NSW GOVERNMENT

Department of Planning, Industry and Environment

State of the beaches 2020–2021

Sydney region

Beachwatch

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Contents

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 2020–2021, 91% 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. While this is a slight decline in overall performance from the previous year, it reflects the wet weather conditions and flooding experienced over summer and early autumn. 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 2020–2021

Beach monitoring in NSW

Bronte 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.

Rainfall impacts

During 2020–2021, 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 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 2020–2021 are based on water quality data collected over the last two to four years. Rainfall over this period has been diverse:

- 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
- 2019–2020: average to below average rainfall, except for some isolated wet weather events and wet February
- 2020–2021: variable rainfall with some very wet months over summer and early autumn.

See the section on **How to read this report** on page 139 for an explanation of the graphs, tables and Beach Suitability Grades.

Sydney's total rainfall in winter 2020 was close to the long-term average. Moderate to heavy rain events occurred several times in June 2020 and early August 2020. Low pressure systems in July 2020 brought very wet weather and associated flooding, with many sites recording more than double their long-term monthly totals.

The Sydney region received near average rainfall totals in spring 2020, with most of the rain falling between 25 and 26 October and during the first week of November 2021.

While summer rainfall totals were close to average in Sydney overall, the northern suburbs experienced heavy rainfall in December 2020, with more than double the monthly average recorded at Mona Vale with 176 mm and Avalon Beach with 189 mm of rain for the month. Rainfall totals were below average for many sites in southern Sydney during December 2020 to February 2021.

March 2021 was significantly wet, with more than three times the long-term monthly rainfall average falling at many sites across Sydney, particularly in the north and city. Mona Vale and Collaroy had their highest March rainfall totals on record with 426 mm and 411 mm of rain for the month, respectively. Rose Bay and Randwick received their highest March rainfall totals in more than 20 years, with 382 mm and 397 mm of rain for the month.
The severe wet weather resulted in major flooding of coastal waterways, with the Hawkesbury–Nepean experiencing its most significant flooding for more than 30 years. Beachwatch issued an extreme wet weather and flooding alert on all Sydney daily beach pollution forecasts during March 2021, advising that stormwater pollution and floodwaters may be impacting swimming sites for an extended period, with lifeguard reports of floating debris and discoloured water continuing after the rain had ceased.

April 2021 was dry with well below average rainfall totals recorded for the month.

Marine algal blooms

Water NSW reported several occurrences of marine algal blooms at Sydney beaches in 2020–2021. Algal blooms of the genus *Trichodesmium* were reported at Watsons Bay and North Head in Sydney Harbour in October 2020, and occurred at Jibbon Beach in Port Hacking in March 2021. Marine algae advisories were issued on the Beachwatch and Water NSW websites.

Marine algal bloom present in the water

Photo: Chad Weston/NPWS, DPIE

The appearance of **marine algae** is sometimes mistaken for **sewage contamination** or **oil slicks**, due to a strong odour and red or brown discolouration in the water caused by the blooms.

As a precaution, direct contact with algae should be avoided as it can cause skin and eye irritations. The marine algal blooms dissipated with changes in tide and wind conditions.

Beachwatch issues daily **beach pollution forecasts** to enable beach goers 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.

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
Northern Sydney – Ocean beaches			
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	P	▼
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	G	●
Northern Sydney – Pittwater			
Barrenjoey Beach	Estuarine	G	●
Paradise Beach Baths	Estuarine	G	●

Swimming site	Site type	Beach Suitability Grade	Change
Northern Sydney – Pittwater (continued)			
Clareville Beach	Estuarine	G	●
Taylors 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	●
Central Sydney – Ocean beaches			
Bondi Beach	Ocean beach	G	●
Tamarama Beach	Ocean beach	G	●
Bronte Beach	Ocean beach	G	●
Clovelly Beach	Ocean beach	VG	●
Gordons Bay	Ocean beach	VG	↑
Coogee Beach	Ocean beach	G	●
Maroubra Beach	Ocean beach	VG	↑
South Maroubra Beach	Ocean beach	VG	↑
South Maroubra Rockpool	Ocean baths	G	●
Malabar Beach	Ocean beach	G	↑
Little Bay Beach	Ocean beach	G	●
Central Sydney – Sydney Harbour			
Camp Cove	Estuarine	VG	●
Watsons Bay	Estuarine	G	●
Parsley Bay	Estuarine	G	●
Nielsen Park	Estuarine	VG	●
Rose Bay Beach	Estuarine	G	↑

Swimming site	Site type	Beach Suitability Grade	Change
Central Sydney – Sydney Harbour (continued)			
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	P	▼
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	●
Southern Sydney – Ocean beaches			
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
Southern Sydney – Ocean beaches (continued)			
North Cronulla Beach	Ocean beach	VG	●
South Cronulla Beach	Ocean beach	VG	●
Shelly Beach	Ocean beach	VG	●
Oak Park	Ocean beach	VG	●
Southern Sydney – Botany Bay and lower Georges River			
Silver Beach	Estuarine	G	●
Como Baths	Estuarine	G	●
Jew Fish Bay Baths	Estuarine	G	●
Oatley Bay Baths	Estuarine	G	●
Carss Point Baths	Estuarine	G	●
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	P	●
Yarra Bay	Estuarine	G	●
Frenchmans Bay	Estuarine	P	▼
Congwong Bay	Estuarine	G	●
Southern Sydney – Port Hacking			
Jibbon Beach	Estuarine	VG	●
Horderns Beach	Estuarine	G	●
Gymea Bay Baths	Estuarine	P	▼

Swimming site	Site type	Beach Suitability Grade	Change
Southern Sydney – Port Hacking (continued)			
Lilli Pilli Baths	Estuarine	G	●
Gunnamatta Bay Baths	Estuarine	G	●

Beach Suitability Grade					Change		
VG	G	F	P	VP	↑	●	↓
Very Good	Good	Fair	Poor	Very Poor	Improved	Stable	Declined

Northern Sydney (Pittwater to Manly)

Overall results

94%

swimming sites graded Good or Very Good

Thirty of the 32 swimming sites were graded as Very Good or Good in 2020–2021. While this is a decline in performance on the previous year, it is still a very good result.

Percentage of sites graded as Very Good or Good:

- 2020–2021: 94%
- 2019–2020: 100%
- 2018–2019: 97%
- 2017–2018: 100%.

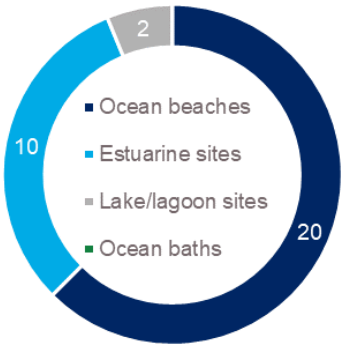
See the section on **How to read this report** on page 139 for an explanation of the graphs, tables and Beach Suitability Grades.

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.

Best beaches

Palm Beach, Whale Beach, Avalon Beach, Bilgola Beach, Newport Beach, Bungan Beach, Mona Vale Beach, Dee Why Beach, South Curl Curl 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

Beach Suitability Grades for Northern Sydney ocean beaches

All 20 ocean beaches were graded as Very Good or Good in 2020–2021.

Palm Beach, Whale Beach, Avalon Beach, Bilgola Beach, Newport Beach, Bungan Beach, Dee Why Beach, Mona Vale Beach and South Curl Curl Beach 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.

Mona Vale Beach was upgraded to Very Good from Good in the previous year, due to improved microbial water quality. The microbial water quality is close to the threshold between Good and Very Good and has fluctuated between these grades over the past few years. Elevated bacterial levels were often recorded after heavy rainfall.

Warriewood Beach, Turimetta Beach, North Narrabeen Beach, Collaroy Beach, Long Reef Beach, North Curl Curl Beach, Freshwater Beach, Queenscliff Beach, North Steyne Beach, South Steyne Beach and Shelly Beach 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.

Estuarine beaches

Beach Suitability Grades for Northern Sydney estuarine beaches

All 10 estuarine swimming sites in Pittwater were graded as Very Good or Good in 2020–2021.

The Basin and Great Mackerel Beach were graded as Very Good. 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.

Elvina Bay was downgraded to Good from Very Good in the previous year. The microbial water quality at this site is close to the threshold between Good and Very Good and has changed between these grades over recent years. While water quality is mostly suitable for swimming during dry weather and after light to moderate rainfall, elevated

bacterial levels were regularly recorded following heavy rainfall.

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

Lake/lagoon swimming sites

Beach Suitability Grades for Northern Sydney lake/lagoon swimming sites

The two swimming sites in Narrabeen Lagoon, Birdwood Park and Bilarong Reserve, were graded as Poor in 2020–2021, a decline from Good grades in the previous year. Water quality at these sites was mostly suitable for swimming during dry weather, with 85% and 77% of dry weather samples within the safe swimming limit for Birdwood Park and Bilarong Reserve, respectively. However, enterococci levels increased with increasing rainfall, and often exceeded the safe swimming limit after light rainfall.

Prior to this year's Poor grade, Birdwood Park in Narrabeen Lagoon was graded as Good for several years. Birdwood Park 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 declined to Poor from Good in 2019–2020. The microbial water quality at this site remains close to the threshold between Good and Poor, with the site fluctuating several times between the grades over the past several years. 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 stormwater runoff to the lagoon.

The amount of time the lagoon is open or closed influences water quality at Birdwood Park and Bilarong Reserve lagoon sites. During the assessment period, Narrabeen Lagoon has closed naturally 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. Council undertook large-scale clearance works in 2018, which kept the lagoon entrance open until October 2019 before it closed naturally. The lagoon entrance remained closed until it was mechanically opened during a storm in February 2020 and remained open until July 2020. The lagoon entrance has periodically opened and closed on five separate occasions, remaining closed for short durations of between a week to a

month. The lagoon entrance was open at the end of March 2021 through to April 2021, which allowed the lagoon to be well flushed by clean ocean water.

Management

Patrolled ocean beach
Photo: Beachwatch/EES, DPIE

With funding from the NSW Government's Coastal and Estuary Grants Program, a group of councils (including Northern Beaches, Hawkesbury, Ku-ring-gai, The Hills, Central Coast and Hornsby) have completed the Hawkesbury–Nepean River System Coastal Management Program (CMP) Stage 1 Scoping Study. The Grants Program has also provided funding for Stage 2 investigations, which are currently underway.

The development of a CMP will allow councils to identify catchment pressures in the system (including Pittwater, Broken Bay and Brisbane Water), to 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.

Under the NSW Government's Coastal and Estuary Grants Program, funding has been given to Northern Beaches Council to prepare the first stage, the scoping study, of the CMP for Collaroy–Narrabeen Beach and Fishermans Beach, and Bilgola and Mona Vale (Basin) Beaches. The development of a CMP will allow the council to identify coastal hazards (which could include some water quality management actions) and prioritise initiatives to manage these.

Northern Beaches Council

Long Reef Beach
Photo: Cameron Board/EES, DPIE

Northern Beaches Council proactively inspects and cleans out 240 stormwater quality improvement devices. Work is continuing to standardise measurement of gross pollutants and debris and improve data management across the amalgamated council. During 2020–2021, one new gross pollutant trap was constructed at Newport.

One major sediment removal project took place in 2020–2021, removing 100–120 tonnes of sediment from Careel Creek, Avalon, which leads to Pittwater. Major sediment removal projects were also undertaken 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's Waterway Health monitoring program is in its 10th year. The program continues to assess waterways and enables council to investigate opportunities to improve the health and amenity of these natural assets.

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.

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.

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.

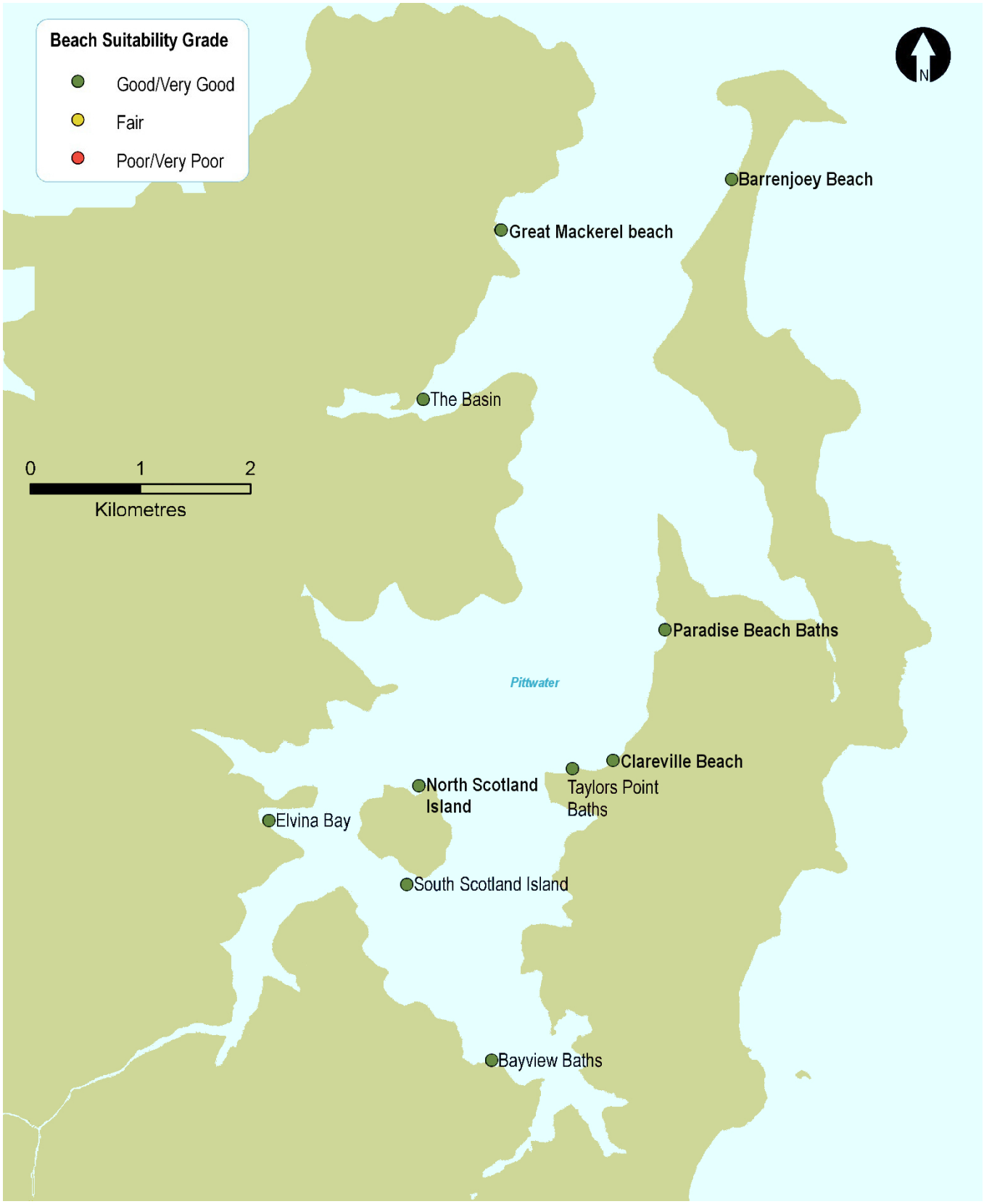
Under the previous *Coastal Protection Act 1979*, councils developed a **Coastal Zone Management Plan** (CZMP) to address coastal issues. Councils can continue to implement priority actions from certified CZMPs with funding assistance from the NSW Government's Coastal and Estuary Grants Program until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

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.

The Basin
Photo: Cameron Board/EES, DPIE

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



Sampling sites and Beach Suitability Grades in Pittwater

Palm Beach

Beach grade: VG

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

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

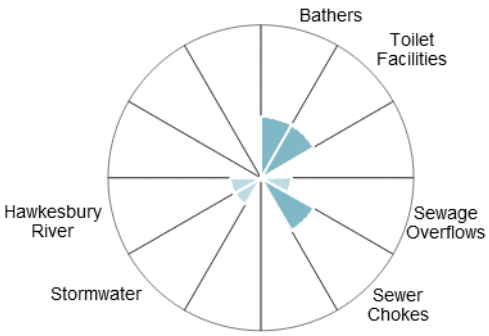
The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of faecal contamination.

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

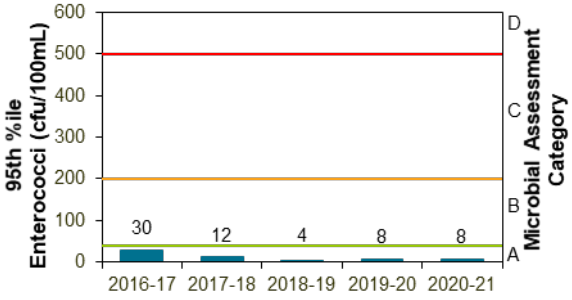
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jul 2019 to Apr 2021	100%	100	Stable

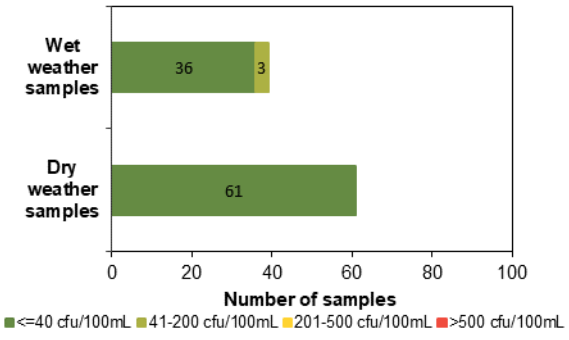
Sanitary inspection: Low



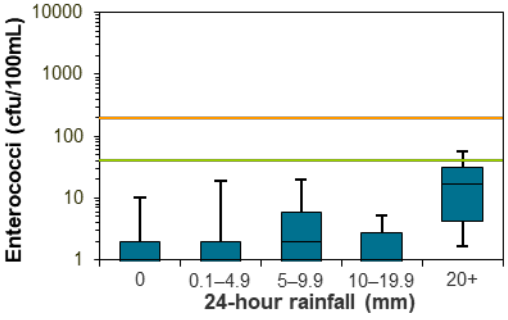
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



Whale Beach

Beach grade: VG

See ‘How to read this report’ for key to map.

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

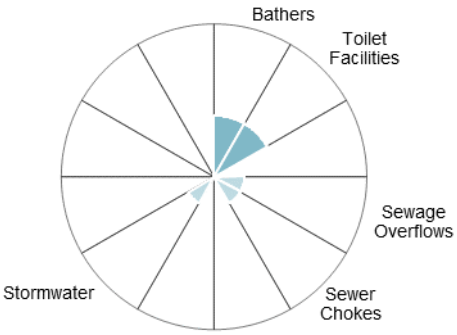
The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of faecal contamination.

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

The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jul 2019 to Apr 2021	98%	100	Stable

Sanitary inspection: Low



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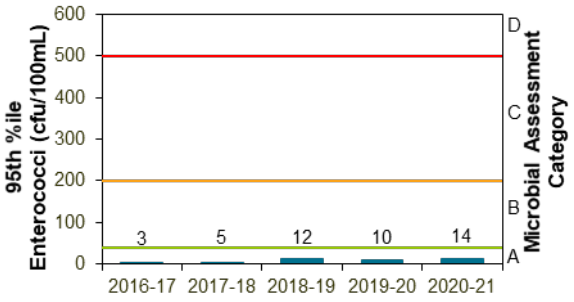
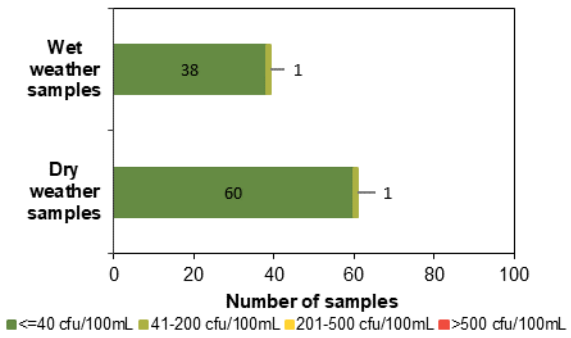
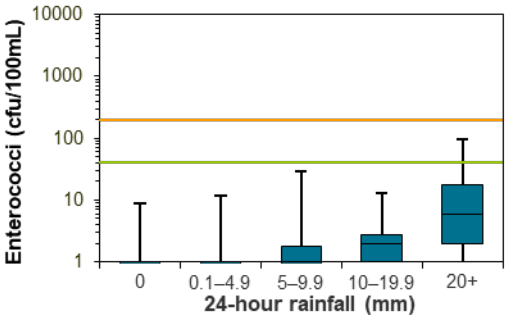


Dry and wet weather water quality



Water quality in response to rainfall



Avalon Beach

Beach grade: VG

See ‘How to read this report’ for key to map.

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

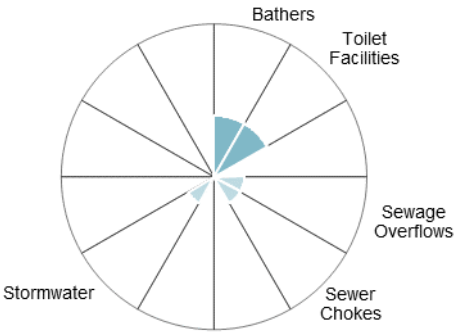
The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of faecal contamination.

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

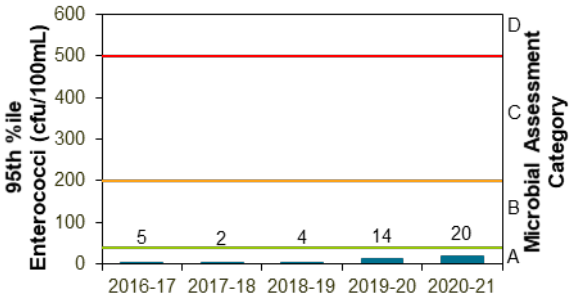
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jul 2019 to Apr 2021	98%	100	Stable

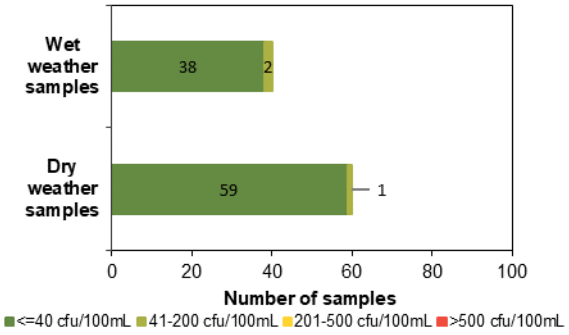
Sanitary inspection: Low



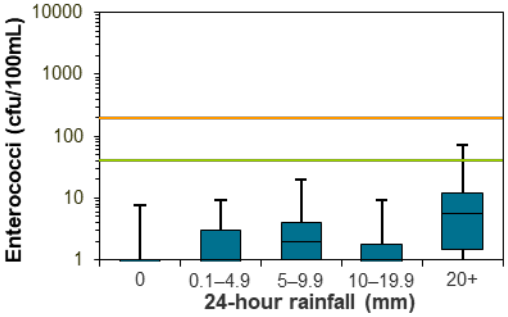
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



Bilgola Beach

Beach grade: VG

See ‘How to read this report’ for key to map.

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

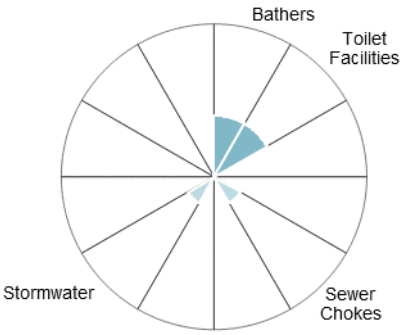
The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of faecal contamination.

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

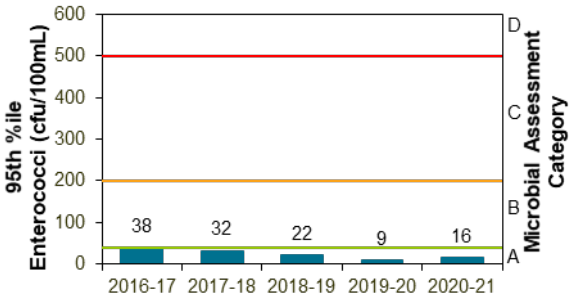
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jun 2019 to Apr 2021	100%	100	Stable

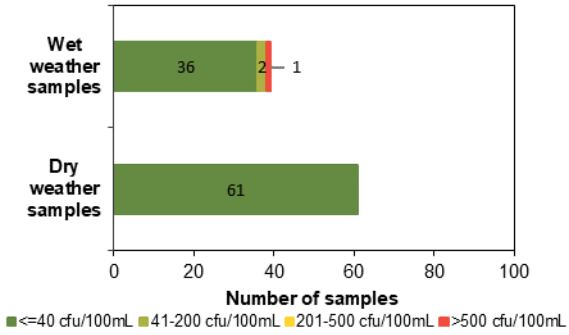
Sanitary inspection: Low



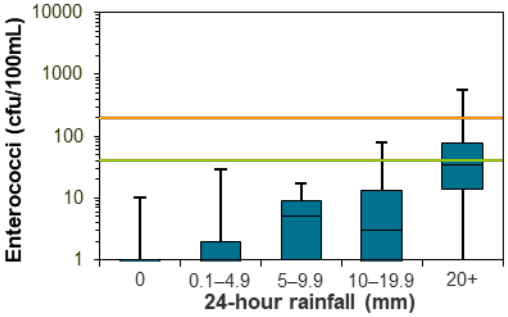
Microbial Assessment Category: A



Dry and wet weather water quality

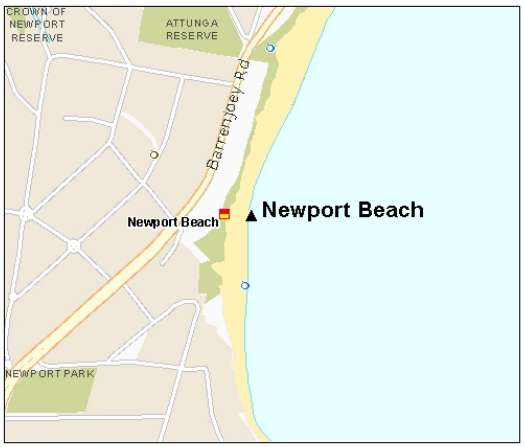


Water quality in response to rainfall



Newport Beach

Beach grade: VG



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

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

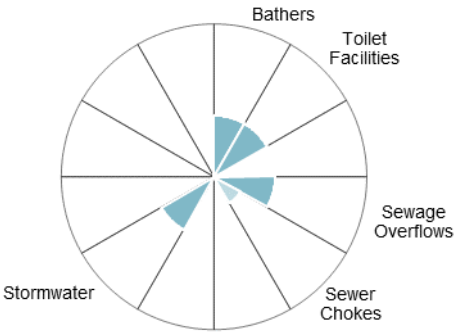
The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of significant faecal contamination.

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

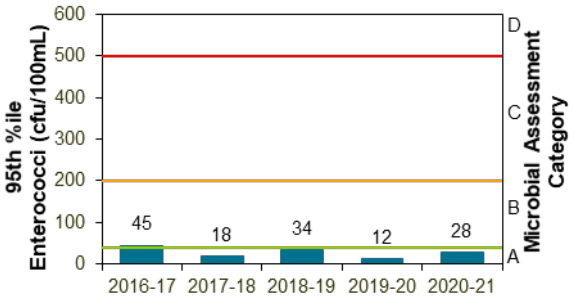
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jul 2019 to Apr 2021	98%	100	Stable

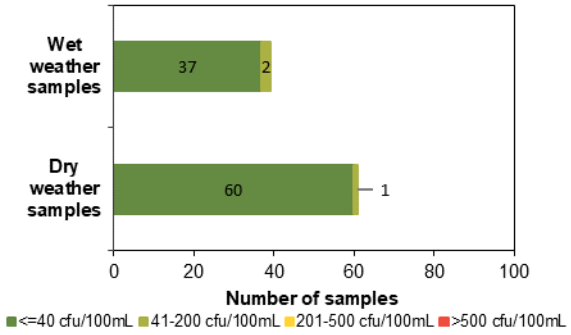
Sanitary inspection: Low



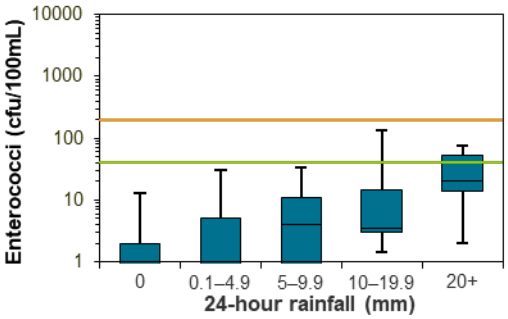
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



Bungan Beach

Beach grade: VG

See ‘How to read this report’ for key to map.

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

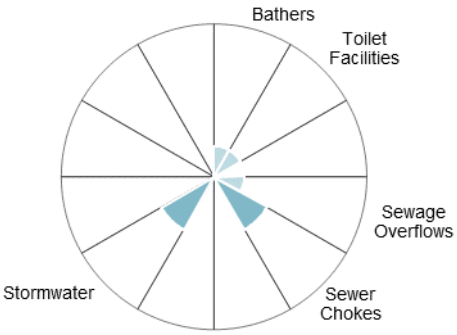
The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of significant faecal contamination.

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

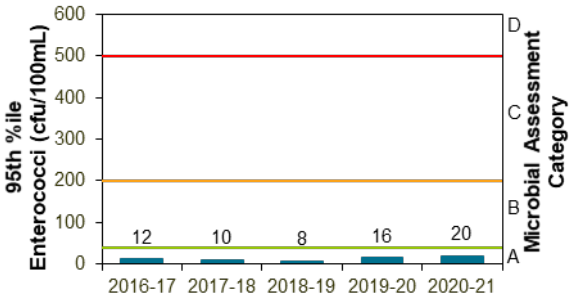
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jun 2019 to Apr 2021	100%	100	Stable

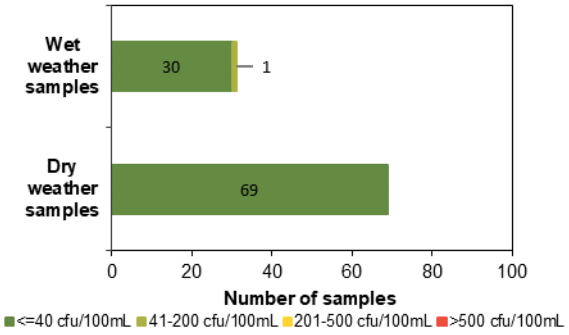
Sanitary inspection: Low



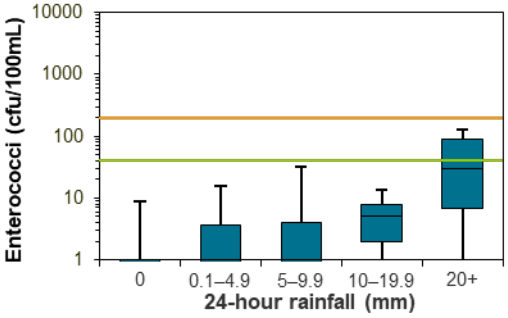
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



Mona Vale Beach

Beach grade: VG

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

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

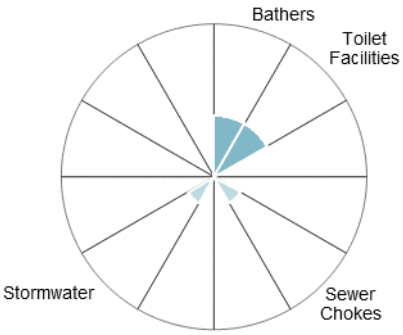
The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of significant faecal contamination.

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

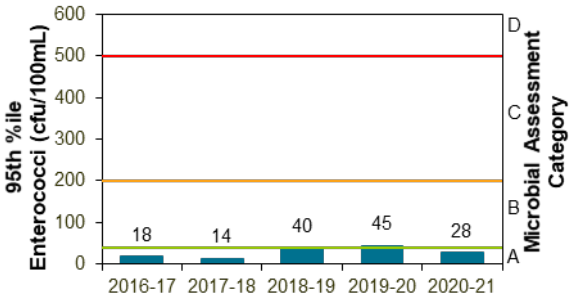
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jul 2019 to Apr 2021	100%	100	Improved

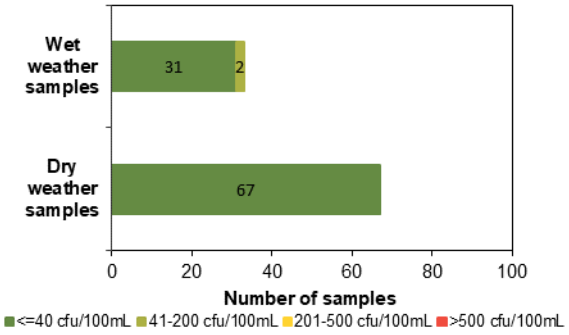
Sanitary inspection: Low



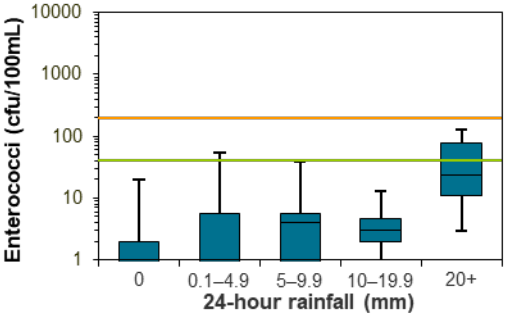
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



Warriewood Beach

Beach grade: G

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

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

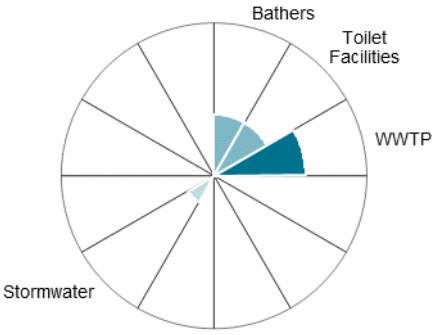
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but can be susceptible to pollution after rain, with several potential sources of faecal contamination including Warriewood Wastewater Treatment Plant (WWTP).

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

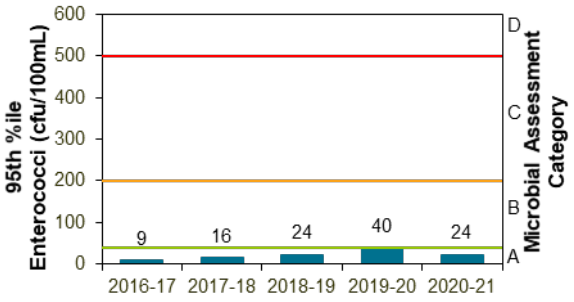
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jun 2019 to Apr 2021	97%	100	Stable

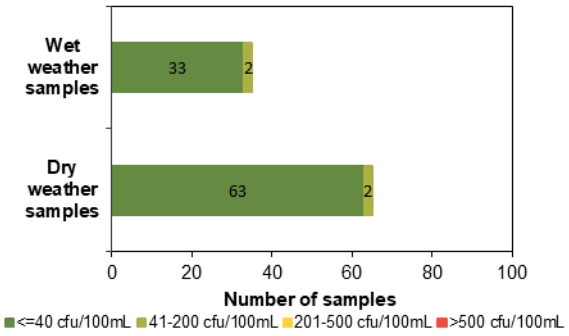
Sanitary inspection: Moderate



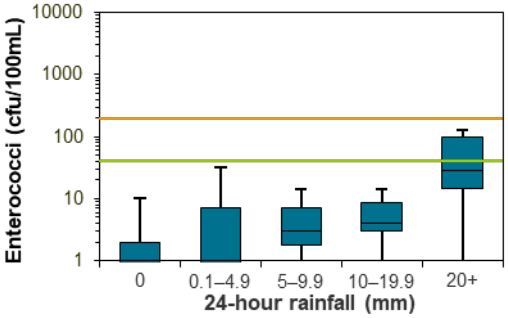
Microbial Assessment Category: A



Dry and wet weather water quality

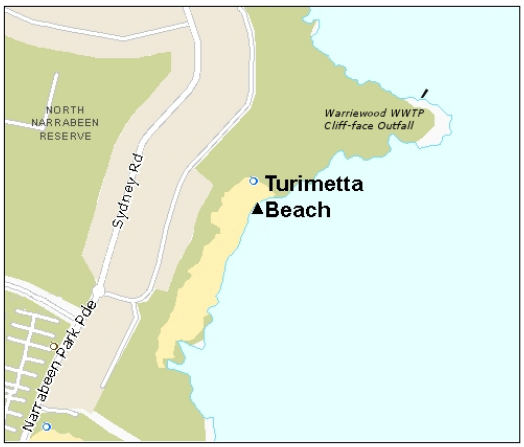


Water quality in response to rainfall



Turimetta Beach

Beach grade: G



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

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

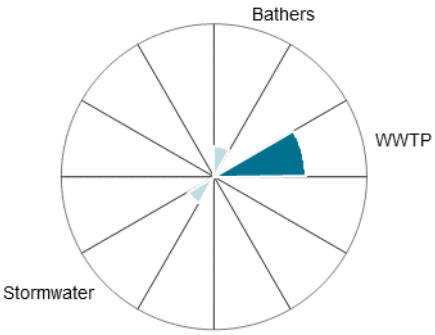
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including Warriewood WWTP.

