

Sydney Metropolitan Area Harbour Swimming Sites

Lower Georges River

Lower Georges River

Sites: Jew Fish Bay Baths, Como Baths, Oatley Bay Baths, Carss Point Baths, Sandringham Baths and Dolls Point Baths



Location

The lower Georges River is the ten kilometre downstream reach of the 96 kilometre long Georges River. Land use in the lower Georges River catchment is mostly residential, with some industrial, commercial, recreational and bushland.

Hurstville, Kogarah, Rockdale and Sutherland Councils operate in this area.

Compliance with guidelines

Faecal coliform and enterococci compliances were varied at sites in the lower Georges River during summer 2008–2009 (Table 21).

Dolls Point Bath performed very well, complying with both faecal coliform and enterococci criteria 100% of the time. Sandringham Baths also recorded good compliance, with 94% compliance with both bacterial guidelines.

Three of the six swimming sites complied with faecal coliform and enterococci guidelines at least 84% of the time. These sites were Jew Fish Bay Baths (91% with faecal coliforms and 84% with enterococci), Como Baths (97% with faecal coliforms and 84% with enterococci) and Carss Point Baths (100% with faecal coliforms and 88% with enterococci guidelines).

Oatley Bay Baths complied 94% of the time for faecal coliforms and 69% with enterococci criteria.

The range of indicator bacteria levels measured at Botany Bay, lower Georges River and Port Hacking swimming areas during summer 2008–2009 is shown in Figure 28. Lower Georges River sites are highlighted in grey. The levels of faecal coliforms and enterococci tended to be similar to the range of values measured across the local estuaries.

Ranking of beaches

All monitored harbour and ocean beach swimming locations in the Hunter, Sydney and Illawarra regions were ranked on the basis of their compliance with swimming guidelines during summer 2008–2009.

A total of 14 distinct ranks were determined for the 131 sites monitored for both faecal coliforms and enterococci, with many sites ranked equally.

Rankings for some swimming areas in lower Georges River were in the lower ranks. Dolls Point Baths ranked equal first, Carss Point Baths and Sandringham Baths ranked equal fifth, Como Baths ranked sixth and Jew Fish Bay ranked equal ninth. Oatley Bay Baths ranked poorly at eleventh place (Table 21).

Actions to improve water quality

Actions specific to individual swimming locations are included on the 'swimming area' pages. Improvements in water quality within lower Georges River should also be achieved as a result of the actions of the Georges River Combined Councils Committee, which includes the 'Riverkeeper Program', and a number of stormwater management plans and council programs.

Georges River Combined Councils Committee

The Georges River Combined Councils Committee (GRCCC) consists of nine councils working together to lobby for the protection of the River. The Committee manages the 'Riverkeeper Program', which has held a number of clean-ups to remove litter from the foreshores of the Georges River. It assists councils and other stakeholders to rehabilitate the river and thus ensure its sustainable future. The GRCCC has been awarded a grant by the DECCW to undertake the first step in the development of a Georges River Estuary Management Plan.

Stormwater Management Plans

Local councils have developed Stormwater Management Plans for Mill Pond Creek, Lower Georges River and Cooks River. These plans contain many structural and non-structural actions that are being progressively implemented to improve water quality in these waterways and in Botany Bay.

Grant Funding

Kogarah Council, Hurstville Council, Sutherland Shire Council and Rockdale City Council received funding of \$1.9 million through the DECCW Environmental Trust Urban Sustainability Program to develop the Lower Georges River Sustainability Initiative. This grant will be spent in close consultation with the GRCCC and the Sydney Metropolitan Catchment Management Authority. The core component of the grant is the development of a sustainability plan to manage rehabilitation of the Lower Georges River. The grant also includes on ground works such as bush regeneration and installation of stormwater improvement devices.

Hurstville Council

Stormwater Quality Improvement Device (SQID) Maintenance: Council has a total of 15 SQIDs installed around the area to assist in the capture of rubbish and other stormwater pollutants before they enter receiving waters. Council has also constructed the Riverwood and Lime Kiln Bay Wetlands. The stormwater devices are regularly maintained and improve the quality of stormwater entering the Georges River.

Water-Savings Action Plan: Hurstville City Council has formulated a Water-Savings Action Plan, as required by the NSW Government. Implementation of the recommendations under the plan will reduce the total water consumption at Council's top ten water-using sites by approximately 50%. As part of the Plan Council has already installed a number of rainwater tanks at the Peakhurst Depot.

Plans of Management (POMs): Council has adopted POMs for all community land, including Oatley Park and other large Reserves. The Plans identify areas that are categorised, amongst other things, as Natural Areas – Bushland, Water Course and Wetland. Council is committed to managing these areas in accordance with the objectives of the respective categories. The net result is a Council-endorsed long-term, strategic environmental management framework for these areas that will help maintain and improve the Georges River catchment.

Fertiliser use: Council uses fertiliser only where necessary, usually when establishing turf. Similarly, at the Hurstville Golf Course only the tees and greens are fertilised. These management practices help reduce the amounts of nitrogen and phosphorus entering the river via Lime Kiln Bay. Nitrogen and phosphorus are major contributors to the spread of weeds and the formation of algal blooms.

Bush regeneration: Council has over 20 active bush regeneration sites within the LGA that all drain to the Georges River. Some of the larger sites include Oatley Park, Myles Dunphy Reserve, Evatt Park and Riverwood Park. Improving the condition of these Reserves helps reduce the spread of noxious weeds along the river and its catchment and improves the water quality draining from/through them. As a member the Georges River Combined Councils Committee (GRCCC), Council is able to access the resources of the GRCCC and the Riverkeeper Program, including Periodic Detainees who assist with rubbish and weed removal.

Kogarah Council

Oatley Bay Estuary Management Plan: The Oatley Bay Estuary Management Plan is almost complete, with a comprehensive study of the hydrodynamics and sedimentation processes in the Bay completed. An Estuary Management Plan has been developed to sustainably manage Oatley Bay and is currently on public exhibition.

Water Quality Management Strategy: Kogarah Council continues to implement its Water Quality Management Strategy, which aims to be a key decision-making tool for Council. As part of the strategy a community-based water quality monitoring program has also been established. The Georges River Watchers group meets monthly. It collects water samples from eight strategic sites and performs various water quality tests, which now include faecal coliform testing. The data have recently been the subject of a study in water quality trends.

Kyle Bay Foreshore Restoration and Water Quality Project: Kogarah Council completed upgrades to Kyle Bay foreshore, including

vegetated natural drainage whereby stormwater runoff from a nearby car park is filtered before entering Kyle Bay. A gross pollutant trap has now been installed across the road to collect stormwater pollutants before discharge of stormwater into Kyle Bay.

Connells Point Stormwater Improvement Project: An underground sand swale has been constructed in Connells Point Reserve. It acts as a filter for stormwater reaching the Georges River. An overland grass swale has also been constructed to slow down and filter excess stormwater in the event of an overflow.

Oatley Bay Bank Stabilisation Project: Kogarah Council has approved funding from the Sydney Metropolitan Catchment Management Authority to carry out bank stabilisation works on the Oatley Bay foreshore. The works will include installing loose-rock revetments in a streambed that drains into the bay and planting hundreds of native plants along the edges of Moore Reserve and Poulton Park.

Stormwater Quality Improvement Device (SQID) Maintenance: Throughout the catchment Council continues to clean, maintain and install where required, pit litter baskets, sediment basins, booms and ten larger gross pollutant traps. New 'buttraps' have been installed in Kogarah town centre to prevent cigarette butts entering the stormwater system. The SQIDs have prevented over 226 tonnes of rubbish from entering the Georges River.

Carlton Industrial Sustainable Water Program (CISWP): Kogarah Council with the sponsorship of the NSW Environmental Trust has developed and begun to implement a two year educational program for sustainable water management. The program aims to decrease potable water use and minimise stormwater pollution generated from the largest industrial area in Kogarah Municipality. The program also includes the installation of a stormwater harvesting plant. Water from the plant will be used by businesses in the industrial estate for cleaning and other uses.

