devices to improve stormwater quality, including artificial wetlands, gross pollutant traps (GPTs) and continuous deflective separators. Council undertakes an extensive water quality monitoring program that includes testing the physical, chemical and biological condition of the shire's waterways.

#### Sydney Water

To reduce the incidence of wet weather sewage overflows in beach catchments across the Cronulla Peninsula, Sydney Water has amplified sewer pipes and pumps and included storage tanks.



Patrolled ocean beach  
Photo: Beachwatch/EES,  
DPIE

Sydney Water has inspected, cleaned and repaired sewer mains that have a high likelihood of discharging sewage to waterways if they become blocked. When significant tree root intrusion to the public sewer from the private sewer was identified, property owners were requested to remedy the problem.

## Botany Bay and lower Georges River

A **Coastal Management Program (CMP)** outlines a long-term strategy for managing the coast, in line with the *Coastal Management Act 2016*.

The NSW Government provides guidance and funding through the Coastal and Estuary Grants Program for local councils to prepare and implement CMPs.

Under the previous *Coastal Protection Act 1979*, councils developed a **Coastal Zone Management Plan (CZMP)** to address coastal issues. Councils can continue to implement priority actions from certified CZMPs with funding assistance from the NSW Government's Coastal and Estuary Grants Program until 2021.

Under the NSW Government's Coastal and Estuary Grants Program, funding has been given to relevant councils to commence the preparation of coastal management programs (CMPs) for the Cooks River Catchment and Georges River Estuary. The CMPs for these waterways will identify catchment pressures and prioritise management initiatives to manage issues relating to coastal and estuary health. Water quality management actions such as stormwater infrastructure improvements, restoring and maintaining riparian areas and strategic land-use planning will be considered during the process.

Several Sydney councils implement the Georges River Estuary Coastal Zone Management Plan (CZMP) including Sutherland Shire, Georges River and Bayside councils. With funding from the NSW Government's Coastal and Estuary Grants Program, a number of actions from the CZMP have been completed including the rehabilitation of wetlands in Ramsgate, San Souci and Sandringham, which should improve the condition of wetland areas and waterways.

### Randwick City Council

Randwick City Council operates and maintains 13 stormwater harvesting treatment systems with UV filtration across the local government area. These systems treat stormwater by removing suspended solids, bacteria and other organic and inorganic materials before it is used for irrigation in surrounding landscaped and garden areas, saving Randwick City Council approximately 455 megalitres of water (which equates to 187 Olympic sized swimming pools or \$1 million cost savings).



Congwong Bay  
Photo: Beachwatch/EES,  
DPIE

Randwick City Council maintains 34 GPTs on stormwater lines leading to the local bays, which are all cleaned regularly. In the last year, approximately 230 tonnes of material was removed from these GPTs. There is also a systematic cleaning program for all drainage pits including a regular street sweeping program which assists with reducing stormwater pollution to the local bays. Council continues to conduct litter education campaigns throughout the local government area to educate residents on the proper disposal of waste. This program aims to reduce the amount of litter disposed on beaches and entering the ocean. Randwick Council also commenced a cigarette butt litter program in April 2018 aiming to reduce cigarette litter at beaches.

Council officers undertake their routine inspections and regulatory duties to ensure stormwater pollution is investigated and mitigated to reduce impacts to the water quality of local recreational waterways.

Randwick City Council has a strategic program and reactive process to monitor and assess the condition of the stormwater pipes in the local area using CCTV.

### **Bayside Council**

To maintain and improve water quality, in 2018–2019 Bayside Council has undertaken: restoration and maintenance of Lady Robinsons Beach; maintenance of aerators in waterbodies; ongoing maintenance of litter and sediment control traps preventing pollutants from entering the waterways; removal of aquatic weeds and excess sediment build-up in local waterways; education and Bushcare programs for the community, as well as dune and estuarine vegetation restoration programs.

### **Georges River Council**

Georges River Council continues to prevent litter, organic matter, sediment and oil from entering local waterways through water sensitive urban design and GPT installation projects.

Georges River Council has a number of stormwater harvesting plants which treat stormwater, reducing flows and pollution loads entering downstream waterways. The treated water is subsequently utilised by council for irrigation, vehicle wash-down, street sweeping and other uses.



Ramsgate Baths  
Photo: Cameron Board/EES,  
DPIE

Georges River Council has commenced a foreshore improvement project associated with the removal of the existing concrete vertical seawall and a section of the Carss Park stormwater channel to develop a natural creek line and foreshore environment within Carss Bush Park. This work will involve the construction of a 'natural' creek line reintroducing protected ecological communities of saltmarsh, mangrove and swamp oak forest, while developing intertidal habitats including rockpools and intertidal mudflat zones. The new foreshore structure will influence ecological habitats above and below the mean high water mark (MHWM), creating a link between aquatic ecological communities and the terrestrial environment, while improving stormwater quality entering Kogarah Bay.

Georges River Council is also reinstating the creek line and associated environmental habitats of Upper Boggywell Creek in Gannons Park, which is a large (35 hectare) regional park in Peakhurst. It is proposed that this sustainable water management scheme will treat stormwater through a series of bioretention systems, wetlands and swales and involve the daylighting and re-naturalisation of the former Boggywell Creek. In addition to significantly improving the quality of stormwater being discharged to the Georges River, some of the treated water will be harvested and re-used for irrigating eight sports fields within Gannons Park.

### **Sutherland Shire Council**

Sutherland Shire Council in conjunction with Roads and Maritime Services completed significant land remediation at Woolooware Bay during the completion of a shared pathway. The work has improved water quality at the site, which was once contaminated from earlier oyster farming activity. The foreshore area remains an ecological sanctuary and vital habitat for 30 types of migratory shorebirds of which four are listed as endangered and 10 as vulnerable.

Sutherland Shire Council's stormwater levy funds projects such as the installation of pipes, drains and stormwater quality improvement devices, as well as riparian revegetation works to alleviate flooding and improve water quality in creeks and rivers.

Council recently completed construction of two stormwater quality improvement devices in Miranda in the Gwawley Bay catchment. These will treat stormwater from over 80

hectares of the catchment before it enters the Georges River.

Sutherland Shire Council has also continued the maintenance of its creek restoration works, identified in the Waterway Rehabilitation Program, including weed removal, bank stabilisation and revegetation at several key locations along the Georges River.

### **Sydney Water**

Randwick Council and Sydney Water have been collaborating since 2015 on a dry weather stormwater monitoring program to identify sewer leaks. Leaks from public sewers are repaired by Sydney Water and leaks from private sewers are addressed by the council.

Sydney Water has inspected, cleaned and repaired sewer mains on the northern and western sides of Botany Bay that have a high likelihood of discharging sewage to waterways if they become blocked. When significant tree root intrusion to the public sewer from the private sewer was identified, property owners were requested to remedy the problem.

### **Port Hacking**

#### **Sutherland Shire Council**

There are 430 registered onsite sewage management systems in the Port Hacking catchment. The majority of these systems dispose of sewage by pumping it to the sewer main. Sutherland Shire Council inspects these systems to ensure they are operating correctly and to identify risks to human health or the environment.



GyMEA Bay Baths  
Photo: Cameron Board/EES,  
DPIE

Sutherland Shire Council has recently upgraded the water circulation system at the E G Waterhouse National Camellia Gardens. Water is pumped from the stormwater channel that flows through the gardens into various water features within the park before returning to the channel. The system adds to the amenity of the gardens and helps improve the water quality in Yowie Bay, Port Hacking. The upgrades include new pumps, inlets, aerators and a new maintenance program.

The Hacking River Stormwater Management Plan was developed by Wollongong and Sutherland councils and identifies and prioritises actions to improve stormwater quality and reduce flooding in the Port Hacking catchment.

### **Sydney Water**

Sydney Water has inspected, cleaned and repaired sewer mains on the northern side of Port Hacking that have a high likelihood of discharging sewage to waterways if they become blocked. When significant tree root intrusion to the public sewer from the private sewer was identified, property owners were asked to remedy the problem.

To reduce the incidence of wet weather sewage overflows in the catchments of Gunnamatta Bay Baths, Sydney Water has amplified pipes and pumps and included storage tanks across the Cronulla Peninsula.





Sampling sites at Beach Suitability Grades at Sydney's Southern beaches



Sampling sites and Beach Suitability Grades in Botany Bay and lower Georges River



Sampling sites and Beach Suitability Grades in Port Hacking

# Boat Harbour

Beach grade:



Boat Harbour is a 150 metre long unpatrolled private beach at the northern end of Bate Bay. It is the beach closest to the Cronulla WWTP outfall at Potter Point.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater and onsite sewer systems behind the beach.

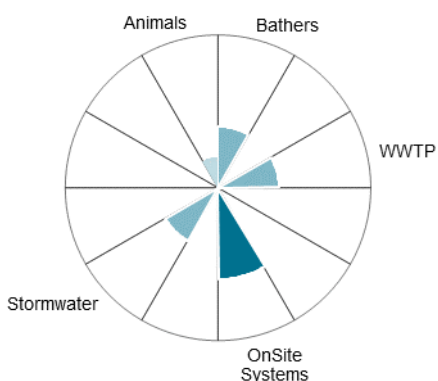
Enterococci levels had little response to rainfall, occasionally exceeding the safe swimming limit after little or no rain, and often after 5mm or more of rain.

The site has been monitored since 1989.

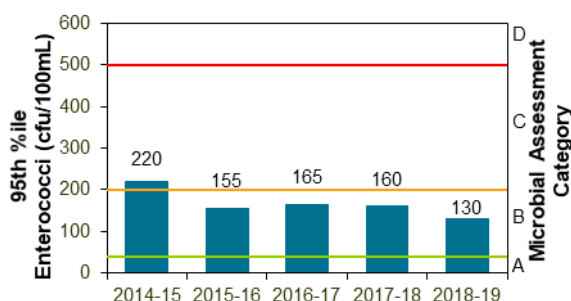
See 'How to read this report' for key to map.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Aug 2017 to Apr 2019	85%	100	Stable

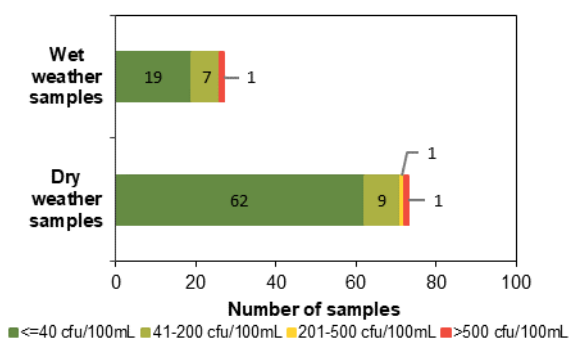
## Sanitary inspection: Moderate



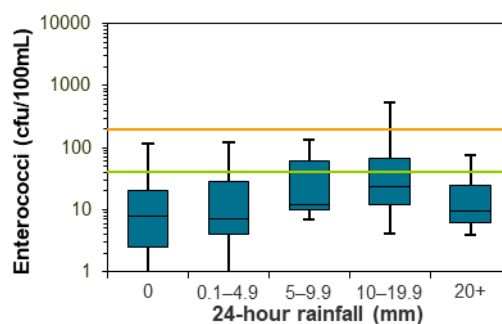
## Microbial Assessment Category: B



## Dry and wet weather water quality



## Water quality in response to rainfall



# Greenhills Beach

Beach grade: **VG**



Greenhills Beach is three kilometres long and situated at the northern end of Bate Bay. The beach is not patrolled.

The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of faecal contamination.

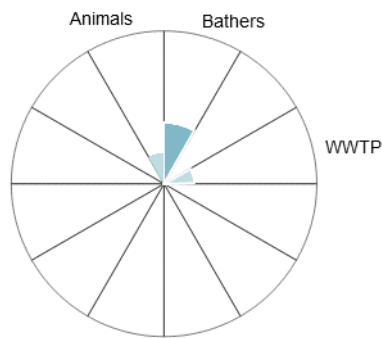
Enterococci levels increased slightly with increasing rainfall, occasionally exceeding the safe swimming limit after 5mm or more of rainfall.

The site has been monitored since 1989.

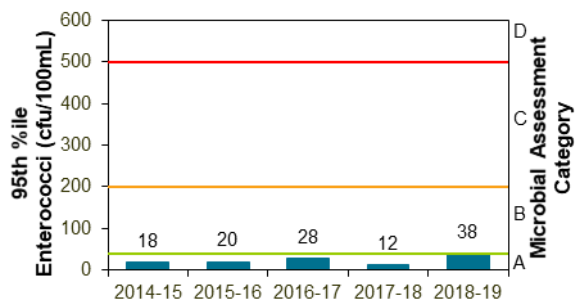
See 'How to read this report' for key to map.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Aug 2017 to Apr 2019	99%	100	Stable <span style="color: green;">●</span>

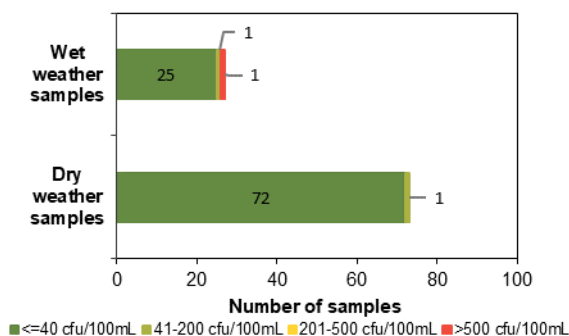
## Sanitary inspection: Low



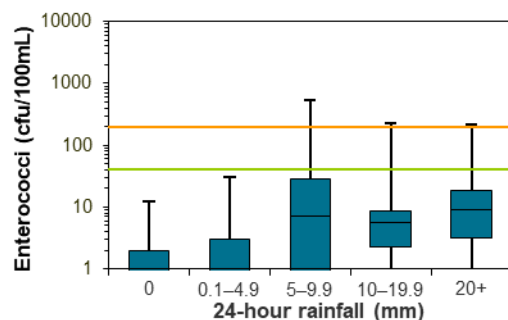
## Microbial Assessment Category: A



## Dry and wet weather water quality



## Water quality in response to rainfall



# Wanda Beach

Beach grade: **VG**



Wanda, Elouera and North Cronulla beaches form a 1.5 kilometre stretch of beach towards the southern end of Bate Bay. Lifeguards patrol from October to April.

The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of faecal contamination.