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

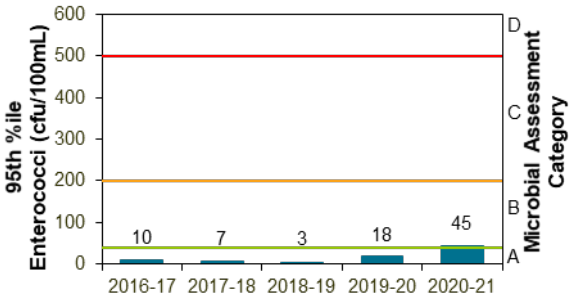
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jun 2019 to Apr 2021	98%	100	Stable

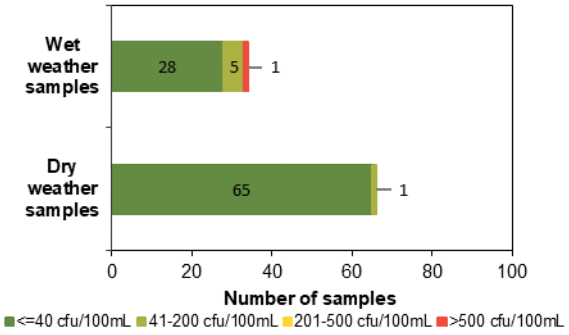
Sanitary inspection: Moderate



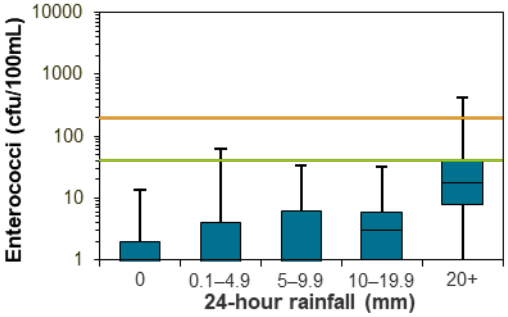
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



North Narrabeen Beach

Beach grade: G

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

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

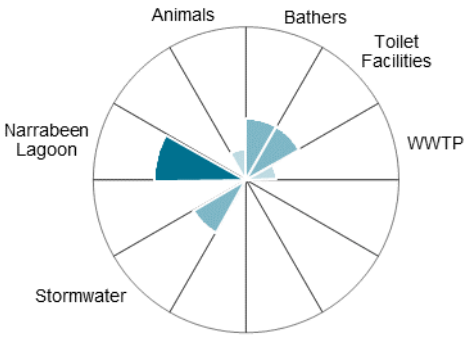
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including discharge from Narrabeen Lagoon.

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

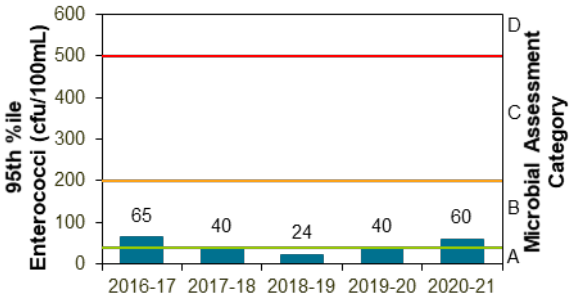
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jun 2019 to Apr 2021	97%	100	Stable

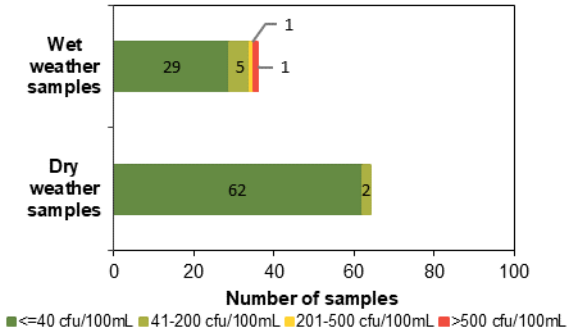
Sanitary inspection: Moderate



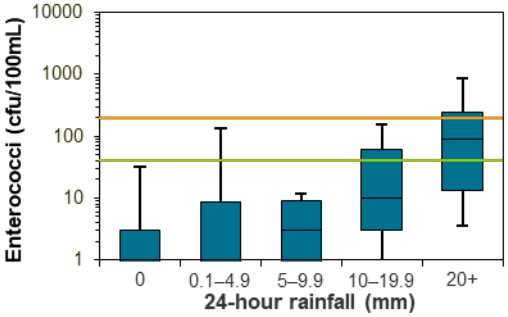
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Narrabeen Lagoon (Birdwood Park)

Beach grade: P

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

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

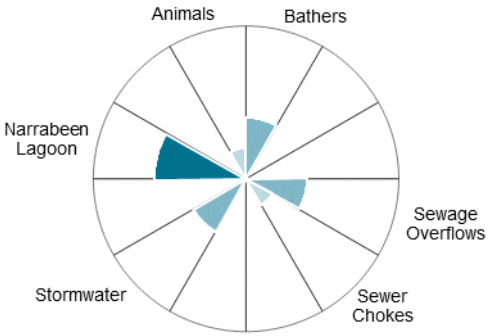
The Beach Suitability Grade of Poor indicates microbial water quality is susceptible to faecal pollution, particularly after rainfall and occasionally during dry weather conditions, with several potential sources of faecal contamination including from elsewhere within the lagoon.

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

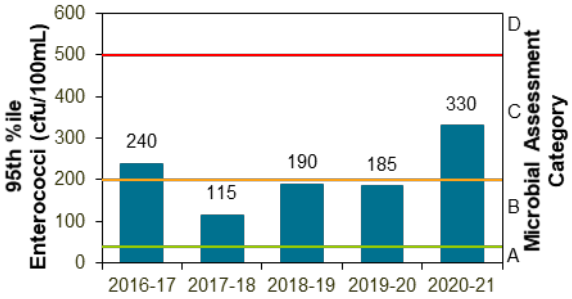
The site has been monitored since 2004.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Lagoon	Jul 2019 to Apr 2021	85%	100	Declined

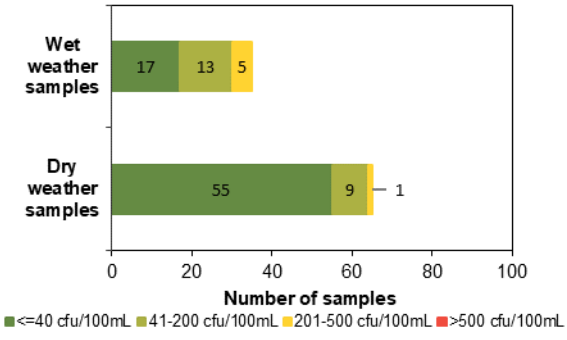
Sanitary inspection: Moderate



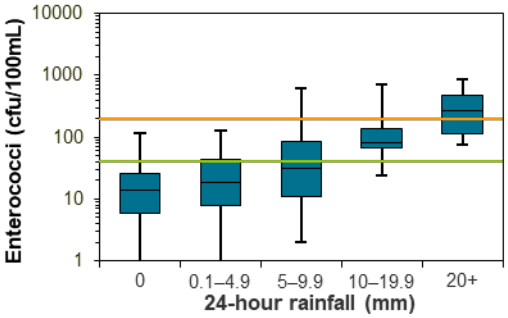
Microbial Assessment Category: C



Dry and wet weather water quality



Water quality in response to rainfall



Bilarong Reserve

Beach grade: P

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

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

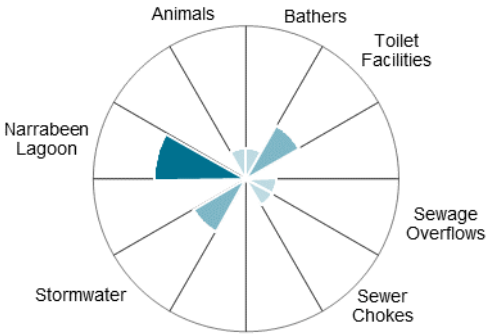
The Beach Suitability Grade of Poor indicates microbial water quality is susceptible to faecal pollution, particularly after rainfall and occasionally during dry weather conditions, with several potential sources of faecal contamination including from elsewhere within the lagoon.

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

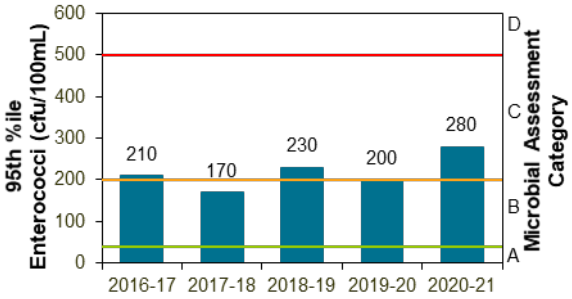
The site has been monitored since 2014.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Lagoon	Jun 2019 to Apr 2021	77%	100	Declined

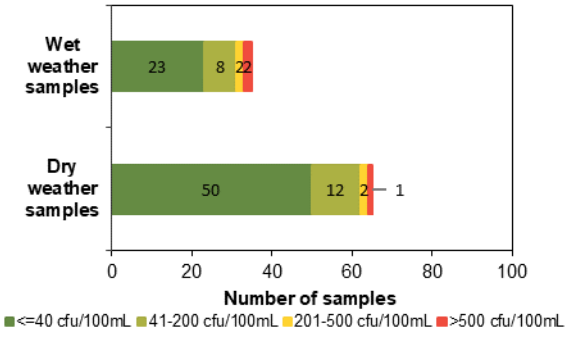
Sanitary inspection: Moderate



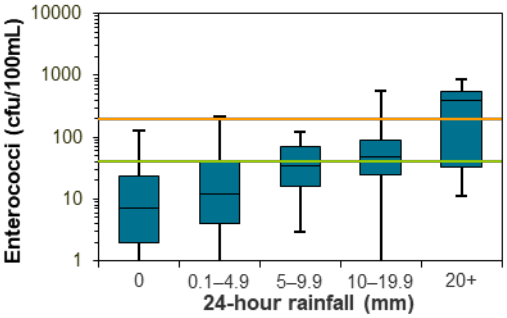
Microbial Assessment Category: C



Dry and wet weather water quality

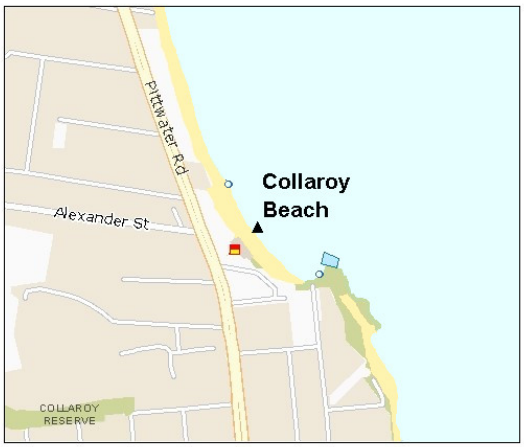


Water quality in response to rainfall



Collaroy Beach

Beach grade: G



See ‘How to read this report’ for key to map.

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

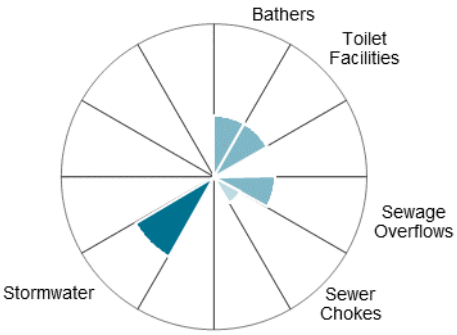
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

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

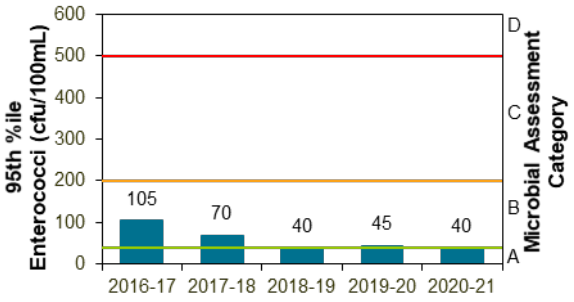
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jul 2019 to Apr 2021	100%	100	Stable

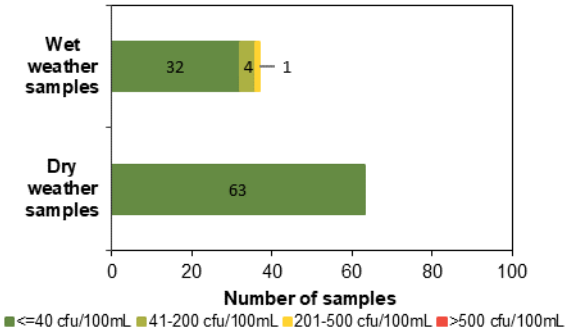
Sanitary inspection: Moderate



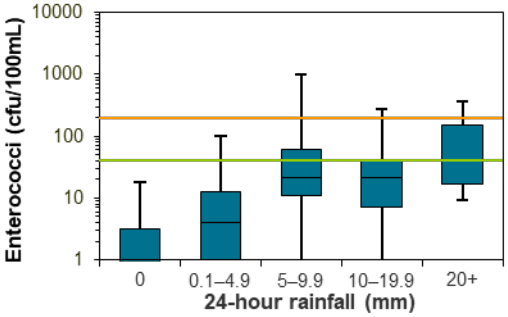
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



Long Reef Beach

Beach grade: G

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

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

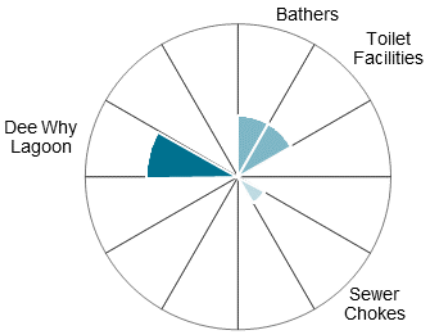
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with potential faecal contamination from discharge from Dee Why Lagoon.

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

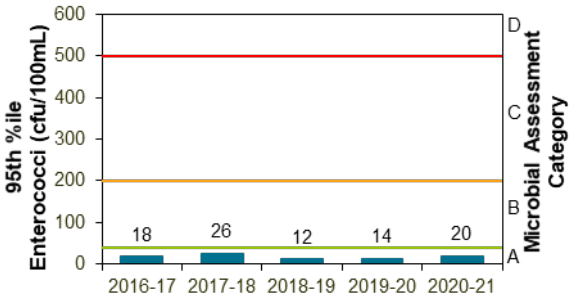
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jul 2019 to Apr 2021	97%	100	Stable

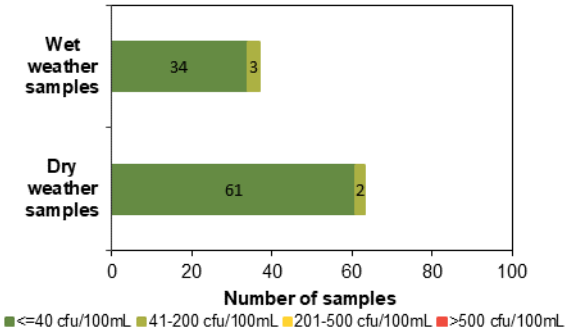
Sanitary inspection: Moderate



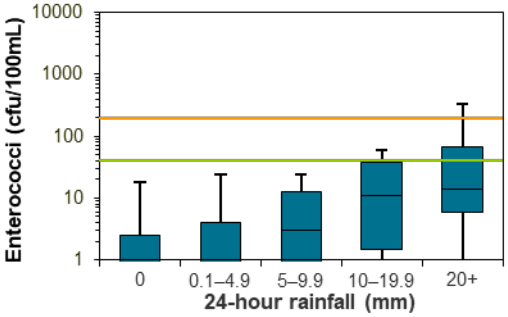
Microbial Assessment Category: A



Dry and wet weather water quality

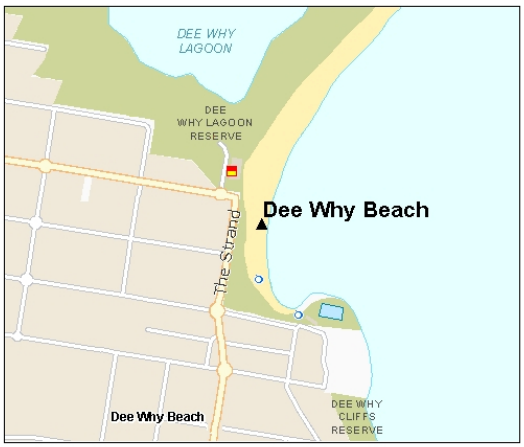


Water quality in response to rainfall



Dee Why Beach

Beach grade: VG



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

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

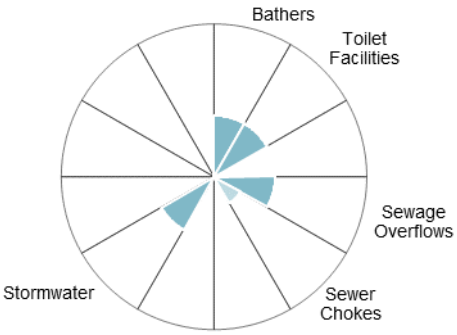
The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of significant faecal contamination.

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

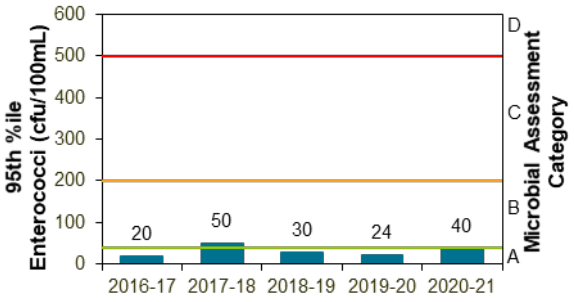
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jul 2019 to Apr 2021	95%	100	Stable

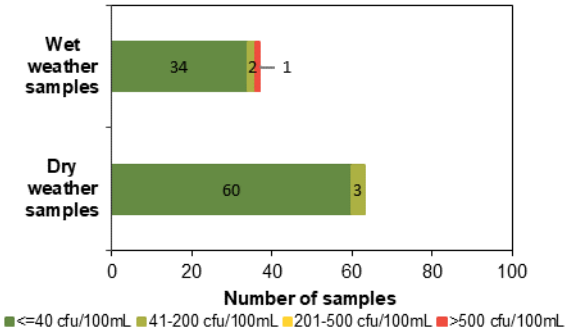
Sanitary inspection: Low



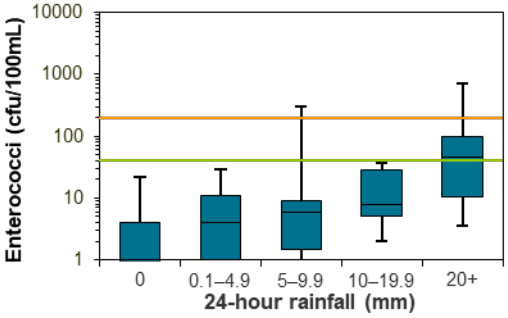
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



North Curl Curl Beach

Beach grade: G

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

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

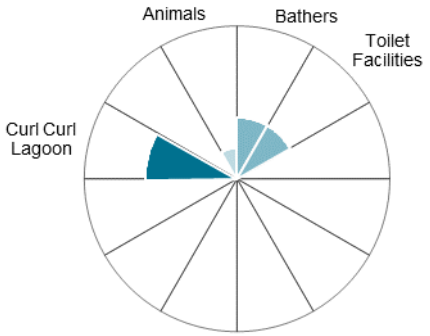
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including discharge from Curl Curl Lagoon.

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

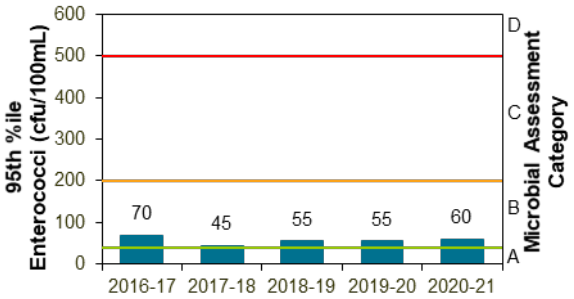
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jun 2019 to Apr 2021	97%	100	Stable

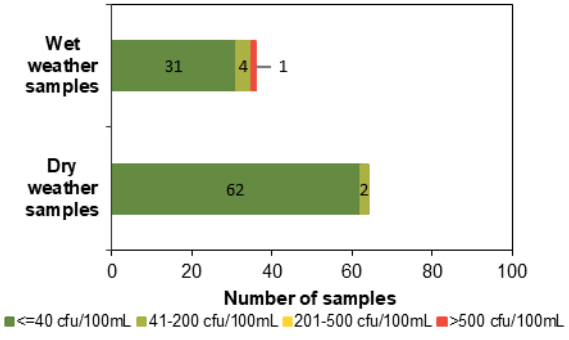
Sanitary inspection: Moderate



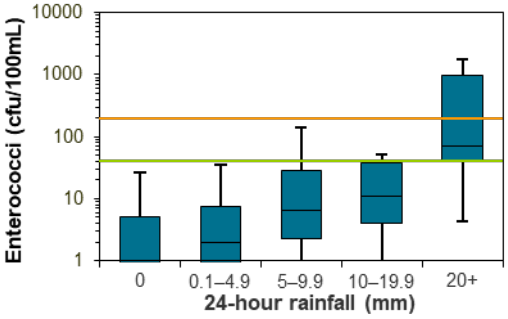
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



South Curl Curl Beach

Beach grade: VG

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

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

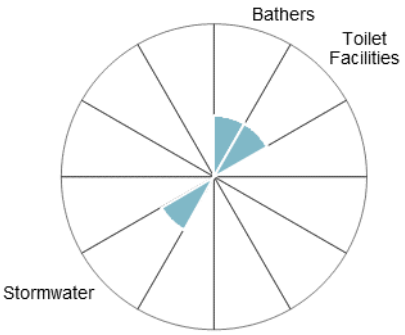
The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of faecal contamination.

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

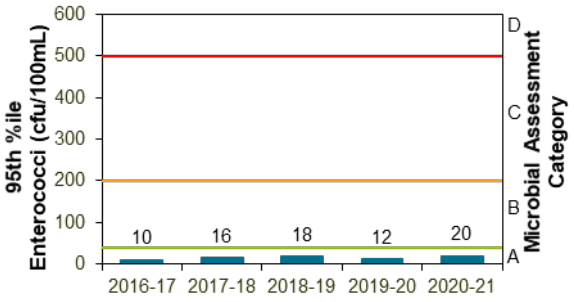
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jun 2019 to Apr 2021	95%	100	Stable

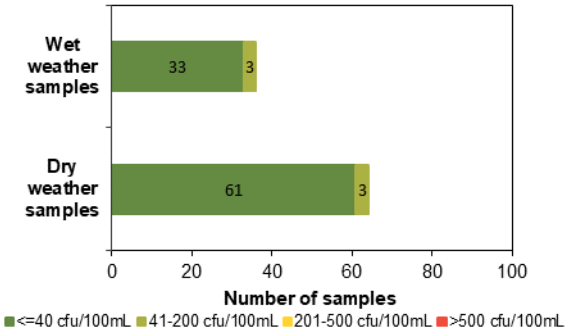
Sanitary inspection: Low



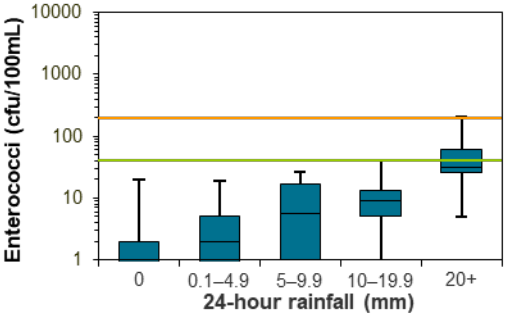
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



Freshwater Beach

Beach grade: G

See ‘How to read this report’ for key to map.

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

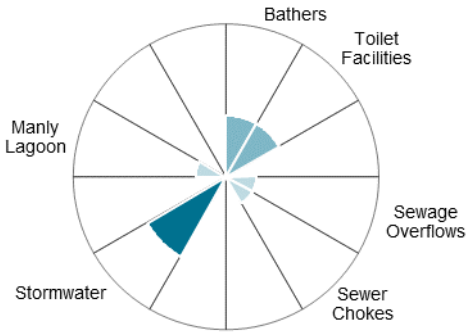
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

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

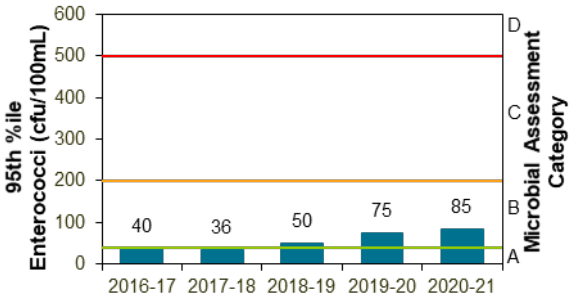
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jul 2019 to Apr 2021	98%	100	Stable

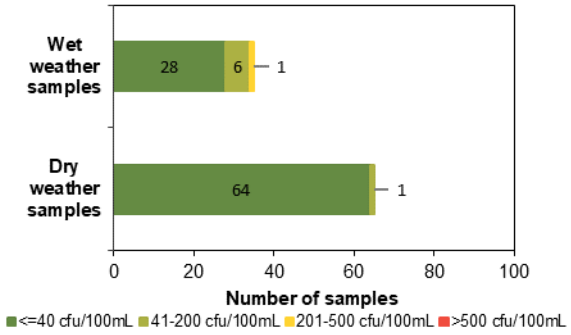
Sanitary inspection: Moderate



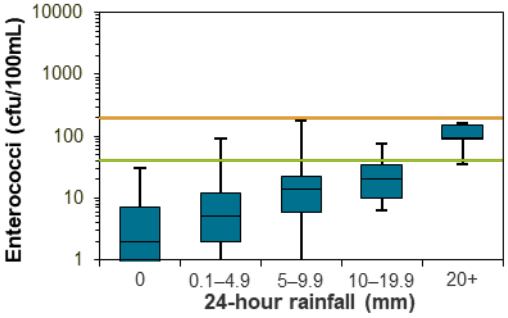
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Queenscliff Beach

Beach grade: G

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

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

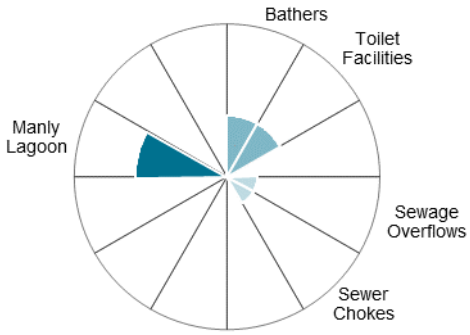
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination, including discharge from Manly Lagoon.

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

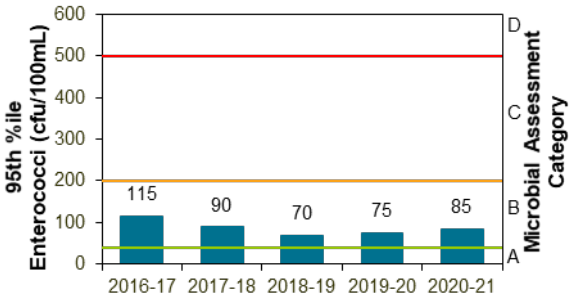
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jun 2019 to Apr 2021	97%	100	Stable

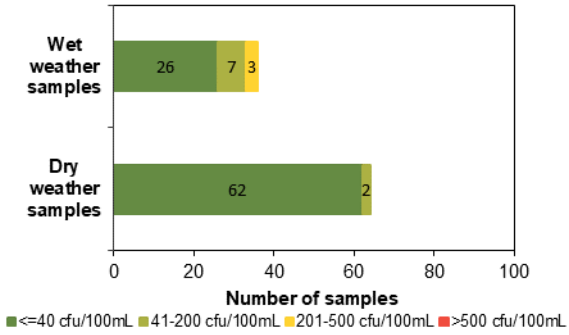
Sanitary inspection: Moderate



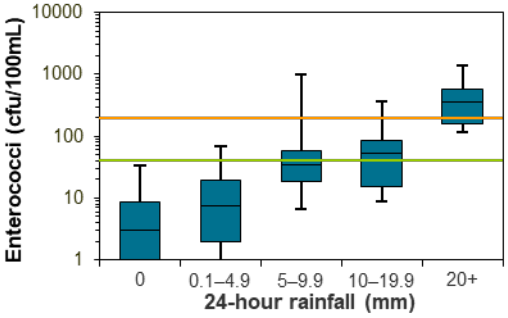
Microbial Assessment Category: B



Dry and wet weather water quality

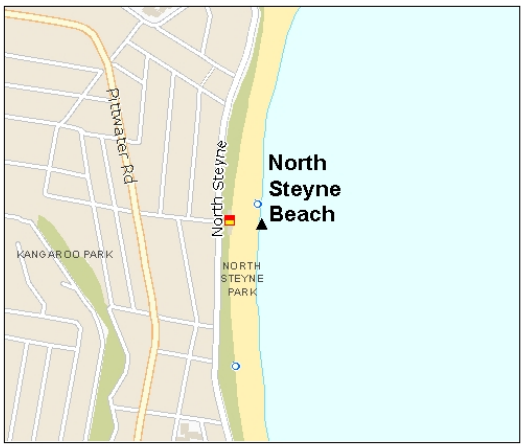


Water quality in response to rainfall



North Steyne Beach

Beach grade: G



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

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

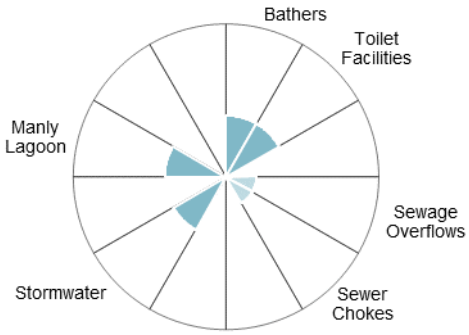
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater and discharge from Manly Lagoon.

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

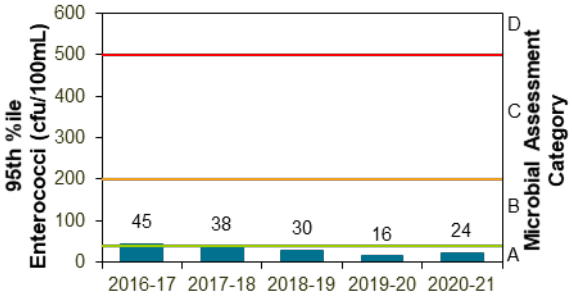
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jul 2019 to Apr 2021	97%	100	Stable

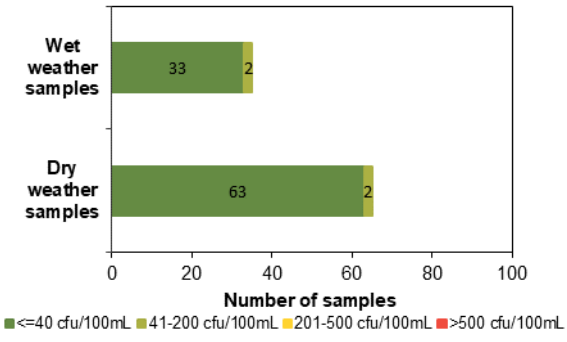
Sanitary inspection: Moderate



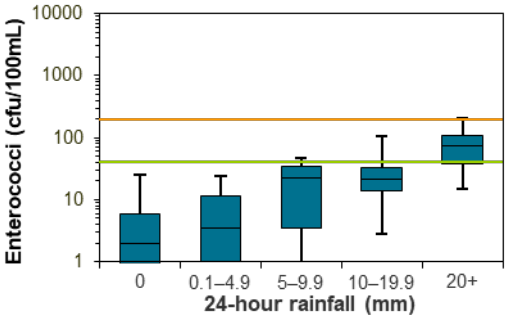
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



South Steyne Beach

Beach grade: G

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

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

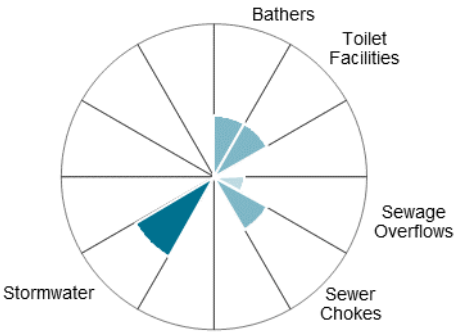
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

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

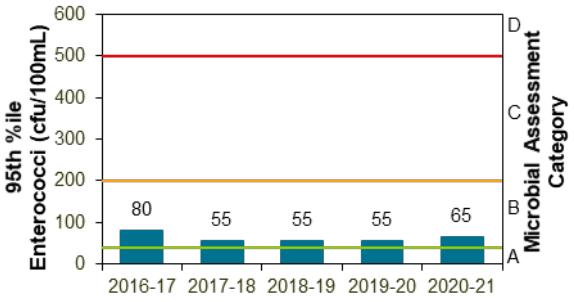
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jun 2019 to Apr 2021	89%	100	Stable

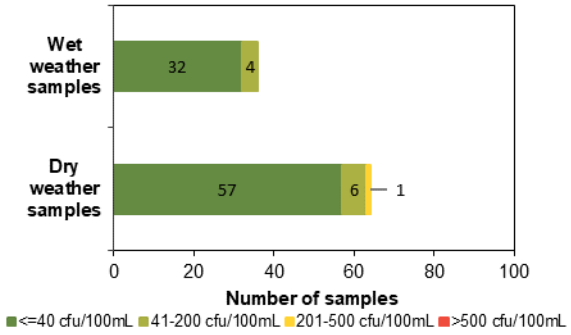
Sanitary inspection: Moderate



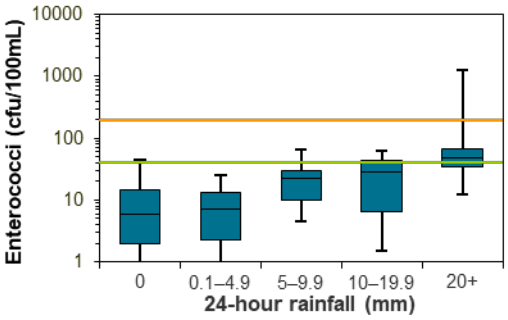
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Shelly Beach

Beach grade: G

See ‘How to read this report’ for key to map.

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

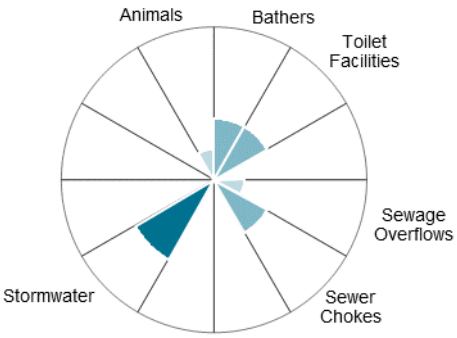
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time, but may be susceptible to pollution after rain, with several potential sources of minor faecal contamination.

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

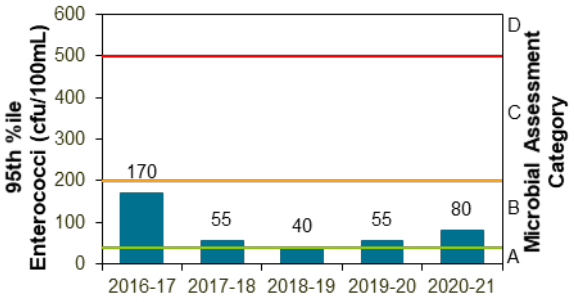
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jul 2019 to Apr 2021	88%	100	Stable

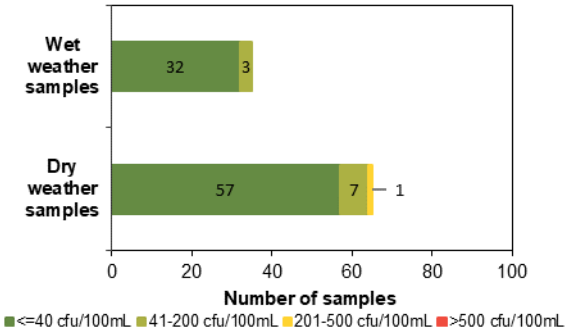
Sanitary inspection: Moderate



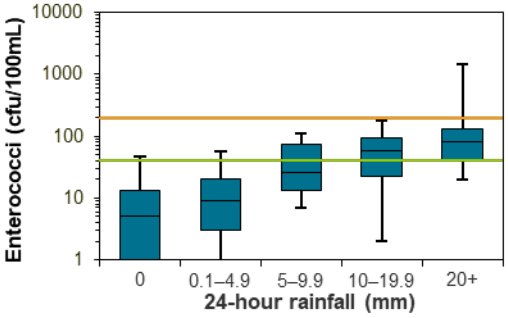
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Barrenjoey Beach

Beach grade: G

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

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

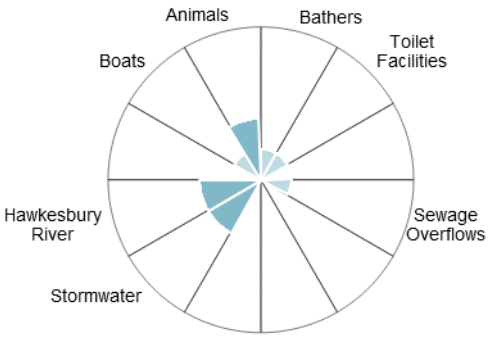
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination.

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

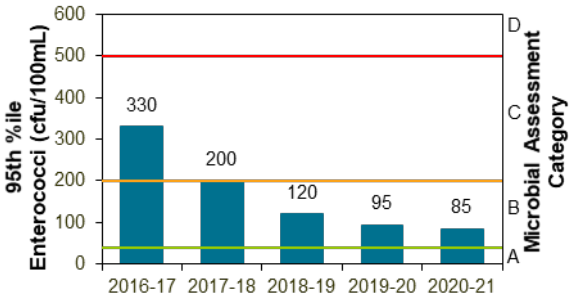
The site has been monitored since 1996.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Nov 2018 to Apr 2021	91%	100	Stable

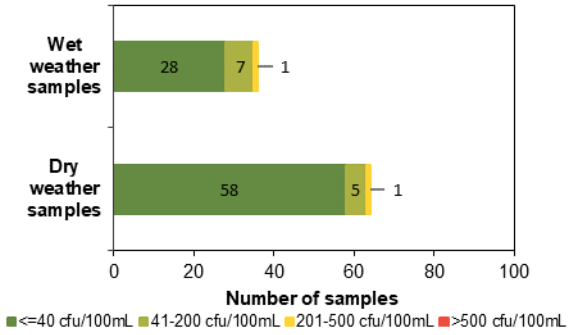
Sanitary inspection: Moderate



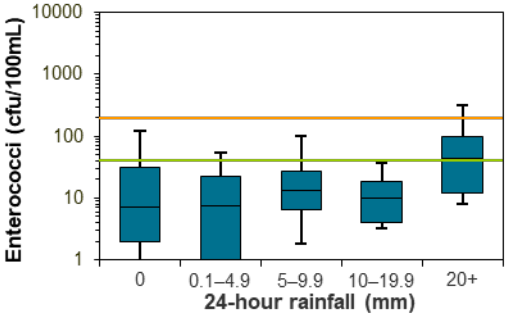
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Paradise Beach Baths

Beach grade: G

See ‘How to read this report’ for key to map.