Eco Living Environmental Workshops: In collaboration with Rockdale and Hurstville councils, the St George Sustainable Living Workshops provide practical information on water and energy conservation, pollution prevention and green cleaning to the community.

Catchment Crusaders – Sustainable management of catchments program: Catchment Crusaders is an interactive environmental education project that aims to build capacity within schools by providing students with the framework to implement sustainable catchment management actions through a local Catchment Action Plan. The project will be offered free of charge to Year Four students in the local government area and will include workshops, water quality testing, drain stencilling and a tour incorporating visits to a gross pollutant trap and a constructed freshwater and mangrove wetland in the area, as well as a pit litter cleaning exercise.

Rockdale Council

Street Sweeper Program: Council has continued its street sweeping program and monitors the waste collected by street sweepers.

Rockdale wetlands corridor: Council continued with its annual program of regularly servicing all GPTs to prevent gross pollutants entering the Rockdale Wetlands. As part of the Cooks Cove Development, new playing fields have been constructed at Brighton with landscaped gardens to reduce runoff into the adjacent Bicentennial Park Ponds.

School education: Council visited 15 primary schools to conduct 'The Drain is Just for Rain', an environmental education lesson focusing on stormwater management. The message is demonstrated visually to students through the use of a 3D stormwater model. The impact on marine life is also demonstrated. Participating students were given a take-home exercise to encourage them to share the environmental messages with their families. Council continues its work with local schools through the Environmental Education Network, which meets once a month to discuss different issues that affect local schools.

Community education: Tours led by a wetland specialist were held at local wetlands as part of Council's educational program. A number of school holiday activities, including an Eco Treasure Hunt, were held for children to educate them about the importance of protecting the waterways. Council also held Enviroworks, a free five-week course that includes a component on measures the community can take to minimise pollution entering waterways via stormwater drains.

Sutherland Shire Council

Woronora Estuary Management Plan: Council adopted the Woronora Estuary Management Plan in February 2008 following exhibition of the draft during 2007. The plan was completed in accordance with the NSW Government's Estuary Management process and included the completion of data collection, an estuary management process study, and modelling. The plan also incorporated feedback from stakeholders and the community to identify priorities for the management of the estuary.

Sydney Water

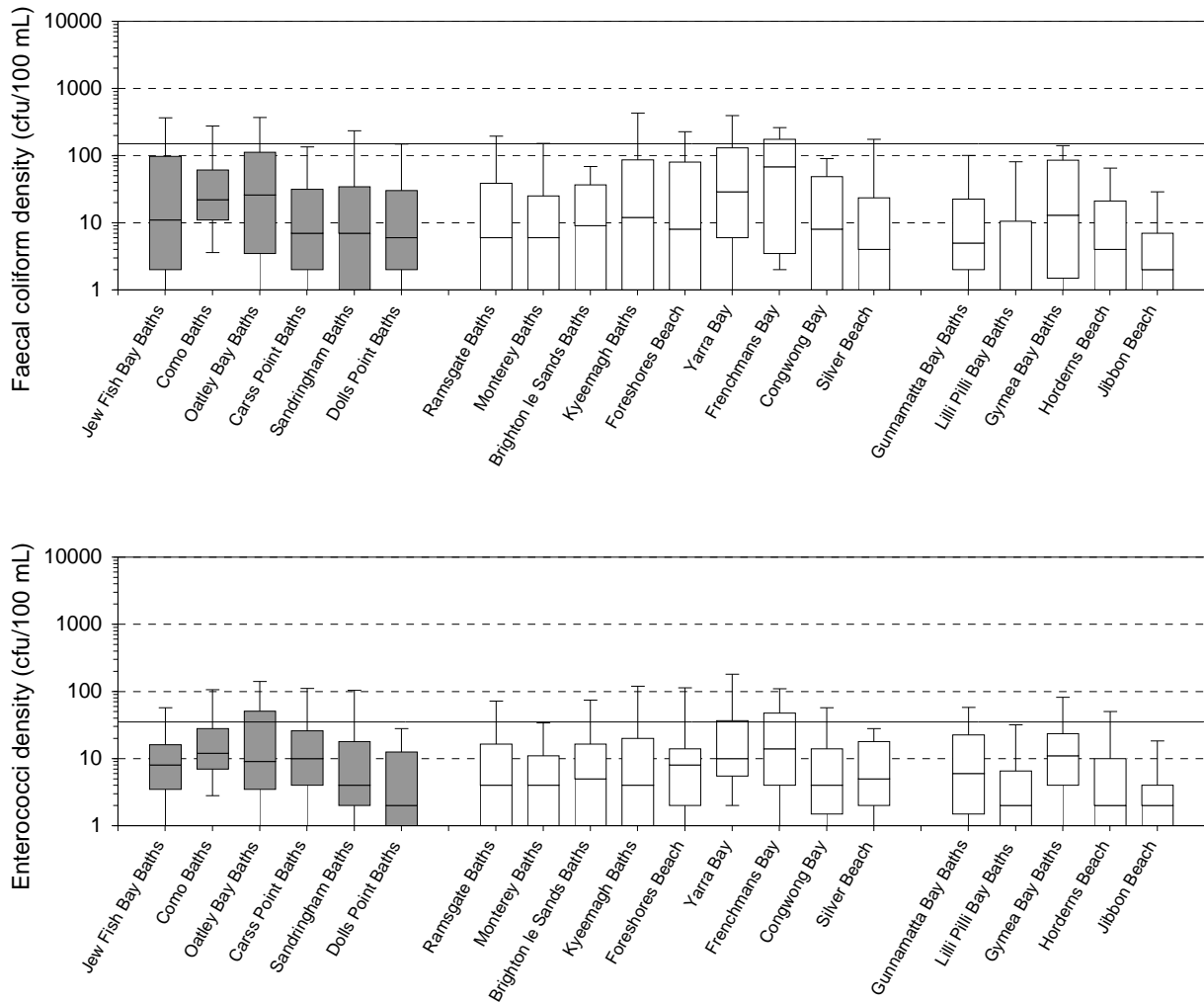
The Sydney Water SewerFix Program completed works in Peakhurst and Penshurst to reduce the frequency of wet weather overflows from the northern shore of the Lower Georges River. The works will reduce the frequency of sewage overflows to a long-term target of not more than 40 overflows per ten years on average in the catchments of Lime Kiln Bay, Jew Fish Bay, Gungah Bay, Oatley Bay and Neverfail Bay.

Sydney Water is cleaning and inspecting the sewer mains across the catchment of Oatley Bay Baths that have a high likelihood of discharging sewage to waterways if they become blocked. Where problems are identified they will be fixed by repair or preventive maintenance.

Table 21: Compliance and Ranking of Lower Georges River Sites during Summer 2008–2009

Site	Compliance (%)		Overall rank (out of 14)
	Faecal Coliforms	Enterococci	
Jew Fish Bay Baths	91	84	9
Como Baths	97	84	6
Oatley Bay Baths	94	69	11
Carss Point Baths	100	88	5
Sandringham Baths	94	94	5
Dolls Point Baths	100	100	1

Figure 28: Bacterial Levels at Lower Georges River, Botany Bay and Port Hacking Sites during Summer 2008–2009



Jew Fish Bay Baths

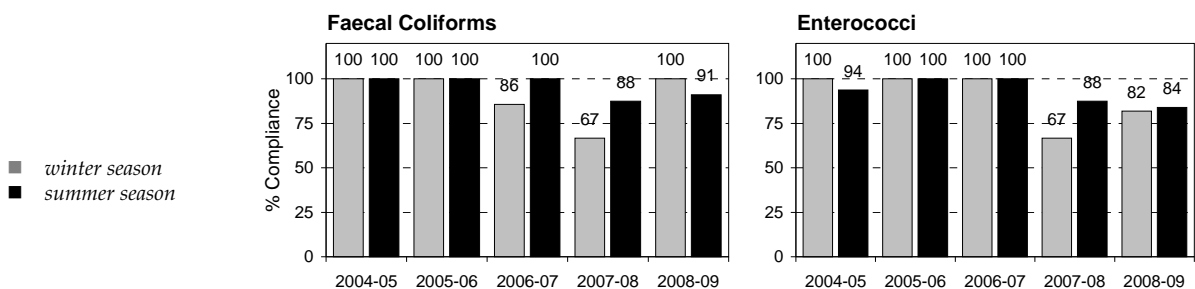
See page 266 for key to map

Description This is a 200 metre long netted swimming enclosure with a narrow, sandy beach. The baths are situated within the 45 hectare Oatley Park.