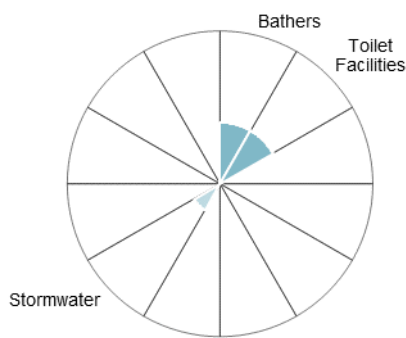
Enterococci levels increased slightly with increasing rainfall, occasionally exceeding the safe swimming limit in response to 10mm or more of rainfall.

See 'How to read this report' for key to map.

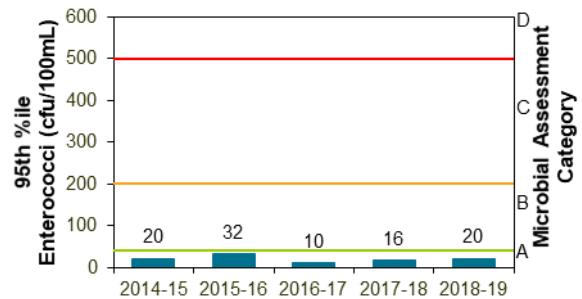
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Aug 2017 to Apr 2019	99%	100	Stable <span style="color: green;">●</span>

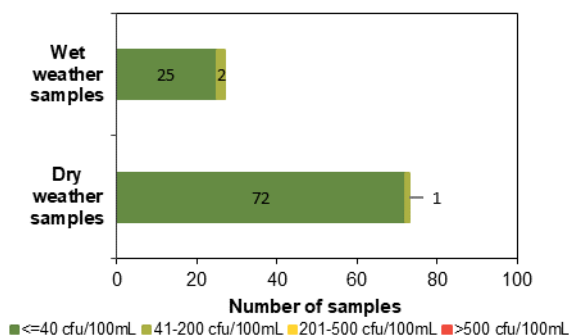
## Sanitary inspection: Low



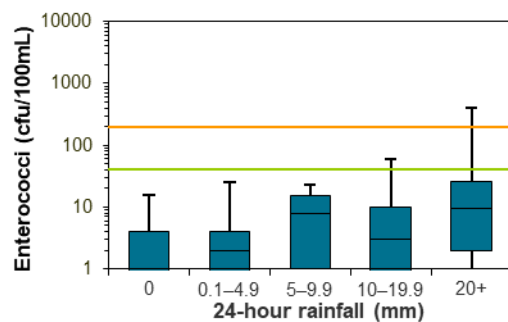
## Microbial Assessment Category: A



## Dry and wet weather water quality

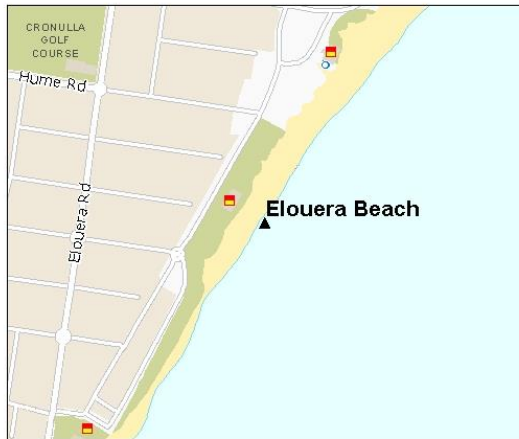


## Water quality in response to rainfall



# Elouera Beach

Beach grade: **VG**



Wanda, Elouera and North Cronulla beaches form a 1.5 kilometre stretch of beach towards the southern end of Bate Bay. Lifeguards patrol the beach from October to April.

The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of faecal contamination.

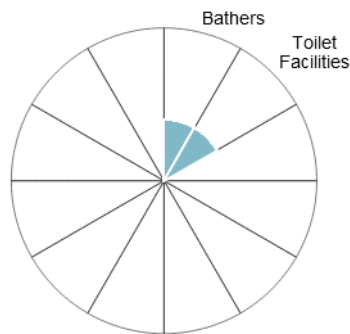
Enterococci levels increased slightly with increasing rainfall, occasionally exceeding the safe swimming limit in response to 20mm or more of rainfall.

See 'How to read this report' for key to map.

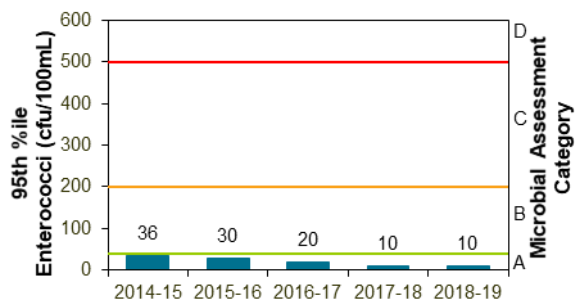
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Aug 2017 to Apr 2019	97%	100	Stable <span style="color: green;">●</span>

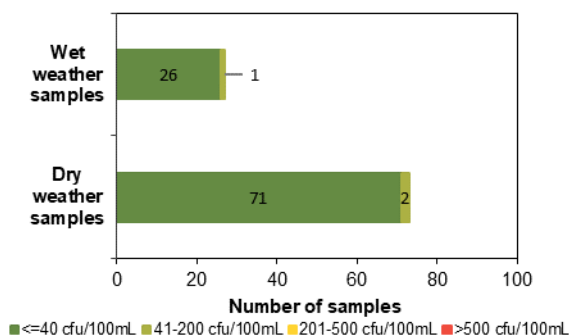
## Sanitary inspection: Low



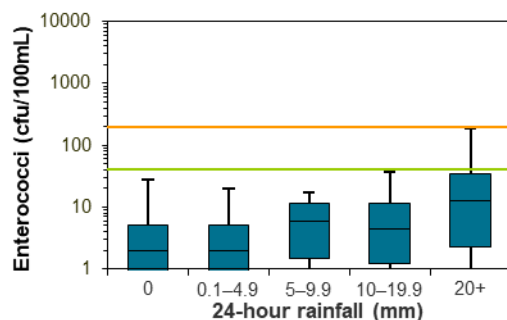
## Microbial Assessment Category: A



## Dry and wet weather water quality

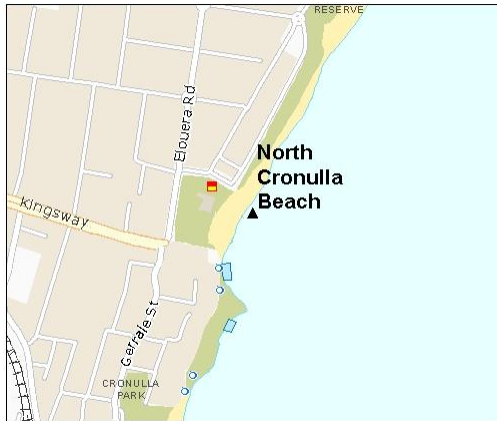


## Water quality in response to rainfall



# North Cronulla Beach

Beach grade: **VG**



North Cronulla Beach is at the southern end of a 1.5 kilometre stretch of beach in Bate Bay. Lifeguards patrol the beach all year round.

The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of faecal contamination.

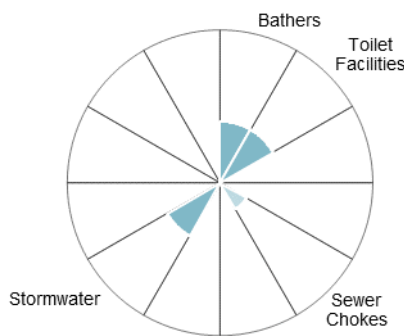
Enterococci levels increased slightly with increasing rainfall, occasionally exceeding the safe swimming limit in response to 5mm or more of rainfall.

See 'How to read this report' for key to map.

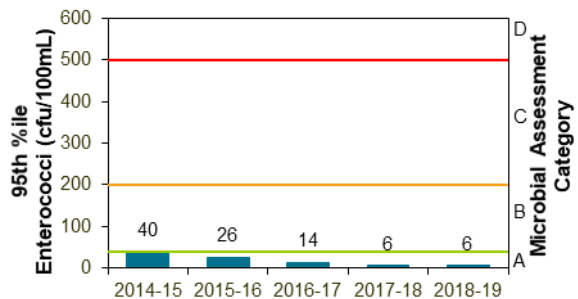
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Aug 2017 to Apr 2019	96%	100	Stable <span style="color: blue;">●</span>

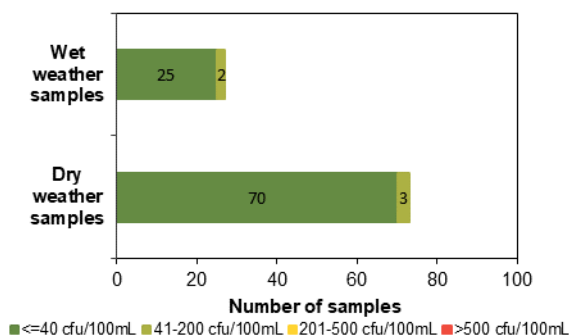
### Sanitary inspection: Low



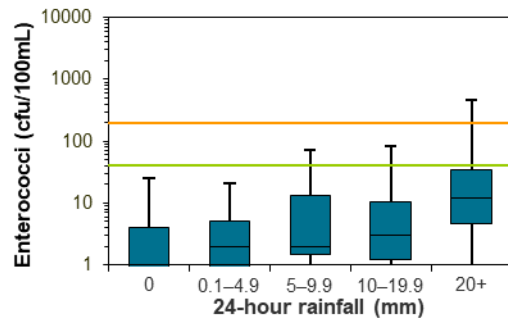
### Microbial Assessment Category: A



### Dry and wet weather water quality



### Water quality in response to rainfall





# South Cronulla Beach

Beach grade: **VG**



South Cronulla beach is 300 metres long and situated at the southern end of Bate Bay. Lifeguards patrol the beach all year round.

The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of faecal contamination.

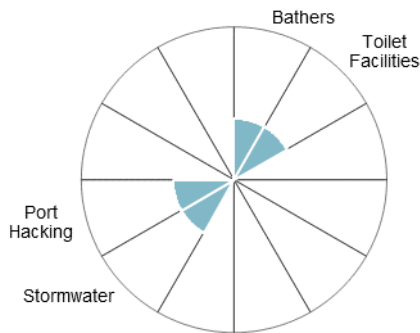
Enterococci levels increased slightly with increasing rainfall, occasionally exceeding the safe swimming limit in response to 10mm or more of rainfall.

The site has been monitored since 1989.

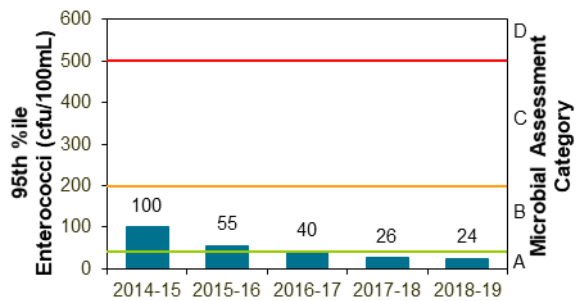
See 'How to read this report' for key to map.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Aug 2017 to Apr 2019	97%	100	Stable <span style="color: blue;">●</span>

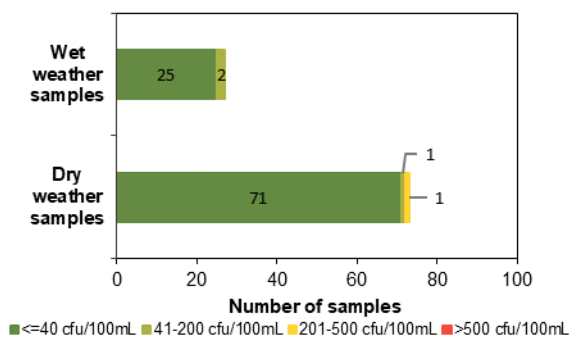
### Sanitary inspection: Low



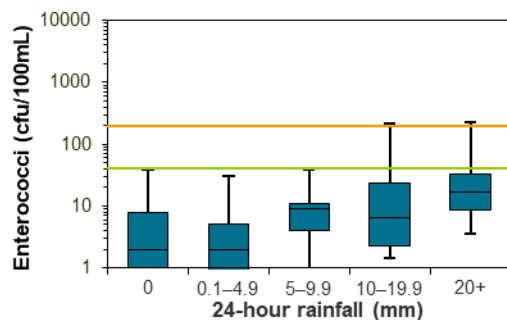
### Microbial Assessment Category: A



### Dry and wet weather water quality

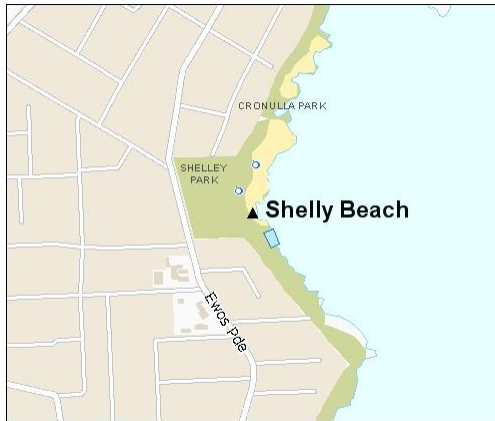


### Water quality in response to rainfall



# Shelly Beach

Beach grade: **VG**



Shelly beach is 50 metres long and is not patrolled by lifeguards. The adjacent ocean pool is the most suitable area for swimming.

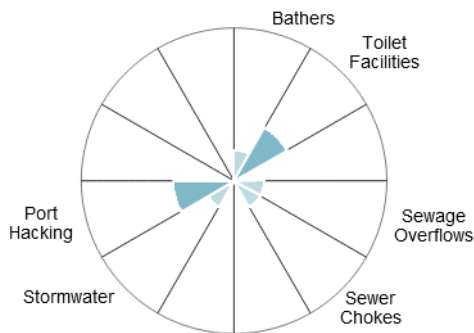
The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of significant faecal contamination.

Enterococci levels increased slightly with increasing rainfall, occasionally exceeding the safe swimming limit after 20mm or more of rainfall.