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

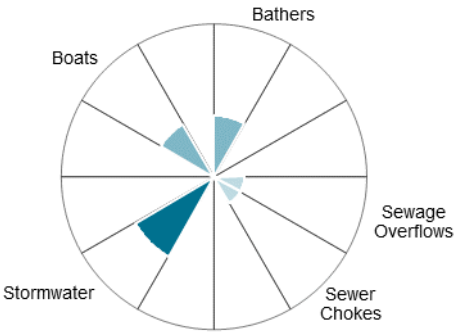
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

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

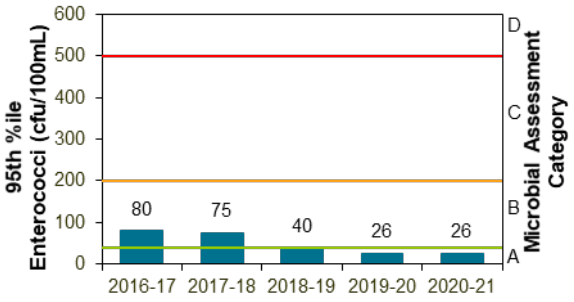
The site has been monitored since 1996.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Nov 2018 to Apr 2021	98%	100	Stable

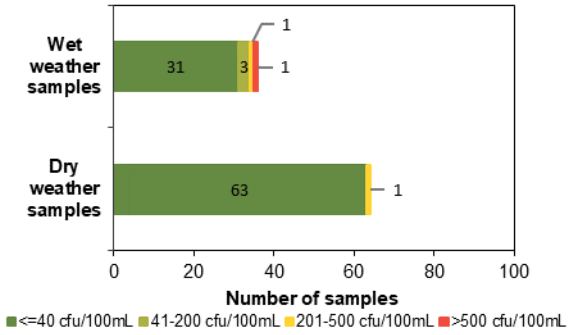
Sanitary inspection: Moderate



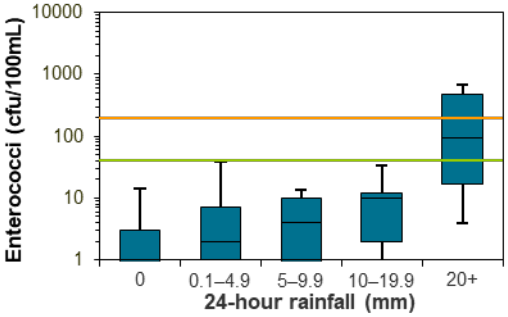
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



Clareville Beach

Beach grade: G

See ‘How to read this report’ for key to map.

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

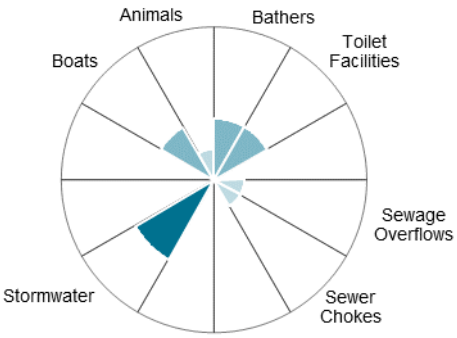
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

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

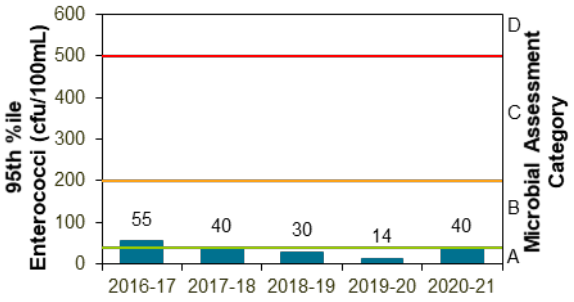
The site has been monitored since 1995.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Nov 2018 to Apr 2021	98%	100	Stable

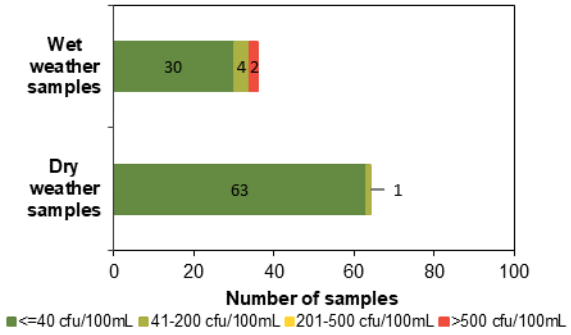
Sanitary inspection: Moderate



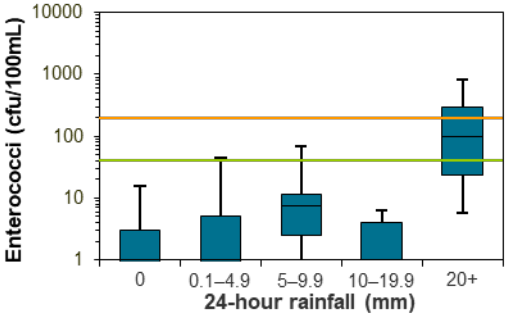
Microbial Assessment Category: A



Dry and wet weather water quality

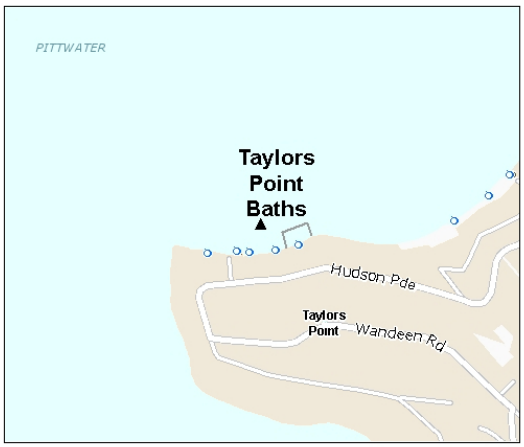


Water quality in response to rainfall



Taylors Point Baths

Beach grade: G



See ‘How to read this report’ for key to map.

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

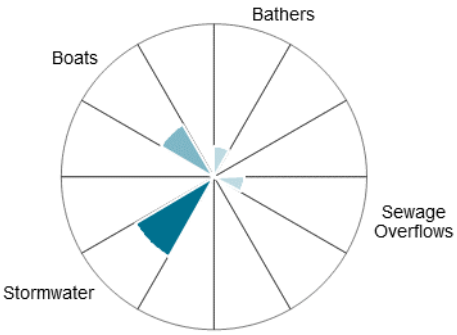
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

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

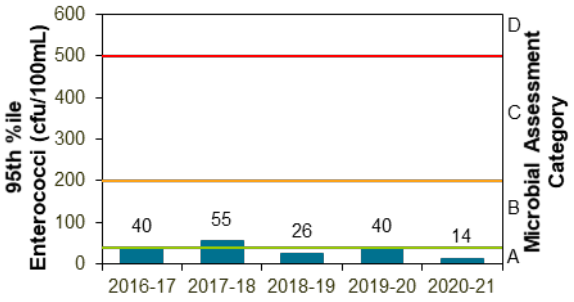
The site has been monitored since 2010.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Nov 2018 to Apr 2021	100%	100	Stable

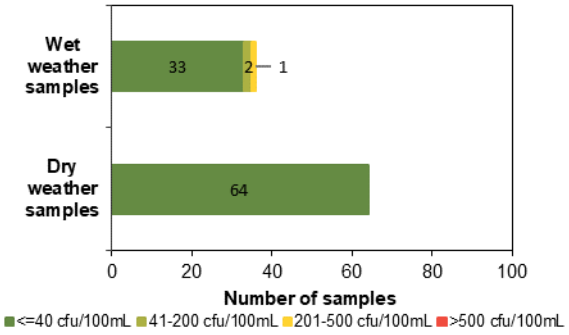
Sanitary inspection: Moderate



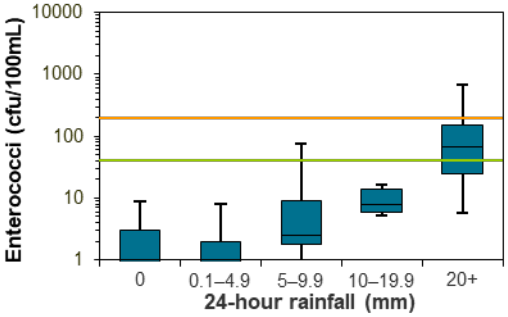
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



Bayview Baths

Beach grade: G

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

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

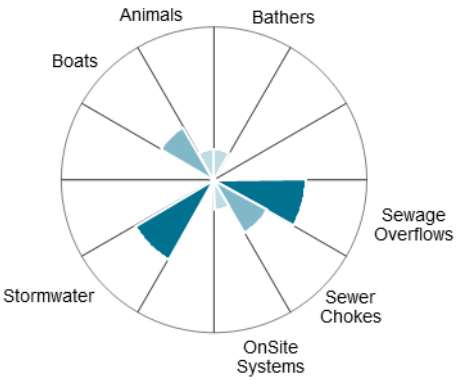
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater and sewage overflows.

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

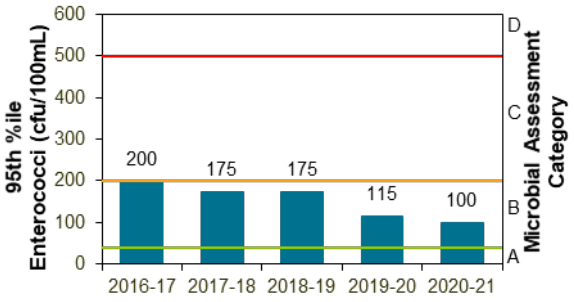
The site has been monitored since 1995.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Nov 2018 to Apr 2021	92%	100	Stable

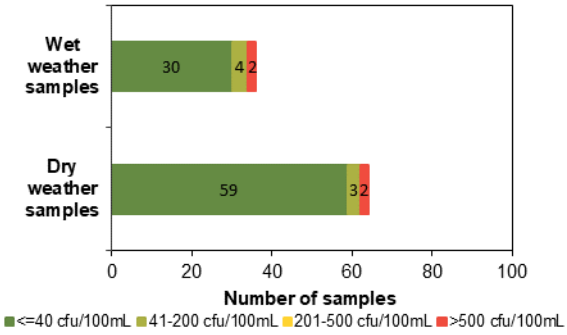
Sanitary inspection: Moderate



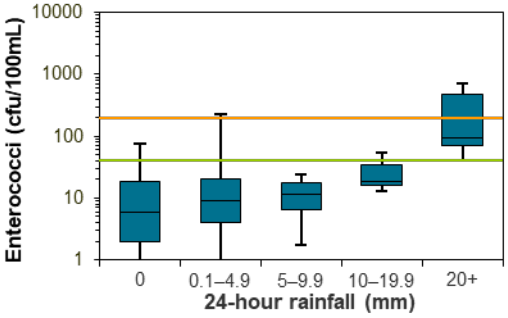
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Elvina Bay

Beach grade: G

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

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

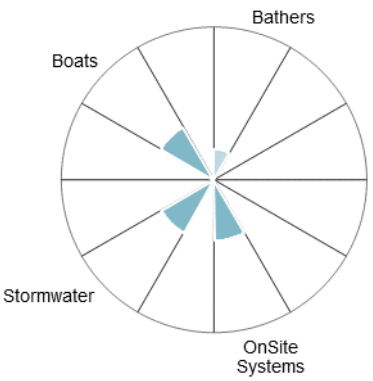
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination.

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

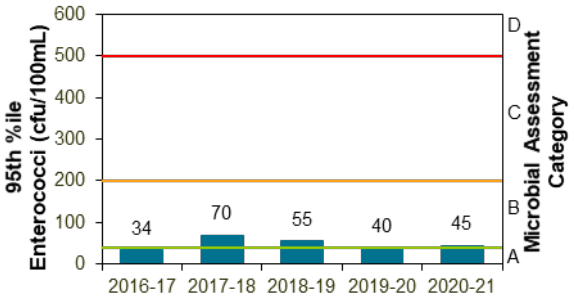
The site has been monitored since 1995.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	100%	100	Declined

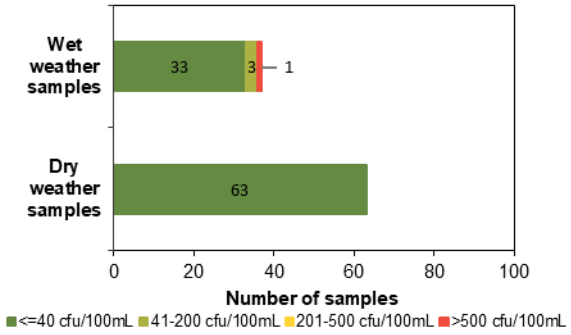
Sanitary inspection: Low



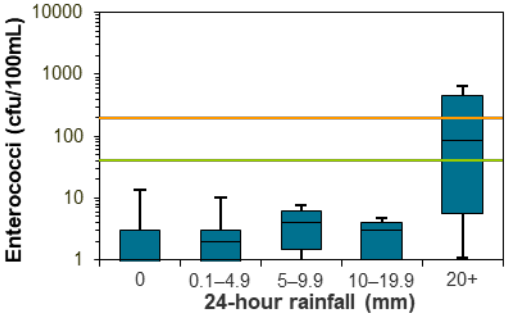
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



North Scotland Island

Beach grade: G

See ‘How to read this report’ for key to map.

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

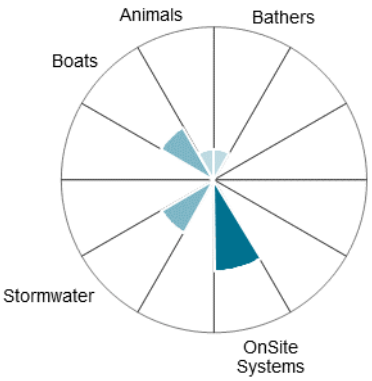
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including onsite systems.

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

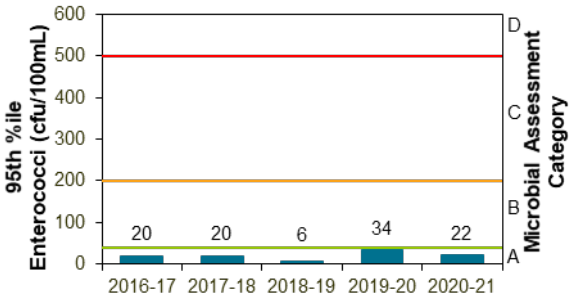
The site has been monitored since 1995.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Sep 2018 to Apr 2021	100%	100	Stable

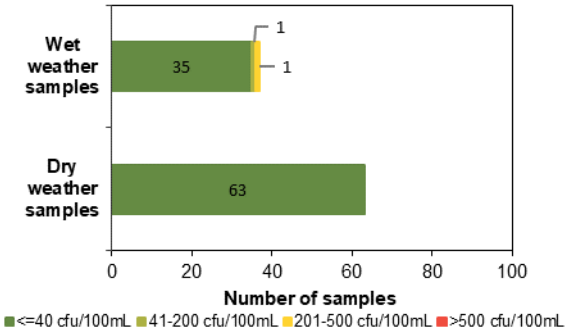
Sanitary inspection: Moderate



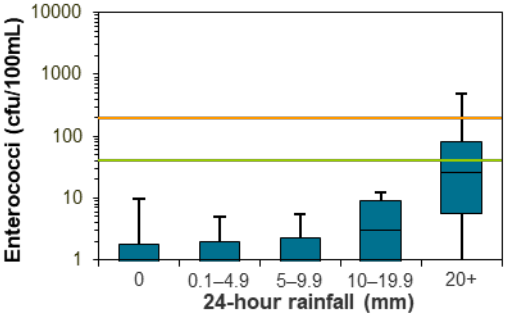
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



South Scotland Island

Beach grade: G

See ‘How to read this report’ for key to map.

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.

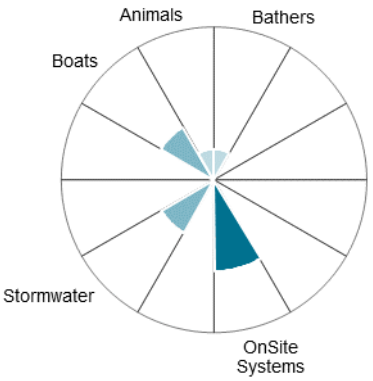
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including onsite systems.

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

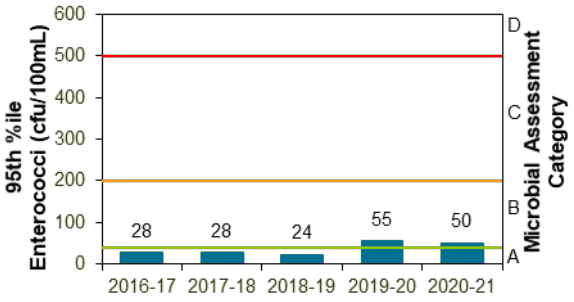
The site has been monitored since 1996.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	98%	100	Stable

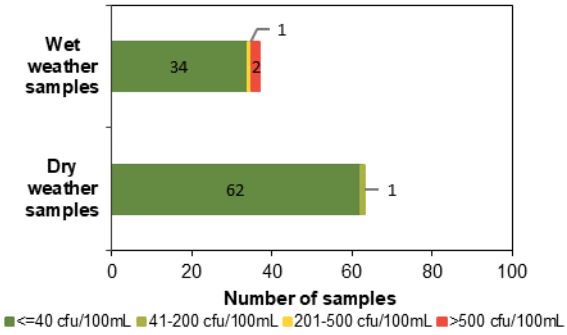
Sanitary inspection: Moderate



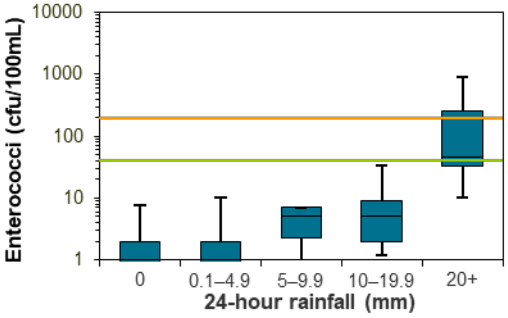
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



The Basin

Beach grade: VG

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

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

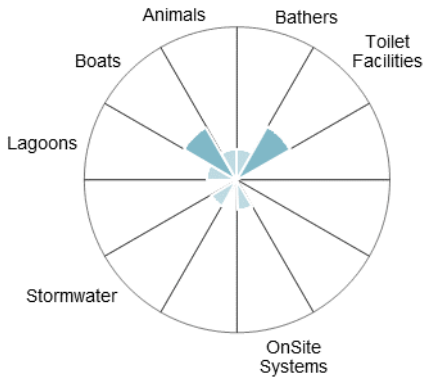
The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time with few potential sources of significant faecal contamination.

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

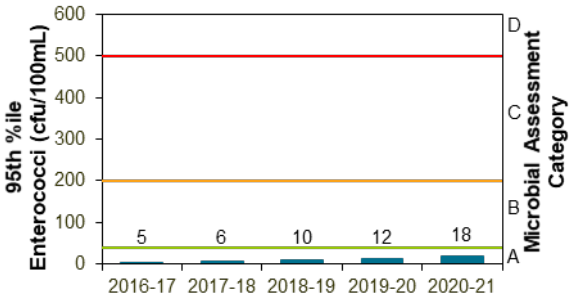
The site has been monitored since 1999.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Sep 2018 to Apr 2021	98%	100	Stable

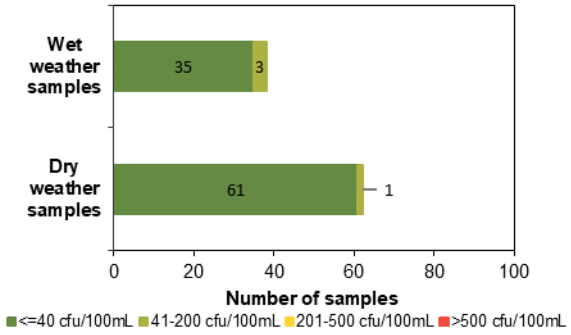
Sanitary inspection: Low



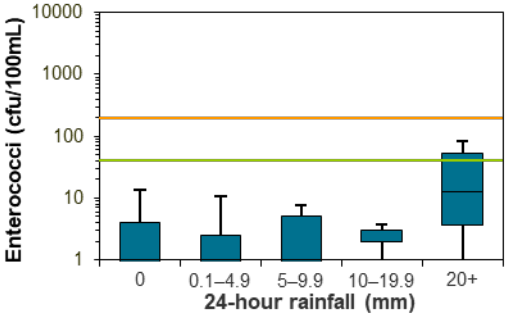
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



Great Mackerel Beach

Beach grade: VG

See ‘How to read this report’ for key to map.

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

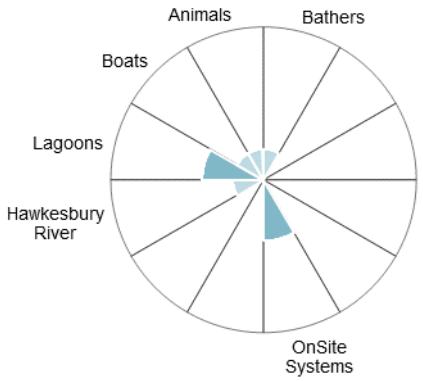
The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time with few potential sources of significant faecal contamination.

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

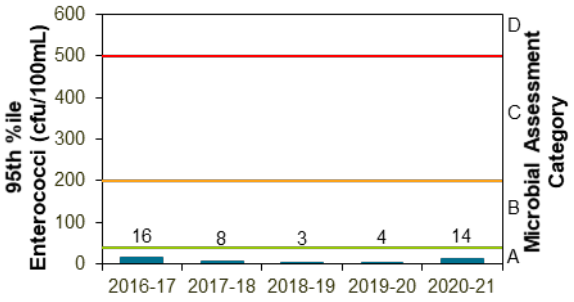
The site has been monitored since 1999.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	100%	100	Stable

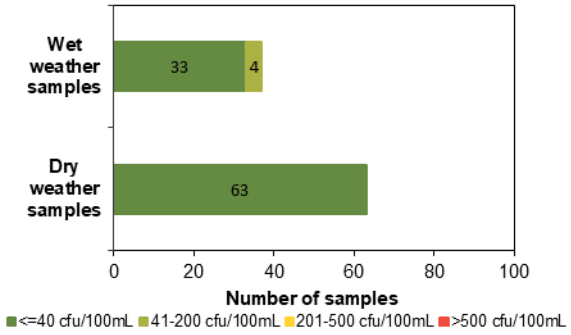
Sanitary inspection: Low



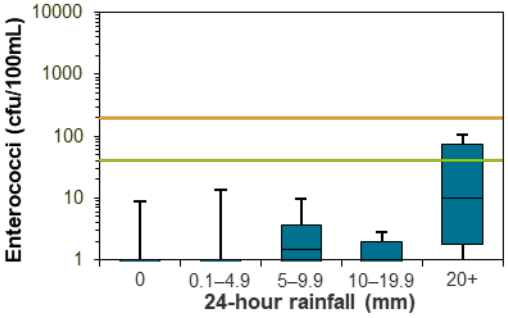
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



Central Sydney (Bondi to Little Bay & Sydney Harbour)

Overall results

89%
swimming sites graded Good or Very Good

Thirty-three of the 37 swimming sites were graded as Very Good or Good in 2020–2021, an improvement in performance from the previous year.

Percentage of sites graded as Very Good or Good:

- 2020–2021: 89%
- 2019–2020: 84%
- 2018–2019: 86%
- 2017–2018: 84%.

See the section on **How to read this report** on page 139 for an explanation of the graphs, tables and Beach Suitability Grades.

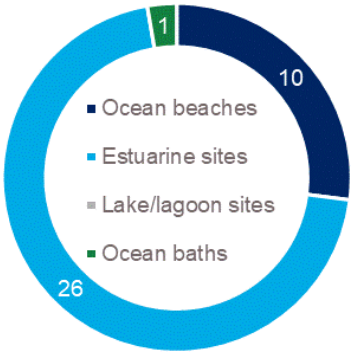
Beachwatch samples the ocean beaches every sixth day throughout the year, and the estuarine beaches every sixth day between October and April, and monthly from May to September.

Best beaches

Clovelly Beach, Gordons Bay, Maroubra Beach, South Maroubra Beach, Nielsen Park and Camp Cove.

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

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.



Site types in Central Sydney region

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

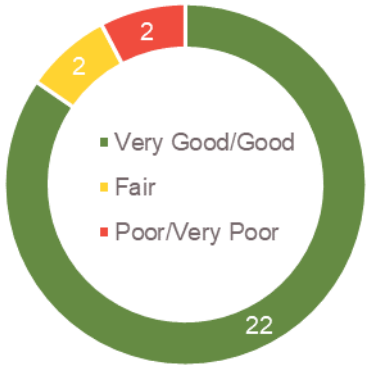
All 10 ocean beaches were graded as Very Good or Good in 2020–2021.

Clovelly Beach, Gordons Bay, Maroubra Beach and South Maroubra Beach were graded as Very Good. Gordons Bay, Maroubra Beach and South Maroubra Beach improved from Good in the previous year. Water quality was suitable for swimming almost all of the time at these beaches.

Bondi Beach, Tamarama Beach, Bronte Beach, Coogee Beach, Malabar Beach and Little Bay Beach were graded as Good. These sites were frequently suitable for swimming during dry weather conditions but recorded elevated enterococci levels following rainfall. Elevated enterococci levels were occasionally recorded at Coogee Beach, Malabar Beach and Little Bay Beach in dry weather conditions.

Malabar Beach improved to Good from Poor in the previous year and for the first time since 2015. Over the last five years the microbial water quality has continued to improve at this beach, and consequently crossed the threshold from Poor to Good.

Estuarine beaches



Beach Suitability Grades for Central Sydney estuarine beaches

Nielsen Park and Camp Cove in Sydney Harbour continued to be graded as Very Good, as in previous years. These sites have excellent water quality, with few potential sources of faecal contamination, and are suitable for swimming almost all of the time. They are 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, Rose Bay Beach, Murray Rose Pool, Dawn Fraser Pool, Chiswick Baths, Cabarita Beach, Woolwich Baths, 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 enterococci levels increased following rainfall.

In 2020–2021 Rose Bay Beach and Hayes St Beach in Port Jackson were upgraded to Good from Poor, due to improved microbial water quality. While microbial water quality at Rose Bay Beach has shown gradual improvement over the last four years, the microbial water quality at Hayes St Beach has been consistently close to the threshold between Good and

Poor grades and has alternated between these grades for the last four years. Two estuarine swimming sites continued to be graded Fair in 2020–2021: 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.

Tambourine Bay in the Lane Cover River and Davidson Reserve in Middle Harbour were graded as Poor in 2020–2021. While this is a similar result to the previous year for Davidson Reserve, Tambourine Bay was downgraded to Poor from a Good grade in the previous year. Water quality at Tambourine Bay and Davidson Reserve was frequently suitable for swimming during dry weather, with 94% and 93% of dry weather samples within the safe swimming limit. Elevated bacterial levels were recorded following rainfall at these sites. These sites have several significant sources of faecal contamination including upstream sources, stormwater and sewage overflows. Further investigation is required at poorer performing sites to show the scale and extent of the problem, and the source of microbial contamination.

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.

Ocean baths

South Maroubra Rockpool was graded as Good in 2020–2021, similar to previous years. Water quality is mostly suitable for swimming during dry weather conditions, with 93% of dry weather samples within the safe swimming limit. Elevated enterococci levels were recorded with increasing rainfall. Swimming should be avoided during and for up to one day following rainfall, or if there are any signs of pollution such as the stormwater drain discharging to the site, discoloured water or floating debris.

Beach Suitability Grades for Central Sydney ocean baths

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.

Ocean beaches

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.

With funding from the NSW Government's Coastal and Estuary Grants Program, Woollahra, Waverley and Randwick City councils have prepared 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 and Bronte Beach 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.

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 entering the ocean at Tamarama Beach.

Little Bay Beach
Photo: Beachwatch/EES, DPIE

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 15 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, reducing stormwater discharging to the beaches.

In 2021, Randwick City Council completed construction of two stormwater harvesting systems; one located at Maroubra foreshore to improve the water quality at Maroubra Beach and South Maroubra Rockpool, and one at Purcell Park in Matraville.

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 2020–2021, approximately 390 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 that 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 was launched over the 2020–2021 summer period.

Malabar Beach
Photo: Cameron Board/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 WWTP) 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.

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 (DPIE), in collaboration with the University of Technology Sydney, conducted a catchment investigation applying enterococci and genetic marker assay methods for a detailed audit of sources of contamination. The project identified that microbial pollution in Rose Bay is largely from human sewage, which contaminates stormwater particularly after rain. In September 2020, the findings of the investigation were released in Towards Safer Swimming: Rose Bay, and are being used to focus remediation efforts in the catchment and help design and implement management strategies to resolve water quality issues at the beach.

Sampling at Rose Bay
Photo: Beachwatch/EES, DPIE

Under the leadership of Greater Sydney Local Land Services, a consortium of state agencies, Sydney Water and 17 Sydney Harbour councils prepared the Greater Sydney Harbour Coastal Management Program Stage 1 Scoping Study and have also completed the Greater Sydney Harbour Estuary Processes Study, which contributes to Stage 2 of the CMP process and will inform Stage 3. Both studies were supported with funding from the NSW Government's Coastal and Estuary Grants Program.

The Sydney Coastal Councils Group (SCCG), together with a working group made up of representatives from the Parramatta River Catchment Group (PRCG), Sydney Water and DPIE, is leading the development of the remainder of the CMP. The program will identify catchment pressures and prioritise management initiatives for 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, Ryde and Willoughby City.

Parramatta River Estuary CZMP is being implemented by several councils including Cumberland City, (formerly Auburn), City of Canada Bay, Hunters Hill, Parramatta City, Inner West (formerly Ashfield and Leichhardt), City of Ryde and Strathfield. With funding from the NSW Government's Coastal and Estuary Grants Program, many of the 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.

Northern Beaches Council

Forty Baskets Beach
Photo: Beachwatch/EES, DPIE

Northern Beaches Council proactively inspects and cleans out 240 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.

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. In 2020–2021 council undertook significant landscaping of East Esplanade Reserve, which dramatically reduced the amount of runoff and erosion from the reserve entering Manly Cove.

Mosman Council

Mosman Council's Botanic Road Stormwater Re-use Scheme is an underground storage system that captures stormwater and provides UV disinfection, after which it is pumped to Balmoral Oval and Balmoral Reserve for irrigation. This reduces the amount of stormwater entering our waterways.

Stormwater quality improvement devices are installed at Balmoral Beach, Clifton Gardens, Edwards Beach and Chinamans Beach to capture sediment and floating debris. Council has installed stormwater quality improvement devices at more than 75% of stormwater outlet points. These devices capture sediment and floating debris from stormwater before it enters the waterways.

Chinamans Beach
Photo: Beachwatch/EES, DPIE

Recent improvement works have been undertaken by council at Kahibah Creek to reduce stormwater and flooding of Balmoral Oval. The creek functions as headwaters for the catchment and in recent times has reached capacity due to heavy sedimentation. This would regularly cause flooding to adjacent buildings and whilst the works will not eliminate this completely it will reduce the frequency. Significant earthworks were required to deepen the channel and a sandstone block retaining wall and debris capture structures installed to withstand peak flows and capture debris, and divert water back into the allocated drainage channel. Similar works were also undertaken along the riparian area at Clifton Gardens. Sediment was removed and ponds installed to reduce sediment runoff into Sydney Harbour. Both these sites included the revegetation of disturbed creek banks with native sedges and other planting work using local native species directly adjacent to the creeks.

Mosman Council continued implementation of 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 six 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 continues to implement HarbourCare and HarbourCare Teen volunteer programs, adapted to be COVID safe. 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.

A beach clean-up ('Seaside Scavenge') was held at Balmoral Beach in April 2021, with community volunteers collecting 86 kg of litter from the beach in one day. The litter was sorted, counted and logged on the Australian Marine Debris Initiative's database.

Council continues to maintain natural riparian areas to protect vegetation and improve water quality in Sydney Harbour.

Mosman Council regularly runs campaigns and events promoting litter reduction, specially targeting cigarette butts, fishing tackle and outdoor party litter.

Willoughby City Council

Northbridge Baths
Photo: Beachwatch/EES, DPIE

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.

Council has a water plan with innovative stormwater cleansing actions including targeted pollution reduction filtration pits, stormwater biofiltration interventions, ponded wetlands and GPTs. Council has increased its budget for maintenance of these stormwater cleansing assets to ensure consistent reliability.

Willoughby City Council has completed water quantity and quality monitoring in Flat Rock Creek and will be moving to detailed design for a future biofiltration ponded wetland and stormwater harvesting project at Bicentennial Oval. This will complement council's existing stormwater harvesting plant at Artarmon reserve.

North Sydney Council

In March 2020 North Sydney Council installed a new GPT at Hayes Street to help improve the water quality in the harbour including at Hayes Street beach. In December 2020 council installed another GPT at Smoothey Park to help prevent sediments and litter entering the natural creek.

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.

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.

Lane Cove Council

Lane Cove Council maintains 12 GPTs in the catchment to reduce the impact of stormwater to the waterways. In 2020–2021 more than 70 tonnes of material were prevented from entering the Lane Cove River. Over 80% of this material was recycled.

Greenwich Baths
Photo: Beachwatch/EES, DPIE

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. Council has recently assessed the condition of 20% of stormwater assets as part of its Asset Management Plan. In addition, council is seeking funding to ensure stormwater assets are routinely inspected and well maintained into the future.

City of Canada Bay Council

The City of Canada Bay maintains over 27 stormwater quality improvement devices that 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 the irrigation of two public golf courses and 15 sporting fields. 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.

As part of the Parramatta River Catchment Group (PRCG) mission to make the Parramatta River swimmable again, the City of Canada Bay is in the planning stages of activating two new sites to provide greater access to the river. At Bayview Park, Concord Council is planning to reintroduce a netted swimming enclosure adjacent to the natural sandy beach. Replacement of the seawall with a new environmentally friendly design at McIlwaine Park, Rhodes will provide the opportunity for splash contact in newly constructed rock pools and provision of launch facilities for water activities such as kayaking, rowing and stand-up paddle boarding.

Woollahra Municipal Council

Murray Rose Pool
Photo: Beachwatch/EES, DPIE

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.

In 2020 council replaced the GPT at the Caledonian Road stormwater outlet to improve pollutant capture before it enters Rose Bay. Council has engaged consultants to review options for further improvements to the Caledonian Road outlet area.

Council completed two major upgrades to raingardens at Lyne Park, Rose Bay and at Bellevue Hill in 2020. This will ensure the raingardens effectively capture and treat first-flush stormwater runoff. Council designed a new GPT for the Double Bay catchment in early 2021, to be installed in 2022. The new GPT will improve water quality in Double Bay.

Council is a member of the Rose Bay Beach Working Party that was established in 2017 to address water quality issues at Rose Bay Beach. Other members of the working party

include representatives from DPIE, Transport for NSW (Maritime), Sydney Water and the Member for Vaucluse. The Working Party has identified the sources of pollution at Rose Bay Beach and is working towards addressing them.

Nielsen Park
Photo: Beachwatch/EES, DPIE

Council undertakes a range of programs to educate the community about ways they can improve water quality, from picking up dog waste to undertaking water sensitive urban design. In early 2021, a virtual catchment tour of Rose Bay was held, with the aim of educating school aged children about how a catchment works.

Council received a litter reduction grant in late 2019 from the NSW Government and is continuing to roll out a community education program across harbour-side beaches. This program includes community clean-up events in partnership with 'Splash Without the Trash' and the Ocean Action Pod, working with the Cruising Yacht Club of Australia to install a number of seabins to capture litter in the Rushcutters Bay marina area, and installing cigarette butt bins and educational signage.

In 2021, council held two community beach cleaning events at Watsons Bay and Rose Bay as part of Clean Up Australia Day. Council also continues to run the HarbourCare program, which supports volunteers to undertake clean-ups of beachside areas.

Inner West Council

Inner West 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.

Council has recently undertaken works to preserve the heritage listed Dawn Fraser Baths – one of the few remaining tidal public pools in Sydney Harbour and the only one to retain its over-water-enclosure. Council continues to be part of the Parramatta River Catchment Group, which seeks to make the river swimmable by 2025, and is reviewing the suitability of further swimming sites within its local government area.

Council is developing a Green-Blue Grid across its local government area to create further areas of green space and water sensitive design as well as increase local access to council's coastal areas. To support this work, council continues to collaborate with residents along the Cooks River and Parramatta River to develop sub-catchment water quality plans. These strategic plans integrate green infrastructure (including water sensitive urban design) with

public domain plans, park plans of management, and council's civil works planning to minimise impacts to nearby waterways.

Inner West Council currently has 26 GPTs across its local government area and has been working with external contractors to restore these units to full working order and avoid litter bypassing the units and entering the harbour. Council is reviewing the design and viability of four new GPTs in locations across the Parramatta River, for construction in future years. In many of council's waterfront parks, these units are also being considered as the first step for future stormwater harvesting schemes for field irrigation.

To support and incentivise the community take-up of water re-use, 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

Chiswick Baths
Photo: Beachwatch/EES, DPIE

The Parramatta River Catchment Group (PRCG) is an alliance of councils, government agencies and community groups working together to transform the Parramatta River and its tributaries into living waterways. The group has produced a 10-step masterplan (10 recommendations) for improving the suitability of the river for swimming and its ecosystem health. By addressing water quality impacts, such as stormwater run-off and sewage overflows in a coordinated way across local government areas it is expected that more sites, including riverside beaches, will meet requirements to enable safe swimming along the river. To date, four sites within the Parramatta River catchment have been deemed suitable for swimming and it is anticipated that additional sites will be ready for swimming by 2025.