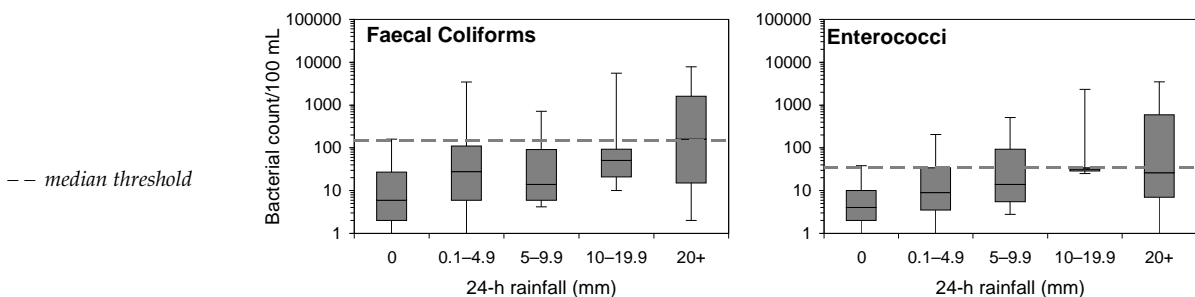
Pollution sources Stormwater drains discharge directly to the beach. This site may also be affected by poor-quality water from the upper Georges River.

Actions Sydney Water has completed works in the Penshurst area including sewer amplification works, sewer lining and constructing storages.

Compliance Faecal coliform and enterococci compliance with swimming guidelines has varied over the last five years, both ranging from 67% to 100%.



Response to rainfall Bacterial densities increased with increasing rainfall, occasionally exceeding median guideline limits after no rain, indicating a possible dry-weather contamination problem. Faecal coliform levels often exceeded the median guideline limit in response to 20 millimetres of rain in the previous 24 hours. Enterococci levels often exceeded the median guideline limit in response to light rain in the previous 24 hours.

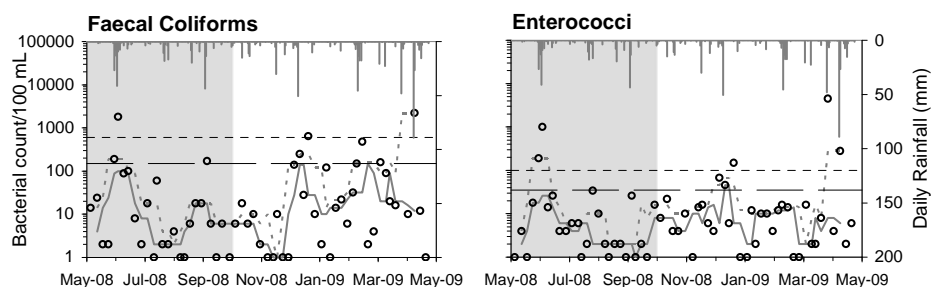


Season data

- | rainfall
- o individual result
- rolling median
- rolling 80th percentile

Guidelines
(see page 8 for details)

- median threshold
- 80th percentile threshold



Como Baths

See page 266 for key to map

Description

The enclosed tidal baths are approximately 25 metres wide and include a narrow, sandy beach. The baths are situated adjacent to Como Marina and back on to the Como Pleasure Gardens.

Pollution sources

Several stormwater drains discharge in the vicinity of the baths. Waters from the Woronora River may also affect water quality. Septic tank seepage from several unsewered properties in Como may also be a source of pollution.

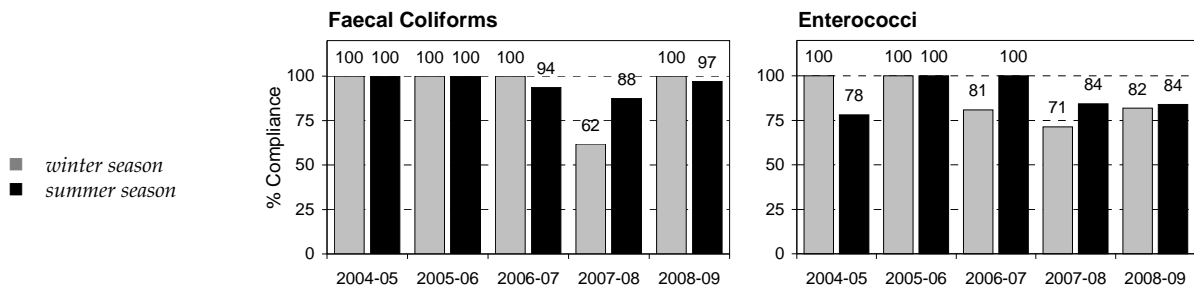
Actions

Council has allocated funding in its draft 2009–2010 budget for an upgrade of the baths and associated infrastructure.



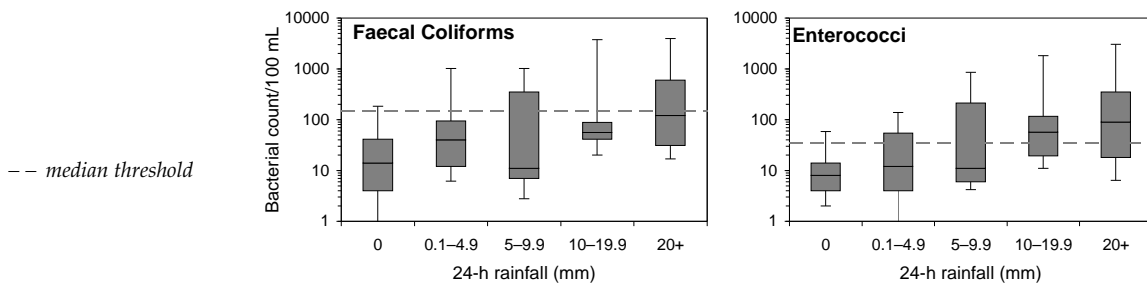
Compliance

Faecal coliform compliance with swimming guidelines has varied, ranging from 62% to 100% over the last five years. Enterococci compliance with swimming guidelines also varied, ranging from 71% to 100% over the last five years.



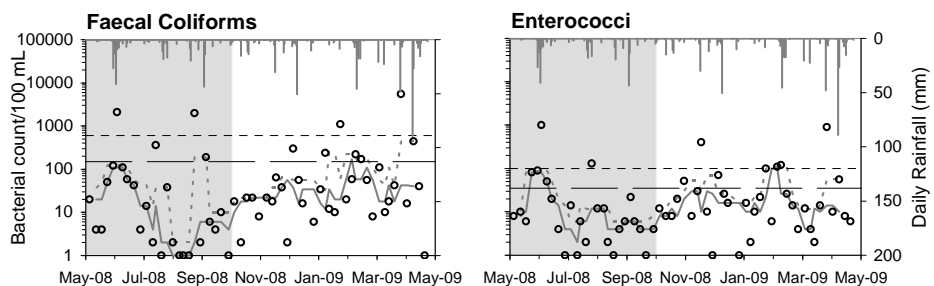
Response to rainfall

Faecal coliform and enterococci densities increased with increasing rainfall occasionally exceeding median guideline limits after no rain, indicating a possible dry-weather contamination problem. Faecal coliform levels often exceeded the median guideline limit in response to five millimetres of rain or more in the previous 24 hours. Enterococci levels often exceeded the median guideline limit after light rain and frequently exceeded the median guideline limit in response to ten millimetres of rain or more in the previous 24 hours.