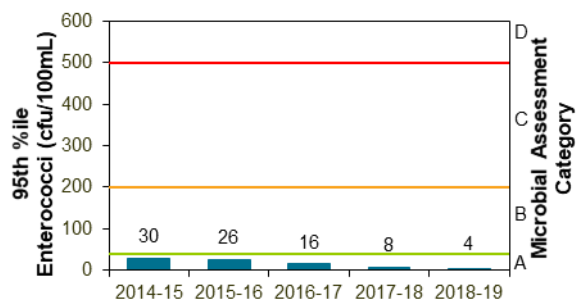
See 'How to read this report' for key to map. The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Aug 2017 to Apr 2019	96%	100	Stable <span style="color: green;">●</span>

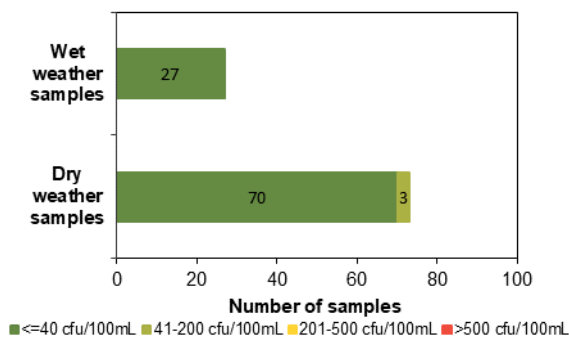
## Sanitary inspection: Low



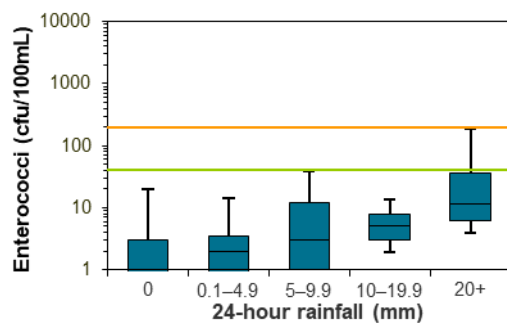
## Microbial Assessment Category: A



## Dry and wet weather water quality

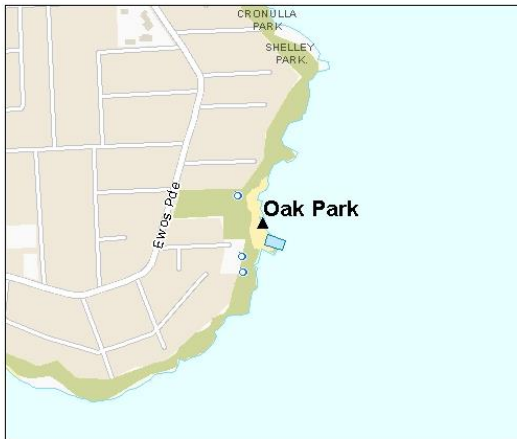


## Water quality in response to rainfall



# Oak Park

Beach grade: **VG**



Oak Park beach is 15 metres long, with the most suitable area for swimming adjacent to the ocean pool. Lifeguards do not patrol the swimming area.

The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of significant faecal contamination.

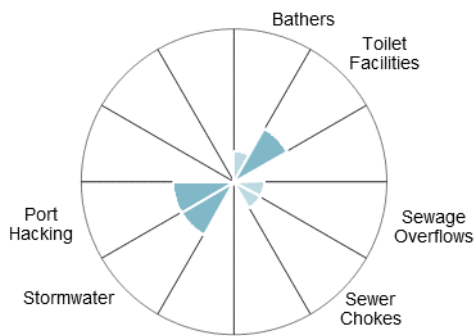
Enterococci levels increased slightly with increasing rainfall, occasionally exceeding the safe swimming limit in response to 5mm or more of rainfall.

The site has been monitored since 1989.

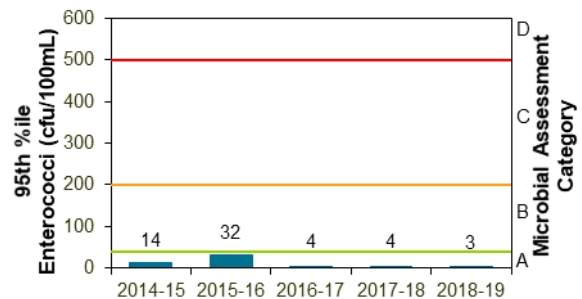
See 'How to read this report' for key to map.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Aug 2017 to Apr 2019	100%	100	Stable <span style="color: green;">●</span>

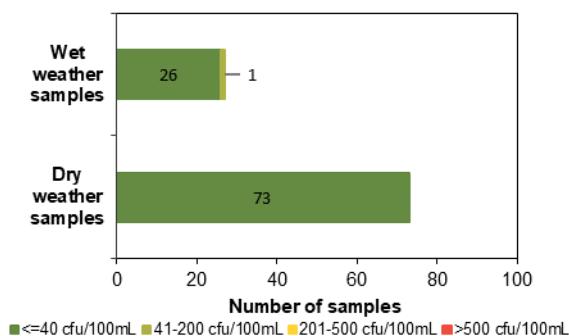
## Sanitary inspection: Low



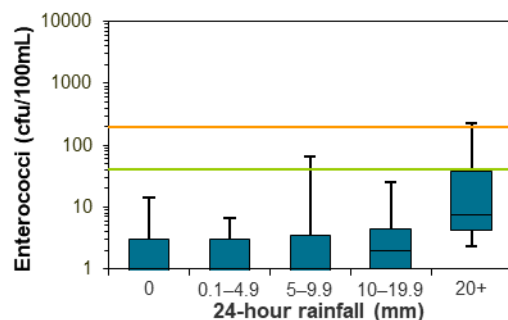
## Microbial Assessment Category: A



## Dry and wet weather water quality

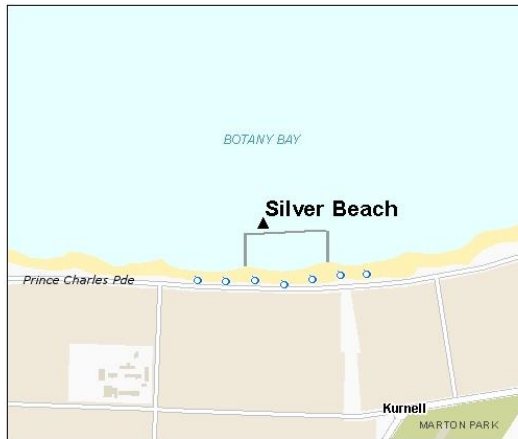


## Water quality in response to rainfall



# Silver Beach

Beach grade: **G**



Silver Beach is a netted swimming area at the centre of a 2.8-kilometre long beach on the southern shore of Botany Bay.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

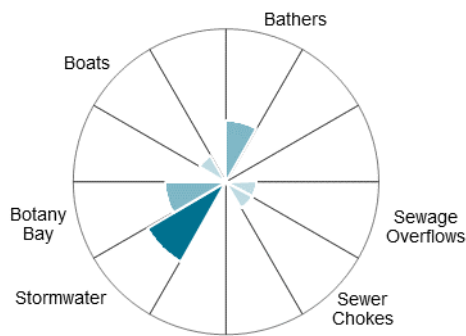
Enterococci levels increased slightly with increasing rainfall, occasionally exceeding the safe swimming limit after light rain.

See 'How to read this report' for key to map.

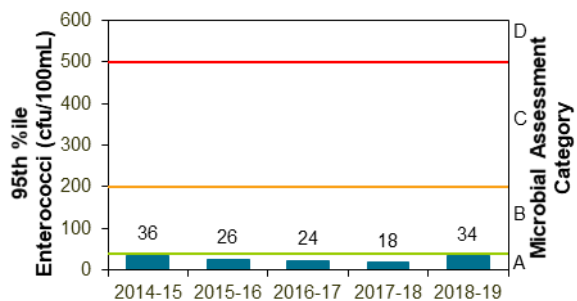
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	98%	100	Stable <span style="color: green;">●</span>

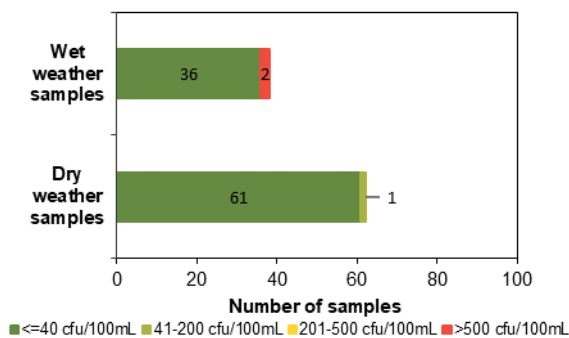
## Sanitary inspection: Moderate



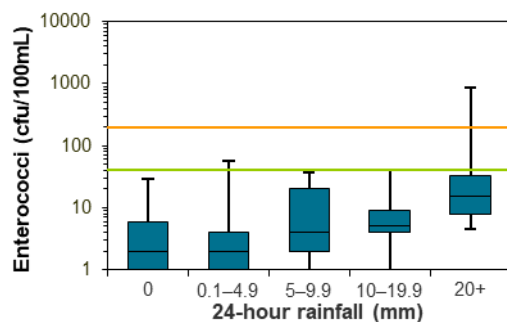
## Microbial Assessment Category: A



## Dry and wet weather water quality

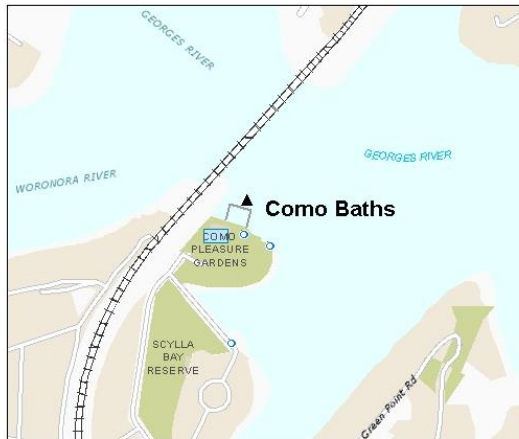


## Water quality in response to rainfall



# Como Baths

Beach grade: G



Como Baths is approximately 25 metres wide and backed by a narrow sandy beach in the lower Georges River.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but can be susceptible to pollution after rain, with several potential sources of faecal contamination including upstream sources in the Georges River.

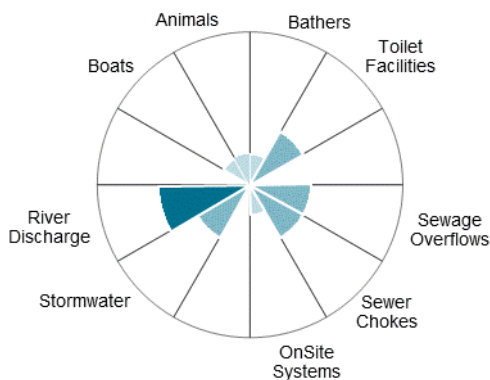
Enterococci levels increased with increasing rainfall, often exceeding the safe swimming limit in response to 5mm or more of rain, and usually after 20mm or more of rainfall.

See 'How to read this report' for key to map.

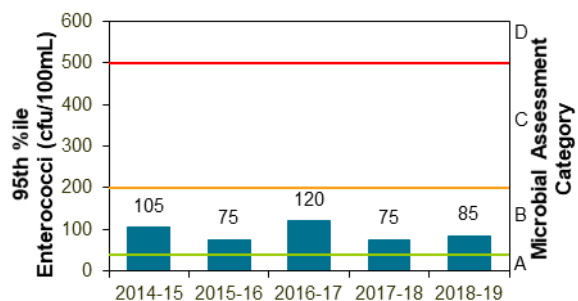
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	97%	100	Stable <span style="background-color: #4CAF50; border-radius: 50%; width: 15px; height: 15px; display: inline-block;"></span>

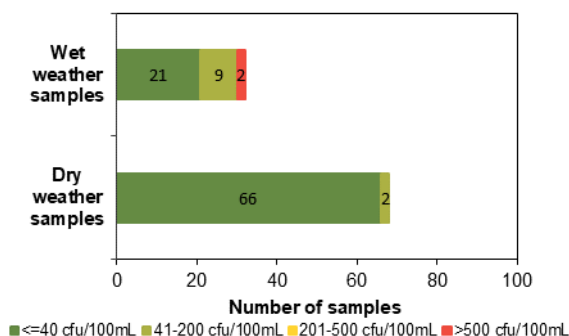
## Sanitary inspection: Moderate



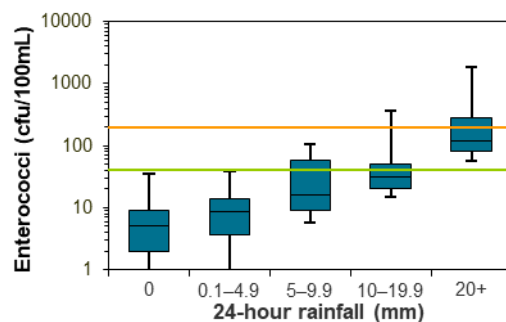
## Microbial Assessment Category: B



## Dry and wet weather water quality



## Water quality in response to rainfall



# Jew Fish Bay Baths

Beach grade: G



Jew Fish Bay Baths is a 200 metre long netted swimming area located in Jew Fish Bay in the lower Georges River.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including discharge from the Georges River.

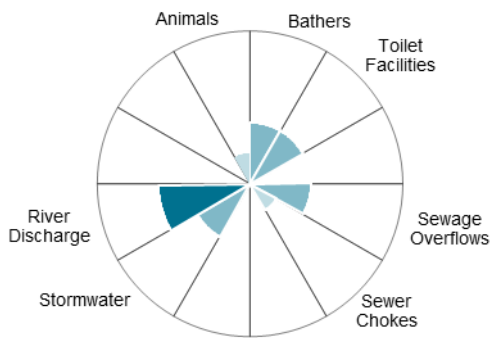
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after no rain, and often after 10mm or more of rain.

See 'How to read this report' for key to map.