Sydney Water

Sydney Water is the lead coordinating agency driving the delivery of the PRCG's Parramatta River Masterplan. Sydney Water is implementing Step 6 to improve overflows of the masterplan by undertaking a substantial sewer inspection and improvement program across the catchments of upper Parramatta River, Duck Creek and the Lane Cove River. This will reduce the inflow of stormwater to the wastewater system and should lessen the impact of sewage overflows to these waterways.

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 the beach.

Sydney Water has inspected, cleaned and repaired sewer mains on the northern and southern sides 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.

Environment Protection Authority

The NSW Environment Protection Authority (EPA) is the primary environmental regulator for New South Wales. The EPA is committed to improved water quality outcomes across NSW and works closely with the PRCG to implement the Masterplan for the Parramatta River. The EPA undertakes a range of regulatory functions within the Parramatta River catchment including the regulation of industrial premises, contaminated sites and significant infrastructure and through membership of the PRCG provides advice to councils on the activation of swim sites along the Parramatta River. The EPA also participates in the PRCG's annual Get the Site Right Campaign, a month long blitz of inspections of construction sites across the Parramatta river catchment, designed to reduce sediment entering waterways as pollution from building sites. This is particularly relevant for the estuarine beaches in the Sydney region, which can be heavily impacted by poor water quality following rainfall events. In this year's campaign, the EPA inspected 21 sites regulated by the EPA and accompanied local Sydney Councils inspecting an additional 51 building sites.

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

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

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

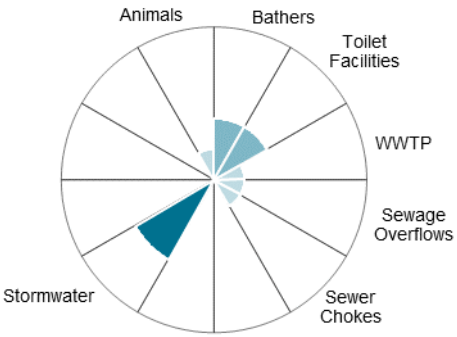
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

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

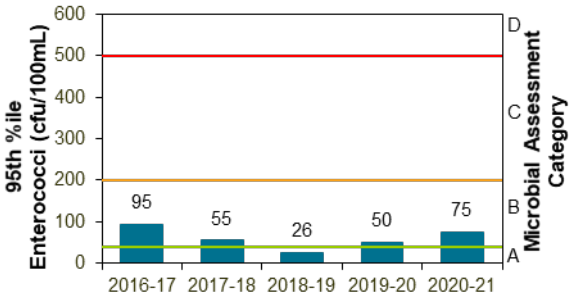
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jun 2019 to Apr 2021	95%	100	Stable

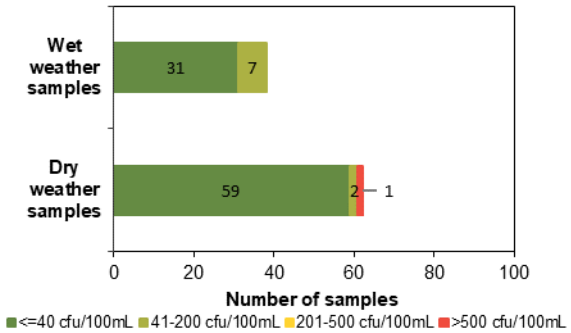
Sanitary inspection: Moderate



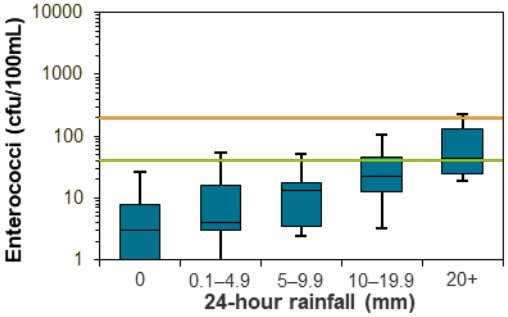
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Tamarama Beach

Beach grade: G

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

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

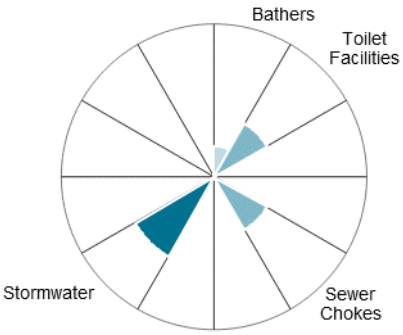
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

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

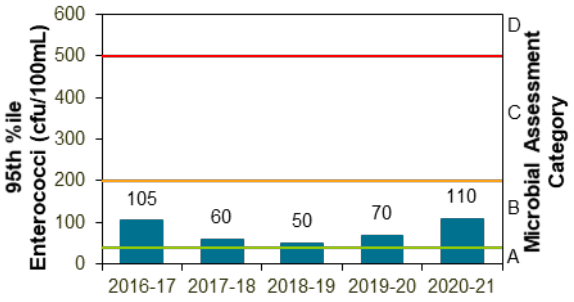
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jun 2019 to Apr 2021	92%	100	Stable

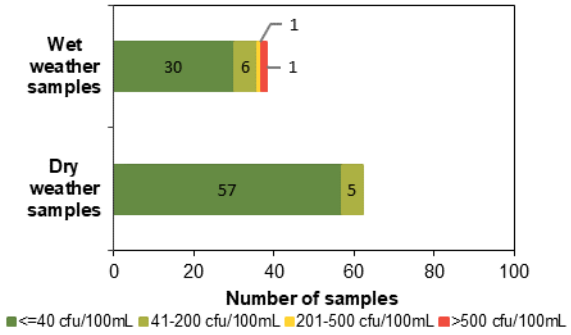
Sanitary inspection: Moderate



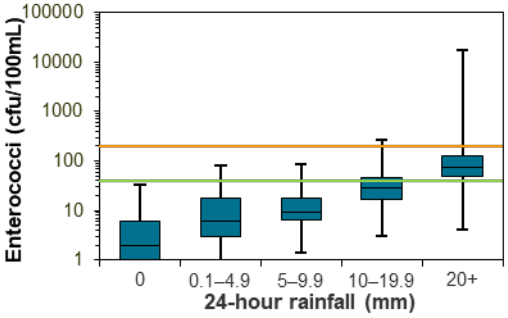
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Bronte Beach

Beach grade: G

See ‘How to read this report’ for key to map.

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

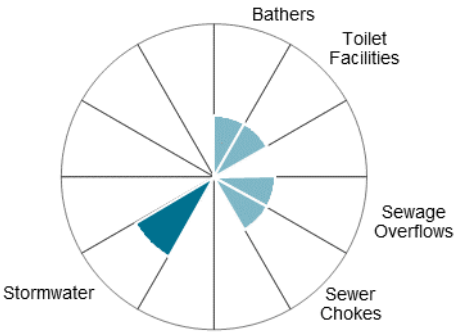
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

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

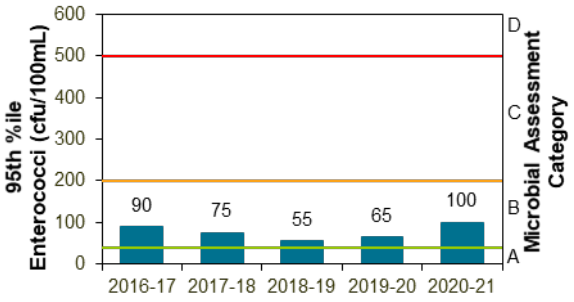
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jun 2019 to Apr 2021	97%	100	Stable

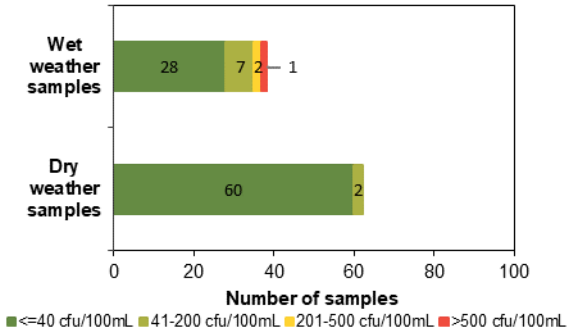
Sanitary inspection: Moderate



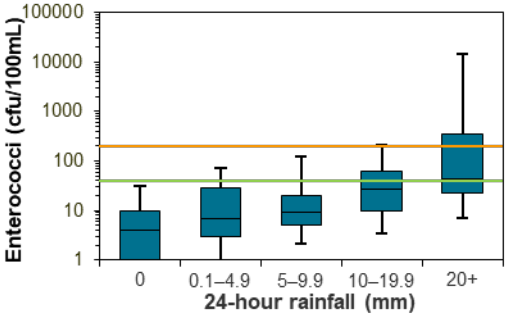
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Clovelly Beach

Beach grade: VG

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

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.

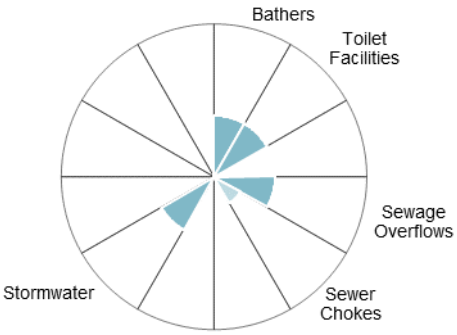
The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of significant faecal contamination.

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

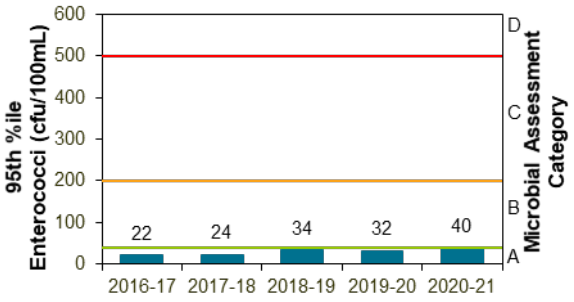
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jun 2019 to Apr 2021	95%	100	Stable

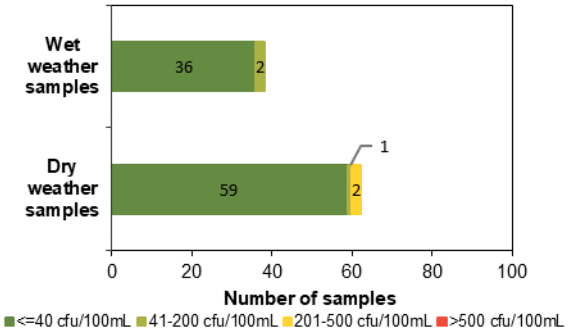
Sanitary inspection: Low



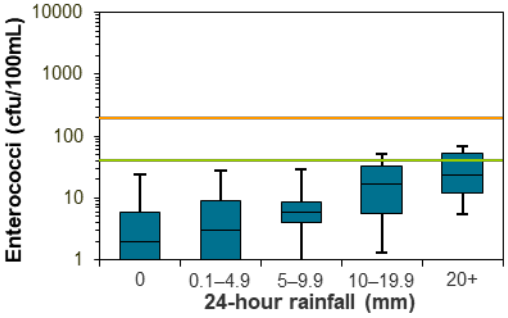
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



Gordons Bay

Beach grade: VG

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

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

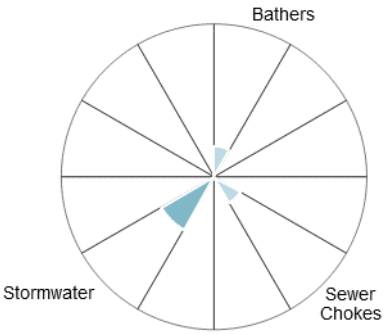
The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of significant faecal contamination.

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

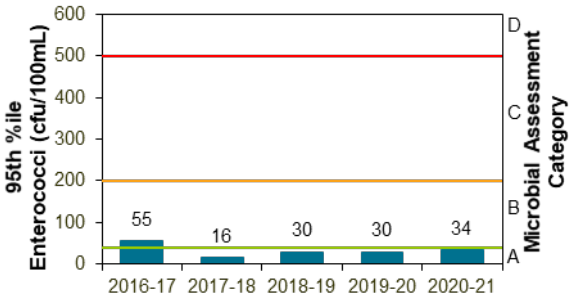
The site has been monitored since 2013.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jun 2019 to Apr 2021	98%	100	Improved

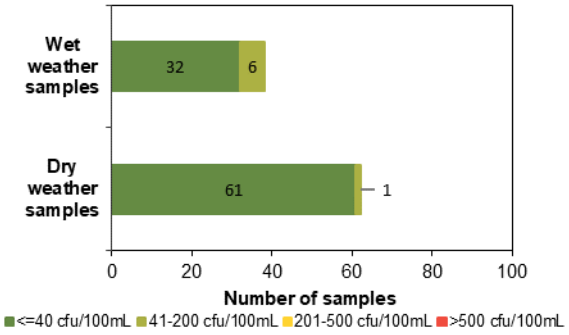
Sanitary inspection: Low



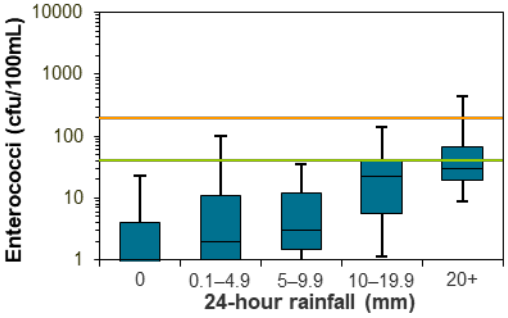
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



Coogee Beach

Beach grade: G

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

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

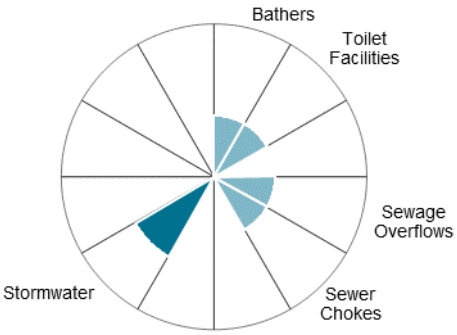
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

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

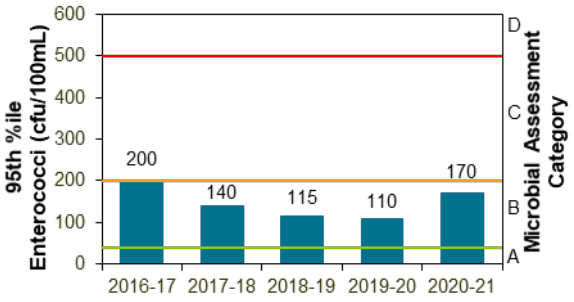
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jun 2019 to Apr 2021	85%	100	Stable

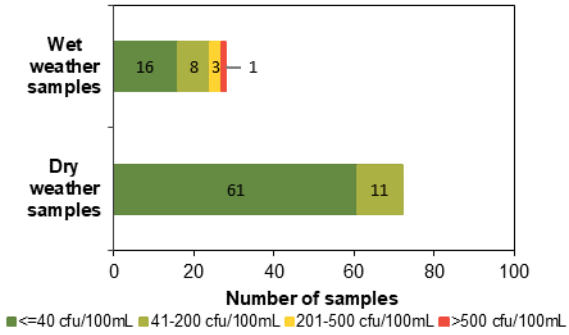
Sanitary inspection: Moderate



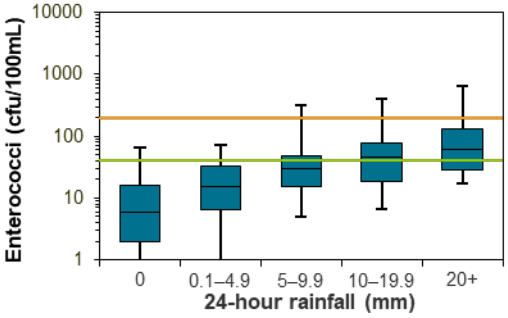
Microbial Assessment Category: B



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 considered suitable for swimming almost all of the time, with few potential sources of significant faecal contamination.

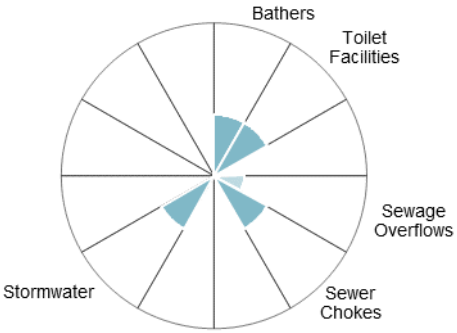
Enterococci levels generally increased with increasing rainfall, occasionally exceeding the safe swimming limit after light rain, and often after 20 mm or more.

The site has been monitored since 1989.

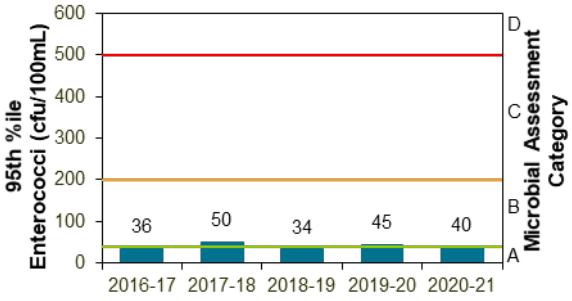
See 'How to read this report' for key to map.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jun 2019 to Apr 2021	94%	100	Improved ↑

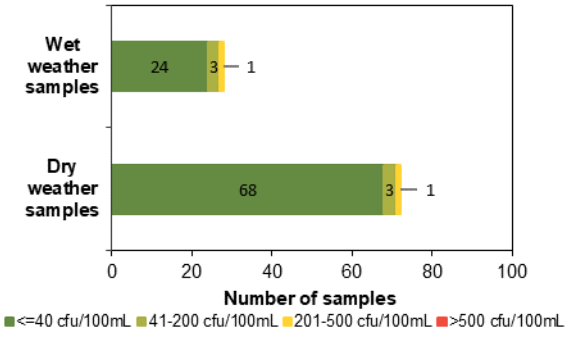
Sanitary inspection: Low



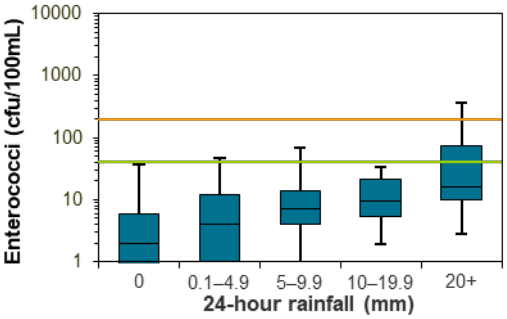
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



South Maroubra Beach

Beach grade: VG

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

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

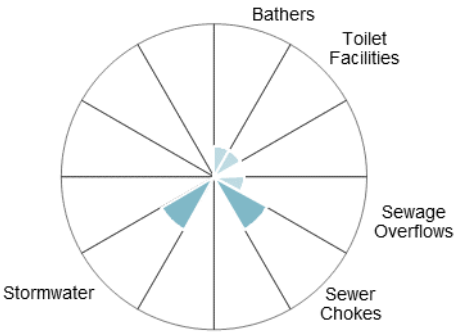
The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of significant faecal contamination.

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

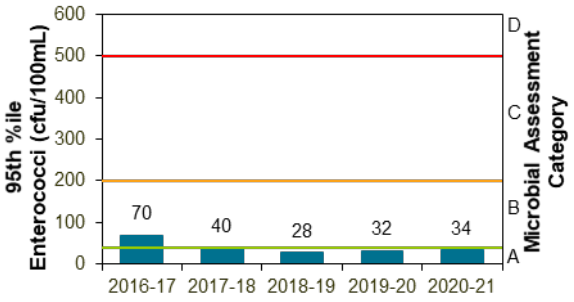
The site has been monitored since 2012.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jun 2019 to Apr 2021	97%	100	Improved

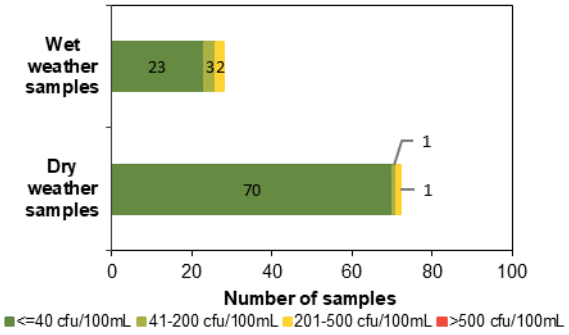
Sanitary inspection: Low



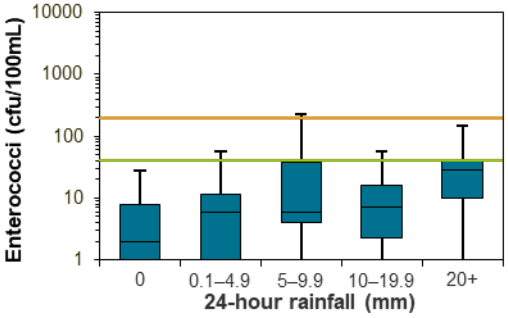
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



South Maroubra Rockpool

Beach grade: G

See ‘How to read this report’ for key to map.

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.

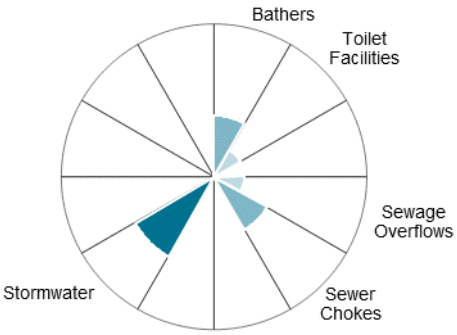
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

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

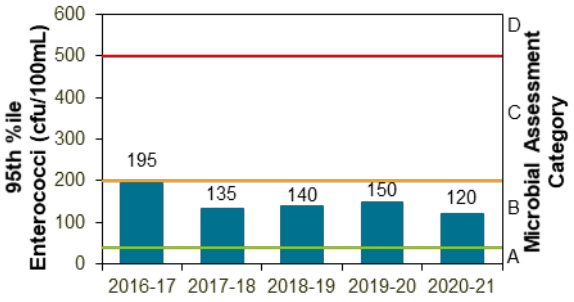
The site has been monitored since 2012.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean baths	Jun 2019 to Apr 2021	93%	100	Stable

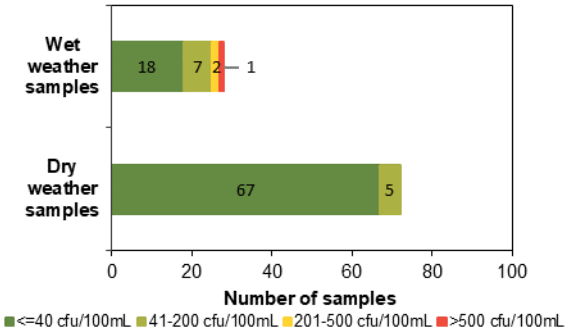
Sanitary inspection: Moderate



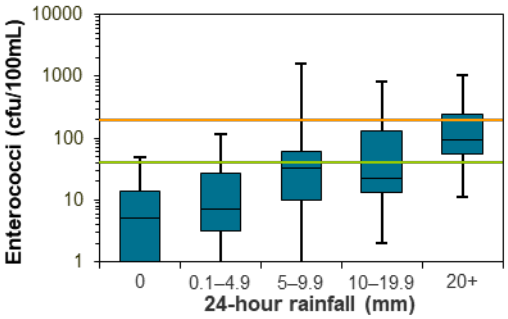
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Malabar Beach

Beach grade: G

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

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

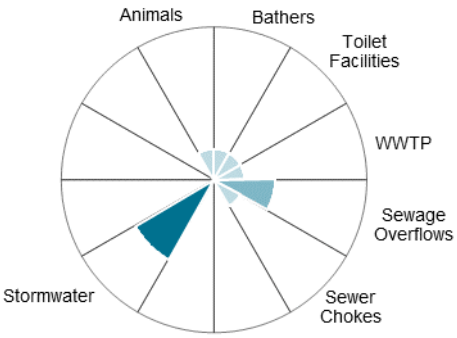
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

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

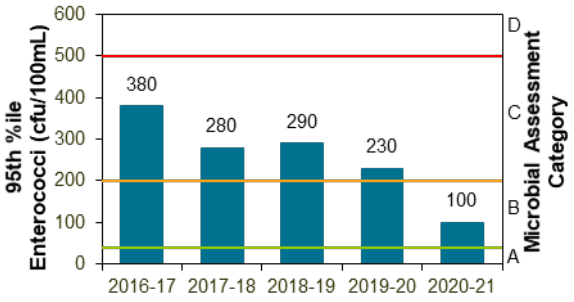
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jun 2019 to Apr 2021	88%	100	Improved ↑

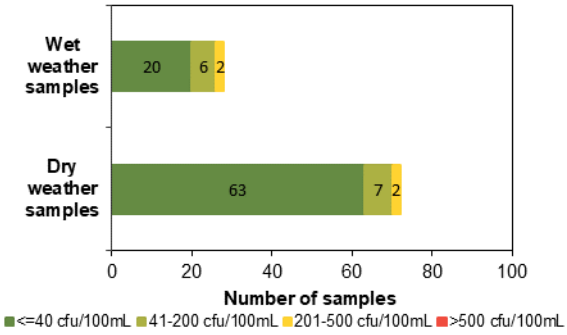
Sanitary inspection: Moderate



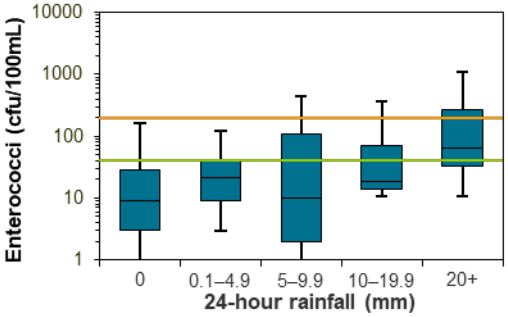
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Little Bay Beach

Beach grade: G

See ‘How to read this report’ for key to map.

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

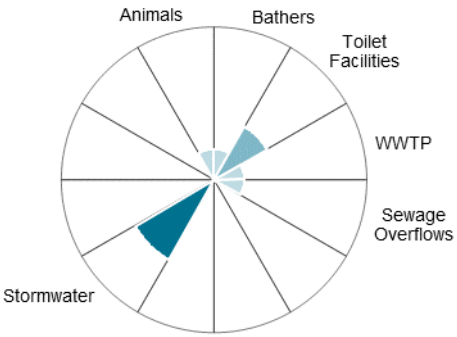
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but can be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

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

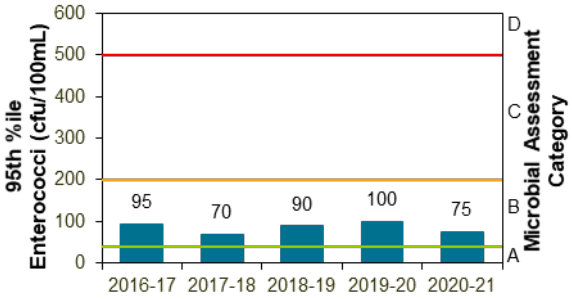
The site was monitored from 1989 until 1995, and since 2006.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jun 2019 to Apr 2021	88%	100	Stable

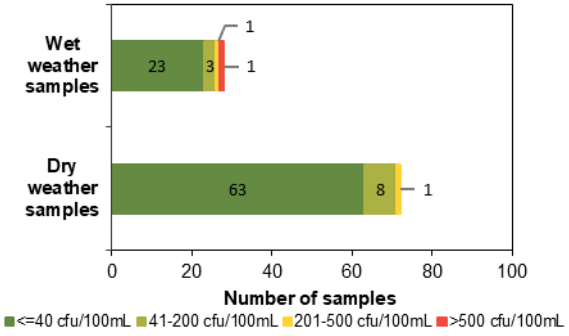
Sanitary inspection: Moderate



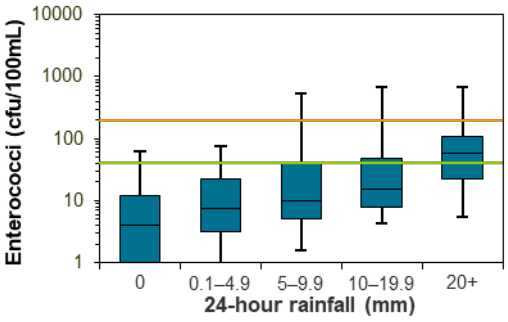
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Camp Cove

Beach grade: VG

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

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.

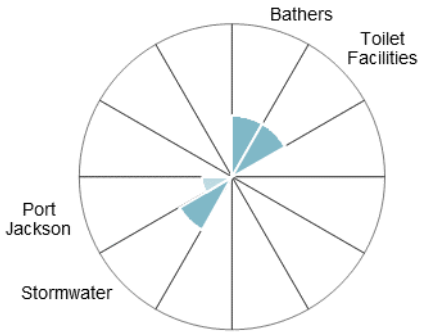
The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of faecal contamination.

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

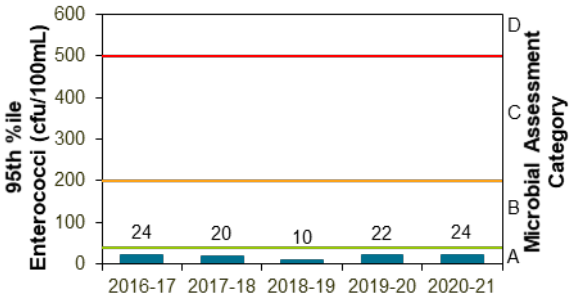
The site was monitored since 2015.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	96%	100	Stable

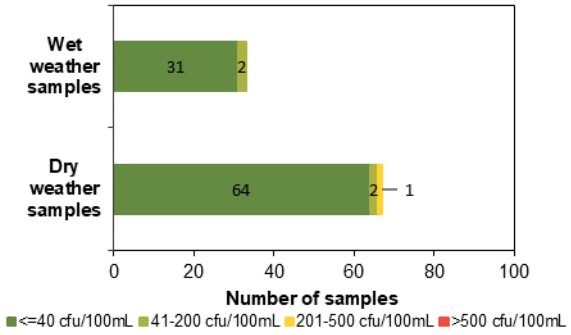
Sanitary inspection: Low



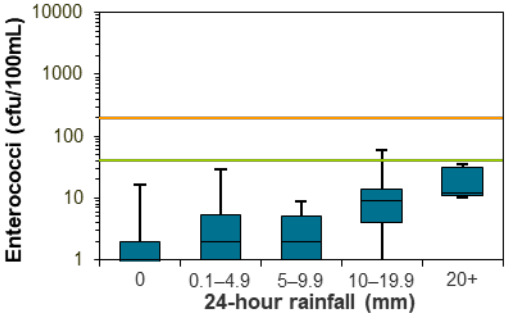
Microbial Assessment Category: A



Dry and wet weather water quality

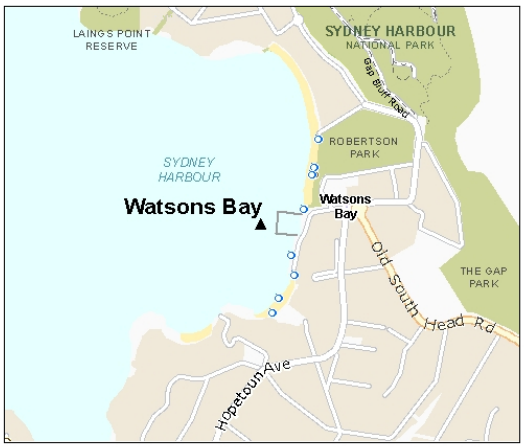


Water quality in response to rainfall



Watsons Bay

Beach grade: G



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

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.

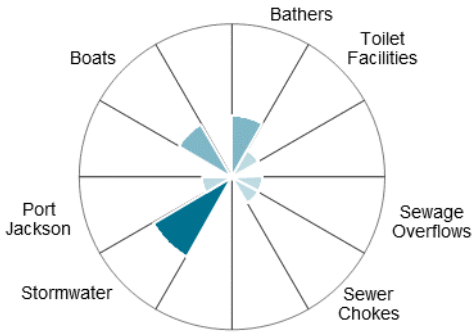
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but can be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

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

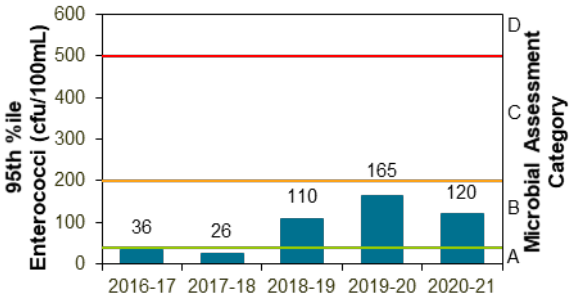
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Sep 2018 to Apr 2021	96%	100	Stable

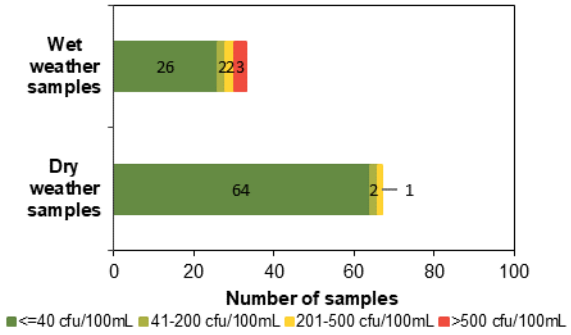
Sanitary inspection: Moderate



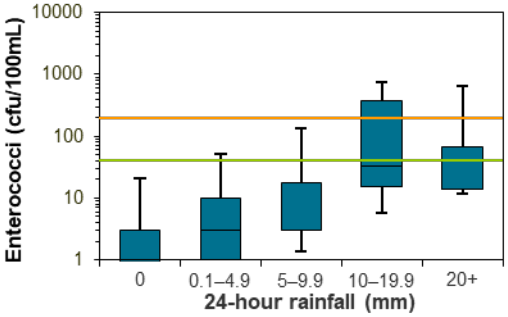
Microbial Assessment Category: B



Dry and wet weather water quality

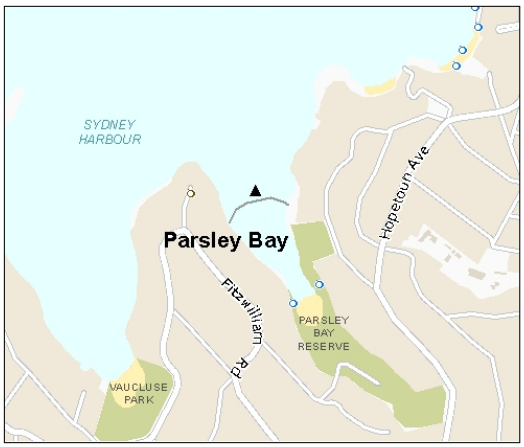


Water quality in response to rainfall



Parsley Bay

Beach grade: G



See ‘How to read this report’ for key to map.

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

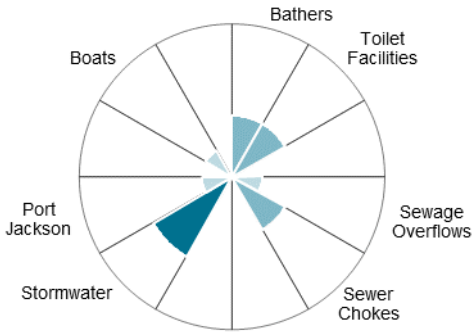
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

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

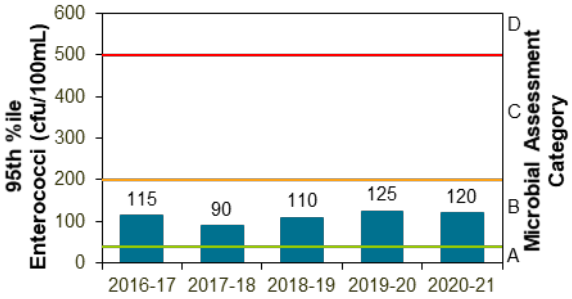
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	96%	100	Stable

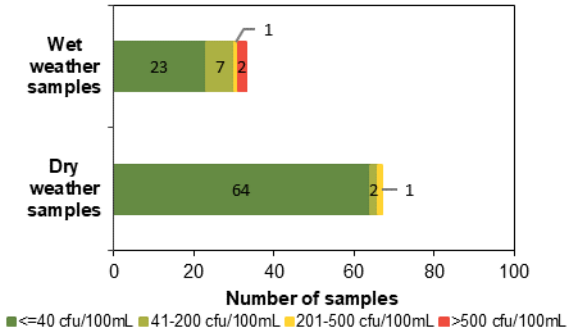
Sanitary inspection: Moderate



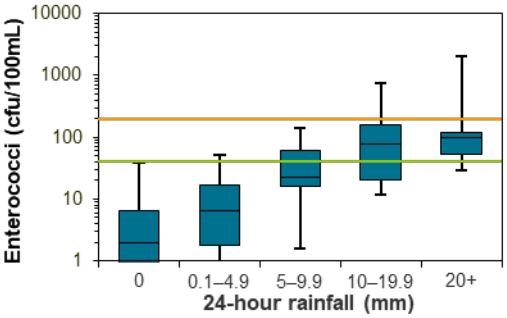
Microbial Assessment Category: B



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.

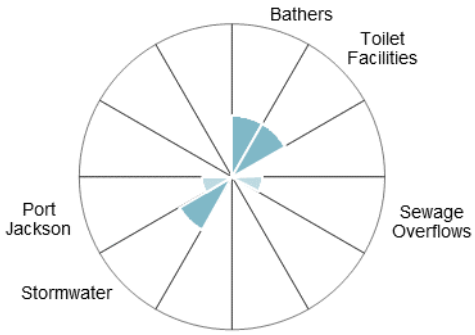
The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with several potential sources of minor faecal contamination.