Season data

- | rainfall
 - o individual result
 - rolling median
 - - - rolling 80th percentile
- Guidelines
(see page 8 for details)
- median threshold
 - - - 80th percentile threshold



Oatley Bay Baths

See page 266 for key to map

Description

This netted swimming enclosure is approximately 50 metres long and backs on to a small beach. A recreational reserve and picnic area border the beach.



Pollution sources

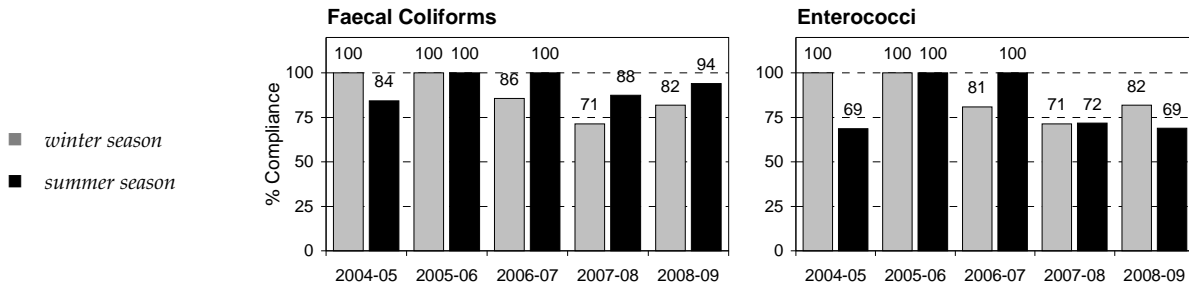
A stormwater drain discharges alongside the swimming enclosure. Sewer overflows may discharge into Oatley Bay during wet weather.

Actions

Kogarah Council is committed to the Oatley Pleasure Grounds Creek Restoration, Moore Reserve Wetlands Projects and Oatley Bay Management Plan to improve water quality in Oatley Bay through litter and sediment reduction. Sydney Water is cleaning and inspecting sewer mains across the catchment. Where problems have been identified they are being fixed. Works have been completed in the Penshurst area including sewer amplification works, sewer lining and constructing storages.

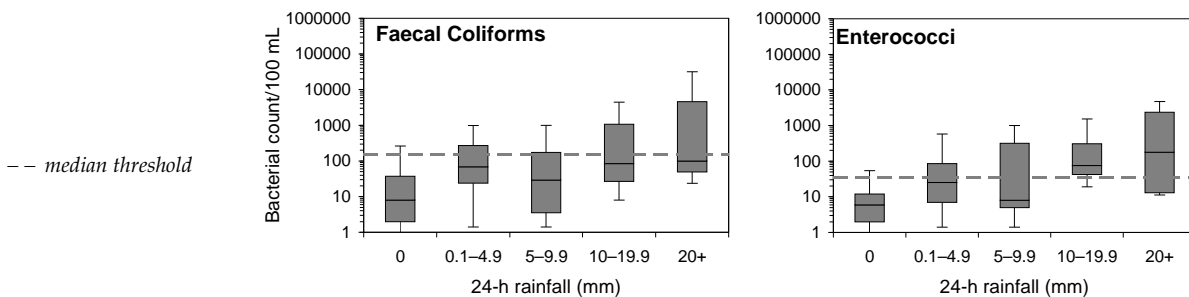
Compliance

Faecal coliform compliance with swimming guidelines has been variable, ranging from 71% to 100% over the last five years. Enterococci compliance has also varied, ranging from 69% to 100% over the last five years.



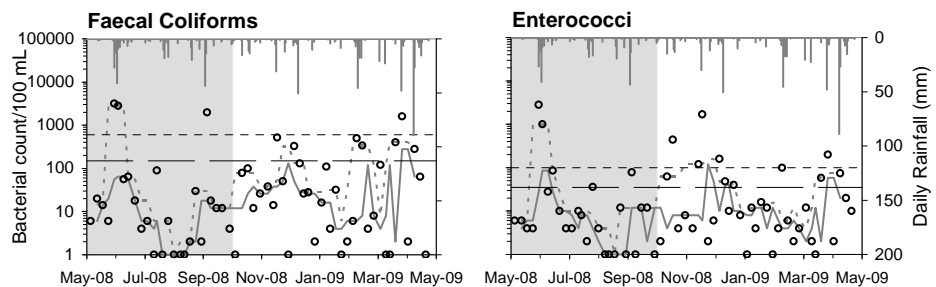
Response to rainfall

Faecal coliform and enterococci densities increased with increasing rainfall and regularly exceeded the median guideline limits in response to even light rain in the previous 24 hours. Bacterial densities occasionally exceeded median guideline limits in response to no rain in the previous 24 hours, indicating a possible dry-weather contamination problem.



Season data

- | rainfall
 - o individual result
 - rolling median
 - - - rolling 80th percentile
- Guidelines
(see page 8 for details)
- median threshold
 - - - 80th percentile threshold



Carss Point Baths

See page 266 for key to map

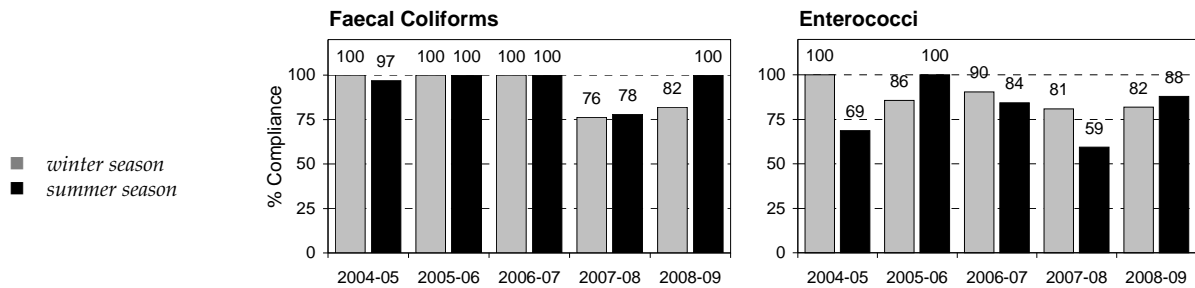
Description This is a 100 by 60 metre netted swimming enclosure that backs on to a narrow beach.

Pollution sources Stormwater drains discharge in the vicinity of the swimming enclosure, bringing litter from two major roadways: the Princes Highway and King Georges Road. Sewer overflows can discharge into Kogarah Bay during wet weather.

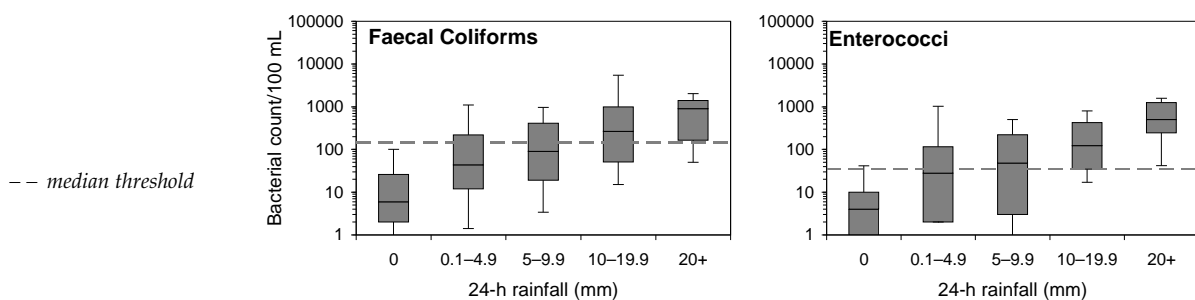
Actions Kogarah Council maintains GPTs at Carss Park canal and Beverley Park Creek. Council is also implementing the Kogarah Bay Estuary Management Plan to sustainably manage Kogarah Bay into the future.