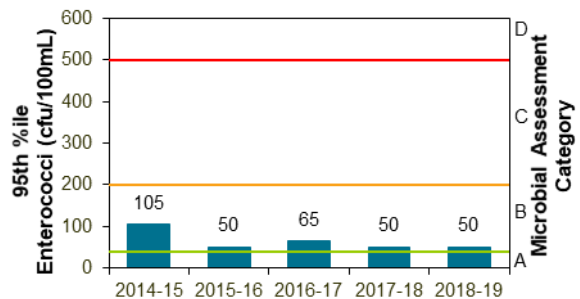
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	94%	100	Stable <span style="background-color: #4CAF50; border-radius: 50%; padding: 2px 6px; font-weight: bold;">●</span>

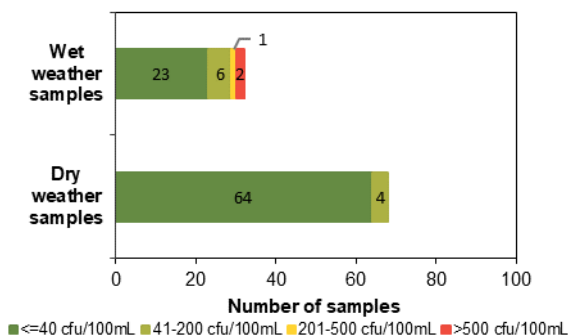
## Sanitary inspection: Moderate



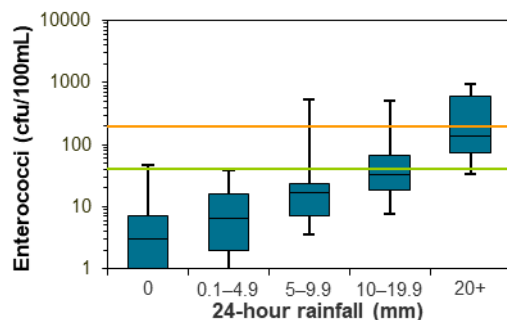
## Microbial Assessment Category: B



## Dry and wet weather water quality

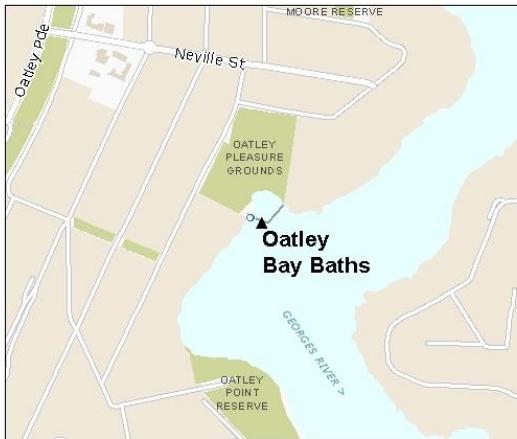


## Water quality in response to rainfall



# Oatley Bay Baths

Beach grade: P



Oatley Bay Baths is a netted swimming area located on the western shore of Oatley Bay in the lower Georges River.

The Beach Suitability Grade of Poor indicates microbial water quality is susceptible to faecal pollution, particularly after rainfall and occasionally during dry weather conditions, with several potential sources of faecal contamination including upstream sources in the Georges River and stormwater.

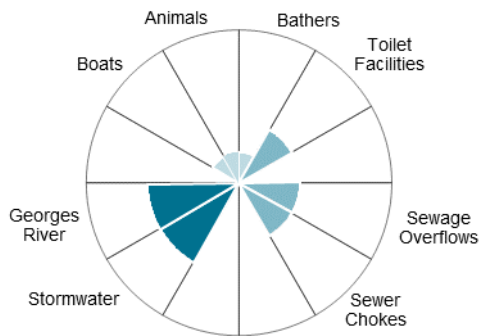
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after little or no rain, and often after 5mm or more of rain.

See 'How to read this report' for key to map.

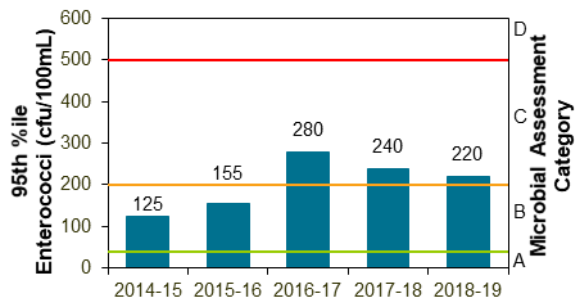
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2018	91%	100	Stable <span style="color: blue; font-weight: bold;">●</span>

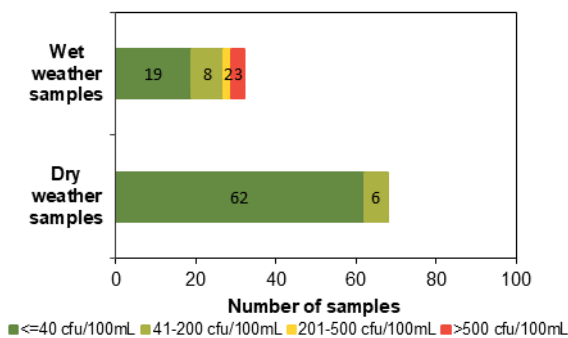
## Sanitary inspection: Moderate



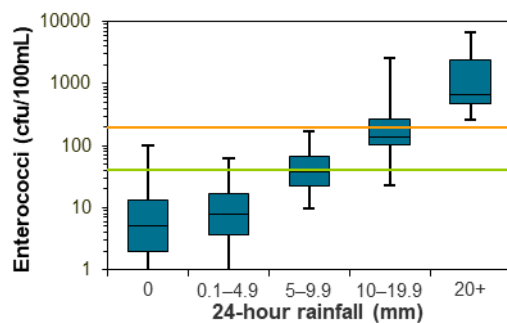
## Microbial Assessment Category: C



## Dry and wet weather water quality



## Water quality in response to rainfall



# Carss Point Baths

Beach grade: P



Carss Point Baths is a netted swimming enclosure on the western shore of Kogarah Bay in the lower Georges River.

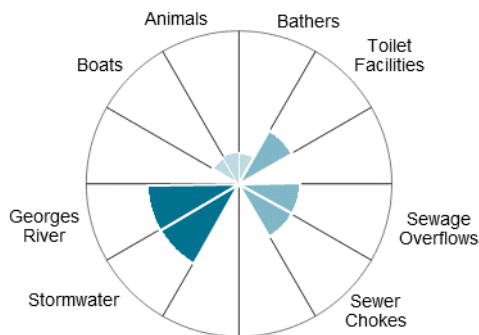
The Beach Suitability Grade of Poor indicates microbial water quality is susceptible to faecal pollution, particularly after rainfall and occasionally during dry weather conditions, with several potential sources of faecal contamination including upstream sources in the Georges River and stormwater.

Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after no rain, and often after any rainfall.

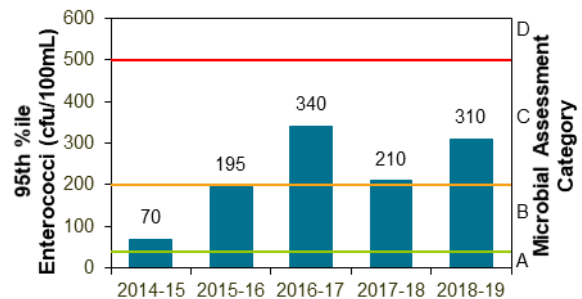
See 'How to read this report' for key to map. The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	88%	100	Stable <span style="background-color: black; color: black; border-radius: 50%; padding: 2px 6px;">●</span>

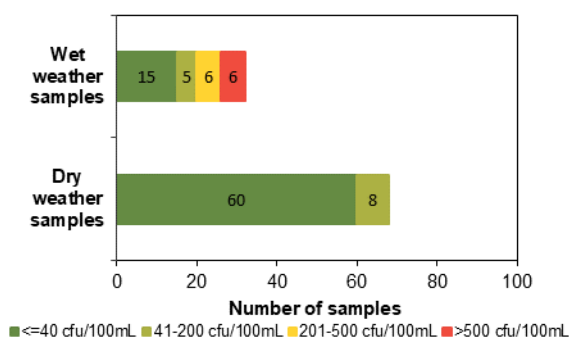
## Sanitary inspection: Moderate



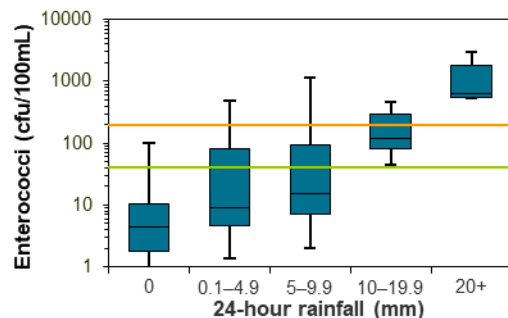
## Microbial Assessment Category: C



## Dry and wet weather water quality



## Water quality in response to rainfall





# Sandringham Baths

Beach grade: G



Sandringham Baths is a netted swimming area near the mouth of the Georges River and is backed by a small beach.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including discharge from the Georges River.

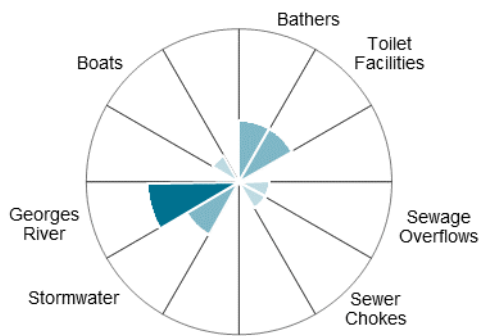
Enterococci levels increased slightly with increasing rainfall, occasionally exceeding the safe swimming limit after 5mm or more of rain, and frequently after 20mm or more of rain.

The site has been monitored since 1994.

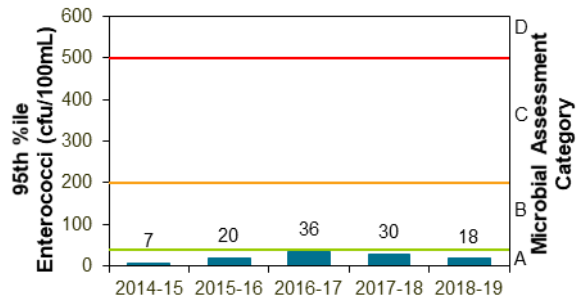
See 'How to read this report' for key to map.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	98%	100	Stable <span style="background-color: #4CAF50; border-radius: 50%; padding: 2px 6px; font-weight: bold;">●</span>

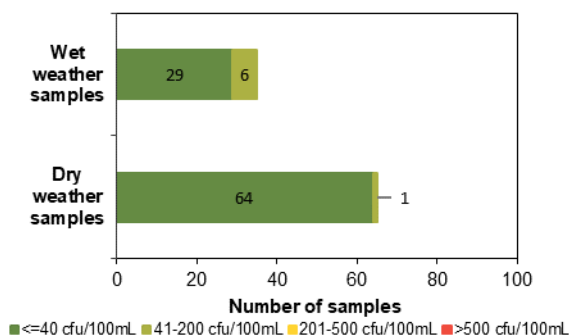
## Sanitary inspection: Moderate



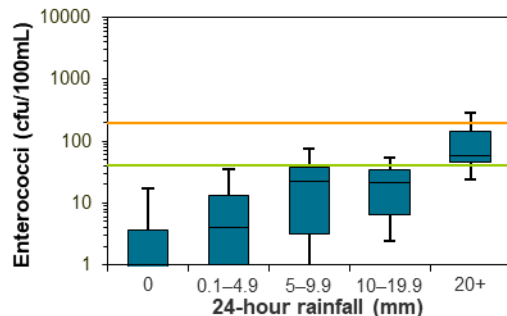
## Microbial Assessment Category: A



## Dry and wet weather water quality



## Water quality in response to rainfall



# Dolls Point Baths

Beach grade: G



Dolls Point Baths is a netted swimming area with a sandy beach at the southern end of Lady Robinsons Beach in Botany Bay.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including discharge from the Georges River.

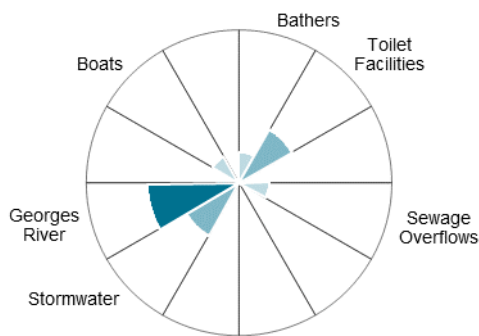
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after little or no rain, and often after 10mm or more of rainfall.

See 'How to read this report' for key to map.

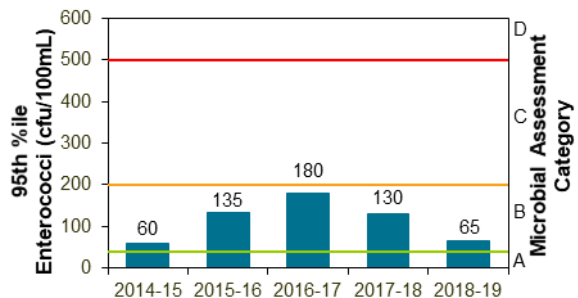
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	94%	100	Stable <span style="background-color: #4CAF50; border-radius: 50%; width: 15px; height: 15px; display: inline-block;"></span>

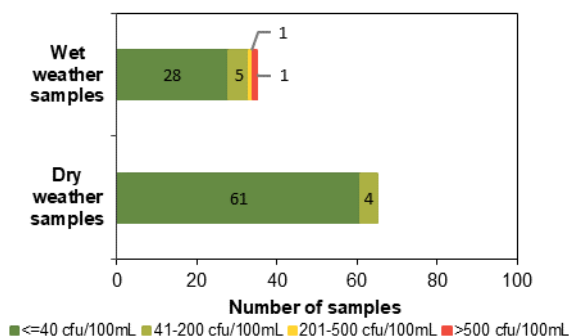
## Sanitary inspection: Moderate



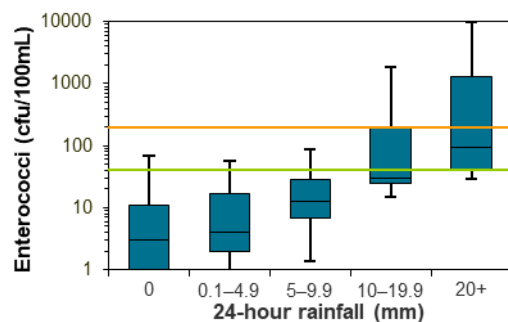
## Microbial Assessment Category: B



## Dry and wet weather water quality



## Water quality in response to rainfall



# Ramsgate Baths

Beach grade:



Ramsgate Baths is a netted swimming enclosure with a sandy beach near the southern end of Lady Robinsons Beach in Botany Bay.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but can be susceptible to pollution after rain, with several potential sources of faecal contamination including discharge from the Georges River.

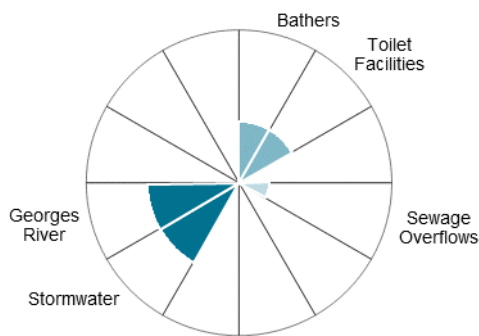
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after light rain and often after 10mm or more of rainfall.