Enterococci levels generally increased with increasing rainfall, occasionally exceeding the safe swimming limit after rainfall.

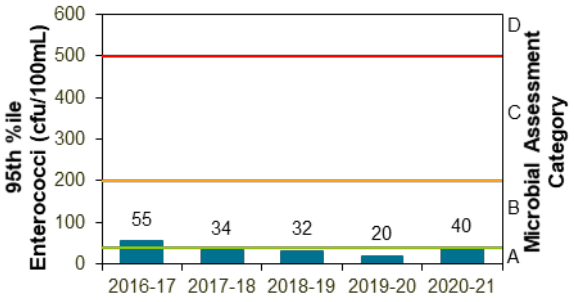
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	97%	100	Stable

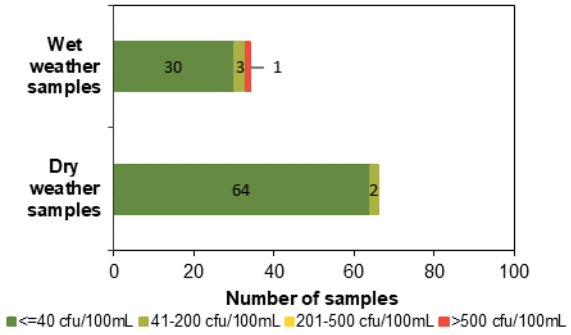
Sanitary inspection: Low



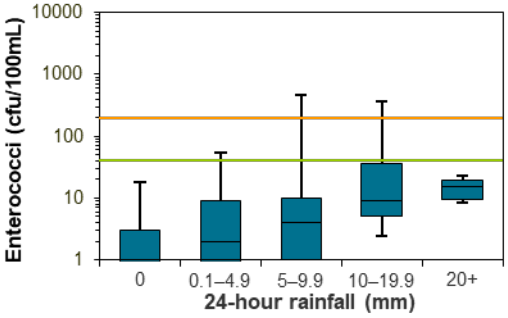
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



Rose Bay Beach

Beach grade: G

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

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

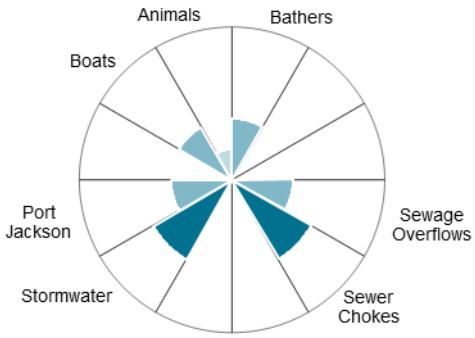
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater and sewer chokes.

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

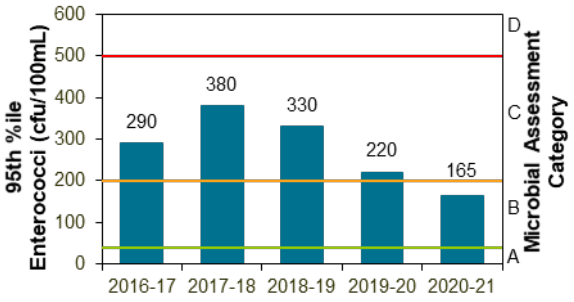
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	92%	100	Improved ↑

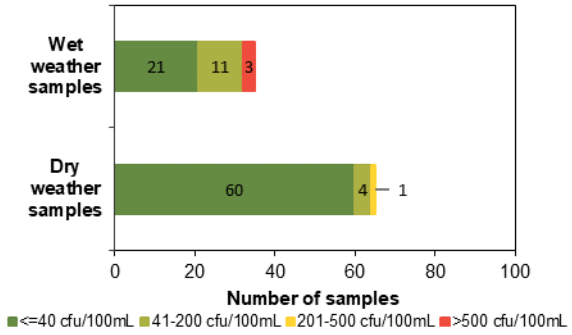
Sanitary inspection: Moderate



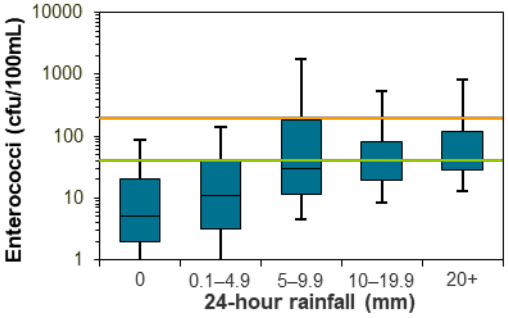
Microbial Assessment Category: B



Dry and wet weather water quality

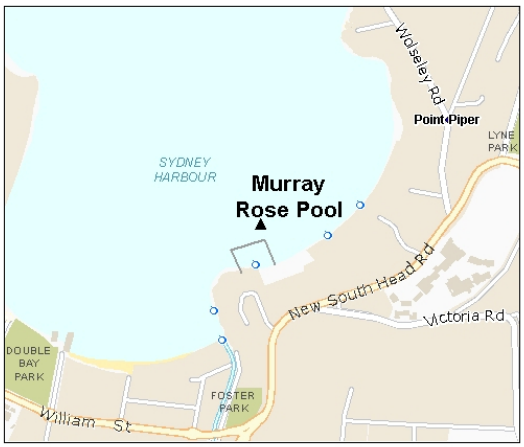


Water quality in response to rainfall



Murray Rose Pool

Beach grade: G



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

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

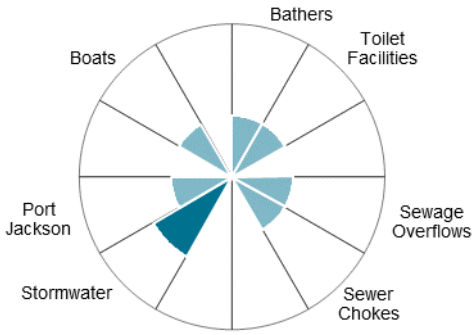
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

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

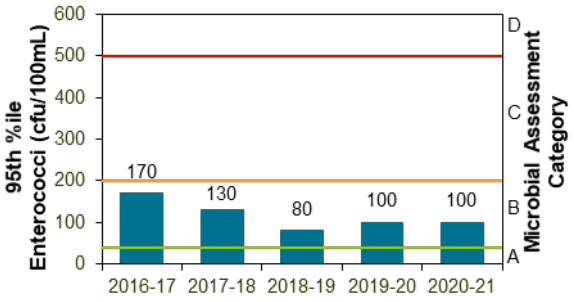
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	95%	100	Stable

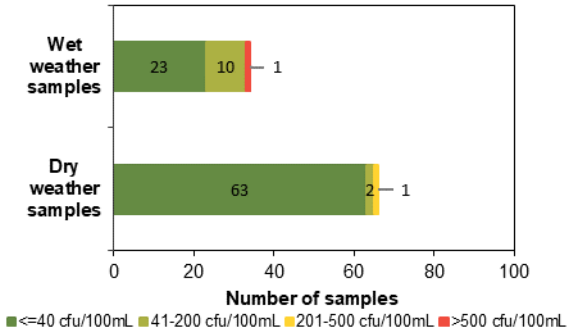
Sanitary inspection: Moderate



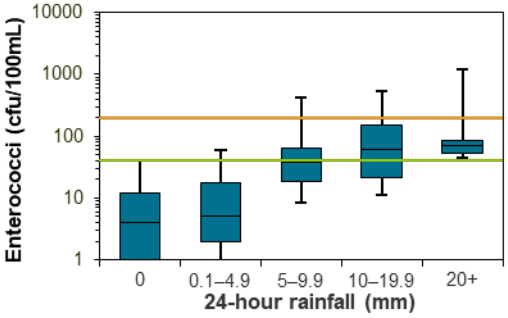
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Dawn Fraser Pool

Beach grade: G

See ‘How to read this report’ for key to map.

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

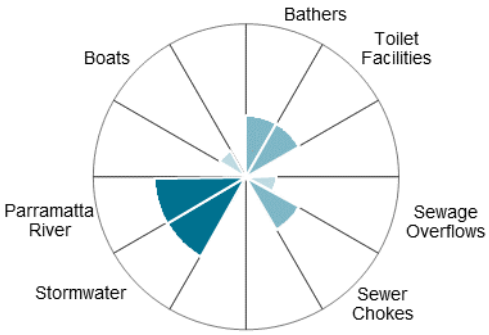
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including upstream sources in the Parramatta River.

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

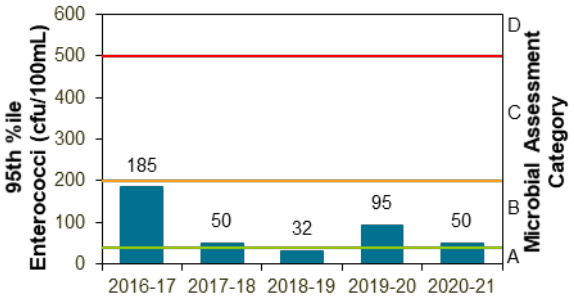
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	97%	100	Stable

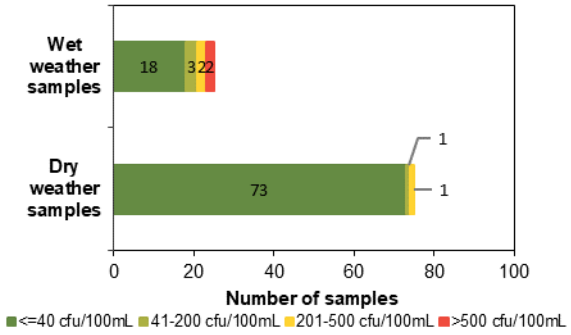
Sanitary inspection: Moderate



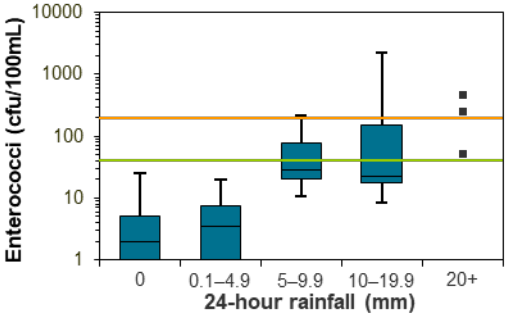
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Chiswick Baths

Beach grade: G

See ‘How to read this report’ for key to map.

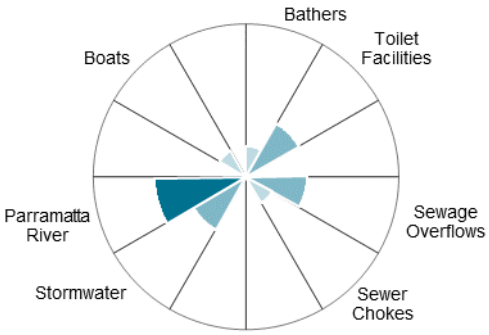
Chiswick Baths is a netted swimming enclosure in Five Dock Bay and is backed by a narrow sandy beach and a park.

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.

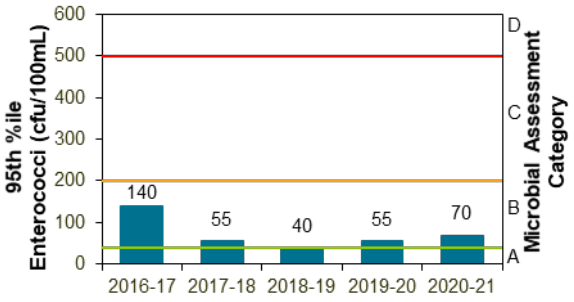
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after 5 mm or more of rain, and regularly after 10 mm or more.
The site has been monitored since 1999.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Aug 2018 to Apr 2021	97%	100	Stable

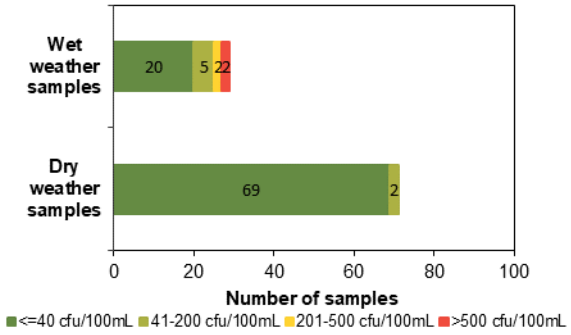
Sanitary inspection: Moderate



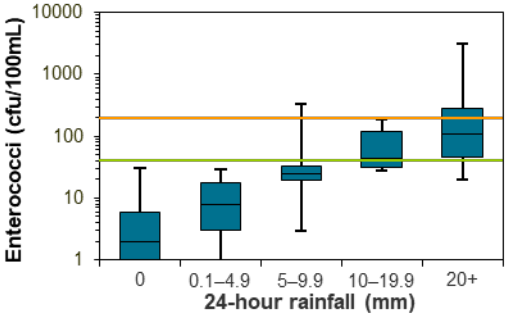
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Cabarita Beach

Beach grade: G

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

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

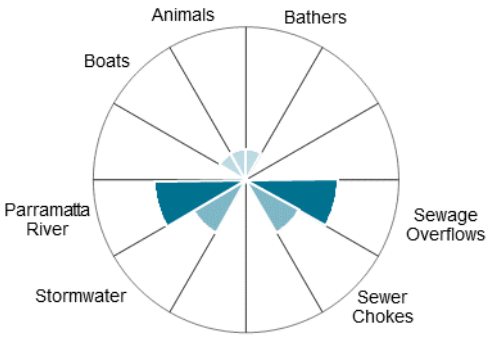
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but can be susceptible to pollution after rain, with potential faecal contamination from sewage overflows and upstream sources in the Parramatta River.

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

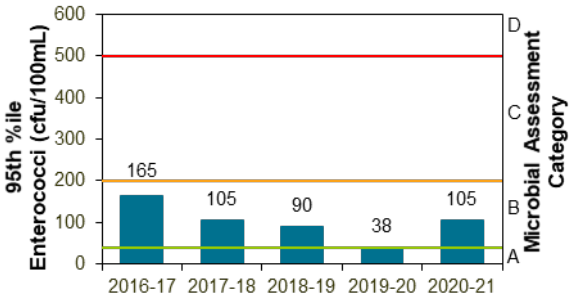
The site has been monitored since 1996.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	97%	100	Stable

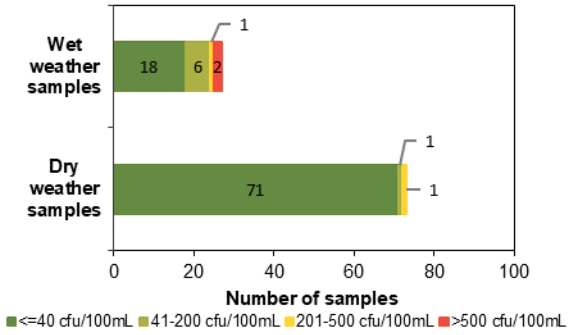
Sanitary inspection: Moderate



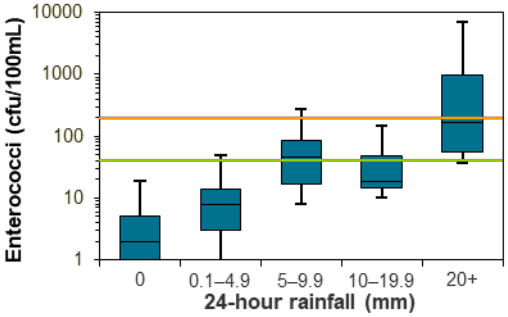
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Woolwich Baths

Beach grade: G

See ‘How to read this report’ for key to map.

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

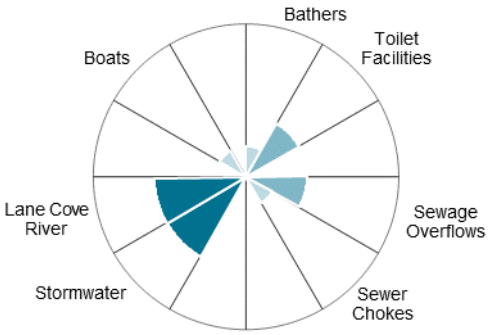
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but can be susceptible to pollution after rain, with potential faecal contamination from stormwater and upstream river sources.

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

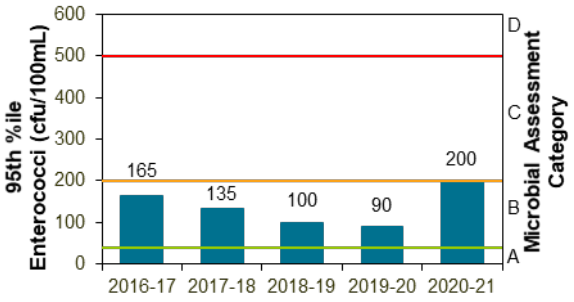
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Sep 2018 to Apr 2021	94%	100	Stable

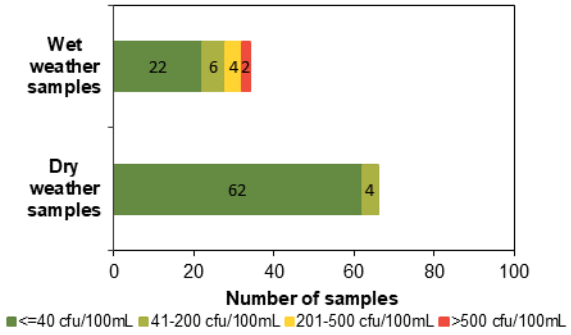
Sanitary inspection: Moderate



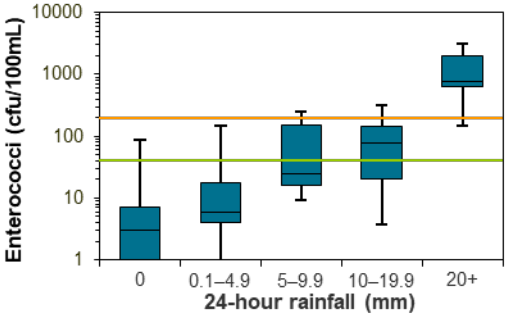
Microbial Assessment Category: B



Dry and wet weather water quality

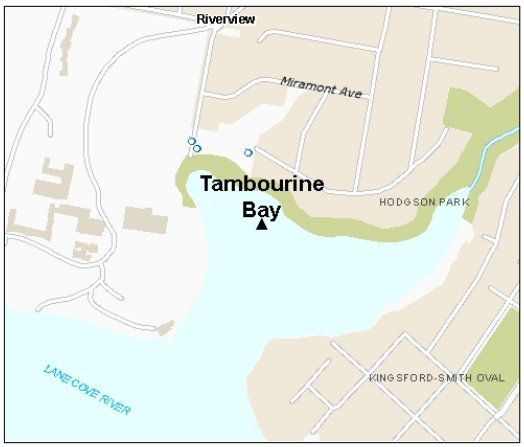


Water quality in response to rainfall



Tambourine Bay

Beach grade: P



See ‘How to read this report’ for key to map.

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

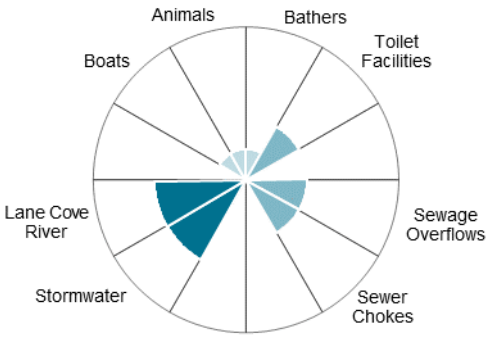
The Beach Suitability Grade of Poor indicates microbial water quality is susceptible to faecal pollution, particularly after rainfall and occasionally during dry weather conditions, with potential faecal contamination including stormwater and upstream river sources.

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

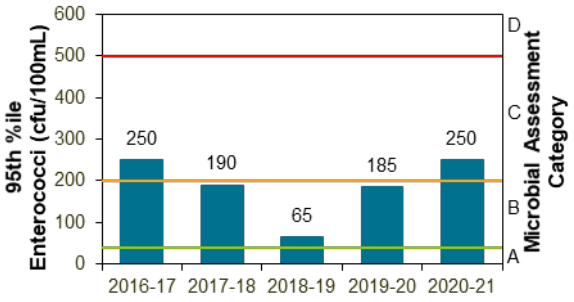
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	94%	100	Declined

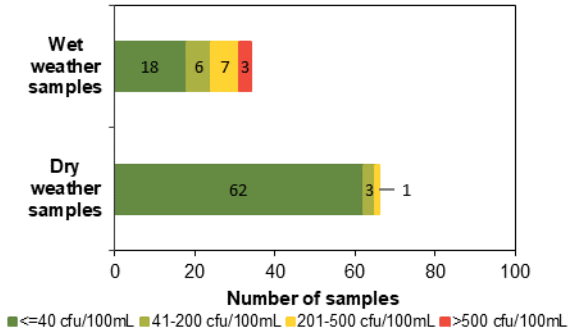
Sanitary inspection: Moderate



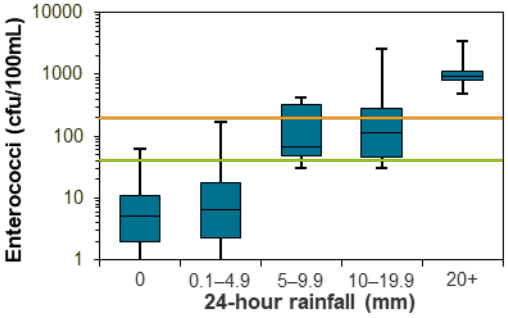
Microbial Assessment Category: C



Dry and wet weather water quality



Water quality in response to rainfall



Woodford Bay

Beach grade: G

See ‘How to read this report’ for key to map.

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

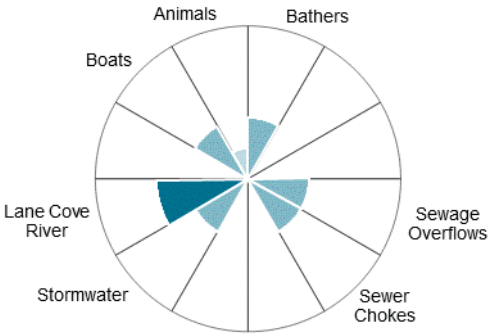
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including discharge from upstream river sources.

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

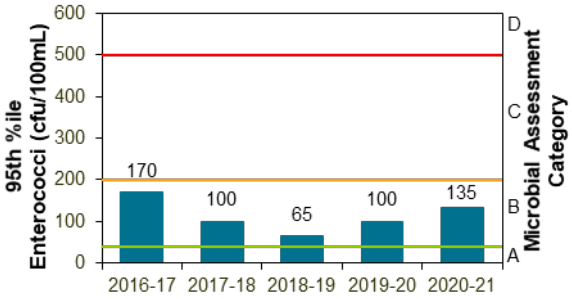
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Sep 2018 to Apr 2021	91%	100	Stable

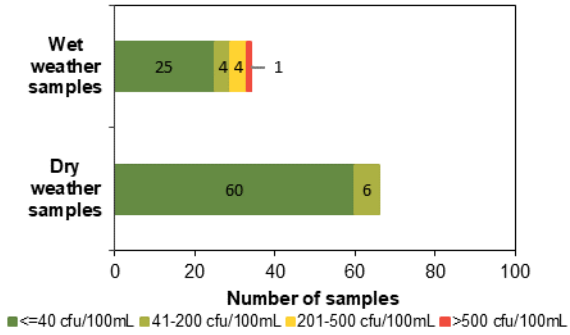
Sanitary inspection: Moderate



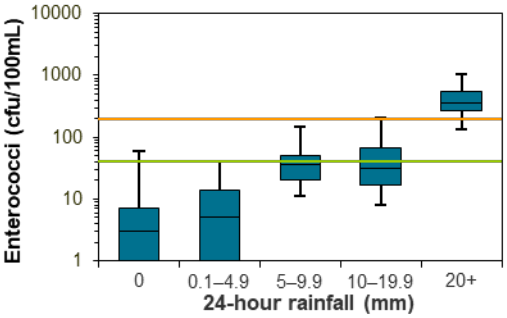
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Greenwich Baths

Beach grade: G

See ‘How to read this report’ for key to map.

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

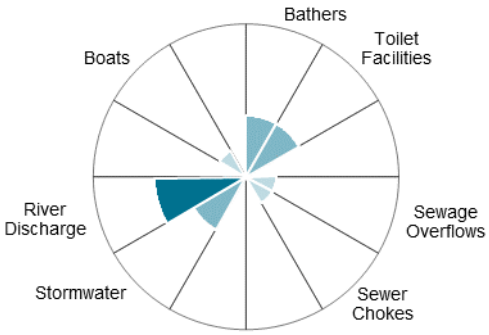
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including discharge from upstream river sources.

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

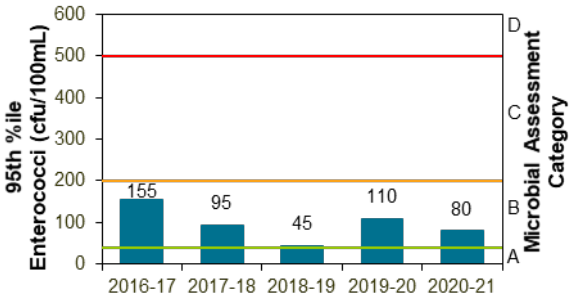
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	92%	100	Stable

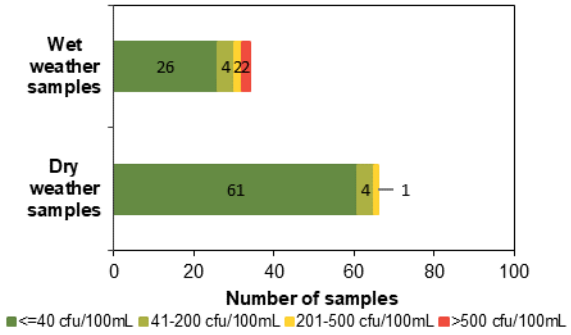
Sanitary inspection: Moderate



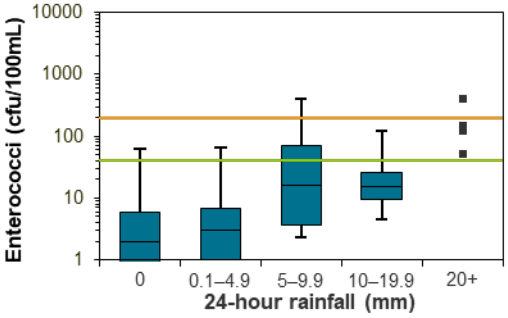
Microbial Assessment Category: B



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.

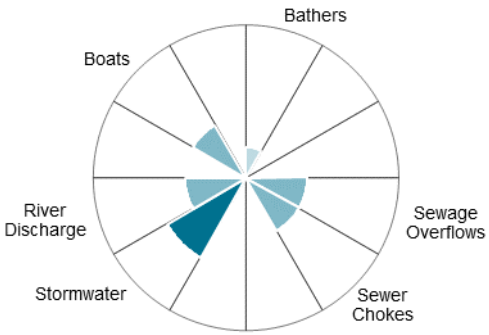
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after little or no rain, and regularly after 5 mm or more.

The site has been monitored since 1994.

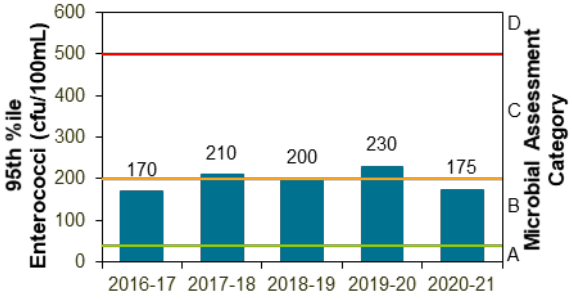
See ‘How to read this report’ for key to map.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	97%	100	Improved ↑

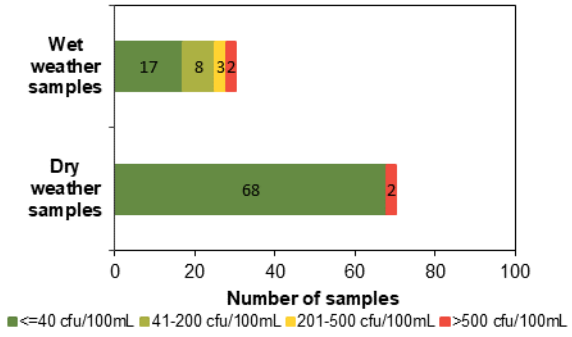
Sanitary inspection: Moderate



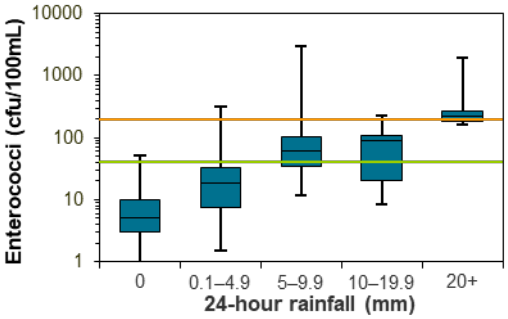
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Clifton Gardens

Beach grade: G

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

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

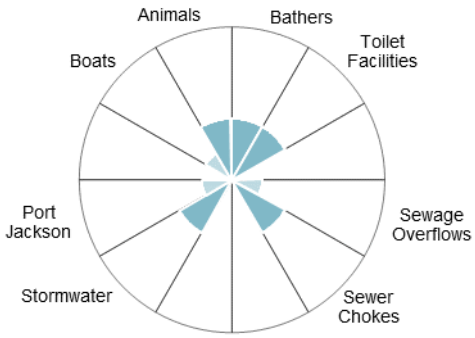
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of minor faecal contamination.

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

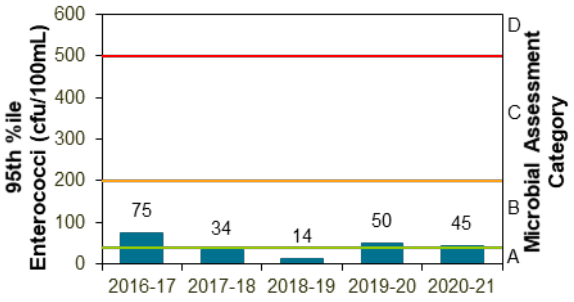
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	100%	100	Stable

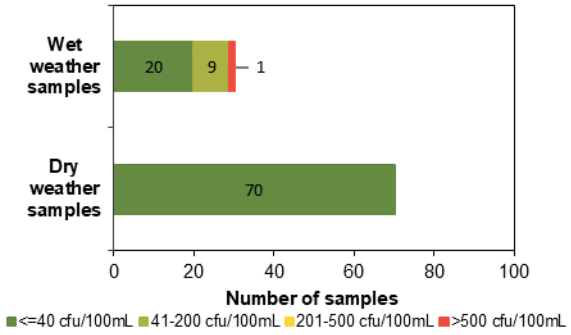
Sanitary inspection: Moderate



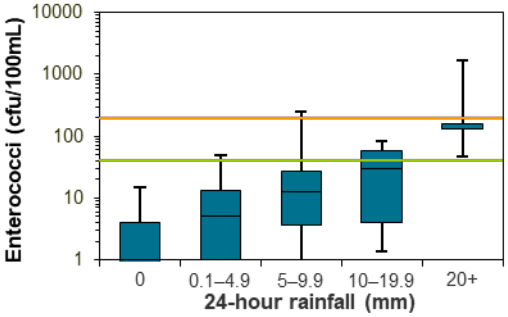
Microbial Assessment Category: B



Dry and wet weather water quality

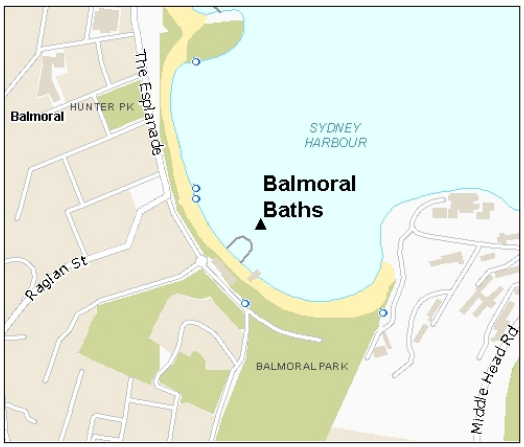


Water quality in response to rainfall



Balmoral Baths

Beach grade: G



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

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

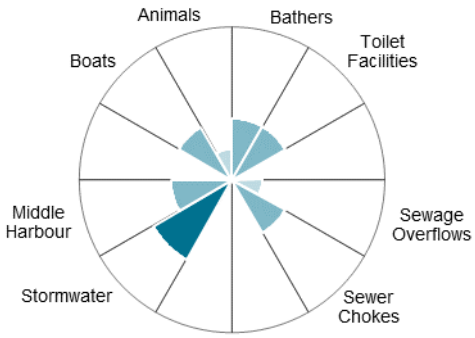
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

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

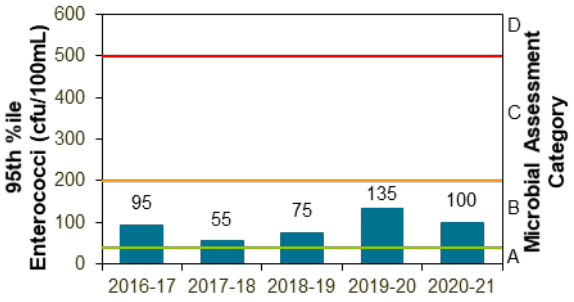
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	100%	100	Stable

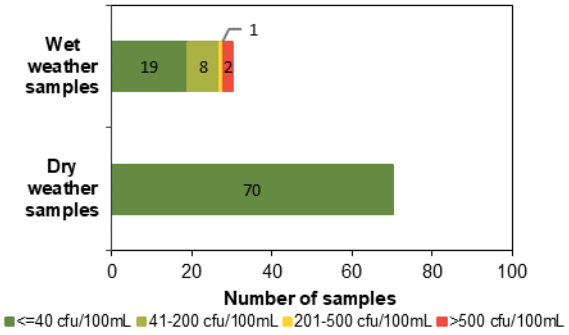
Sanitary inspection: Moderate



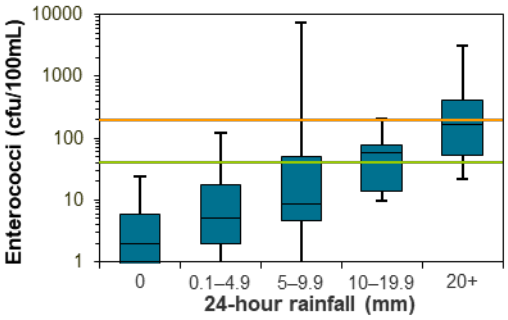
Microbial Assessment Category: B



Dry and wet weather water quality

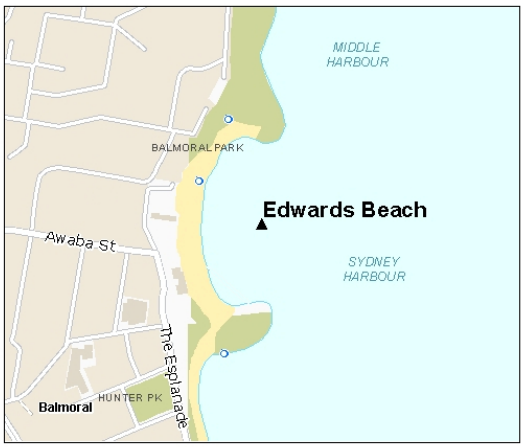


Water quality in response to rainfall



Edwards Beach

Beach grade: G



See ‘How to read this report’ for key to map.

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

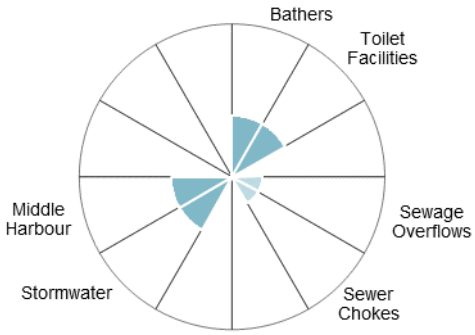
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of minor faecal contamination.

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

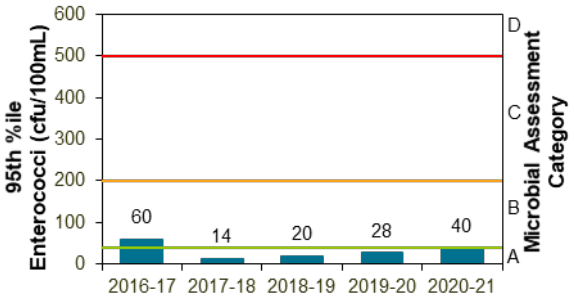
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	99%	100	Stable

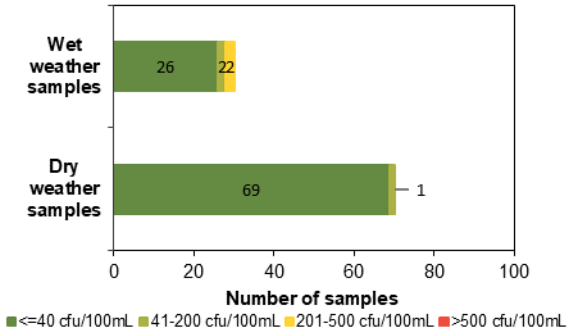
Sanitary inspection: Moderate



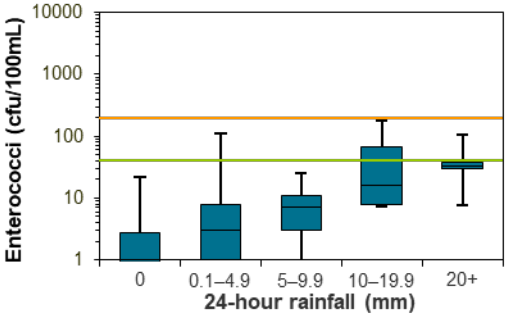
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



Chinamans Beach

Beach grade: G

See ‘How to read this report’ for key to map.