Compliance Faecal coliform compliance with swimming guidelines has ranged from 76% to 100% over the last five years. Enterococci compliance with swimming guidelines has varied considerably, ranging from 59% to 100% over the last five years.



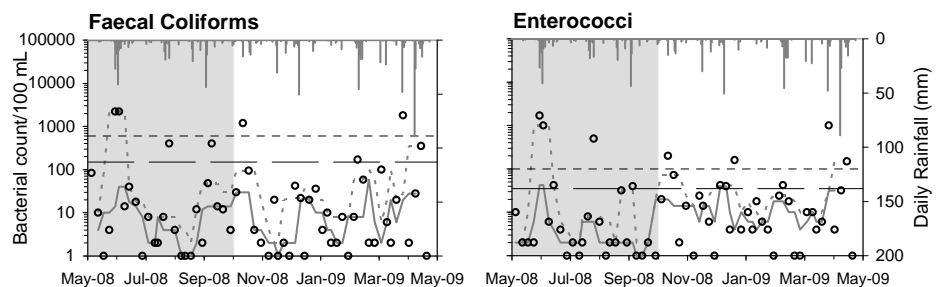
Response to rainfall Faecal coliform densities often exceeded the median guideline limit in response to light rain and frequently exceeded the median guideline limit in response to ten millimetres of rain or more in the previous 24 hours. Enterococci densities occasionally exceeded the median guideline limit after no rain, indicating a possible dry-weather contamination problem. Enterococci densities usually exceeded the median guideline limit in response to 20 millimetres of rain or more in the previous 24 hours.



Season data

- | rainfall
- o individual result
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- Guidelines
(see page 8 for details)
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 - 80th percentile threshold



Sandringham Baths

Description

This is a 30 by 40 metre netted swimming enclosure that is backed by a narrow beach and a promenade.

Pollution sources

A stormwater drain discharges alongside the swimming enclosure.

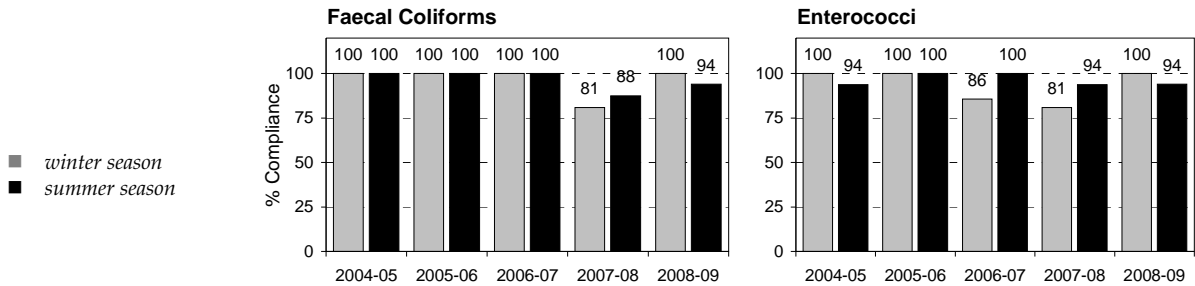
Actions

Rockdale City Council continued to regularly service GPTs to prevent gross pollutants from entering the baths.

Compliance

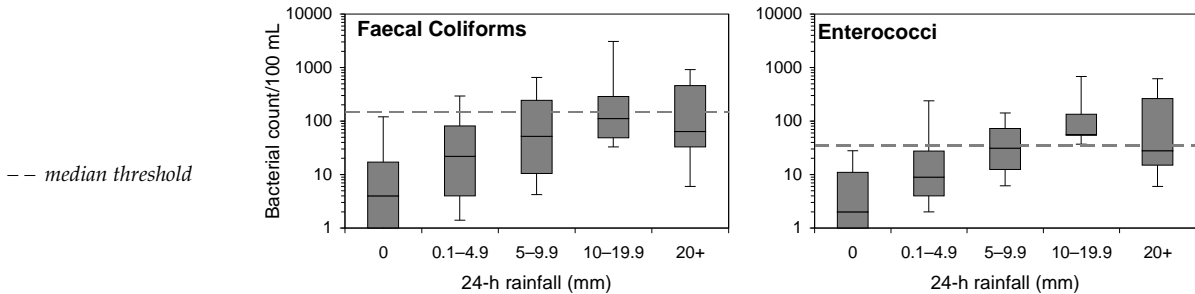
Faecal coliform and enterococci compliance with swimming guidelines has generally been high, both ranging from 81% to 100% over the last five years.

See page 266 for key to map



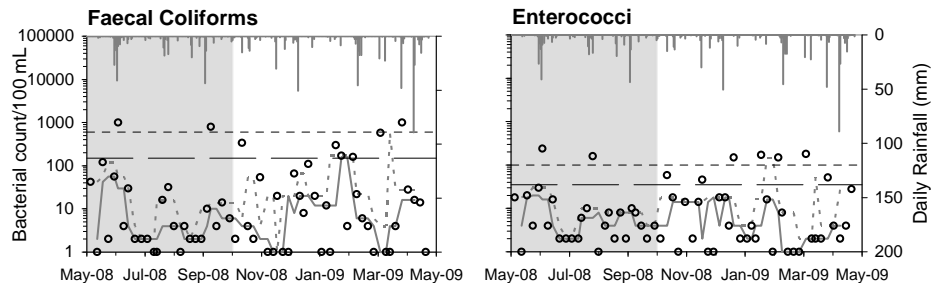
Response to rainfall

Faecal coliform and enterococci densities generally increased with increasing rainfall and occasionally exceeded the median guideline limits in response to light rain. Bacterial densities regularly exceeded the median guideline limit in response to five millimetres of rain or more in the previous 24 hours.



Season data

- | rainfall
 - o individual result
 - rolling median
 - - - rolling 80th percentile
- Guidelines
(see page 8 for details)
- median threshold
 - - - 80th percentile threshold



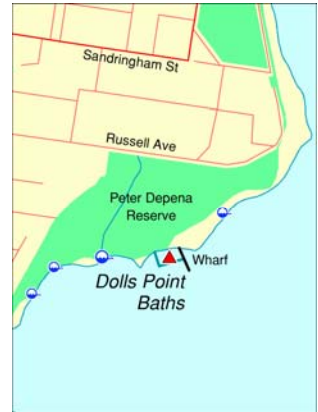
Dolls Point Baths

See page 266 for key to map

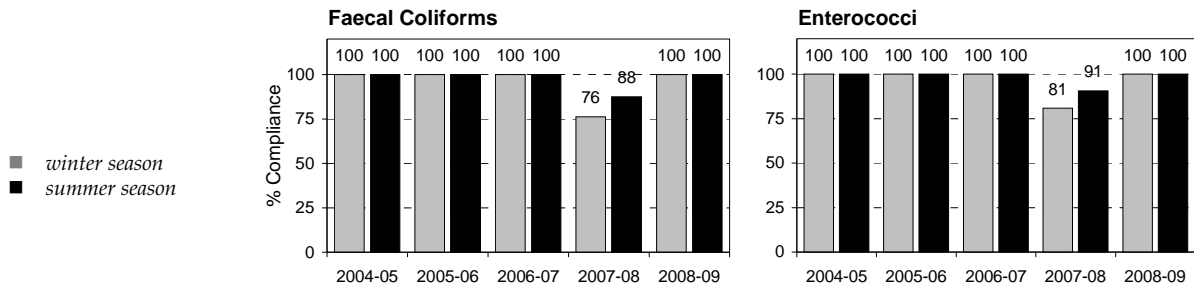
Description This is a 50 by 30 metre netted swimming enclosure with a narrow sandy beach. A large recreational area backs the swimming area.