See 'How to read this report' for key to map.

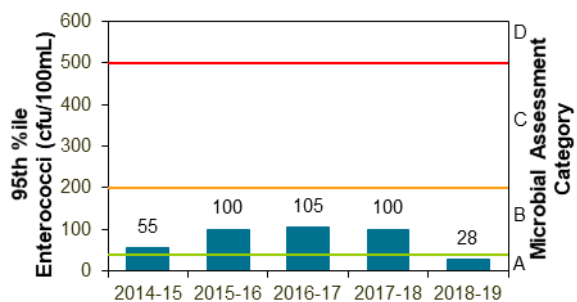
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Nov 2016 to Apr 2019	94%	100	Stable

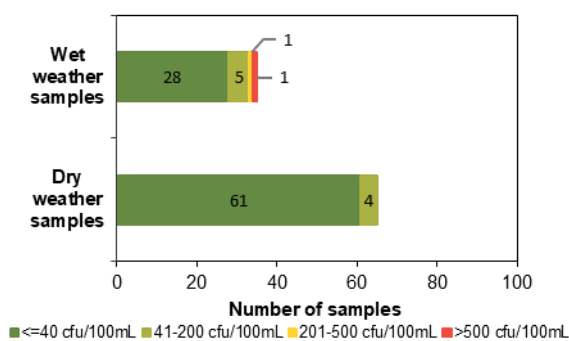
## Sanitary inspection: Moderate



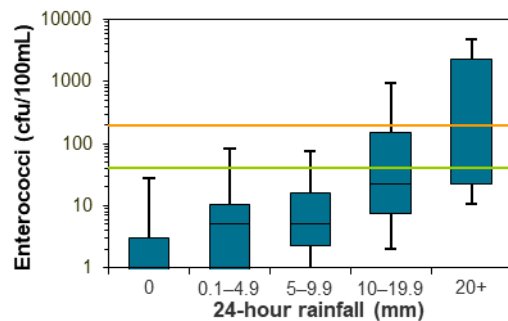
## Microbial Assessment Category: A



## Dry and wet weather water quality

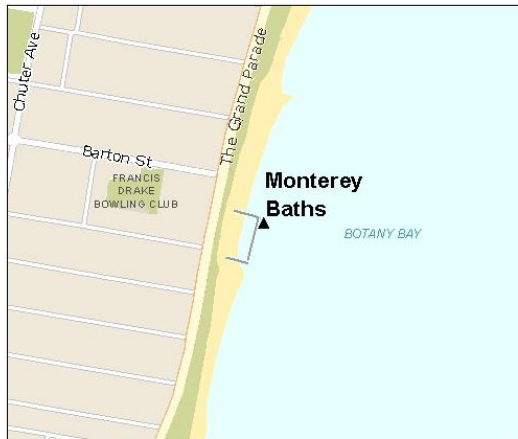


## Water quality in response to rainfall



# Monterey Baths

Beach grade:



Monterey Baths is a netted swimming area with a sandy beach located toward the southern end of Lady Robinsons Beach.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including discharge from the Georges River and stormwater.

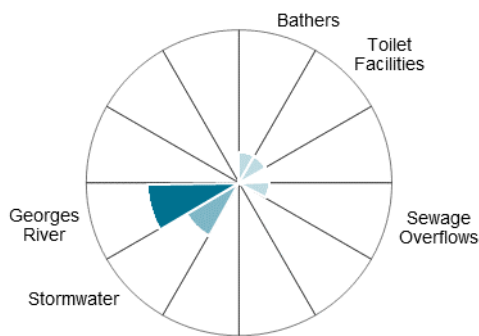
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after little or no rain, and often after 5mm or more of rain.

See 'How to read this report' for key to map.

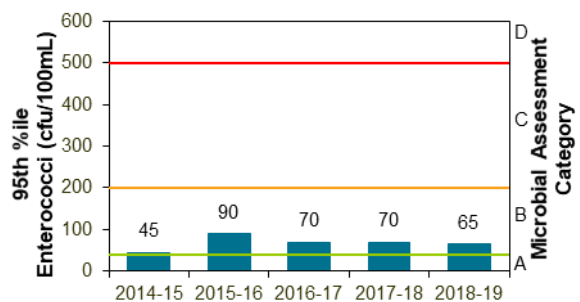
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	91%	100	Stable

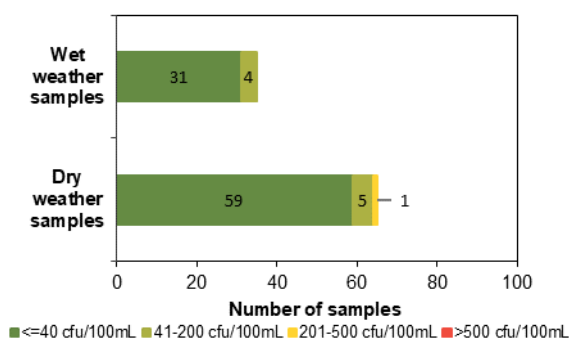
## Sanitary inspection: Moderate



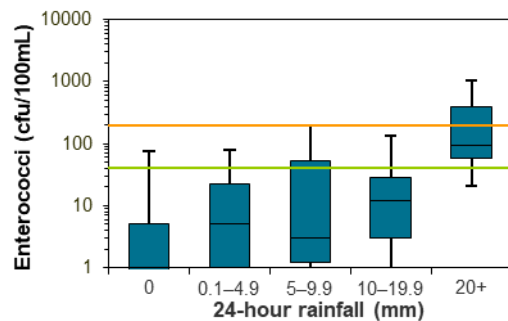
## Microbial Assessment Category: B



## Dry and wet weather water quality



## Water quality in response to rainfall



# Brighton-Le-Sands Baths

Beach grade: G



Brighton-Le-Sands Baths is a netted swimming area at the centre of Lady Robinsons Beach in Botany Bay and is backed by a sandy beach.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including sewage overflows and river discharge.

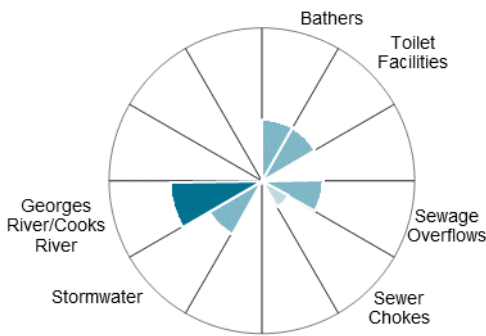
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after little or no rain, and often after 20mm or more of rain.

See 'How to read this report' for key to map.

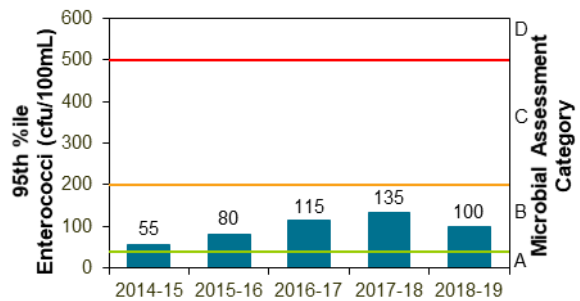
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Nov 2016 to Apr 2019	89%	100	Stable <span style="background-color: #4CAF50; border-radius: 50%; padding: 2px 6px; font-weight: bold;">●</span>

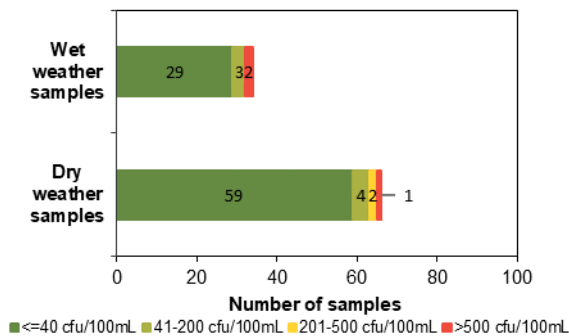
## Sanitary inspection: Moderate



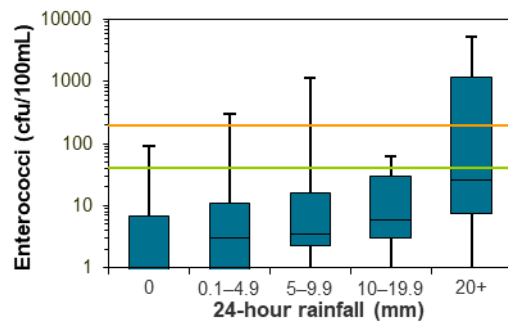
## Microbial Assessment Category: B



## Dry and wet weather water quality



## Water quality in response to rainfall



# Kyeemagh Baths

Beach grade: G



Kyeemagh Baths is a netted swimming area with a sandy beach at the northern end of Lady Robinsons Beach, near the Cooks River mouth.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including the discharge from the Cooks River and sewage overflows.

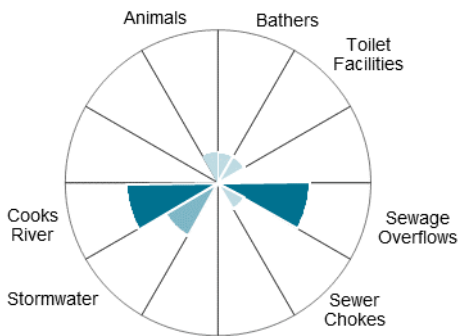
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after little or no rain, and often after 5mm or more of rain.

See 'How to read this report' for key to map.

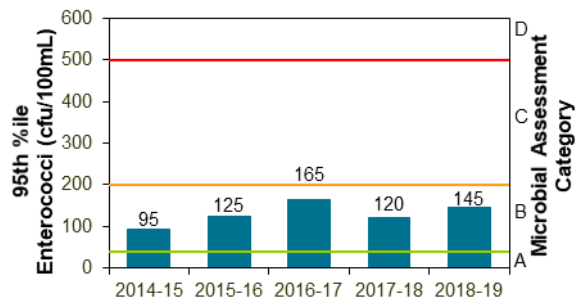
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	89%	100	Stable <span style="background-color: #4CAF50; border-radius: 50%; padding: 2px 6px; font-weight: bold;">●</span>

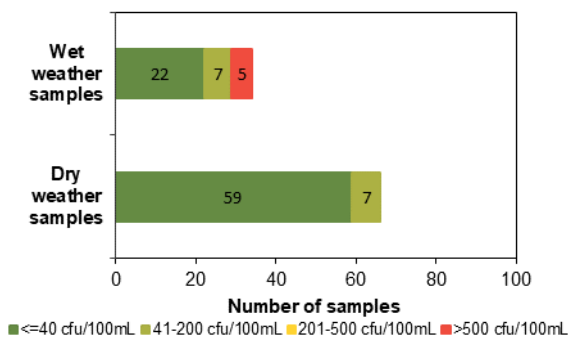
## Sanitary inspection: Moderate



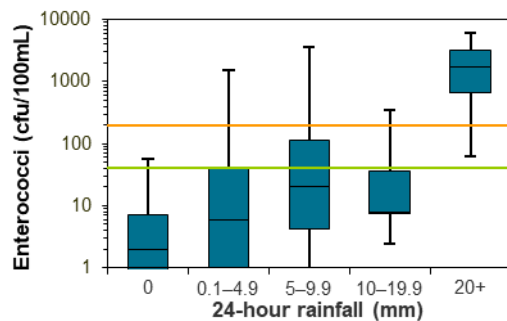
## Microbial Assessment Category: B



## Dry and wet weather water quality



## Water quality in response to rainfall



# Foreshores Beach

Beach grade: **VP**



Foreshores Beach is an unnetted sandy beach in Botany Bay. It is located near a boat ramp, and is adjacent to the Sydney Airport runway and Port Botany.

The Beach Suitability Grade of Very Poor indicates microbial water quality is very susceptible to faecal pollution, with many sources of faecal contamination, including sewage overflows which discharge into Mill Stream.

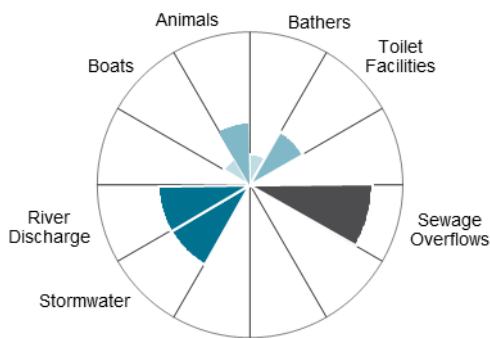
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after no rain, and frequently after 5mm or more of rain.

See 'How to read this report' for key to map.

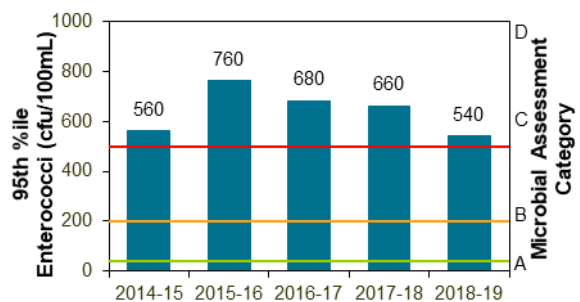
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	81%	100	Stable <span style="color: blue;">●</span>

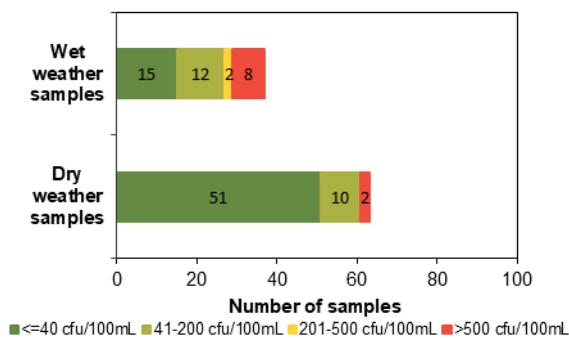
## Sanitary inspection: High



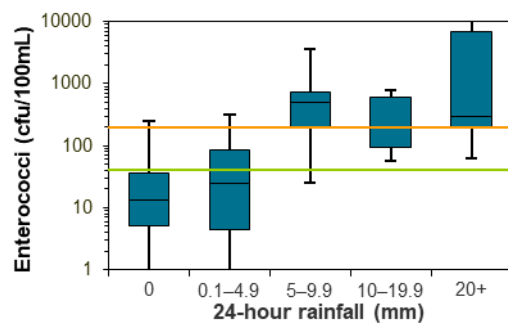
## Microbial Assessment Category: D



## Dry and wet weather water quality

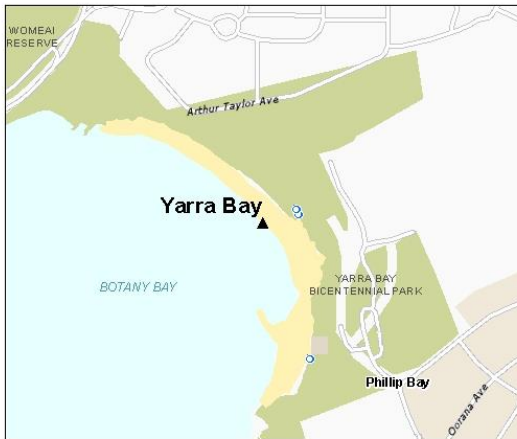


## Water quality in response to rainfall



# Yarra Bay

Beach grade: G



Yarra Bay is a 750 metre long sandy beach in Botany Bay. The swimming area is not netted and has a rock groyne at the southern end.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater which ponds in the middle of the beach.