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

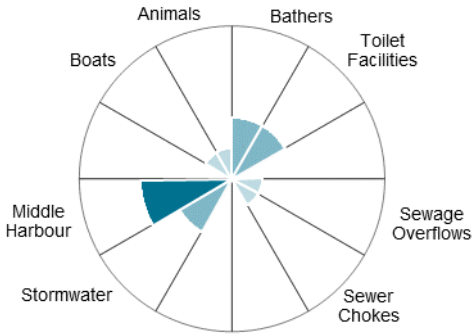
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including upstream sources in Middle Harbour.

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

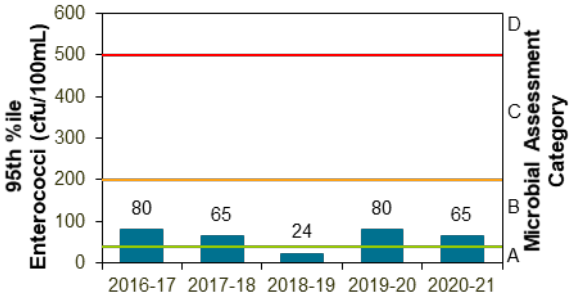
The site has been monitored since 1998.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	99%	100	Stable

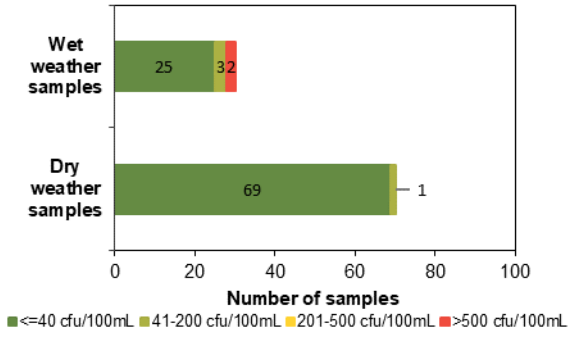
Sanitary inspection: Moderate



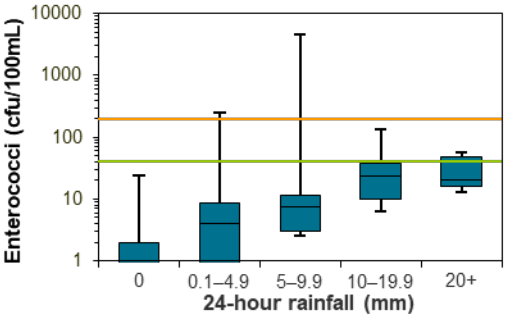
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Northbridge Baths

Beach grade: F

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

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

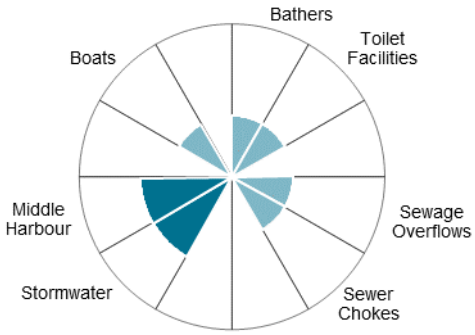
The Beach Suitability Grade of Fair indicates microbial water quality is occasionally susceptible to faecal pollution, usually triggered by rainfall, with several potential sources of faecal contamination including stormwater and upstream sources in Middle Harbour.

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

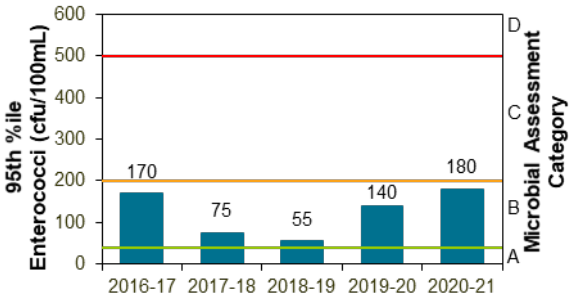
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	92%	100	Stable

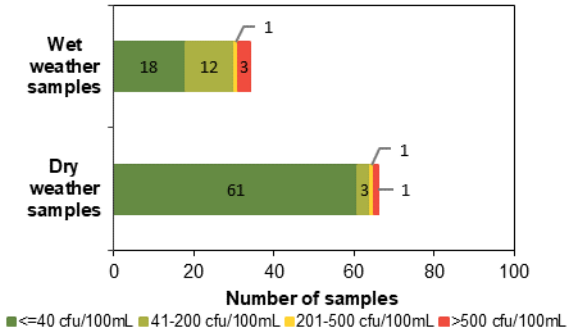
Sanitary inspection: High



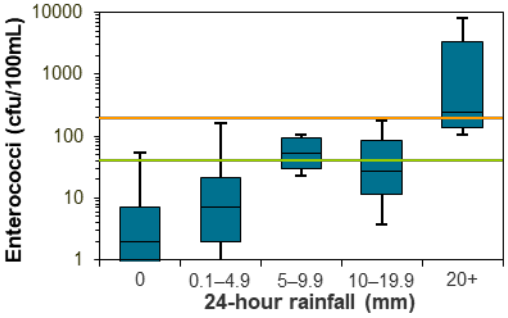
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Davidson Reserve

Beach grade: P

See ‘How to read this report’ for key to map.

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

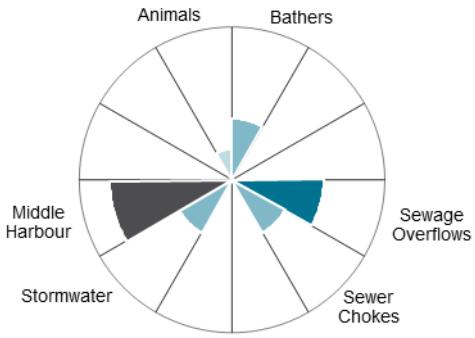
The Beach Suitability Grade of Poor indicates microbial water quality is susceptible to faecal pollution, particularly after rainfall and occasionally during dry weather conditions, with several potential sources of faecal contamination including sewage overflows and upstream sources in Middle Harbour.

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

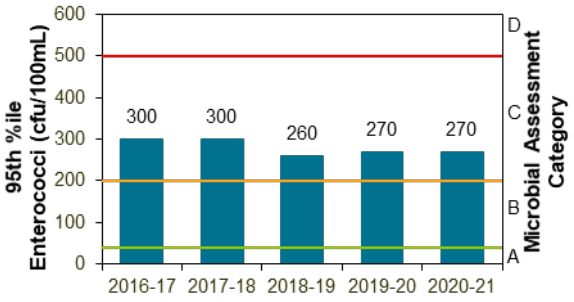
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Sep 2018 to Apr 2021	93%	100	Stable

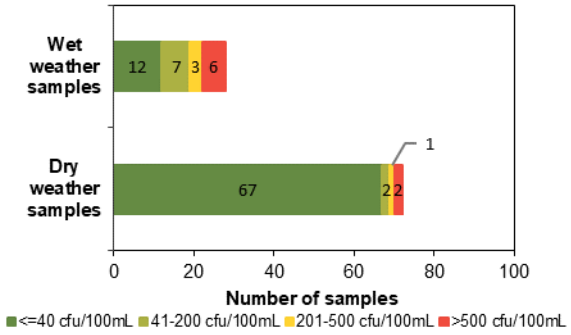
Sanitary inspection: High



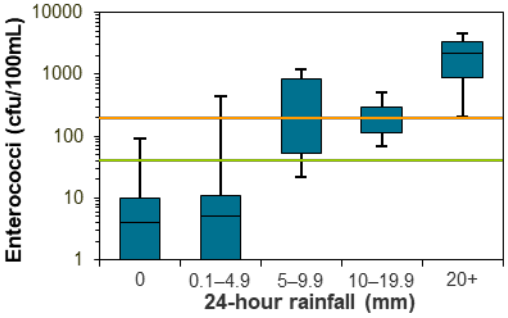
Microbial Assessment Category: C



Dry and wet weather water quality

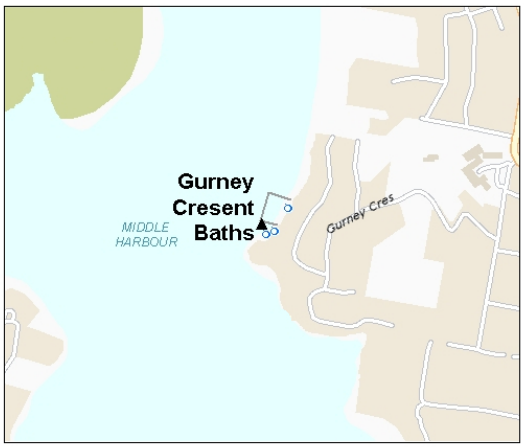


Water quality in response to rainfall



Gurney Crescent Baths

Beach grade: F



See ‘How to read this report’ for key to map.

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

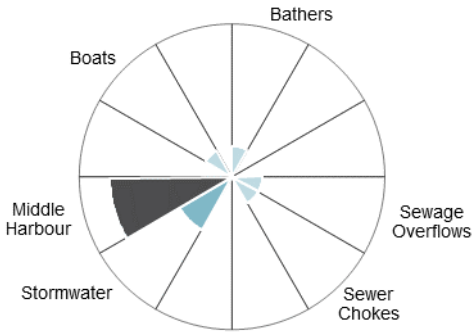
The Beach Suitability Grade of Fair indicates microbial water quality is occasionally susceptible to faecal pollution, usually triggered by rainfall, with several potential sources of faecal contamination including upstream sources in Middle Harbour and stormwater.

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

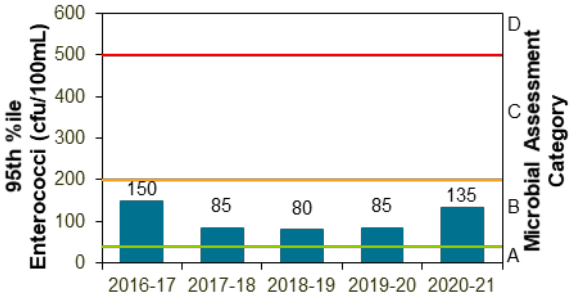
The site has been monitored since 1996.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	93%	100	Stable

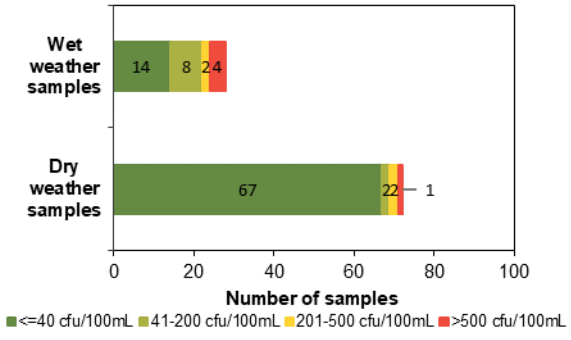
Sanitary inspection: High



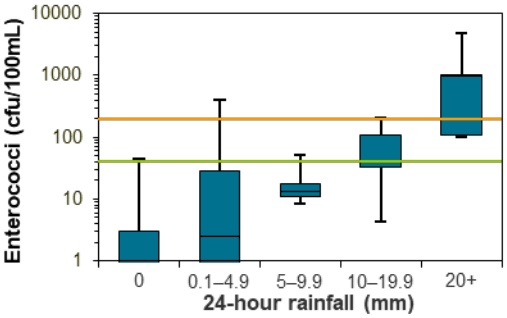
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Clontarf Pool

Beach grade: G

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

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

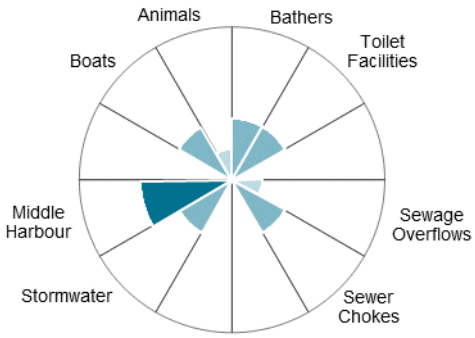
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including upstream sources in Middle Harbour and stormwater.

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

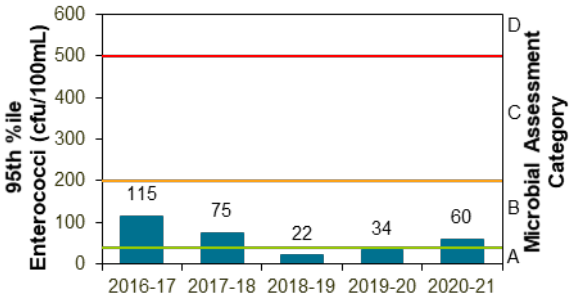
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	93%	100	Stable

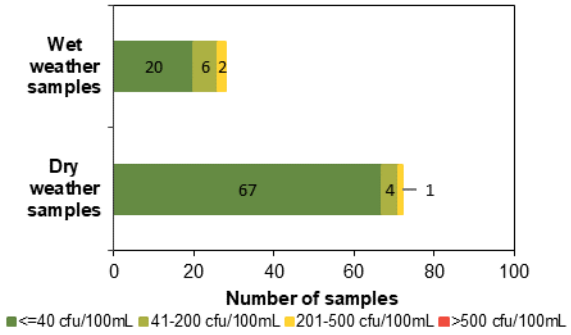
Sanitary inspection: Moderate



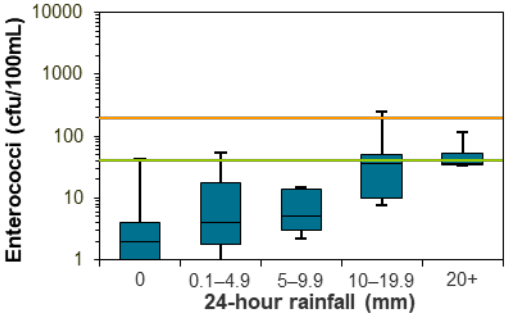
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Forty Baskets Pool

Beach grade: G

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

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

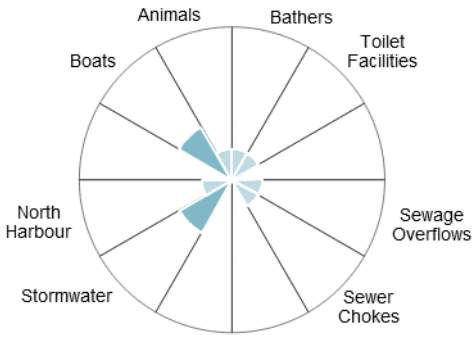
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of minor faecal contamination.

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

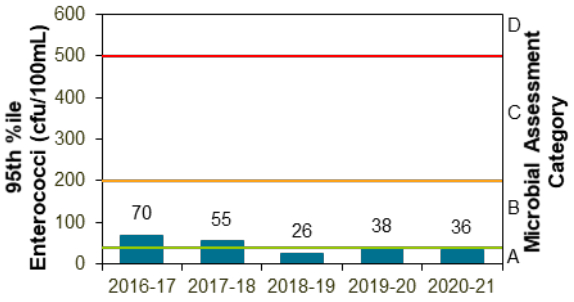
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	99%	100	Stable

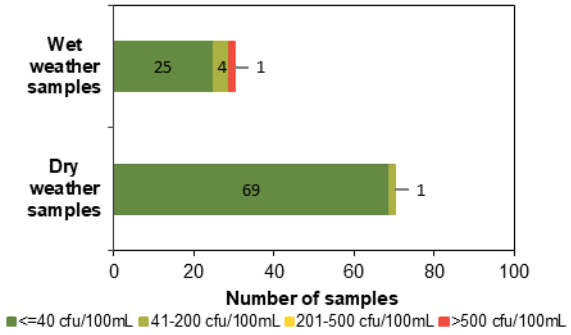
Sanitary inspection: Moderate



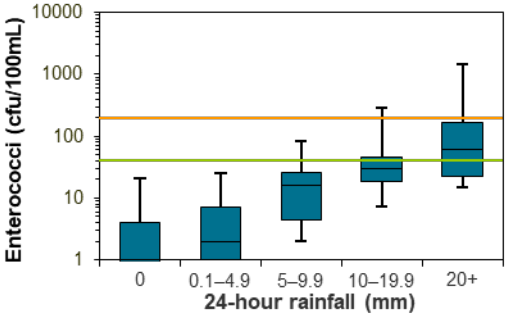
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



Fairlight Beach

Beach grade: G

See ‘How to read this report’ for key to map.

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.

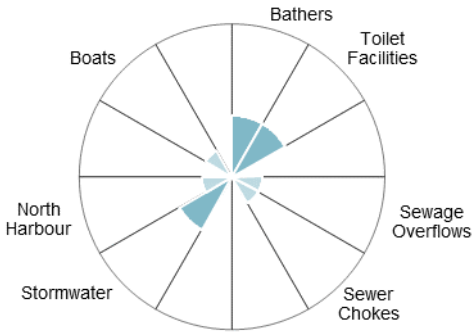
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of minor faecal contamination.

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

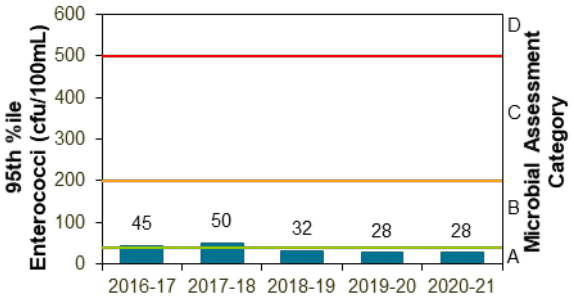
The site has been monitored since 1996.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	96%	100	Stable

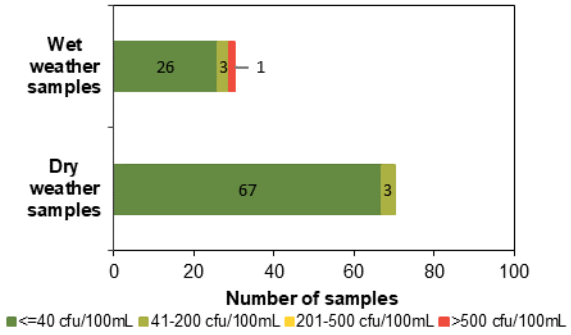
Sanitary inspection: Moderate



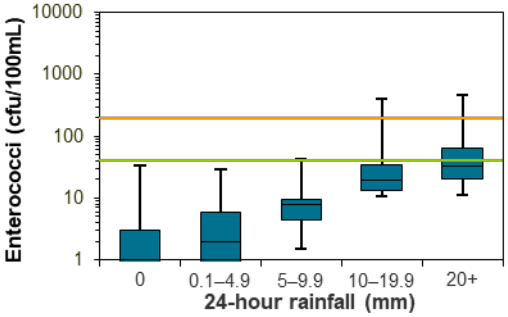
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



Manly Cove

Beach grade: G

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

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

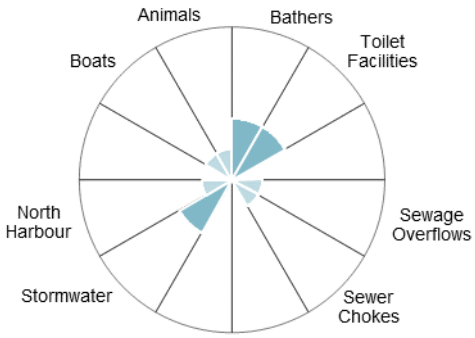
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of minor faecal contamination.

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

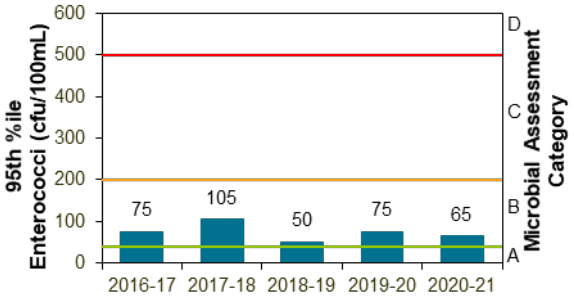
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	90%	100	Stable

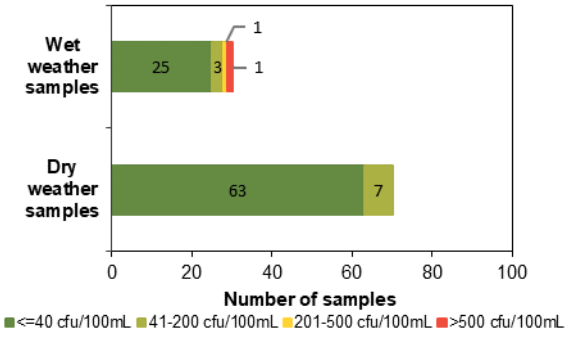
Sanitary inspection: Moderate



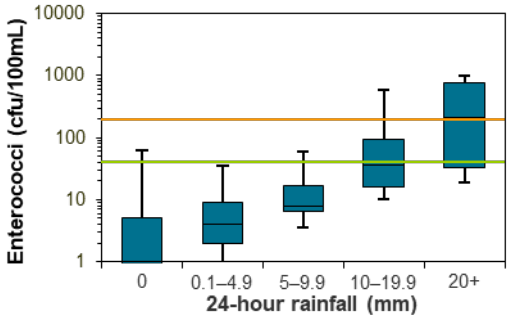
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Little Manly Cove

Beach grade: G

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

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

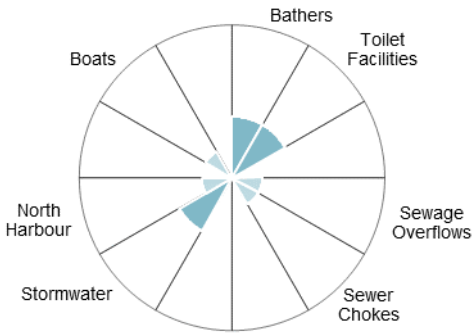
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of minor faecal contamination.

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

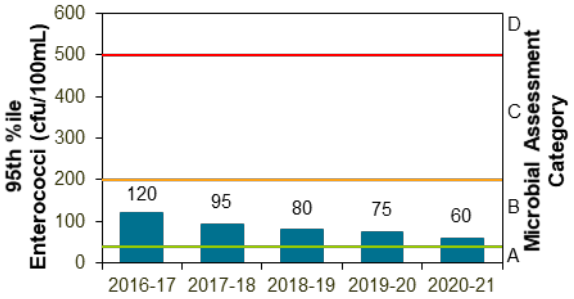
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	96%	100	Stable

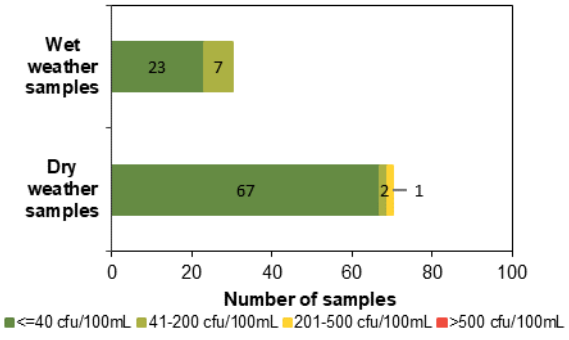
Sanitary inspection: Moderate



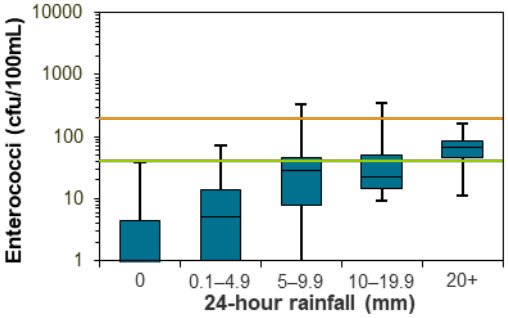
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



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

Overall results

89%
swimming sites graded Good or Very Good

Twenty-five of the 28 swimming sites were graded as Very Good or Good in 2020–2021. This is a slight decline in performance from the previous year.

Percentage of sites graded as Very Good or Good:

- 2020–2021: 89%
- 2019–2020: 93%
- 2018–2019: 86%
- 2017–2018: 86%.

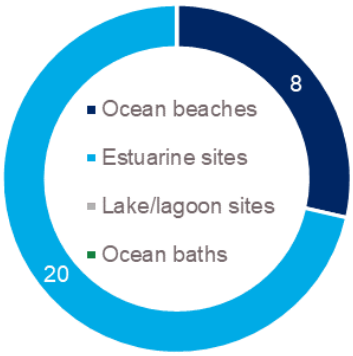
See the section on **How to read this report** on page 139 for an explanation of the graphs, tables and Beach Suitability Grades.

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.

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

Beach Suitability Grades for Southern Sydney ocean beaches

All eight southern Sydney ocean beaches were graded as Very Good or Good in 2020–2021.

Greenhills Beach, Wanda Beach, Elouera Beach, North Cronulla Beach, South Cronulla Beach, Shelly Beach and Oak Park 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 was graded Good, a similar result to previous years. Water quality was mostly suitable for swimming, with 89% 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

Beach Suitability Grades for Southern Sydney estuarine beaches

Seventeen of the 20 estuarine sites were graded as Very Good or Good in 2020–2021.

Jibbon Beach was graded Very Good, a similar result to the previous year. Water quality at this site was excellent, with few potential sources of faecal contamination.

Silver Beach, Como Baths, Jew Fish Bay Baths, Oatley Bay Baths, Carss Point Baths, Sandringham Baths, Dolls Point Baths, Ramsgate Baths, Monterey Baths, Brighton-Le-Sands Baths, Kyeemagh Baths, Yarra Bay, Congwong Bay, Horderns Beach, Lilli Pilli Baths and Gunnamatta Bay Baths were graded Good in 2020–2021. These sites had mostly good water quality, although elevated enterococci levels were recorded following rainfall.

Foreshores Beach and Frenchmans Bay in Botany Bay, and Gymea Bay Baths in Port Hacking were graded as Poor in 2020–2021. While water quality at these sites has been mostly suitable for swimming during dry weather conditions, with between 78% and 85% of dry weather samples within the safe swimming limit, bacterial levels increased significantly with increasing rainfall.

Frenchmans Bay and Gymea Bay Baths were downgraded due to a decline in microbial water quality. Microbial water quality at these sites is susceptible to several potential sources of pollution including stormwater, sewer chokes and other sources within the river.

Foreshores Beach maintained its Poor grade, similar to the previous year. Water quality at this site is significantly impacted by faecal contamination during and following

rainfall, and occasionally during dry weather. The site is very susceptible to faecal contamination from the sewage overflows that periodically discharge into Mill Stream.

Swimming should be avoided during and for up to three days following light rainfall at estuarine swimming sites, or if there are signs of pollution such as discoloured water, odours or floating debris.

Further investigation is required at poorer performing sites to show the scale and extent of the problem, and the source of microbial contamination.

Management

Ocean beaches

Patrolled ocean beach
Photo: Beachwatch/EES, DPIE

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

Sutherland Shire Council continues to see the ongoing benefits from the Cronulla-Woolooware Wastewater Reuse Scheme (CWWRS). The facility can recycle up to four million litres of treated wastewater each day, which is used to irrigate ovals and recreation areas across the Sutherland Shire. This includes public and private sites such as Greenhills Marang Parklands, Cronulla Golf Course, Woolooware High School, Woolooware Golf Course, Captain Cook Playing Fields and the Solander Playing Fields. The CWWRS has reduced the demand for potable water for irrigation purposes and reduced the amount of treated effluent discharged to ocean outfalls.

North Cronulla Beach
Photo: Beachwatch/EES, DPIE

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.

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 preparation of CMPs for the Cooks River Catchment and Georges River Estuary. Stage 1, the scoping studies, has recently been completed and Stage 2 is progressing. The CMPs for these waterways will identify catchment pressures and prioritise management options for 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 Fairfield, Sutherland Shire, Georges River and Bayside councils. With funding from the NSW Government's Coastal and Estuary Grants Program, a number of foreshore access areas have been identified for improvements and areas of the upper catchment have been identified for creek rehabilitation, which should improve the water quality of the Georges River.

Randwick City Council

Randwick City Council operates and maintains 15 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 in cost savings).

Randwick City Council maintains 34 GPTs on stormwater lines leading to the local bays, which are all cleaned regularly. In 2020–2021, approximately 390 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 that 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.

Yarra Bay
Photo: Cameron Board/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.

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

Bayside Council continues to undertake water management related works and maintenance projects to maintain and improve water quality through its Water Management Strategy. This includes 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 entering local waterways through water sensitive urban design and GPT installation projects, including the Gannons Park Water Quality Improvement and Stormwater Harvesting Scheme. This large-scale landscape and stormwater treatment project focused on reinstating a section of Boggywell Creek to develop significant public space and improve the community's connection to environmental processes. This was completed by removing concrete stormwater infrastructure, and constructing/reinstating natural waterway features including swales, wetlands, ponds and bioretention systems. This project has been designed to remove 16,000 kg of sediment, 22 kg of phosphorus and 131 kg of nitrogen every year from stormwater, while providing a source of water for field irrigation.

Oatley Bay Baths
Photo: Cameron Board/EES, DPIE

Georges River Council has also endorsed the Georges River Foreshore Access and Improvement Plan. This plan represents a key component to deliver resilient estuarine ecosystems and vibrant communities along the foreshore areas of the Georges River within the Georges River Council local government area. The primary purpose is to enable public land along the Georges River foreshore to be planned and managed for an optimal balance of environmental health and ecological resilience, and access, use and enjoyment by the community.

Sutherland Shire Council

Silver Beach
Photo: Cameron Board/EES, DPIE

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. The funds also allow for ongoing programs such as council's Strategic Water Monitoring Program (SWaMP) and Waterways Rehabilitation Program.

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 installed more than 250 devices to improve stormwater quality, including artificial wetlands, GPTs and continuous deflective separators.

Council's SWaMP monitors over 20 sites that flow into either the Georges River, Botany Bay or Bate Bay. The program tests physical, chemical and biological (macroinvertebrates) condition to measure the health of streams and waterways.

In 2020–2021, council's Waterways Rehabilitation Program continued works at Oyster and Loftus creeks. These works include weed removal, bank stabilisation and revegetation of thousands of native plants grown at council's community nursery. The works will improve water quality, the area's aesthetics and biodiversity and contribute to the condition of the waters of Botany Bay and the lower Georges River.

Sydney Water

Sydney Water is implementing a major program of works and activities to improve the suitability for swimming at Foreshore Beach by reducing the occurrence of overflows to the Mill Stream during wet weather.

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

Horderns Beach
Photo: Cameron Board/EES, DPIE

Sutherland Shire Council's stormwater levy funds projects such as the installation of pipes, drains and stormwater quality improvement devices. The funds also allow for ongoing programs such as council's Strategic Water Monitoring Program (SWaMP) and Waterways Rehabilitation Program.

Sutherland Shire Council has installed more than 250 devices to improve stormwater quality, including artificial wetlands, GPTs and continuous deflective separators.

SWaMP monitors over 15 sites that flow into either the Hacking River or Port Hacking. The program tests physical, chemical and biological (macroinvertebrates) parameters to determine the health of streams and waterways.

In 2020–2021, council's Waterways Rehabilitation Program completed works at Kareena Creek, and continued works at Coonong and Savilles creeks. Works included creek bank stabilisation, removal of woody weeds, exotic vines and scramblers, and revegetation of thousands of native plants grown at council's community nursery. The works will improve water quality, the area's aesthetics and biodiversity, and contribute to the condition of Port Hacking.

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.

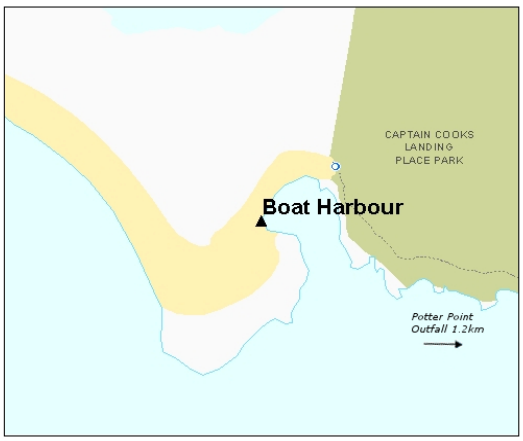
Sampling sites at Beach Suitability Grades at Sydney's Southern beaches

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: G



See ‘How to read this report’ for key to map.

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.

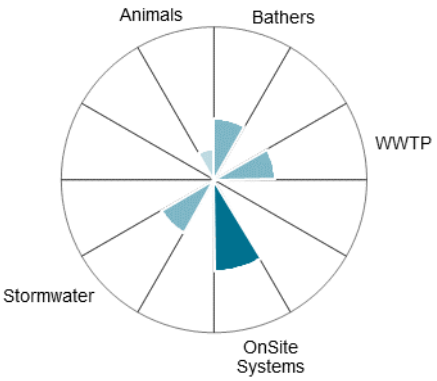
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater and onsite sewer systems behind the beach.

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

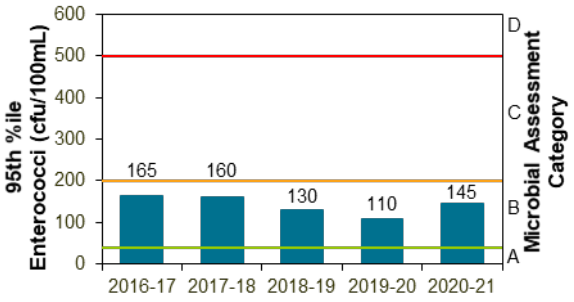
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jun 2019 to Apr 2021	89%	100	Stable

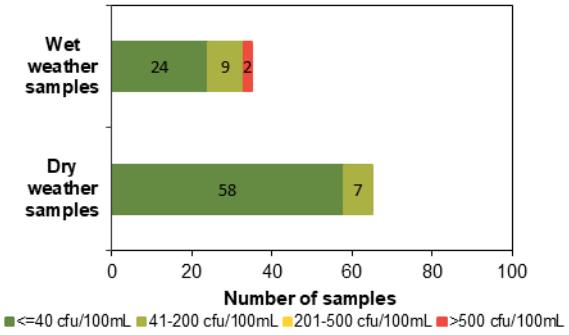
Sanitary inspection: Moderate



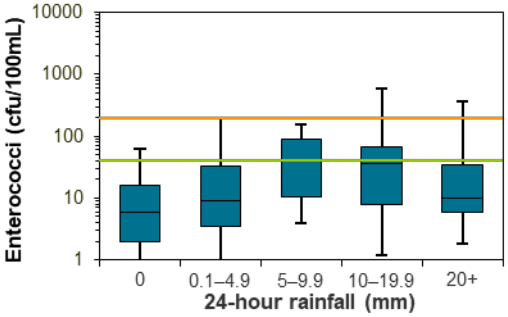
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Greenhills Beach

Beach grade: VG

See ‘How to read this report’ for key to map.

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

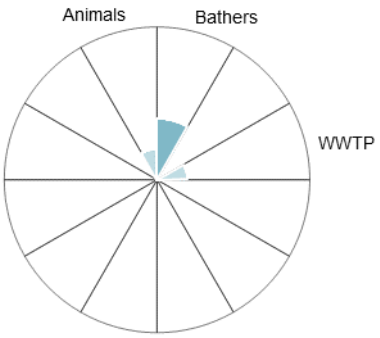
The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of faecal contamination.

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

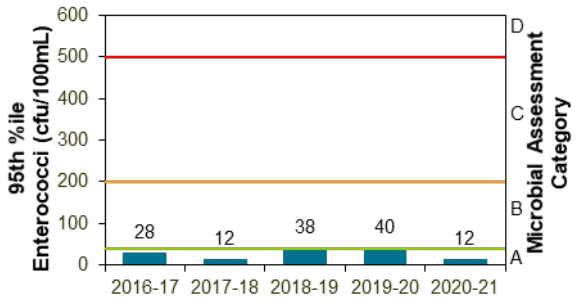
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jun 2019 to Apr 2021	95%	100	Stable

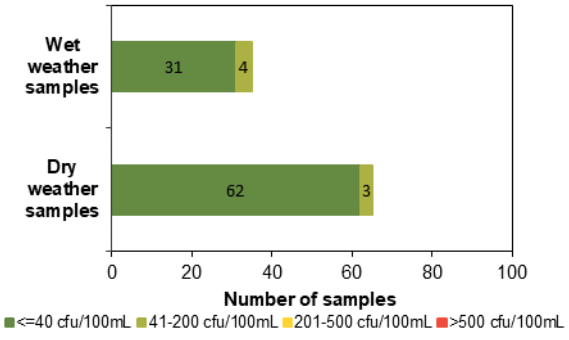
Sanitary inspection: Low



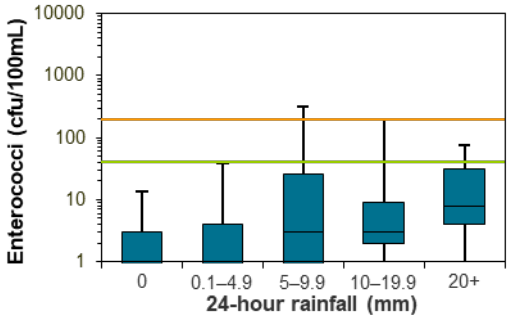
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



Wanda Beach

Beach grade: VG

See ‘How to read this report’ for key to map.

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.

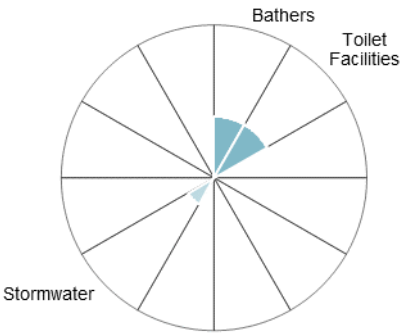
The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of faecal contamination.