Pollution sources An open stormwater channel and stormwater drains discharge to the beach in the vicinity of the swimming enclosure.

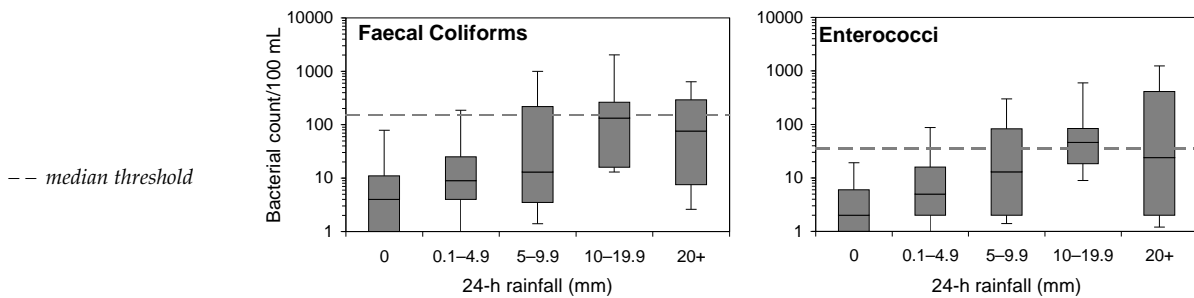
Actions Rockdale City Council continued to regularly service GPTs to prevent gross pollutants from entering the baths. Council also constructed an additional large GPT in Cook Park at Dolls Point to collect pollutant runoff from adjacent Grand Parade.



Compliance With the exception of 2007–2008, faecal coliform and enterococci levels complied with swimming guidelines 100% of the time over the last five years.

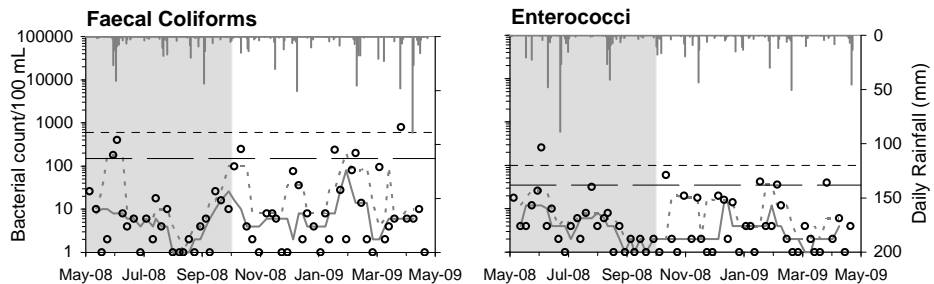


Response to rainfall Faecal coliform and enterococci densities generally increased with increasing rainfall, occasionally exceeding the median guideline limits in response to light rain and often exceeding the median guideline limits in response to five millimetres of rain or more in the previous 24 hours.



Season data

- | rainfall
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Sydney Metropolitan Area Harbour Swimming Sites

Botany Bay

Botany Bay

Sites: Ramsgate Baths, Monterey Baths, Brighton-Le-Sands Baths, Kyeemagh Baths, Foreshores Beach, Yarra Bay, Frenchmans Bay, Congwong Bay and Silver Beach



VV

Location

Botany Bay is a wide, shallow bay. The Cooks River and Georges River flow into the bay. Land use in the Botany Bay catchment includes residential, industrial, commercial, recreational and bushland (including national parks and nature reserves).

Botany Bay, Randwick, Rockdale and Sutherland councils operate in this area.

Compliance with guidelines

Faecal coliform and enterococci compliances varied at sites in Botany Bay during summer 2008–2009 (Table 22).

Three of the nine swimming sites complied 100% of the time with both faecal coliform and enterococci guidelines. These sites were Monterey Baths, Congwong Bay and Silver Beach.

Ramsgate Baths complied 100% of the time with faecal coliform and 94 % with enterococci criteria. Brighton-le-Sands Baths complied 97% of the time for both bacterial guidelines. Yarra Bay complied 100% of the time for faecal coliforms and 75% of the time with enterococci criteria. Frenchmans Bay complied with faecal coliform guidelines 91% of the time and 78% of the time with enterococci criteria.

Access to Foreshores Beach was limited during summer 2008–2009 owing to construction works at the site. As a consequence compliance with faecal coliform and enterococci criteria could not be calculated because an insufficient number of samples was collected within the required period.

The range of indicator bacteria levels measured at Botany Bay, lower Georges River and Port Hacking swimming areas during summer 2008–2009 is shown in Figure 29. Botany Bay sites are highlighted in grey. Bacterial levels at most sites were within the same range measured at other sites in Botany Bay, lower Georges River and Port Hacking. Bacterial levels at Frenchmans Bay were slightly higher than at most other sites in the region.

Ranking of beaches

All monitored harbour and ocean beach swimming locations in the Hunter, Sydney and Illawarra regions were ranked on the basis of their compliance with swimming guidelines during summer 2008–2009. A total of 14 rankings were determined for the 131 sites monitored for both faecal coliforms and enterococci, with many sites ranked equally.

Rankings of swimming sites in Botany Bay varied. Monterey Baths, Congwong Bay and Silver Beach all ranked highly at equal first. Kyeemagh Baths ranked equal second and Brighton-le-Sands Baths and Ramsgate Baths both ranked equal third (Table 22). Yarra Bay and Frenchmans Bay ranked lower at equal ninth and tenth places respectively. Foreshores Beach could not be ranked as compliance could not be calculated for that site.

Actions to improve quality

Actions specific to individual swimming locations are included on the individual 'swimming area' pages. Improvements in water quality within Botany Bay should also be achieved through the implementation of stormwater management plans and council programs.

Stormwater management plans

Local councils have developed Stormwater Management Plans for Mill Pond Creek, Lower Georges River and Cooks River. These plans contain many structural and non-structural actions that will be implemented over the next five years to improve water quality in these waterways and in Botany Bay.

Cooks River Ecology Grant

Rockdale, Kogarah, Canterbury and Marrickville Councils undertake an annual ecological study of the Cooks River with funding from the Cooks River Foreshore Improvement. The study has found that overall the Cooks River is in poor ecological health. However it does contain a number of mangrove and saltmarsh communities and habitat for a variety of benthic species. The

outcomes of this project will help in the development of guidelines for the management of tidal vegetation and the implementation of future capital works along the riverbank.

Cooks River Sediment Sampling

Rockdale, Marrickville and Canterbury councils have received grant funding from NSW DECCW to undertake sediment sampling of the Cooks River. This project will help identify what is in the Cooks River sediment, the mobility of heavy metals, and the risk of contaminants being recycled. The outcomes of this project will help in the identification and prioritisation of actions to improve river health.

Cooks River Sustainability Initiative

Councils in the Cooks River catchment have received a \$2 million grant from the NSW government to improve the health of the Cooks River, conserve water resources and improve the sustainability performance of the councils located within the Cooks River Catchment and their communities.

City of Botany Bay

Stormwater reuse: As the predominant subsurface material in Botany is sand (which forms an aquifer that drains to Botany Bay), Council has developed guidelines for the design of stormwater drainage systems. The guidelines require stormwater reuse for non-potable purposes for developments wherever possible. Stormwater overflows from such systems can be directed to Council's stormwater system, subject to the provision of stormwater pollution prevention devices to remove litter and sediment.

Orica (former ICI Site) Botany Groundwater Project Community Liaison Committee: Council continues to facilitate and participate in the Botany Groundwater Project Community Liaison Committee, which meets quarterly to review the progress of the Botany Groundwater Cleanup Plan and to update residents and interested parties in the implementation of the plan. The Groundwater Treatment Plant (GTP), which was commissioned in February 2006, continues to pump and treat ground water from a number of containment lines that

bisect the groundwater flow. The containment line located along Foreshores Drive (parallel to Foreshores Beach) is the final capture point for contaminated ground water flowing towards Botany Bay.