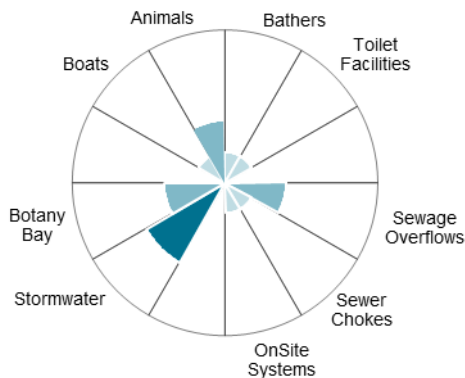
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after no rain and often after light rainfall.

See 'How to read this report' for key to map.

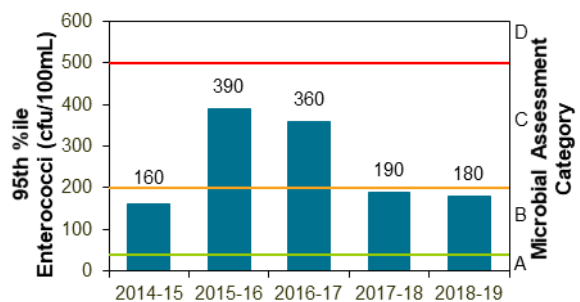
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	89%	100	Stable <span style="background-color: #4CAF50; border-radius: 50%; padding: 2px 6px; font-weight: bold;">●</span>

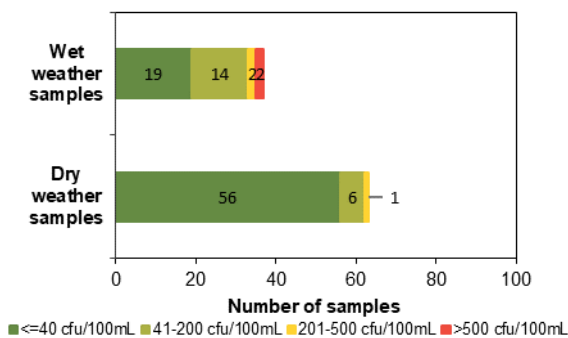
## Sanitary inspection: Moderate



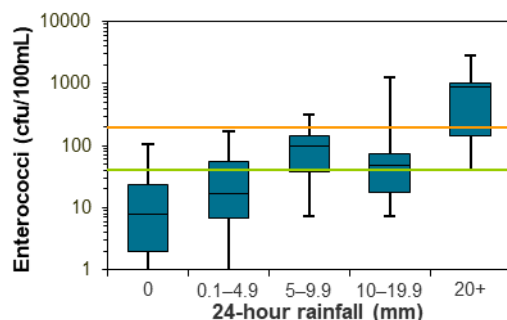
## Microbial Assessment Category: B



## Dry and wet weather water quality



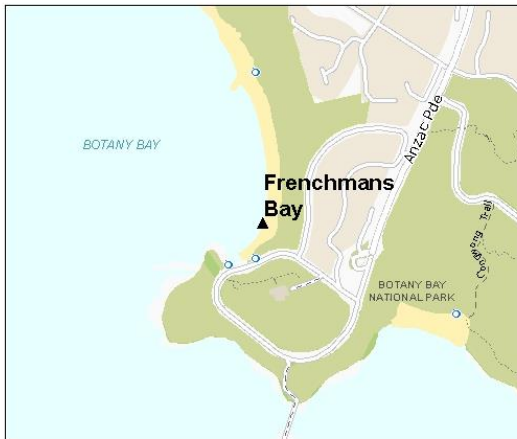
## Water quality in response to rainfall





# Frenchmans Bay

Beach grade:



Frenchmans Bay is a 500 metre long sandy beach in Botany Bay. The swimming area is not netted.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but can be susceptible to pollution after rain, from a number of potential sources of faecal contamination including stormwater.

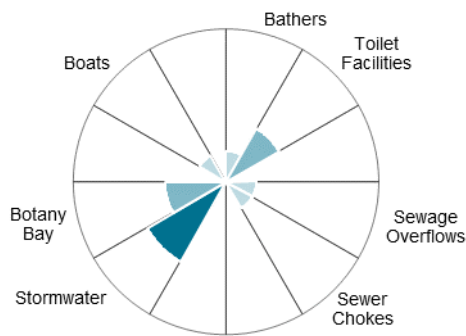
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after little or no rain, and often after 5mm or more of rain.

See 'How to read this report' for key to map.

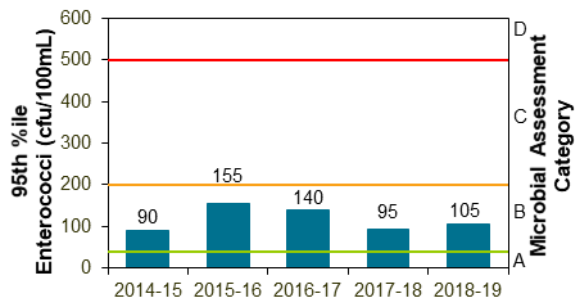
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	86%	100	Stable

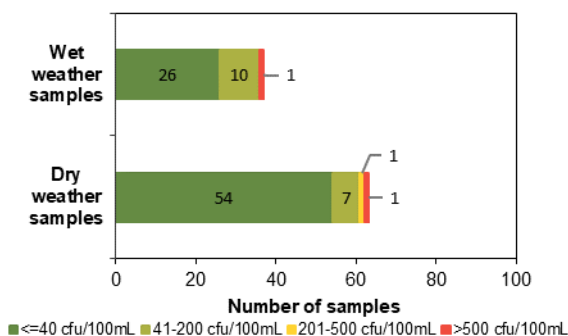
## Sanitary inspection: Moderate



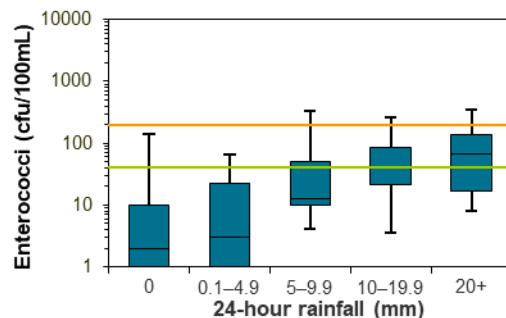
## Microbial Assessment Category: B



## Dry and wet weather water quality



## Water quality in response to rainfall



# Congwong Bay

Beach grade: G



Congwong Bay is a 150 metre long beach near the mouth of Botany Bay. The swimming area is not netted.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but can be susceptible to pollution after rain, with several potential sources of minor faecal contamination.

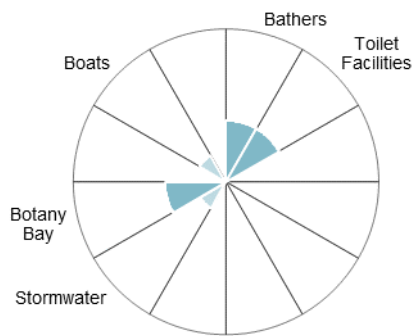
Enterococci levels increased slightly with increasing rainfall, occasionally exceeding the safe swimming limit in response to little or no rain.

See 'How to read this report' for key to map.

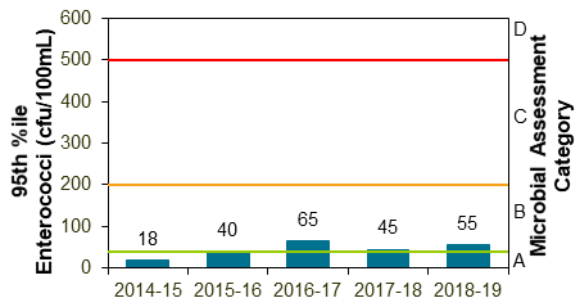
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	May 2017 to Apr 2019	92%	100	Stable <span style="background-color: #4CAF50; border-radius: 50%; padding: 2px 6px; font-weight: bold;">●</span>

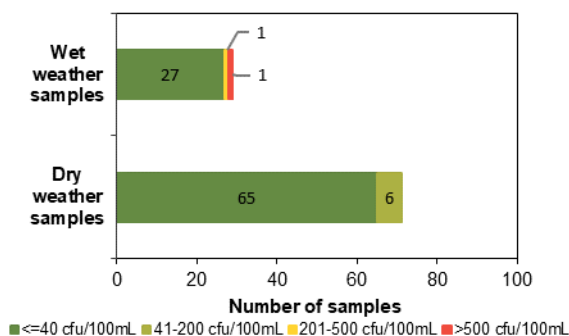
### Sanitary inspection: Low



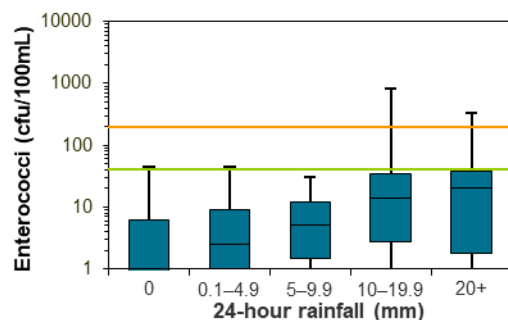
### Microbial Assessment Category: B



### Dry and wet weather water quality



### Water quality in response to rainfall



# Jibbon Beach

Beach grade: **VG**



Jibbon Beach is located at the entrance to Port Hacking. The beach is backed by the Royal National Park and accessed from Bundeena.

The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of significant faecal contamination.

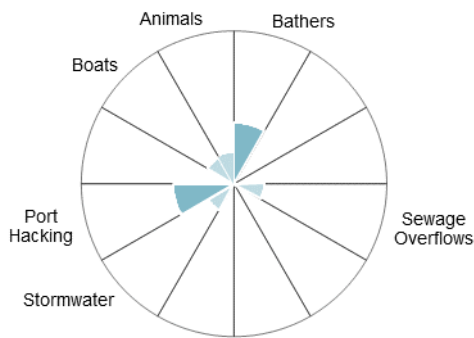
Enterococci levels increased slightly with rainfall, occasionally exceeding the safe swimming limit in response to 10mm or more of rainfall, and often after 20mm or more of rain.

See 'How to read this report' for key to map.

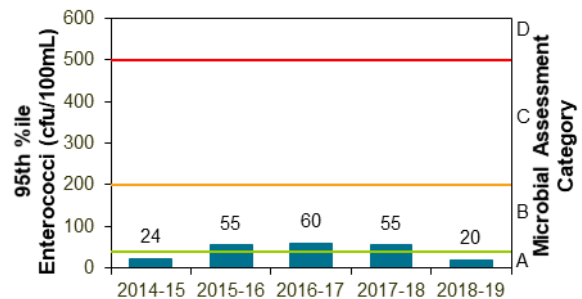
The site has been monitored since 1999.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	95%	100	Improved

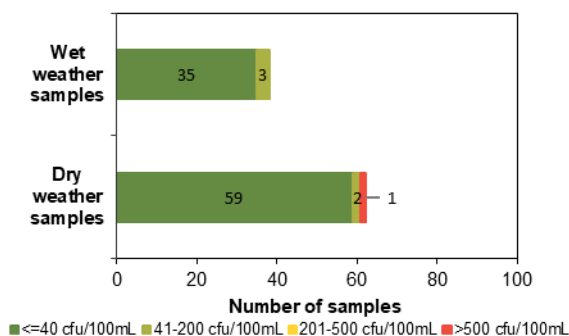
## Sanitary inspection: Low



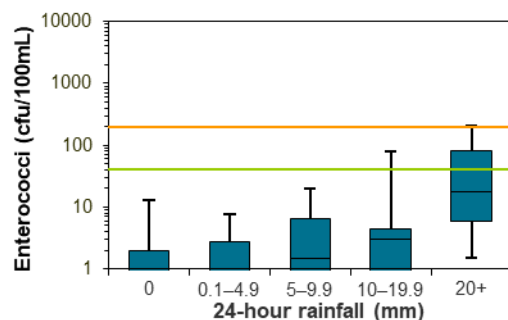
## Microbial Assessment Category: A



## Dry and wet weather water quality

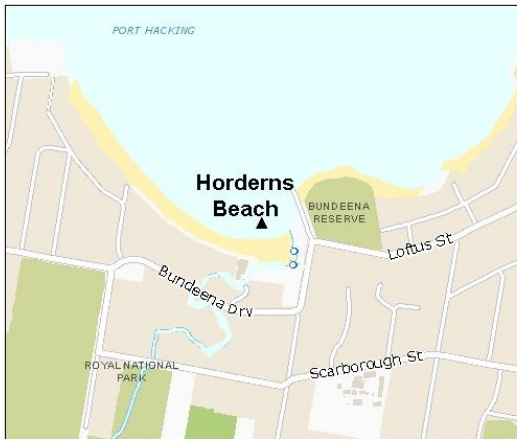


## Water quality in response to rainfall



# Horderns Beach

Beach grade: G



Horderns Beach is located on the southern shore of Port Hacking and is backed by the town of Bundeena.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including Bundeena Creek.