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

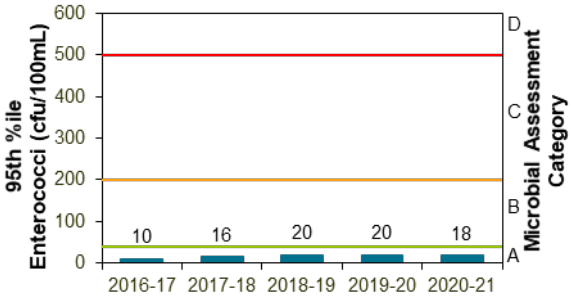
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jun 2019 to Apr 2021	98%	100	Stable

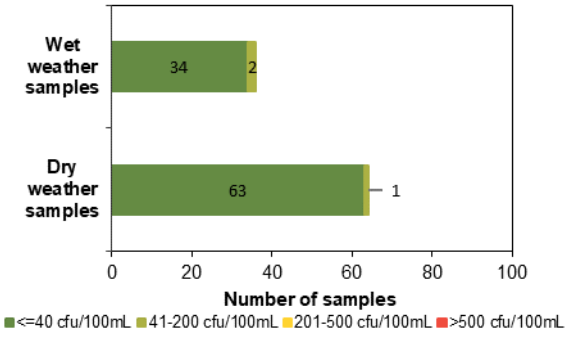
Sanitary inspection: Low



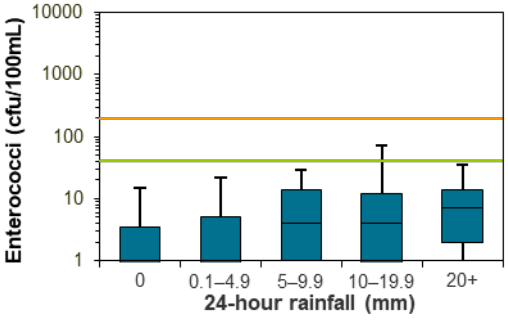
Microbial Assessment Category: A



Dry and wet weather water quality

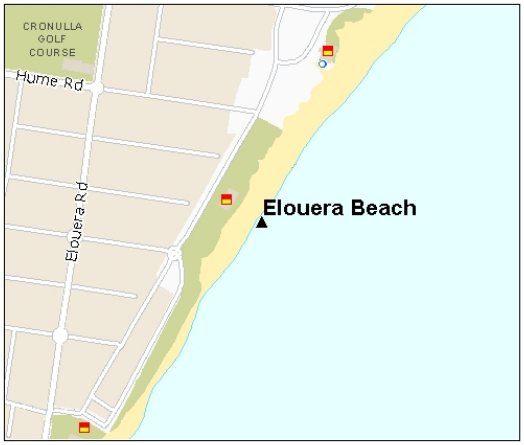


Water quality in response to rainfall



Elouera Beach

Beach grade: VG



See ‘How to read this report’ for key to map.

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.

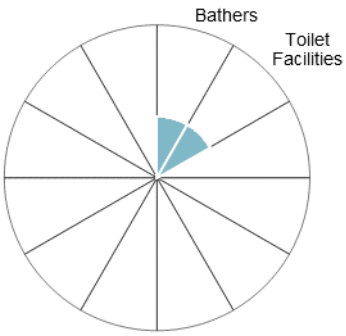
The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of faecal contamination.

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

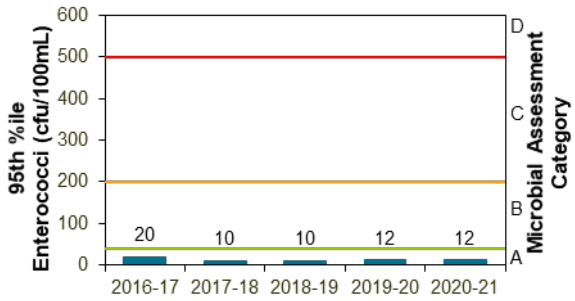
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jun 2019 to Apr 2021	97%	100	Stable

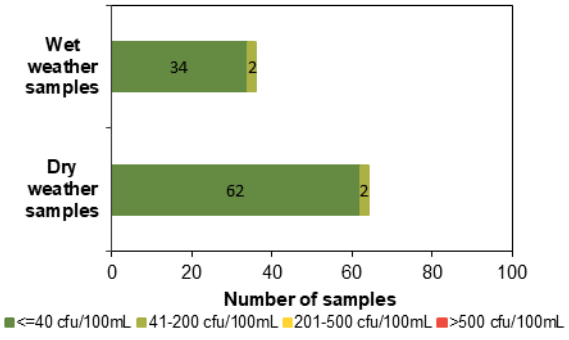
Sanitary inspection: Low



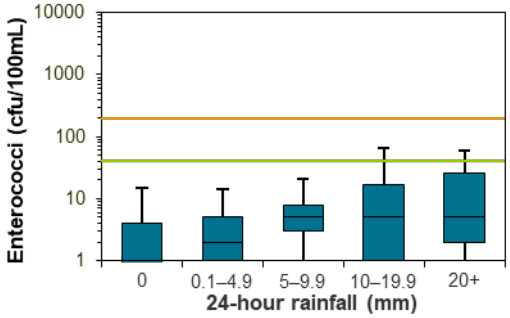
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



North Cronulla Beach

Beach grade: VG

See ‘How to read this report’ for key to map.

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.

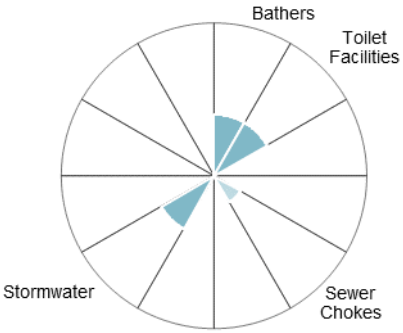
The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of faecal contamination.

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

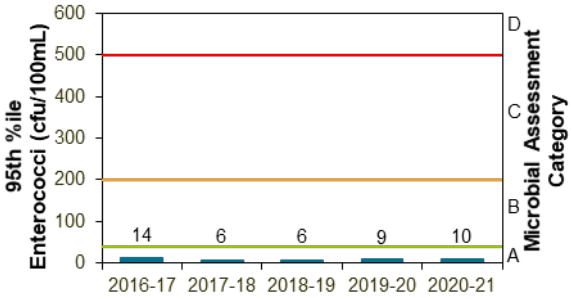
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jun 2019 to Apr 2021	100%	100	Stable

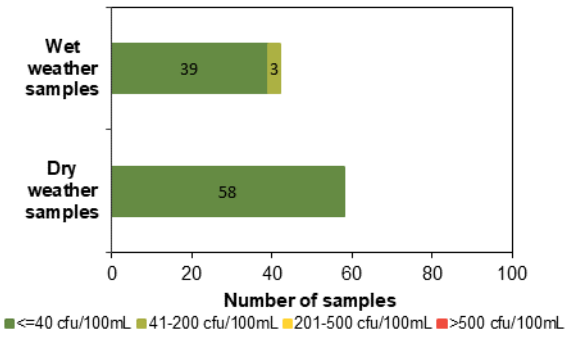
Sanitary inspection: Low



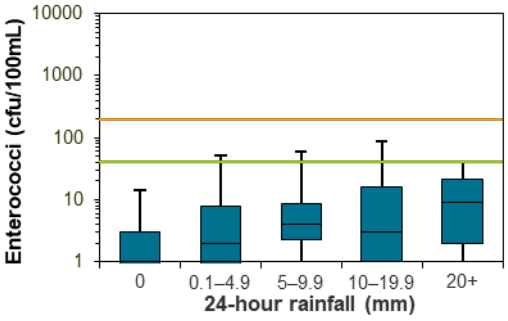
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



South Cronulla Beach

Beach grade: VG

See ‘How to read this report’ for key to map.

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

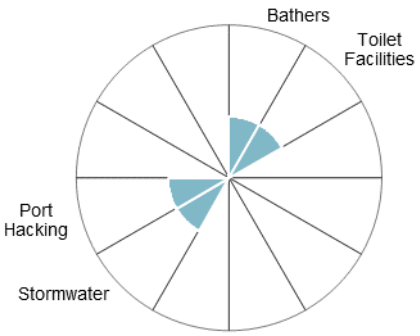
The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of faecal contamination.

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

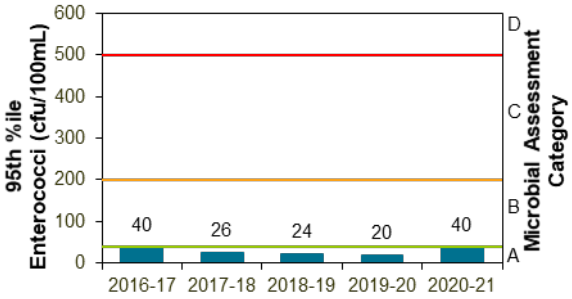
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jun 2019 to Apr 2021	96%	100	Stable

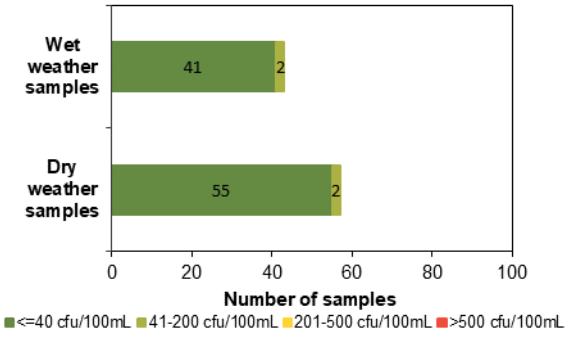
Sanitary inspection: Low



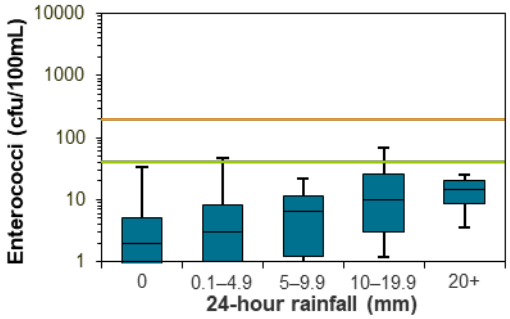
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



Shelly Beach

Beach grade: VG

See ‘How to read this report’ for key to map.

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

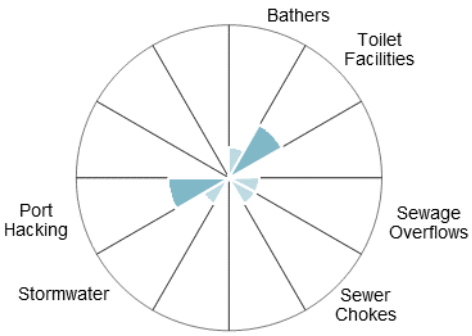
The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of significant faecal contamination.

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

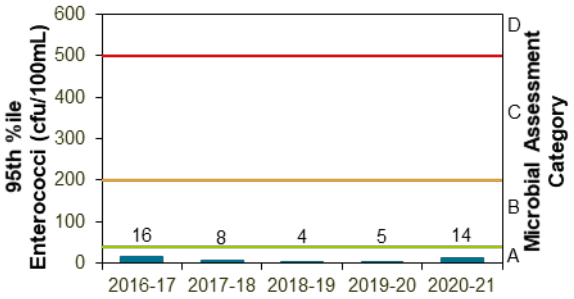
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jun 2019 to Apr 2021	100%	100	Stable

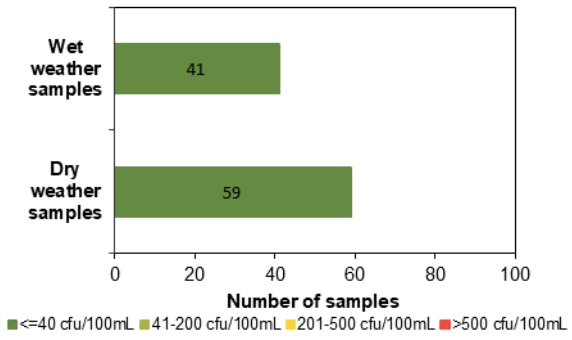
Sanitary inspection: Low



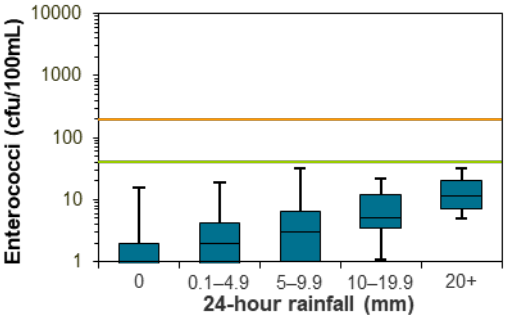
Microbial Assessment Category: A



Dry and wet weather water quality

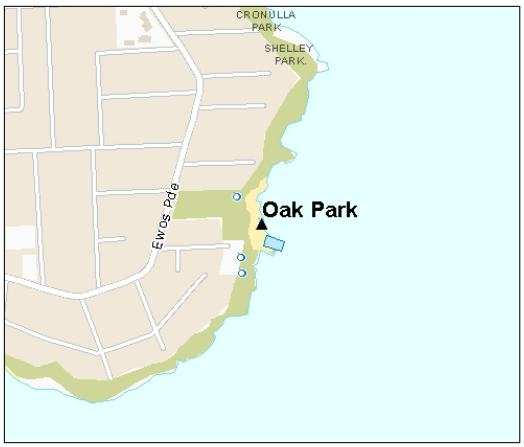


Water quality in response to rainfall



Oak Park

Beach grade: VG



See ‘How to read this report’ for key to map.

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.

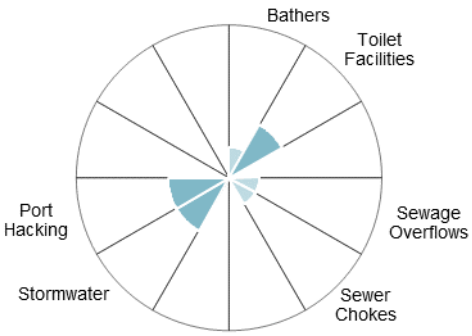
The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of significant faecal contamination.

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

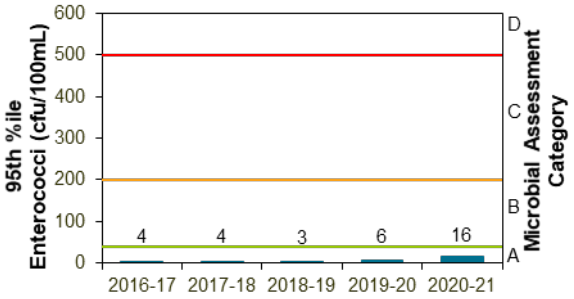
The site has been monitored since 1989.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Ocean beach	Jun 2019 to Apr 2021	100%	100	Stable

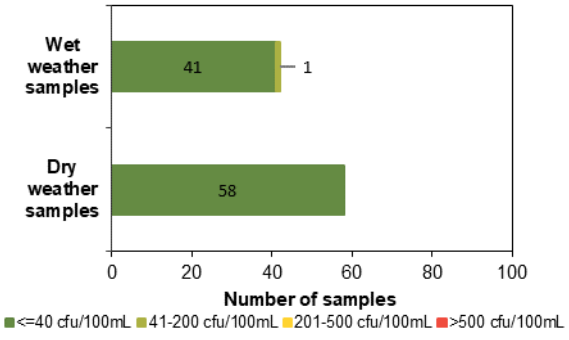
Sanitary inspection: Low



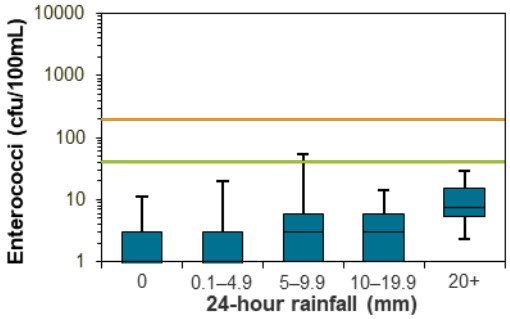
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



Silver Beach

Beach grade: G

See ‘How to read this report’ for key to map.

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

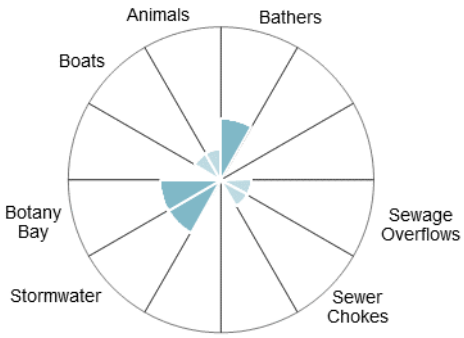
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

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

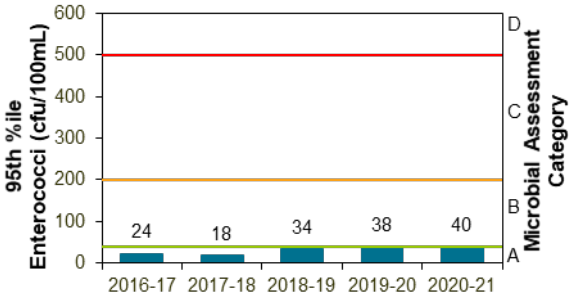
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	95%	100	Stable

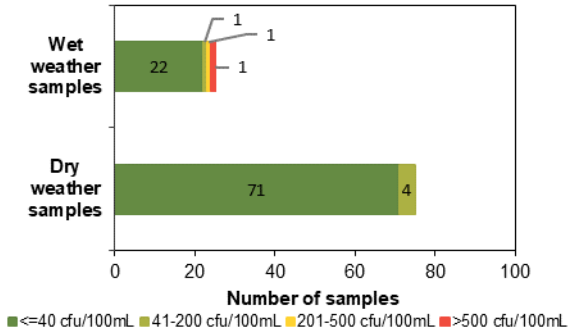
Sanitary inspection: Moderate



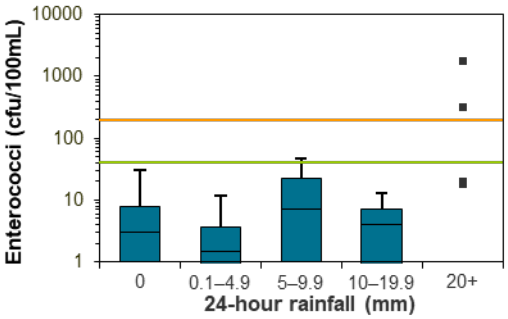
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



Como Baths

Beach grade: G

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

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

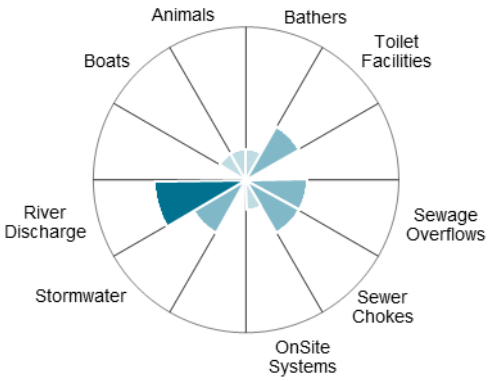
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but can be susceptible to pollution after rain, with several potential sources of faecal contamination including upstream sources in the Georges River.

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

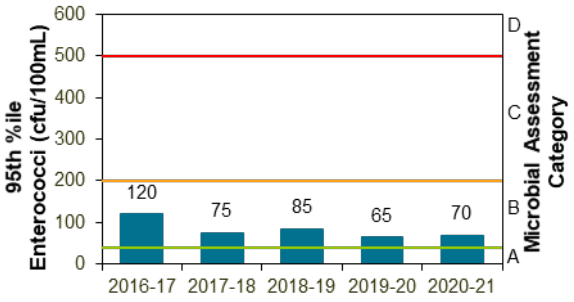
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Sep 2018 to Apr 2021	93%	100	Stable

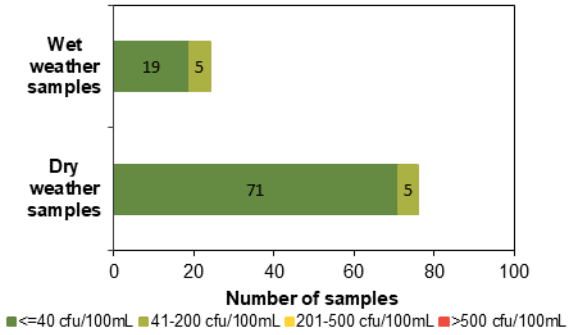
Sanitary inspection: Moderate



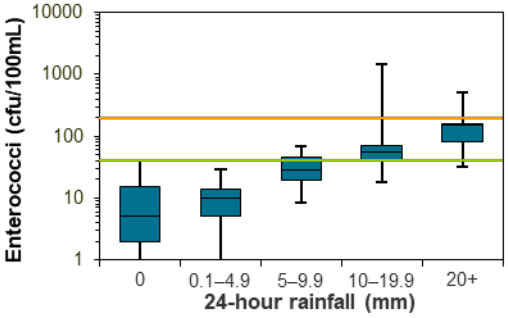
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Jew Fish Bay Baths

Beach grade: G

See ‘How to read this report’ for key to map.

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

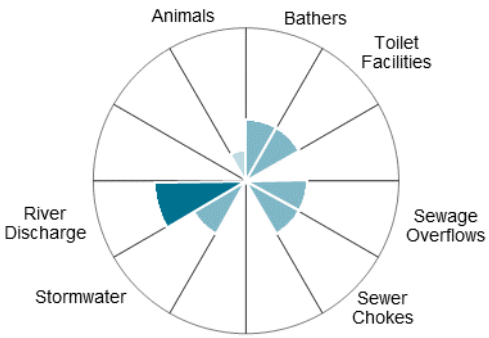
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including upstream sources in the Georges River.

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

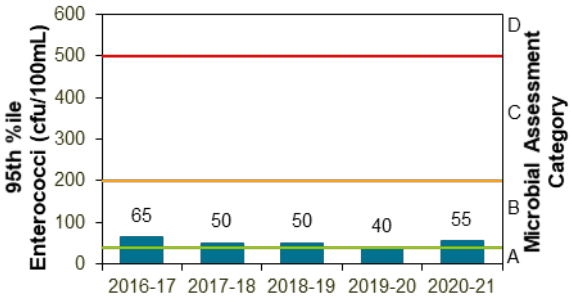
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	95%	100	Stable

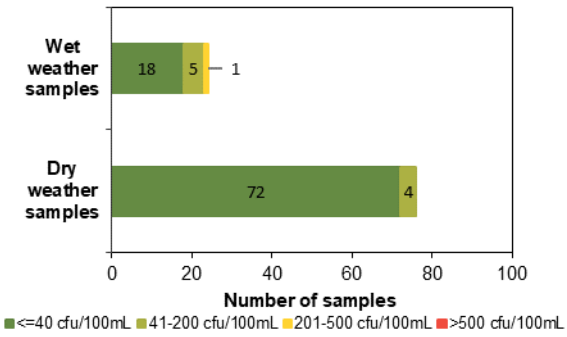
Sanitary inspection: Moderate



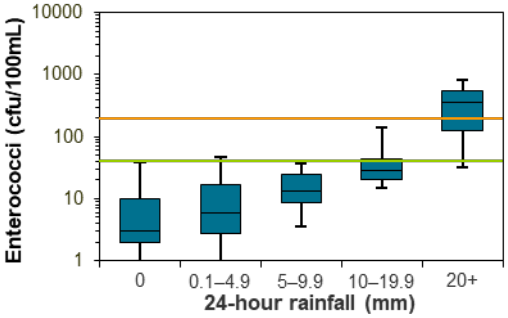
Microbial Assessment Category: B



Dry and wet weather water quality

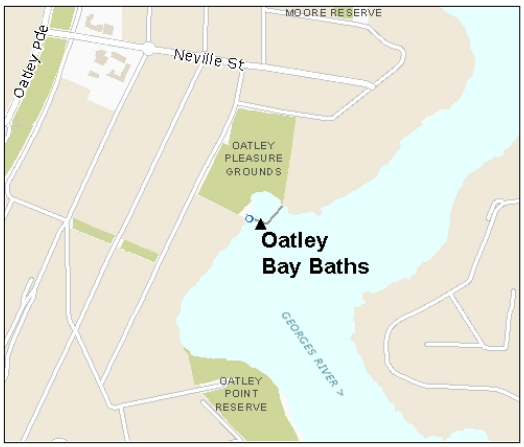


Water quality in response to rainfall



Oatley Bay Baths

Beach grade: G



See ‘How to read this report’ for key to map.

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

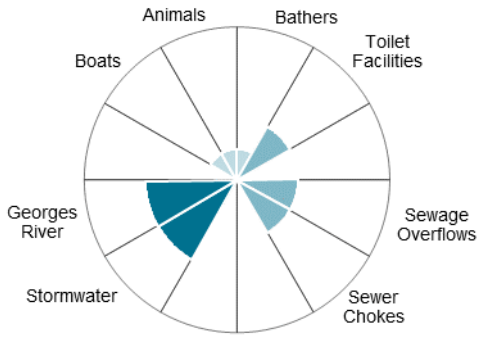
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including upstream sources in the Georges River and stormwater.

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

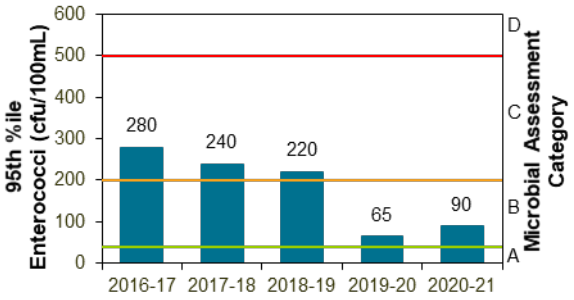
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	92%	100	Stable

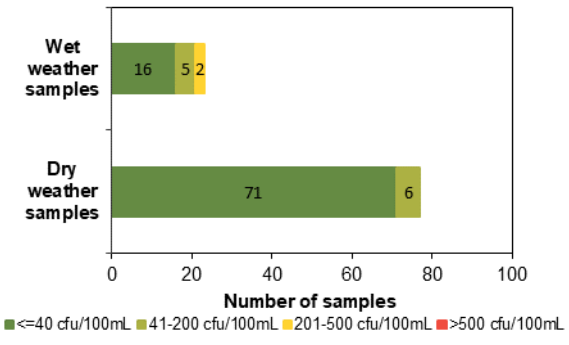
Sanitary inspection: Moderate



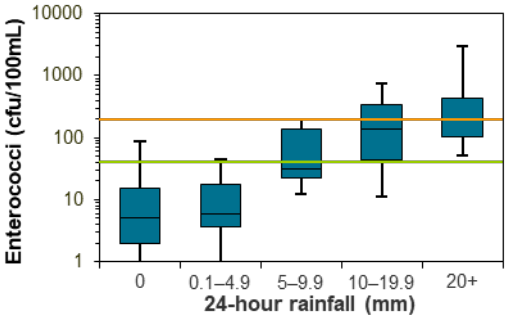
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Carss Point Baths

Beach grade: G

See ‘How to read this report’ for key to map.

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

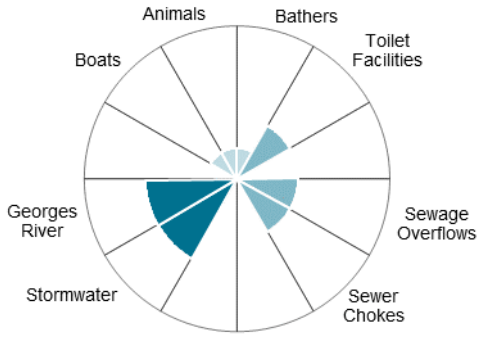
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including upstream sources in the Georges River and stormwater.

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

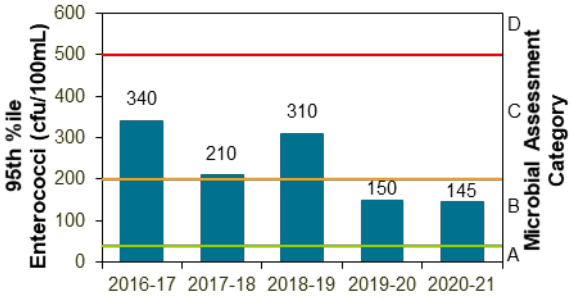
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	90%	100	Stable

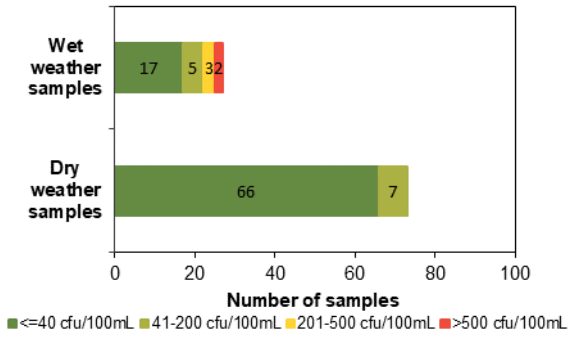
Sanitary inspection: Moderate



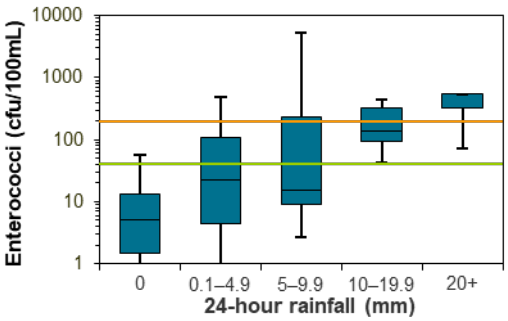
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Sandringham Baths

Beach grade: G

See ‘How to read this report’ for key to map.

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

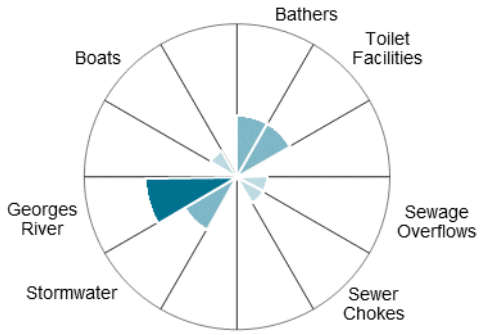
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including discharge from the Georges River.

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

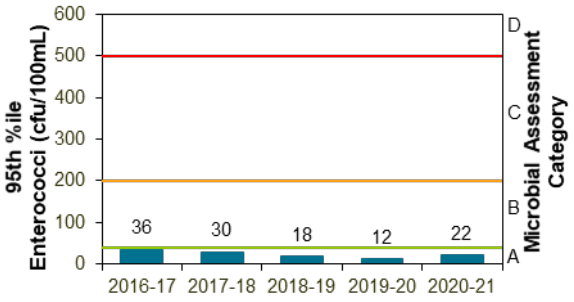
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	100%	100	Stable

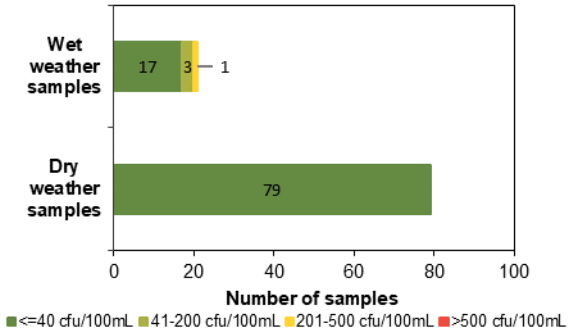
Sanitary inspection: Moderate



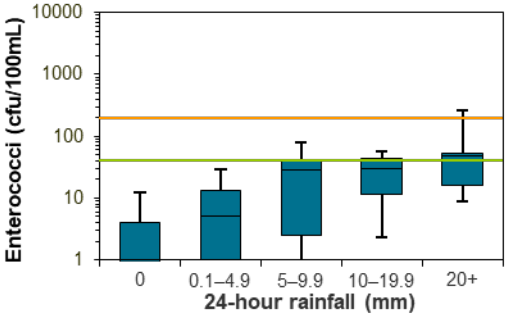
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



Dolls Point Baths

Beach grade: G

See ‘How to read this report’ for key to map.

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

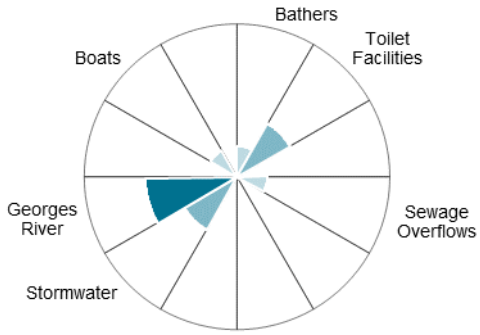
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including discharge from the Georges River.

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

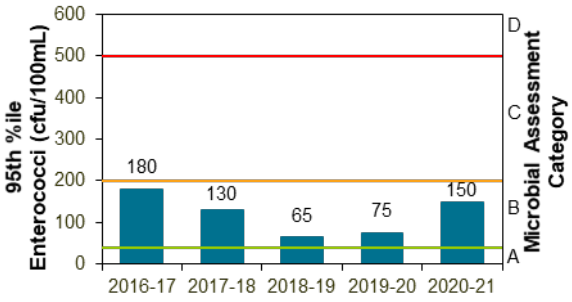
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	84%	100	Stable

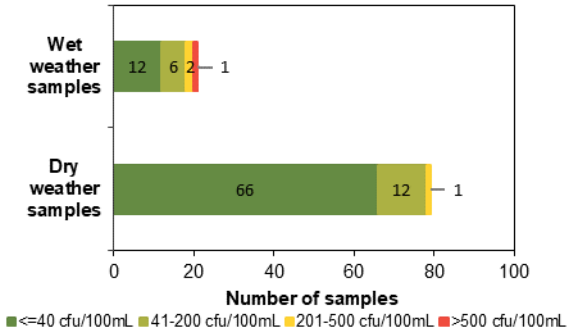
Sanitary inspection: Moderate



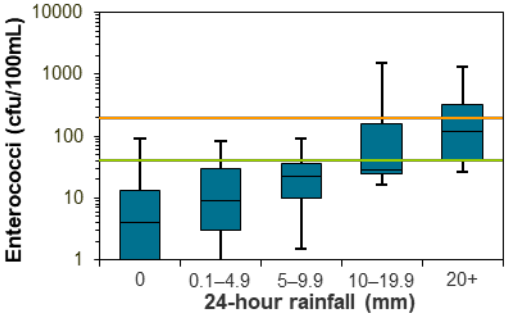
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Ramsgate Baths

Beach grade: G

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

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

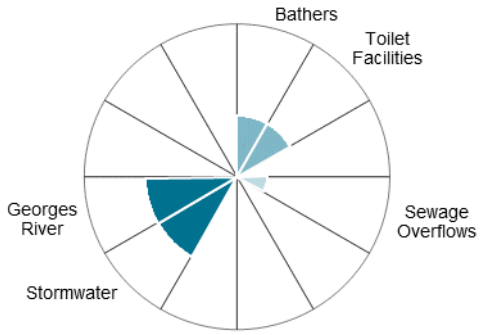
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but can be susceptible to pollution after rain, with several potential sources of faecal contamination including discharge from the Georges River.

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

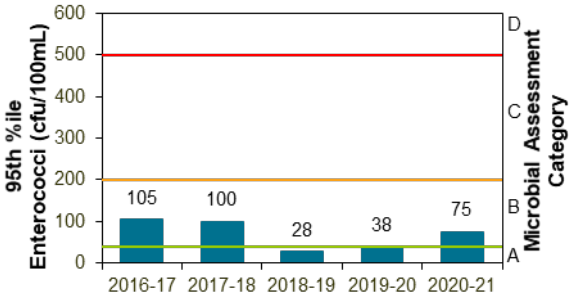
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Aug 2018 to Apr 2021	92%	100	Stable

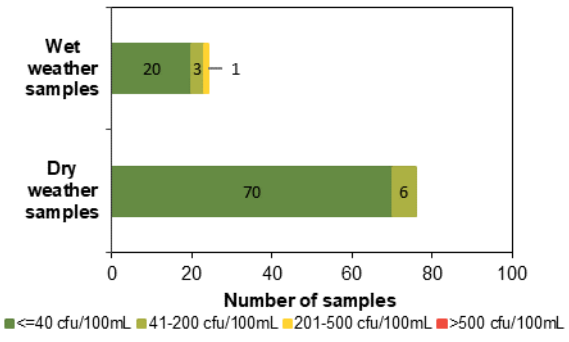
Sanitary inspection: Moderate



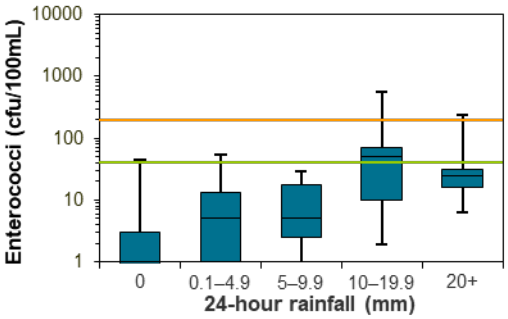
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Monterey Baths

Beach grade: G

See ‘How to read this report’ for key to map.

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

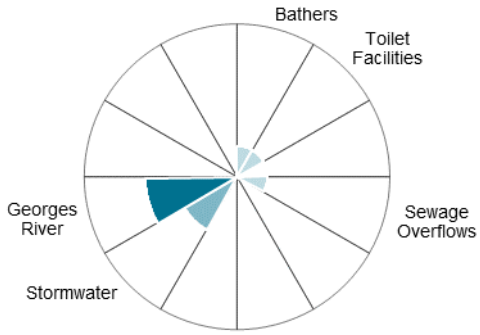
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including discharge from the Georges River and stormwater.

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

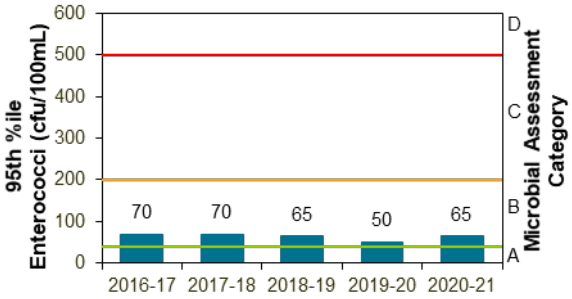
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	92%	100	Stable

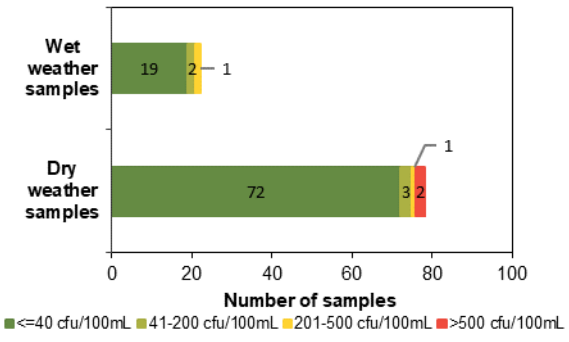
Sanitary inspection: Moderate



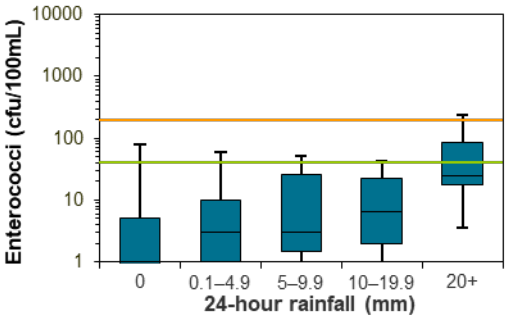
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Brighton-Le-Sands Baths

Beach grade: G

See ‘How to read this report’ for key to map.