Penrhyn Estuary: In 2006, a human health risk assessment completed on the Penrhyn Estuary area (at the eastern end of Foreshores Beach) found that the exposure risks from contamination within the estuary to swimming and/or consuming fish exceeded designated levels and were determined to be unsafe. Subsequently, the NSW Department of Primary Industries gazetted a fishing ban in the Penrhyn Estuary. In conjunction with Orica, DECCW installed new warning signage at Penrhyn Estuary, replacing older advisory signs placed by Council. This ban and associated signage are still in operation.

Botany Wetlands Environment Management Steering Committee: The Botany Wetlands flow southwards through the Botany Bay local government area before discharging into Botany Bay at the western end of Foreshores Beach. The Botany Wetlands Steering Committee—composed of various stakeholders, including Botany Bay City Council—was reconvened in December 2005 to review the Botany Wetlands Plan of Management. The review of the management plan has been undertaken to determine what actions have been completed since 2002 and to determine actions for the future.

Port Botany Upgrade Works: As a component of the planned works for Botany Bay, Penrhyn Estuary and Foreshores Beach will undergo changes. The estuary will be closed to pedestrian traffic and a new boat ramp will be built midway along Foreshores Beach. Foreshores Beach shoreline will be renourished with sand to the west of the boat ramp, and a rock retaining wall will be constructed to the east of the boat ramp.

Other activities: Council was involved in Clean-Up Australia Day at Foreshores Beach and Sir Joseph Banks Park. Council also participated in the DECCW Household Chemical Collection Day to reduce the risk of chemicals ending up in our waterways, being dumped in public areas, or being stored inappropriately.

Randwick City Council

Soil and water management: Randwick City Council continues to implement the Southern Sydney Regional Organisation of Councils (SSROC) soil and water management program. This program aims to prevent degradation of waterways and stormwater systems by minimising the loss of soil and other building materials from building and construction sites.

Summer activities program: Held over a two-week period in January, the summer activities program aimed at increasing the understanding and appreciation of marine and coastal water quality and conservation issues through a series of activities for residents and visitors to the area. This year participants enjoyed many new activities in the program, as well as the old favourites including snorkelling at Gordons Bay and Bare Island and learning to surf at Maroubra Beach.

Greywater fact sheet: A greywater fact sheet was developed by Council to encourage residents to install greywater systems to conserve water and to use greywater within the premises for flushing of toilets, in laundries and externally. This fact sheet is supported by a Council water conservation rebate scheme for residents that covers rainwater tanks and greywater systems.

Rockdale Council

Gross pollutant traps (GPTs): Council has installed large GPTs in Cook Park at Dolls Point, Tonbridge Street Reserve, Ramsgate and Scarborough Park to collect polluted runoff from the adjacent main and local roads that would otherwise flow into Botany Bay. To further treat runoff Council has installed an absorption/detention basin in Pemberton Street Reserve at Ramsgate and also restored a section of the Scarborough Ponds Channel that drains directly to Botany Bay.

Council continued to maintain over 200 small gully pit traps and six large GPTs across the upper reaches of the Cooks River catchment. In addition, two large GPTs are currently being installed in Coolabah Reserve Bardwell Valley. This will reduce pollutant load into Bardwell Creek which runs into Wolli Creek.

Council also maintained the two large electric mixers in Scarborough Ponds to gently mix the stratified water layers to improve water quality.

Rockdale wetlands corridor: Council has restored a section of the Scarborough Ponds. This involved regrading the existing embankments and supply and placing of sandstone blocks in a tiered layout, followed by the planting of marine plants to remove excess nutrients from the water.

Cooks River Sustainability Initiative: As part of this project, in conjunction with the project officers of the Cooks River Sustainability Initiative, Council has undertaken physical profiling of upper Wolli Creek catchment and a community water survey. It has held visioning workshops with the community to ascertain residents' long-term environmental vision for the area.

Sutherland Council

Stormwater Quality Improvement Devices (SQIDs) installation: Sutherland Council has installed a number of SQIDs in the local council area. They will ultimately reduce the amount of land-derived pollution entering the waterways and will therefore help to improve water quality.

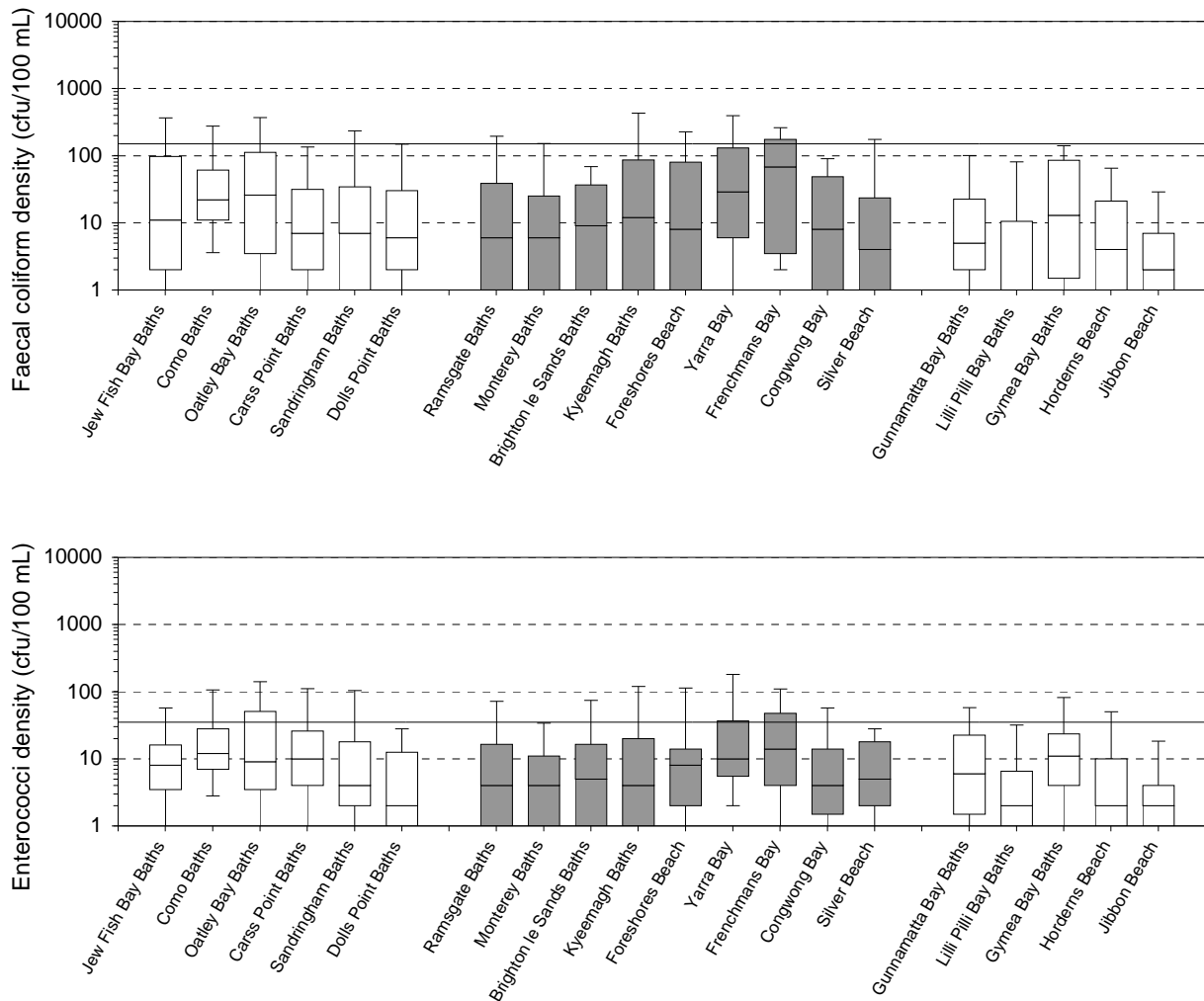
Sydney Water

Sydney Water is cleaning and inspecting the sewer mains across the catchment of Brighton-le-Sands Baths that have a high likelihood of discharging sewage to waterways if they become blocked. Where problems are identified they will be fixed by repair or preventive maintenance.