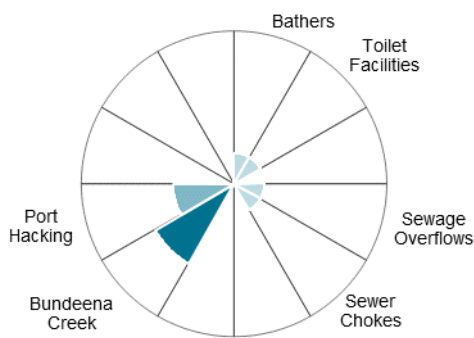
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after little or no rain, and often after 10mm or more of rain.

See 'How to read this report' for key to map.

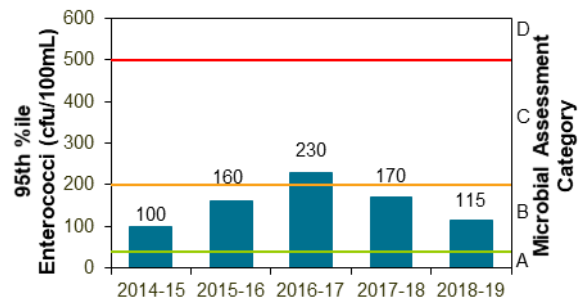
The site has been monitored since 1999.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	85%	100	Stable <span style="background-color: #4CAF50; border-radius: 50%; padding: 2px 6px; font-weight: bold;">●</span>

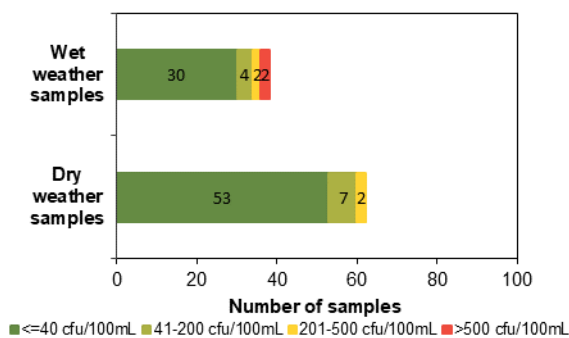
## Sanitary inspection: Moderate



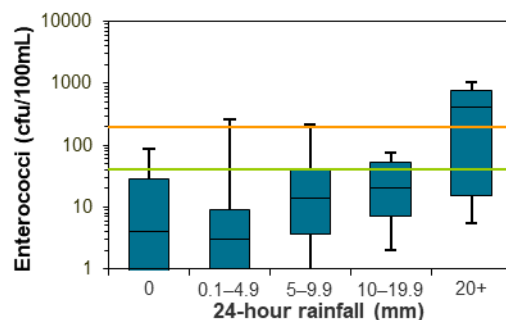
## Microbial Assessment Category: B



## Dry and wet weather water quality



## Water quality in response to rainfall



# Gymea Bay Baths

Beach grade: **F**



Gymea Bay Baths is an enclosed tidal swimming area backed by a narrow sandy beach in the upper reaches of Port Hacking.

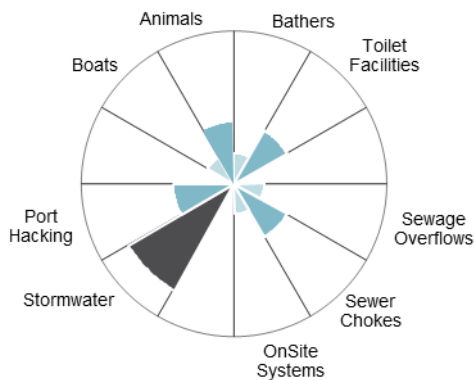
The Beach Suitability Grade of Fair indicates microbial water quality is occasionally susceptible to faecal pollution, usually triggered by rainfall, with several potential sources of faecal contamination including stormwater.

Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after no rain, and often after light rainfall.

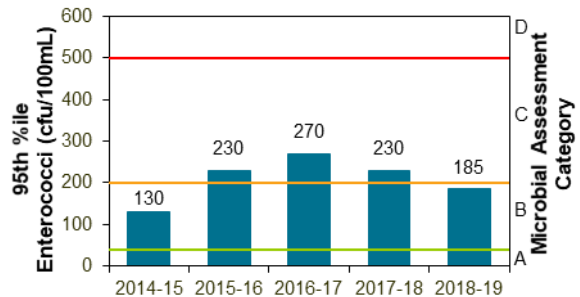
See 'How to read this report' for key to map. The site has been monitored since 1999.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	98%	100	Improved

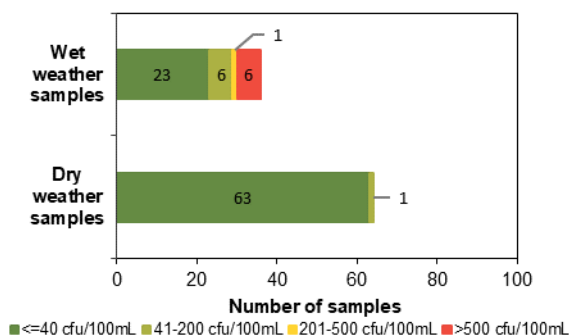
## Sanitary inspection: High



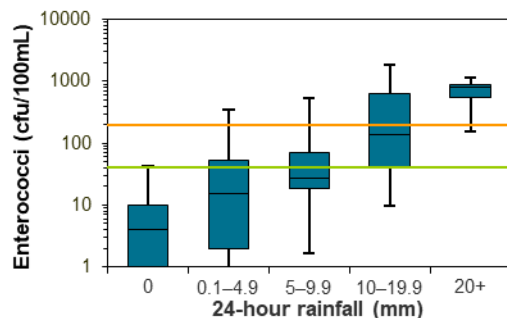
## Microbial Assessment Category: B



## Dry and wet weather water quality

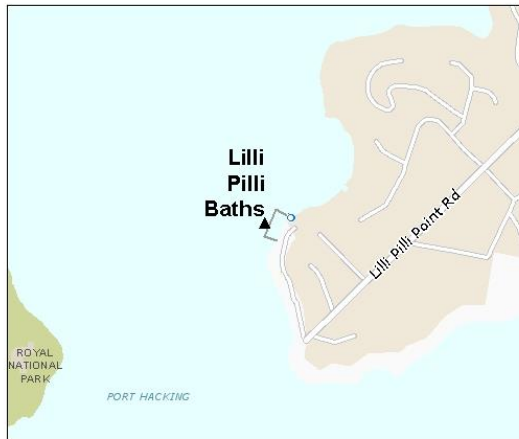


## Water quality in response to rainfall



# Lilli Pilli Baths

Beach grade: G



Lilli Pilli Baths is a netted tidal swimming area on the western side of Lilli Pilli Point in Port Hacking.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

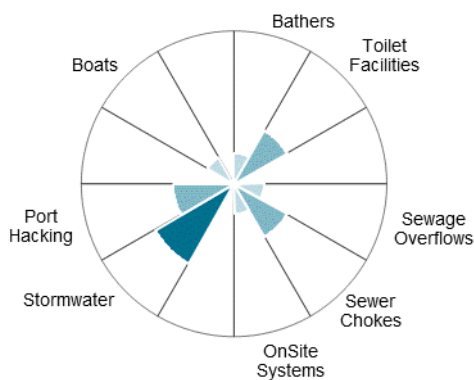
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after light rain and often after 10mm or more of rain.

The site has been monitored since 1999.

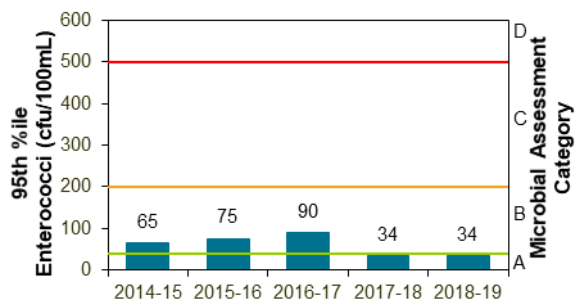
See 'How to read this report' for key to map.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2019	100%	100	Stable <span style="background-color: #4CAF50; border-radius: 50%; padding: 2px 6px;">●</span>

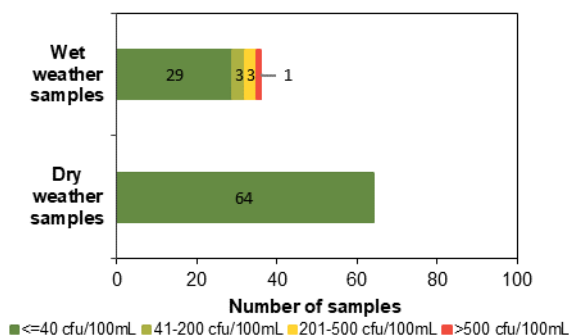
## Sanitary inspection: Moderate



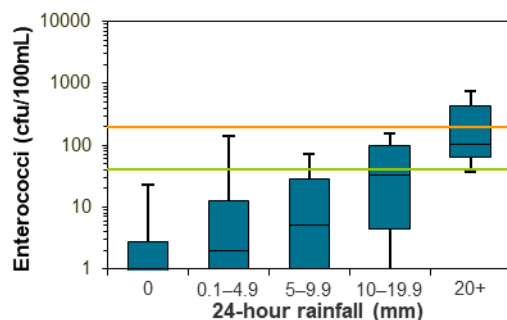
## Microbial Assessment Category: A



## Dry and wet weather water quality

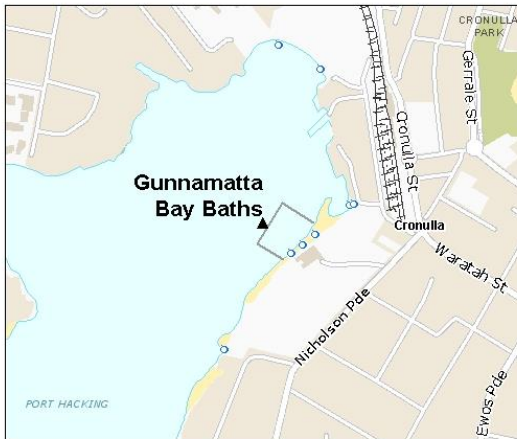


## Water quality in response to rainfall



# Gunnamatta Bay Baths

Beach grade: **G**



Gunnamatta Bay Baths is a netted tidal swimming area in the lower reaches of Port Hacking and is backed by a narrow beach.

The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

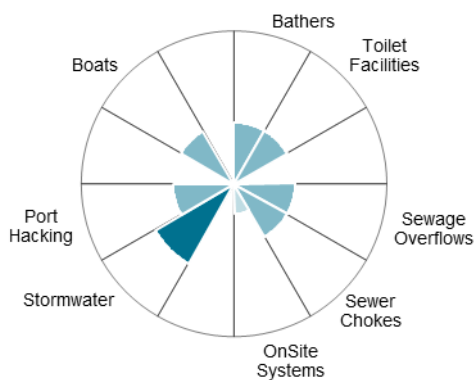
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after no rain and often after 5mm or more of rainfall.

See 'How to read this report' for key to map.

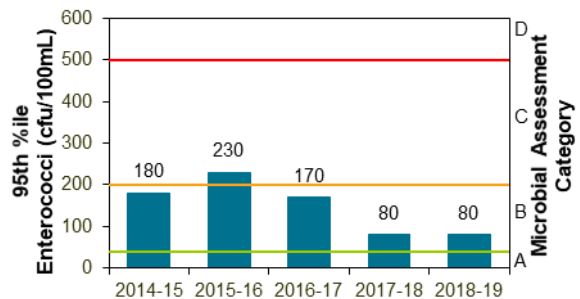
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Dec 2016 to Apr 2018	95%	100	Stable <span style="color: green;">●</span>

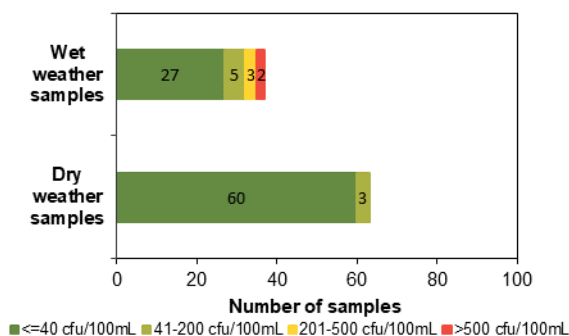
## Sanitary inspection: Moderate



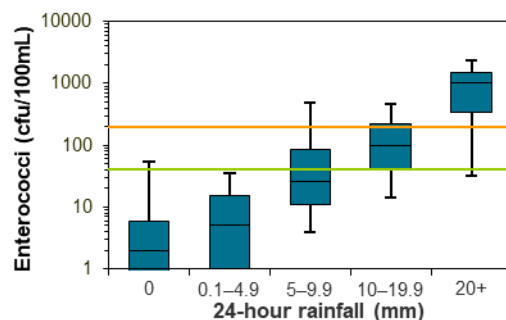
## Microbial Assessment Category: B



## Dry and wet weather water quality



## Water quality in response to rainfall



# How to read this report

## Beach Suitability Grades

Beach Suitability Grades provide an assessment of the suitability of a swimming location for recreation over time and are based on a combination of sanitary inspection (identification and rating of potential pollution sources at a beach) and microbial assessment (water quality measurements gathered over previous years). There are five grades ranging from Very Good to Very Poor:

### **Very Good**

Location has generally excellent microbial water quality and very few potential sources of faecal pollution. Water is considered suitable for swimming almost all of the time

### **Good**

Location has generally good microbial water quality and water is considered suitable for swimming most of the time. Swimming should be avoided during and for up to one day following heavy rain at ocean beaches and up to three days at estuarine sites

### **Fair**

Microbial water quality is generally suitable for swimming, but because of the presence of significant sources of faecal contamination, extra care should be taken to avoid swimming during and for up to three days following rainfall or if there are signs of pollution such as discoloured water or odour or debris in the water

### **Poor**

Location is susceptible to faecal pollution and microbial water quality is not always suitable for swimming. During dry weather conditions, ensure that the swimming location is free of signs of pollution, such as discoloured water, odour or debris in the water, and avoid swimming at all times during and for up to three days following rainfall

### **Very Poor**

Location is very susceptible to faecal pollution and microbial water quality may often be unsuitable for swimming. It is generally recommended to avoid swimming at these sites almost all of the time

Some of the Beach Suitability Grades in this report are **provisional**, as the information required for the analysis is incomplete due to limited bacterial data or limited information on potential pollution sources in a beach catchment.



## The guidelines

The National Health and Medical Research Council's *Guidelines for managing risks in recreational water*<sup>1</sup> were adopted for use in New South Wales in May 2009. These guidelines have been adopted in all Australian states and territories and are supported by guidance notes developed by the Department of Health Western Australia<sup>2</sup>.