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.

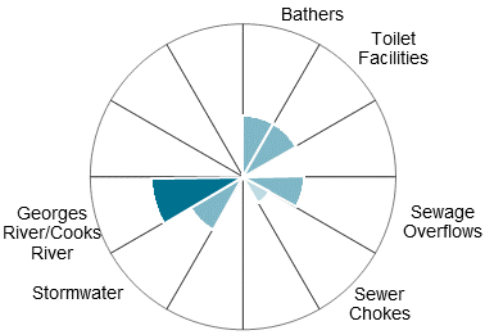
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including sewage overflows and river discharge.

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

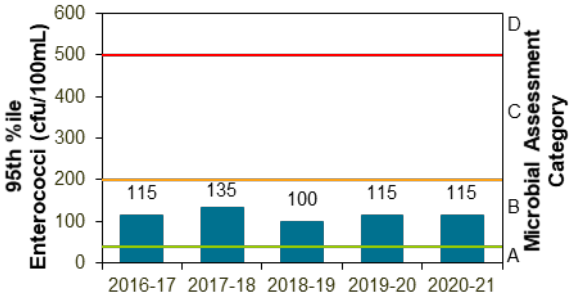
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	92%	100	Stable

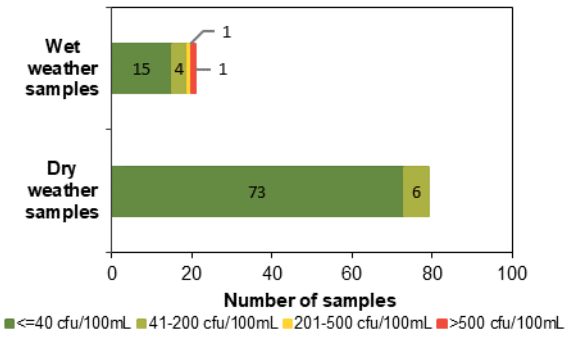
Sanitary inspection: Moderate



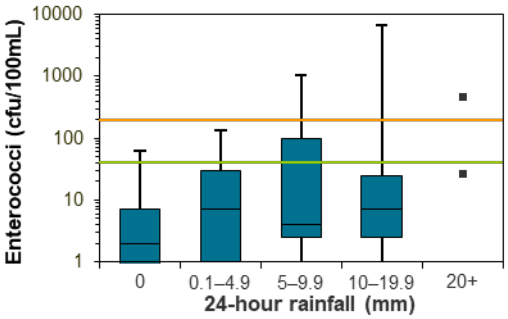
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Kyeemagh Baths

Beach grade: G

See ‘How to read this report’ for key to map.

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

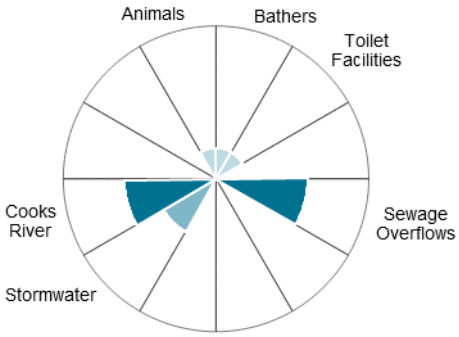
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including the discharge from the Cooks River and sewage overflows.

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

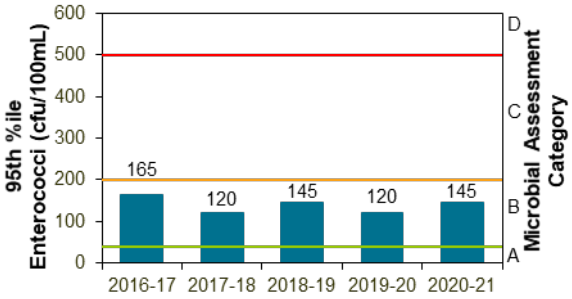
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	91%	100	Stable

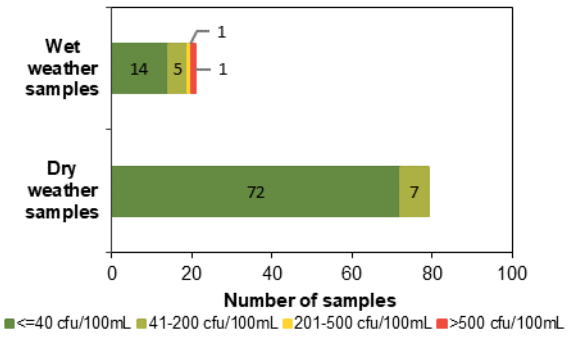
Sanitary inspection: Moderate



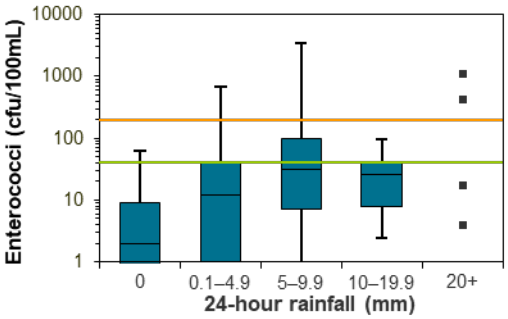
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Foreshores Beach

Beach grade: P

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

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.

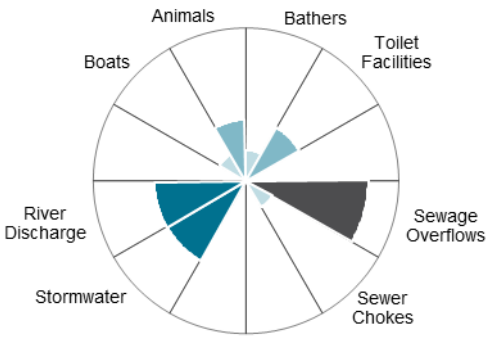
The Beach Suitability Grade of Poor indicates microbial water quality is susceptible to faecal pollution, particularly after rainfall and occasionally during dry weather conditions, with potential faecal contamination from several sources including sewage overflows that discharge into Mill Stream.

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

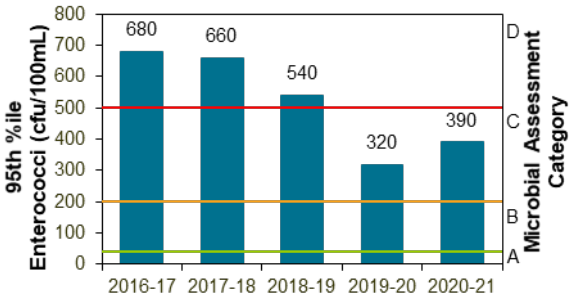
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	81%	100	Stable

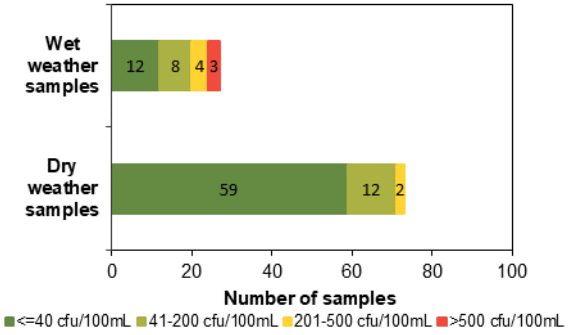
Sanitary inspection: High



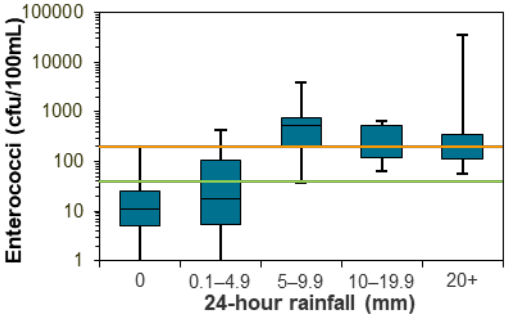
Microbial Assessment Category: C



Dry and wet weather water quality



Water quality in response to rainfall



Yarra Bay

Beach grade: G

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

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.

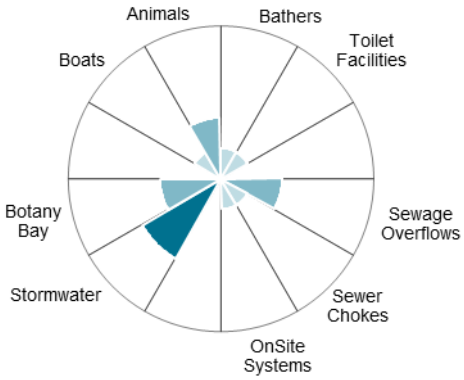
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater which ponds in the middle of the beach.

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

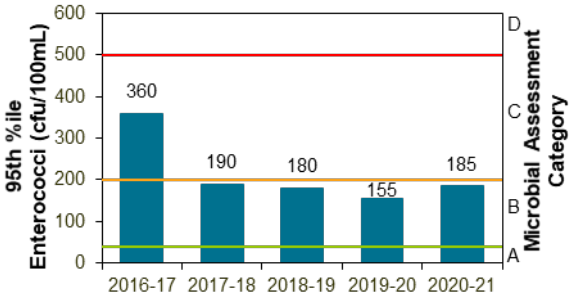
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	89%	100	Stable

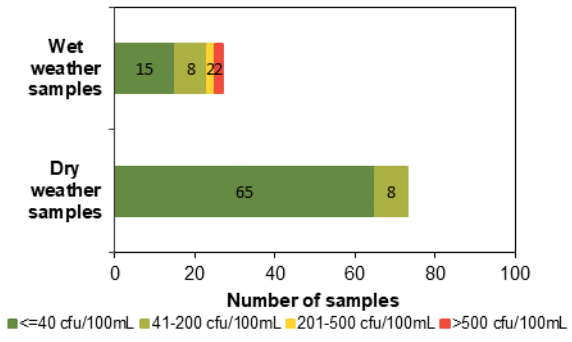
Sanitary inspection: Moderate



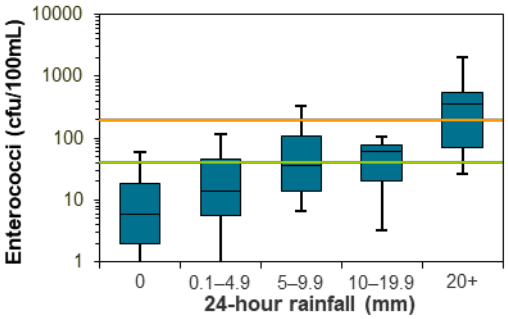
Microbial Assessment Category: B



Dry and wet weather water quality

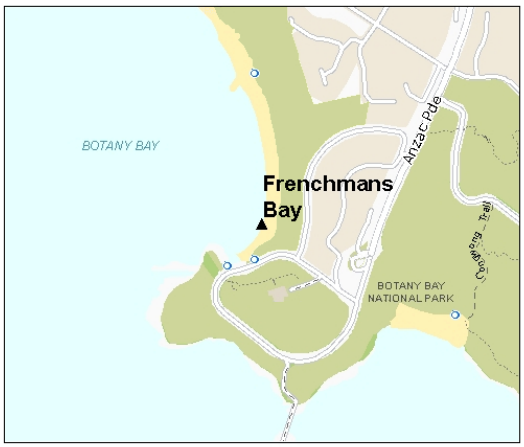


Water quality in response to rainfall



Frenchmans Bay

Beach grade: P



See ‘How to read this report’ for key to map.

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

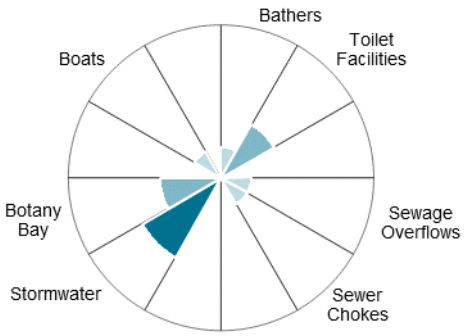
The Beach Suitability Grade of Poor indicates microbial water quality is susceptible to faecal pollution, particularly after rainfall and occasionally during dry weather conditions, with potential faecal contamination from several sources including stormwater.

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

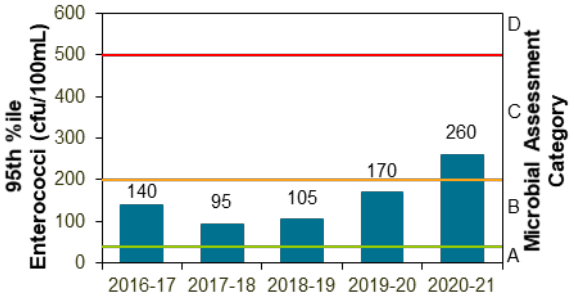
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	78%	100	Declined

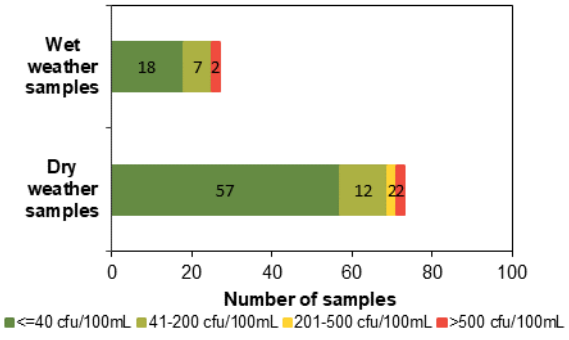
Sanitary inspection: Moderate



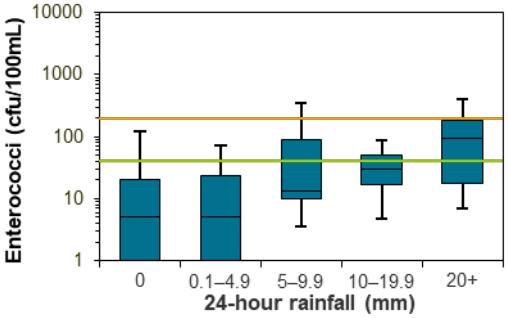
Microbial Assessment Category: C



Dry and wet weather water quality



Water quality in response to rainfall



Congwong Bay

Beach grade: G

See ‘How to read this report’ for key to map.

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

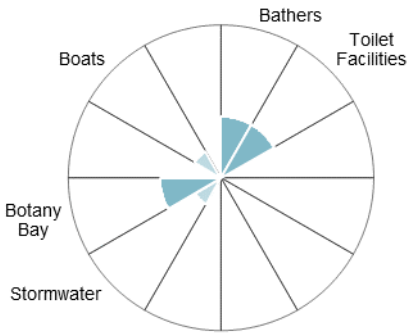
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but can be susceptible to pollution after rain, with several potential sources of minor faecal contamination.

Enterococci levels had little response to rainfall, occasionally exceeding the safe swimming limit across most rainfall categories.

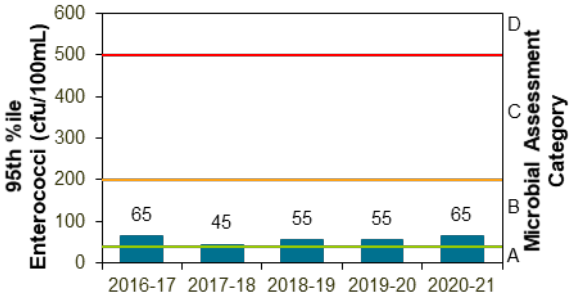
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Feb 2019 to Apr 2021	90%	100	Stable

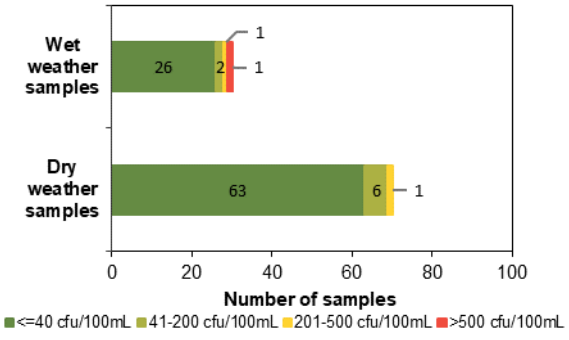
Sanitary inspection: Low



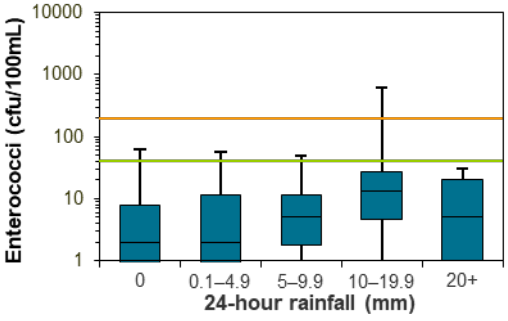
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Jibbon Beach

Beach grade: VG

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

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

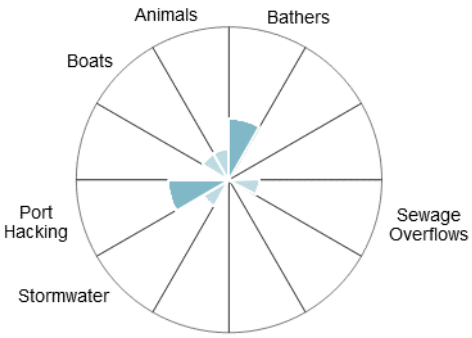
The Beach Suitability Grade of Very Good indicates microbial water quality is considered suitable for swimming almost all of the time, with few potential sources of significant faecal contamination.

Enterococci levels increased slightly with rainfall, occasionally exceeding the safe swimming limit in response to rainfall.

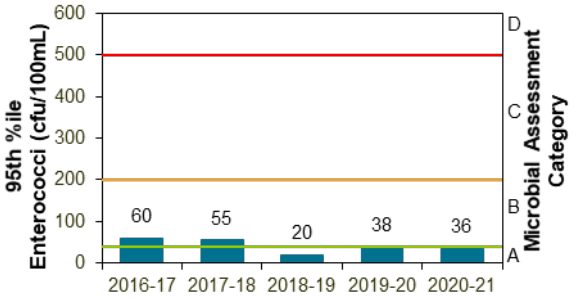
The site has been monitored since 1999.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Jul 2018 to Apr 2021	94%	100	Stable

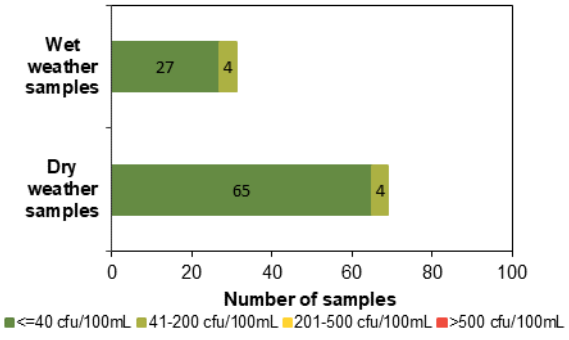
Sanitary inspection: Low



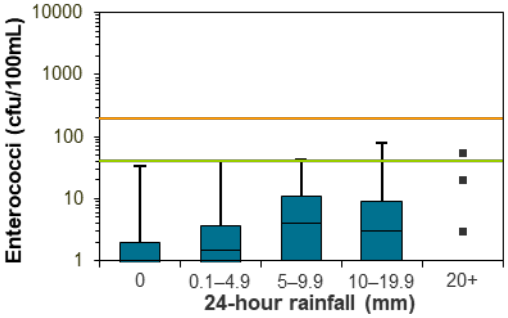
Microbial Assessment Category: A



Dry and wet weather water quality



Water quality in response to rainfall



Horderns Beach

Beach grade: G

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

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.

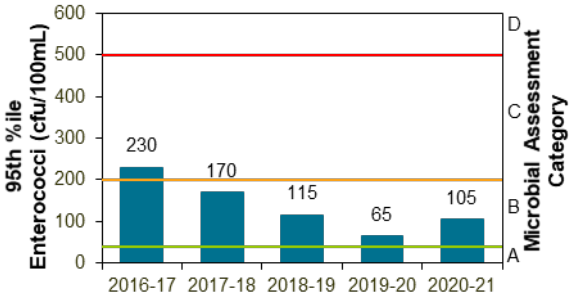
Enterococci levels increased with increasing rainfall, occasionally exceeding the safe swimming limit after little or no rain, and often after 5 mm or more.

The site has been monitored since 1999.

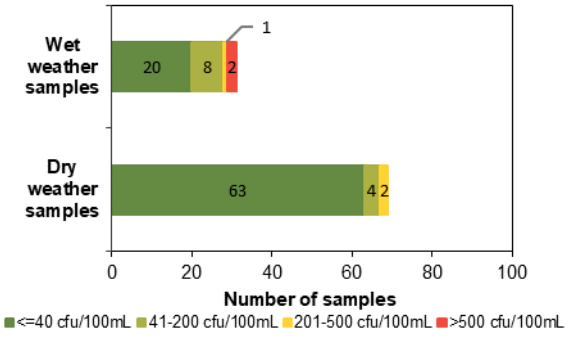
Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Jul 2018 to Apr 2021	91%	100	Stable

Sanitary inspection: Moderate

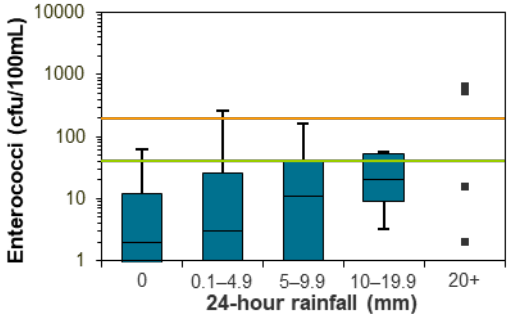
Microbial Assessment Category: B



Dry and wet weather water quality



Water quality in response to rainfall



Gymea Bay Baths

Beach grade: P

See ‘How to read this report’ for key to map.

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

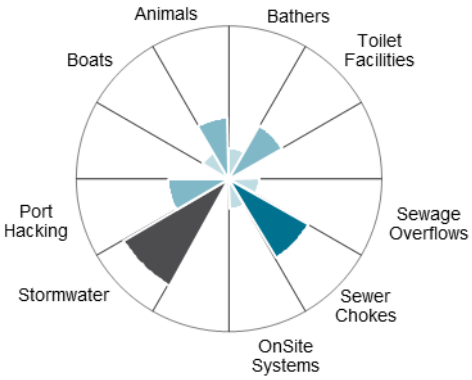
The Beach Suitability Grade of Poor indicates microbial water quality is susceptible to faecal pollution, particularly after rainfall and occasionally during dry weather conditions, with potential faecal contamination from several sources including stormwater.

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

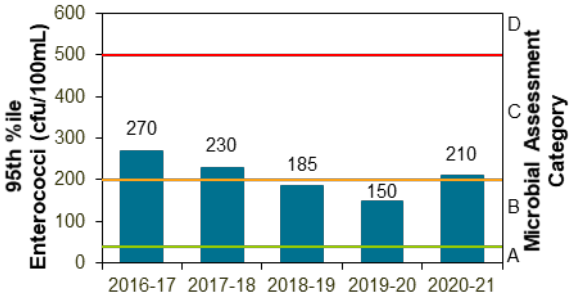
The site has been monitored since 1999.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	85%	100	Declined ↓

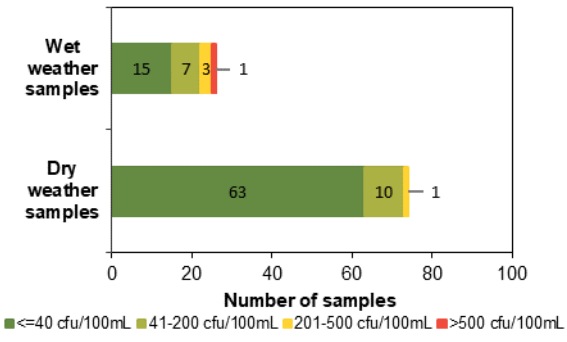
Sanitary inspection: High



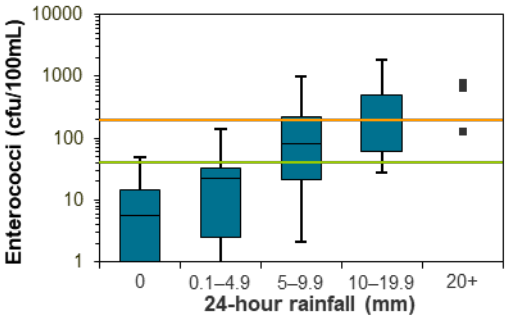
Microbial Assessment Category: C



Dry and wet weather water quality

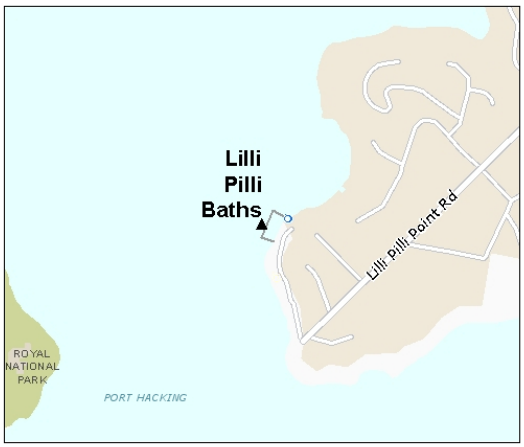


Water quality in response to rainfall



Lilli Pilli Baths

Beach grade: G



See ‘How to read this report’ for key to map.

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

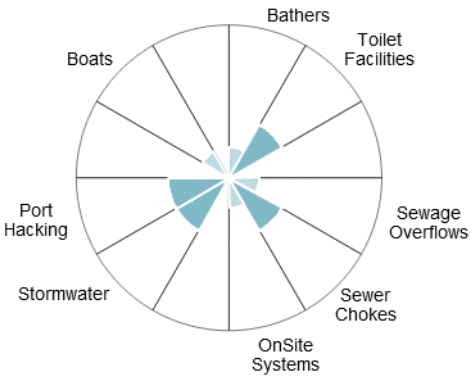
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

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

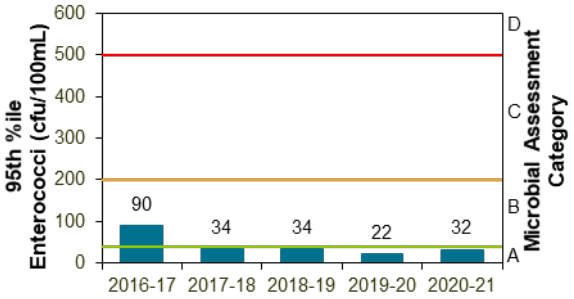
The site has been monitored since 1999.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	96%	100	Stable

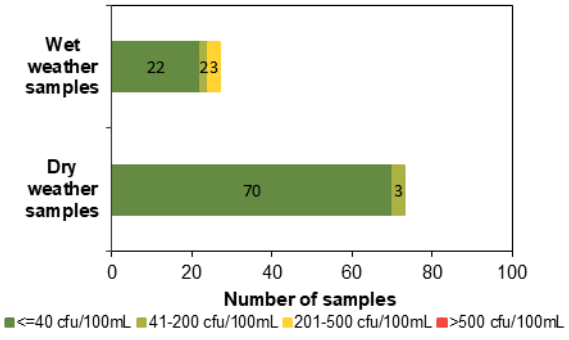
Sanitary inspection: Moderate



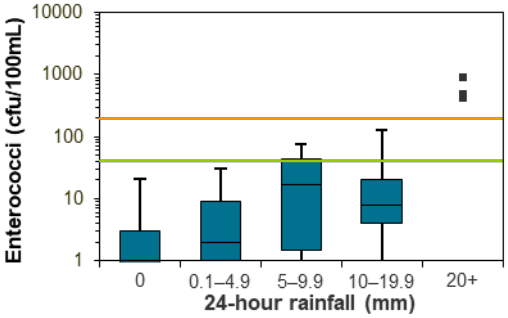
Microbial Assessment Category: A



Dry and wet weather water quality

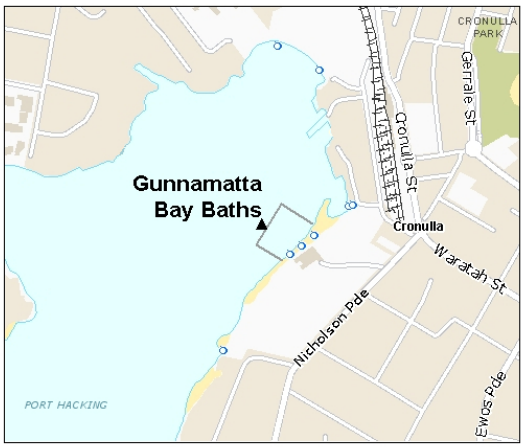


Water quality in response to rainfall



Gunnamatta Bay Baths

Beach grade: G



See ‘How to read this report’ for key to map.

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

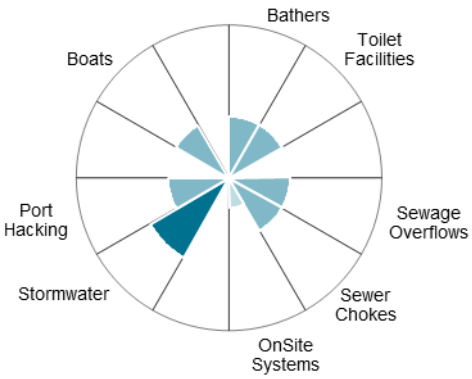
The Beach Suitability Grade of Good indicates microbial water quality is considered suitable for swimming most of the time but may be susceptible to pollution after rain, with several potential sources of faecal contamination including stormwater.

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

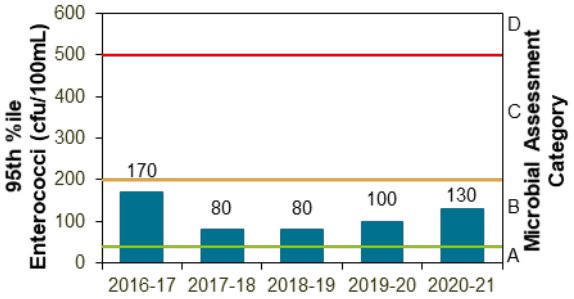
The site has been monitored since 1994.

Site type	Assessment period	Dry weather samples suitable for swimming	Water samples	Beach grade status
Estuarine	Oct 2018 to Apr 2021	93%	100	Stable

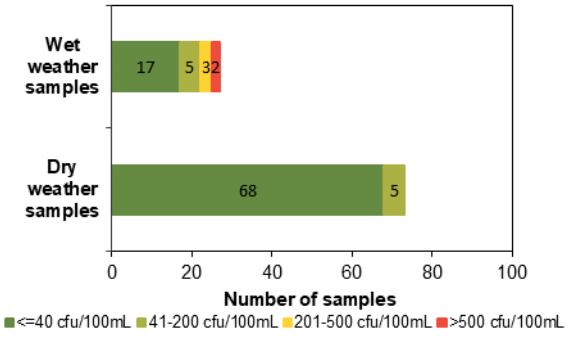
Sanitary inspection: Moderate



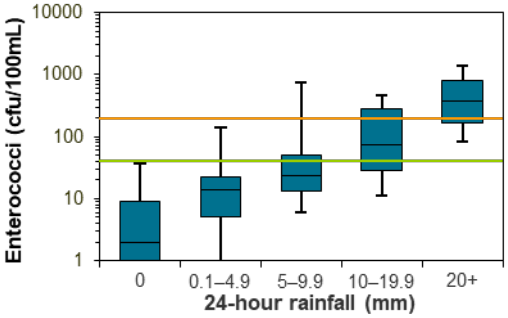
Microbial Assessment Category: B



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:

VG **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

G **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

F **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

P **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

VP **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*[1] 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[2].

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

[2]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, accessed on 27/05/21.

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 100 mL of sample (cfu/100 mL).

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 95th 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 95th percentile[1].

Risk of illness associated with Microbial Assessment Categories

Category	Enterococci (cfu/100 mL)	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 95th 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 95th 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.

[1] 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*, vol.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 95th percentile that takes into account the distribution of data. This tool has been used to calculate the 95th percentile values presented in this report and has been adopted for use by other state governments in Australia.

The tool can be downloaded from the WA Government's Environmental waters publications webpage, under *Forms and templates* [accessed 27/05/21].

Sanitary Inspection Category (SIC)

More information about the **sanitary inspection** process is available on the DPIE webpage:

Sanitary inspection of beaches

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.

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

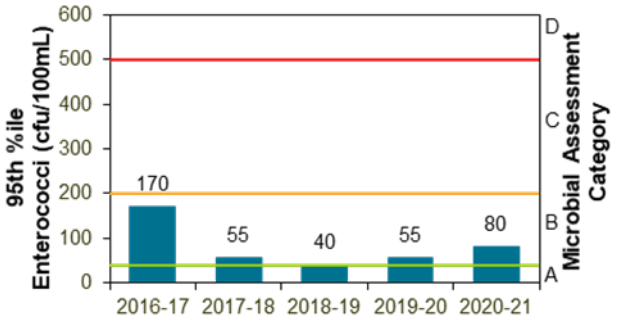
A provisional grade indicates the assessment is based on limited data collected during the assessment period and should not be compared to the beach grade from the previous year.

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

Microbial Assessment Category (MAC) chart

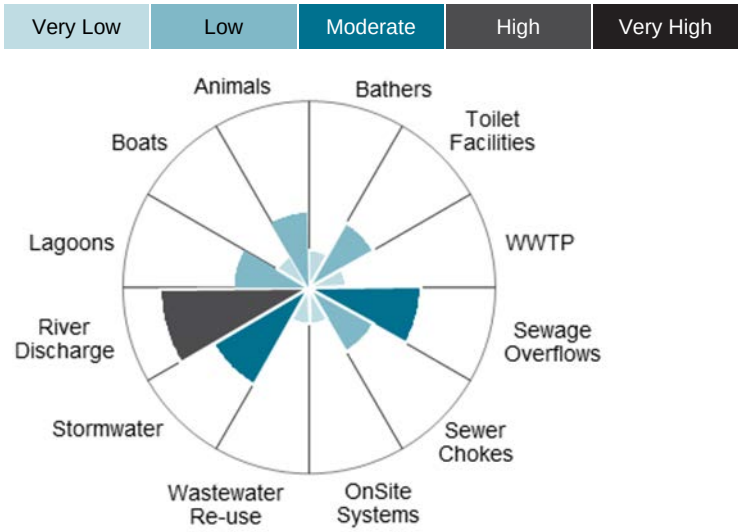
On each beach page, the MACs for the last five years are displayed on a simple bar chart. The MAC for the current year is based on enterococci data collected during the assessment period. The bars are labelled with the 95th percentile value for each year and the thresholds dividing the

A, B, C and D categories are marked in green, amber and red for reference.



Sanitary Inspection Category (SIC) chart

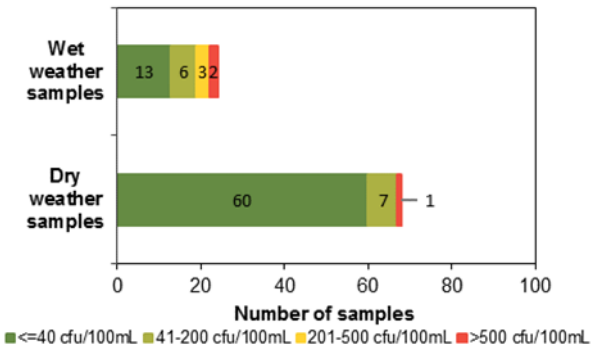
The results of the sanitary inspection for each swimming location are presented in a radar pie chart. The chart shows the likelihood that each identified pollution source will contribute to faecal contamination at a swimming site, as indicated by the size and colour of the segment, ranging from very 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 40 cfu/100 mL, between 41 and 200 cfu/100 mL, between 201 and 500 cfu/100 mL and greater than 500 cfu/100 mL. These categories reflect the Microbial Assessment Category thresholds and are

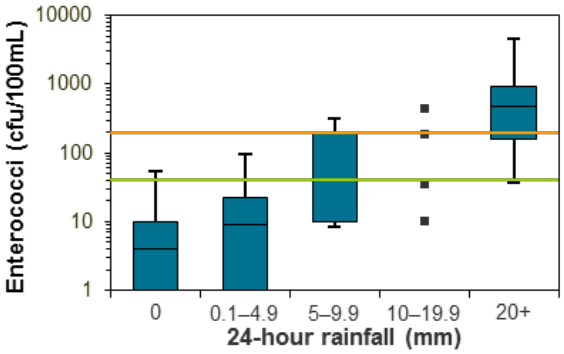
coloured on the graph as dark green, light green, amber and red respectively.



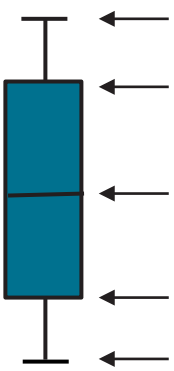
It is expected that swimming sites with lower levels of flushing will show some elevated bacterial results in dry weather samples (no rainfall in the previous 24 hours) due to the longer time needed to recover from a rainfall event. At some estuarine and lake/lagoon swimming locations the impacts of 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 40 cfu/100 mL and 200 cfu/100 mL are indicated with a green and orange line, respectively. The 40 cfu/100 mL 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 (1 cfu/100 mL), 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:



95% of the samples lie below the top whisker

75% of the samples lie below the top of the box

half the samples are on each side of the middle line of the box (median or 50%ile)

25% of the samples lie below the bottom of the box

5% of the samples lie below the bottom whisker.

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 40 cfu/100 mL. 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.