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<sup>1</sup>NHMRC 2008, *Guidelines for managing risks in recreational water*, National Health and Medical Research Council, Australian Government Publishing Service, Canberra, ACT.

<sup>2</sup>Department of Health, Western Australia 2007, *Microbial quality of recreational water guidance notes in support of chapter 5 of the National Health and Medical Research Council guidelines for managing risks in recreational water, 2006*, Department of Health, Western Australia and The University of Western Australia, October 2007, available at [ww2.health.wa.gov.au/Articles/A\\_E/Environmental-waters-publications](http://ww2.health.wa.gov.au/Articles/A_E/Environmental-waters-publications), accessed on 17/06/19.

## Enterococci

**The national guidelines advocate the use of enterococci as the single preferred faecal indicator in marine waters.**

These bacteria are excreted in faeces and are rarely present in unpolluted waters. Enterococci have shown a clear dose–response relationship to disease outcomes in marine waters in the northern hemisphere. In accordance with the guidelines, Beachwatch tests for enterococci only. The enterococci density in water samples is analysed in the laboratory using method AS/NZS 4276.9:2007.

**AS/NZS 4276.9:2007**, *Water microbiology Method 9: Enterococci – Membrane filtration method (ISO 7899-2:2000, MOD)*, Standards Australia International Ltd, Sydney and Standards New Zealand, Wellington.

Enterococci are measured in colony forming units per 100mL of sample (cfu/100mL).

Beach Suitability Grades are determined by using the following matrix:

		Microbial Assessment Category			
		A	B	C	D
Sanitary Inspection Category	Very Low	Very Good	Very Good	Follow Up	Follow Up
	Low	Very Good	Good	Follow Up	Follow Up
	Moderate	Good	Good	Poor	Poor
	High	Good	Fair	Poor	Very Poor
	Very High	Follow Up	Fair	Poor	Very Poor

Using the Beach Suitability Grade classification matrix, sites assigned a moderate Sanitary Inspection Category can only be rated as Good or Poor with no option of Fair grades. This can create the impression of a large change in water quality when in fact there need only be a slight increase in bacterial counts to push it over the threshold, with no significant increase in the risk to public health.

## Microbial Assessment Category (MAC)

There are four Microbial Assessment Categories (A to D) and these are determined from the 95<sup>th</sup> percentile of an enterococci dataset of at least 100 data points. Each MAC is associated with a risk of illness determined from epidemiological studies. The risks of illness shown below are not those associated with a single data point but are the overall risk of illness associated with an enterococci dataset with that 95<sup>th</sup> percentile<sup>1</sup>.

### Risk of illness associated with Microbial Assessment Categories

Category	Enterococci (cfu/100mL)	Illness risk*
A	≤40	GI illness risk: <1% AFR illness risk: <0.3%
B	41–200	GI illness risk: 1–5% AFR illness risk: 0.3–1.9%
C	201–500	GI illness risk: >5–10% AFR illness risk: >1.9–3.9%
D	>500	GI illness risk: >10% AFR illness risk: >3.9%

\* GI = gastrointestinal illness; AFR = acute fever and rash

### Calculating the MAC

The 95<sup>th</sup> percentile is a useful statistic for summarising the distribution of enterococci data at a site. It embodies elements of both the location of the distribution (how high/low the enterococci counts are) and the scale of the distribution (how variable the enterococci counts are).

The 95<sup>th</sup> percentile values for each of the four Microbial Assessment Categories were determined by the World Health Organization using enterococci data collected from swimming locations across Europe. These values will represent different probabilities of illness if the distribution of enterococci data from swimming locations in New South Wales differs from the European distribution.

<sup>1</sup> Wyer MD, Kay D, Fleisher JM, Salmon RL, Jones F, Godfree AF, Jackson G and Rogers A 1999, An experimental health related classification for marine waters, *Water Research* 33(3), pp.715–722.

In recognition of this issue, Dr Richard Lugg (Department of Health, Western Australia) has developed a Microsoft® Excel tool for calculating a modified 95<sup>th</sup> percentile that takes into account the distribution of data. This tool has been used to calculate the 95<sup>th</sup> percentile values presented in this report and has been adopted for use by other state governments in Australia.

The tool can be downloaded from:  
[http://ww2.health.wa.gov.au/Articles/A\\_E/Environmental-waters-publications](http://ww2.health.wa.gov.au/Articles/A_E/Environmental-waters-publications) under *Forms and templates* [accessed 17/06/19].

## Sanitary Inspection Category (SIC)

More information about the **sanitary inspection** process is available at:

[www.environment.nsw.gov.au/topics/water/beaches/reporting-beach-water-quality/guidelines/sanitary-inspection](http://www.environment.nsw.gov.au/topics/water/beaches/reporting-beach-water-quality/guidelines/sanitary-inspection).

The aim of a sanitary inspection is to identify all sources of faecal contamination that could affect a swimming location and assess the risk to public health posed by these sources. It is an assessment of the likelihood of bacterial contamination from identified pollution sources and should, to some degree, correlate with the bacterial water quality results obtained from sampling.

The main sources of faecal contamination considered in the sanitary inspection are: bathers, toilet facilities, wastewater treatment plants (WWTPs), sewage overflows, sewer chokes, onsite systems, wastewater re-use, stormwater, river discharge, lagoons, boats and animals.

Rivers, lakes and estuaries themselves can be potential sources of faecal contamination to sites located in these waterbodies, with contaminated water from upstream or surrounding areas impacting water quality at the swimming location. This source is captured in river discharge or lagoon category, and shown as the waterbody in the sanitary inspection charts.

Through the sanitary inspection process, beaches are categorised to reflect the overall likelihood of faecal contamination. There are five categories: Very Low, Low, Moderate, High and Very High.



Stormwater at Coogee Beach  
Photo: Beachwatch/EES, DPIE

Stormwater in urban areas often contains sewage from leakages, overflows or sewer chokes when the sewerage system fails.

Sewage overflows can occur in wet weather when the network has exceeded capacity due to rainwater entering the system. The mix of sewage and rainwater discharges from designated overflow points and drains to waterways, usually via the stormwater system. Overflows from the sewerage system can also occur in dry weather due to mechanical failure or power outage.




Sewer chokes occur due to blockages in the pipes usually due to tree roots, oil, grease or debris. This causes sewage to back up and escape via sewer inspection points, designed overflow structures or cracks in the pipes, then drain to waterways, usually via the stormwater system.

Where there is a known history or evidence of sewage overflows or sewer chokes in the catchment they are identified as sources of potential faecal contamination, particularly if they are located close to the swimming location. In these instances, the risk posed by stormwater is adjusted accordingly to ensure the overall risk to public health is not overestimated.

## Explanation of tables

Each region contains tables listing all monitored swimming sites including site type, beach grade and change in grade from the previous year.

The following symbols are used to show the change in beach grade from the previous year:

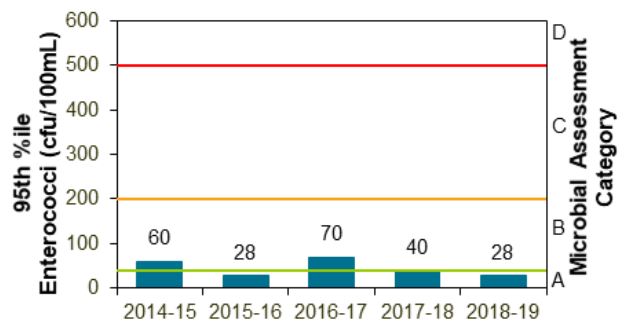
-  Stable
-  Improved
-  Declined

A provisional grade indicates the assessment is based on limited data collected during the assessment period and should not be compared to the beach grade from the previous year.

# Explanation of graphs, charts, and information bars on beach pages

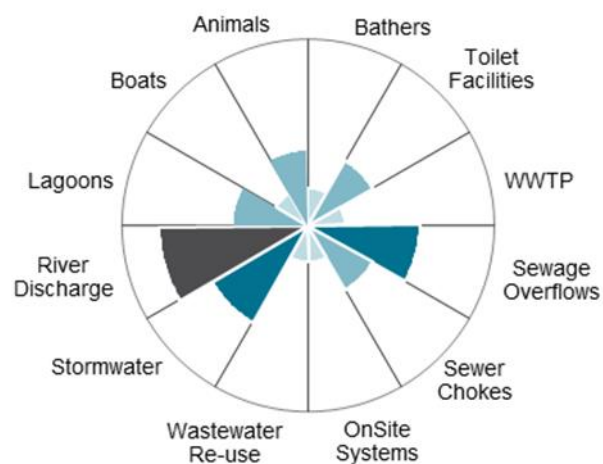
## Microbial Assessment Category (MAC) chart

On each beach page, the MACs for the last five years are displayed on a simple bar chart. The MAC for the current year is based on enterococci data collected during the assessment period. The bars are labelled with the 95th percentile value for each year and the thresholds dividing the A, B, C and D categories are marked in green, amber and red for reference.



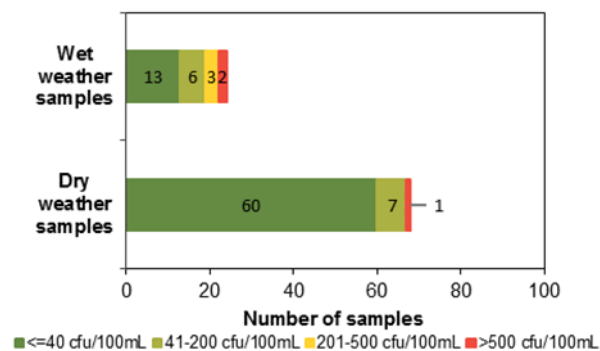
## Sanitary Inspection Category (SIC) chart

The results of the sanitary inspection for each swimming location are presented in a radar pie chart. The chart shows the likelihood that each identified pollution source will contribute to faecal contamination at a swimming site, as indicated by the size and colour of the segment, ranging from very low (lightest colour) to very high (darkest colour) as shown below. The sum of these contributions is the overall likelihood, or Sanitary Inspection Category.



## Wet and dry weather water quality chart

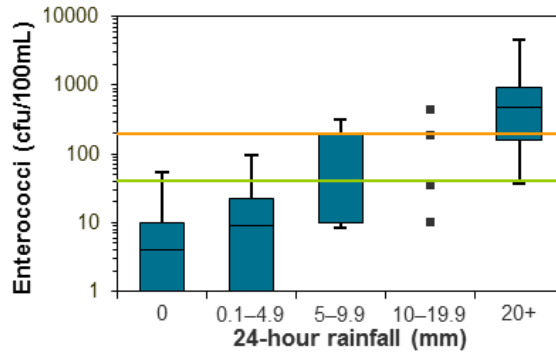
Enterococci levels in wet and dry weather conditions are presented for each swimming location as a bar graph. All data collected during the assessment period is included in the analysis. Dry weather is defined as no rainfall recorded in the previous 24 hours. Each bar is colour coded to show the number of enterococci results up to 40cfu/100mL, between 41 and 200cfu/100mL, between 201 and 500cfu/100mL and greater than 500cfu/100mL. These categories reflect the Microbial Assessment Category thresholds and are coloured on the graph as dark green, light green, amber and red respectively.



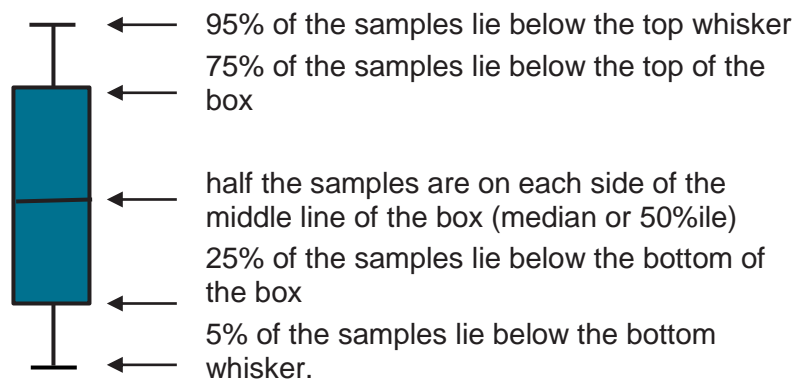
It is expected that swimming sites with lower levels of flushing show some elevated bacterial results in dry weather samples (no rainfall in the previous 24 hours) due to the longer time needed to recover from a rainfall event. At some estuarine and lake/lagoon swimming locations the impacts of stormwater pollution on beach water quality may be detected up to three days after rainfall.

## Water quality in response to rainfall

Trends in enterococci levels in response to rainfall are shown using a box plot. For reference, enterococci levels of 40cfu/100mL and 200cfu/100mL are indicated with a green and orange line, respectively. The 40cfu/100mL level is referred to as the 'safe swimming limit'. The enterococci data were obtained from the last five years of monitoring. Rainfall data were obtained from rain gauges situated close to the sample site and are 24-hour totals to 9am on the day of sampling. If there are fewer than five enterococci data points in a rainfall category, individual data points are presented instead of a box plot. At sites where many results are below the detection limit (1cfu/100mL), only the upper portion of the box plots will be visible.



Each part of the box plot represents a significant percentile value of the sample population:



### Information bars

Information bars on each beach page provide a summary of details about the swimming site.
















The **assessment period** shows the timeframe in which the water samples were collected. The NHMRC guidelines state beach grades should be determined from the most recent 100 water quality results collected within a five-year period. The assessment period varies between sites depending on sampling frequency.

Dry weather samples suitable for swimming (**dry weather swimmability**) shows the percentage of water samples with enterococci levels below 40cfu/100mL. Dry weather is defined as no rainfall in the previous 24 hours. Swimming sites with lower levels of flushing often have a lower percentage of dry weather samples within the safe swimming limit due to the impacts of rainfall detected up to three days after the event.



## Explanation of maps

A map of individual swimming locations is presented on each beach page. The scale of the maps is 1:10,000. Each map shows the location of the sampling site, land use and features such as surf lifesaving clubs. Potential pollution sources such as stormwater drains, sewage pumping stations, wastewater treatment plants, lagoons, rivers and creeks, are shown where accurate data is held.

Key to maps	
	Sampling Site
	Surf Life Saving Club
	Wastewater Treatment Plant
	Sewage Pumping Station
	Sewage Overflow
	Stormwater Drain
	Water
	Baths
	National Park/Reserve/ Other Park
	Built-up Area
	Sand
	Roads
	Major Roads
	Baths – Netted Area
	Breakwater/Wharf