Table 22: Compliance and Ranking of Botany Bay Sites during Summer 2008–2009

Site	Compliance (%)		Overall rank (out of 14)
	Faecal Coliforms	Enterococci	
Ramsgate Baths	100	94	3
Monterey Baths	100	100	1
Brighton-le-Sands Baths	97	97	3
Kyeemagh Baths	97	100	2
Foreshores Beach	-	-	-
Yarra Bay	100	75	9
Frenchmans Bay	91	78	10
Congwong Bay	100	100	1
Silver Beach	100	100	1

Figure 29: Bacterial Levels at Lower Georges River, Botany Bay and Port Hacking Sites during Summer 2008–2009



Ramsgate Baths

See page 280 for key to map

Description

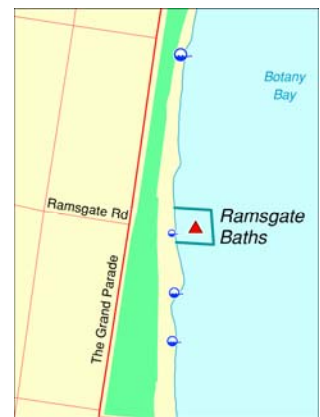
The baths are a 50 metre squared swimming enclosure situated at the southern end of Lady Robinsons Beach. A boardwalk and a small recreational reserve back the swimming enclosure.

Pollution sources

Stormwater drains discharge to the beach in the vicinity of the swimming enclosure. Outflow from the Georges River and Cooks River may also affect the water quality of the swimming area.

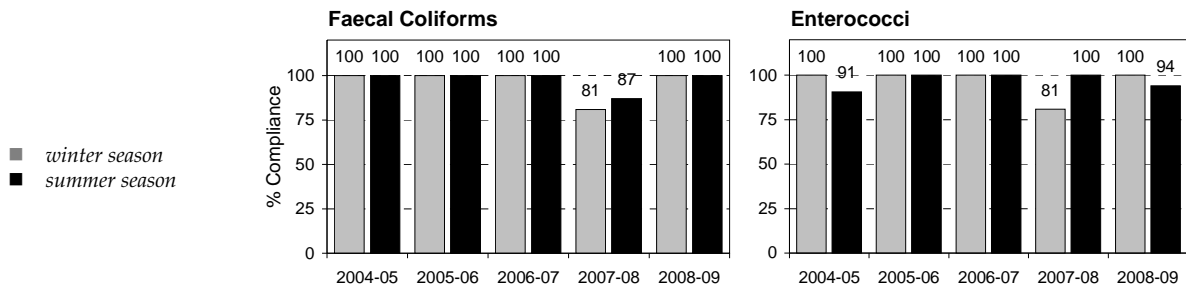
Actions

Rockdale Council continued to service all GPTs around the baths. Council constructed an additional large GPT in Tonbridge Street Reserve to collect pollutant runoff from Ramsgate Road. Council also installed an absorption/detention basin in Pemberton Street Reserve to reduce flows into the local pipe network and also recharge the watertable.



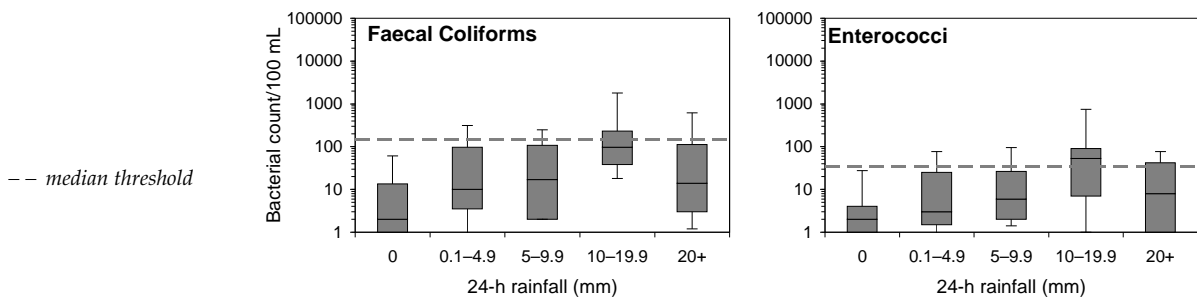
Compliance

With the exception of 2007–2008, faecal coliform levels complied with swimming guidelines 100% of the time over the last five years. Enterococci compliance with swimming guidelines has ranged from 81% to 100% over the last five years.



Response to rainfall

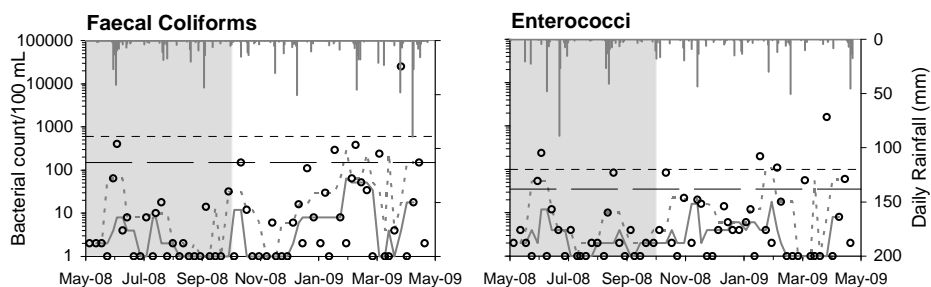
Bacterial densities occasionally exceeded median guideline limits in response to light rain and often exceeded the median guideline limit in response to 10 millimetres of rain or more in the previous 24 hours.



Season data

- | rainfall
- o individual result
- rolling median
- - - rolling 80th percentile

- Guidelines
(see page 8 for details)
- median threshold
 - - - 80th percentile threshold



Monterey Baths

See page 280 for key to map

Description

This swimming area is situated towards the southern end of Lady Robinsons Beach. The baths are not netted and are backed by a sandy beach and a small recreational reserve.

Pollution sources

Stormwater drains discharge to the bay in the vicinity of the swimming enclosure. Outflows from the Georges River and Cooks River can affect the water quality of the swimming area.

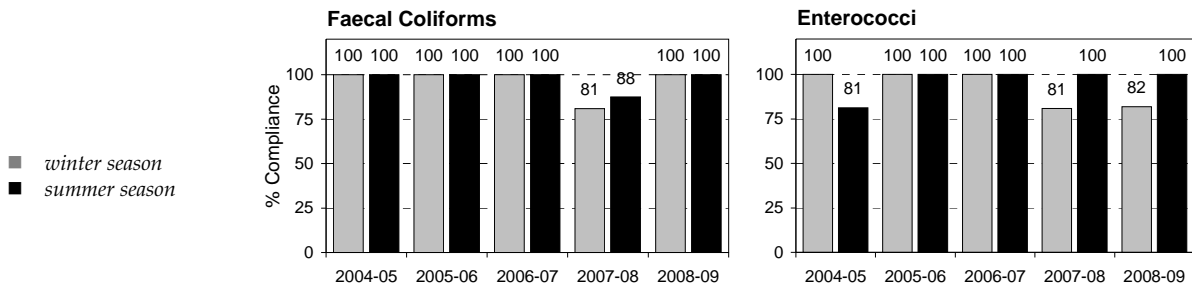
Actions

Rockdale Council continued to service all GPTs around the baths. Council also constructed four small GPTs in Cook Park at Dolls Point, between Ramsgate and Monterey to collect pollutant runoff from adjacent Grand Parade.



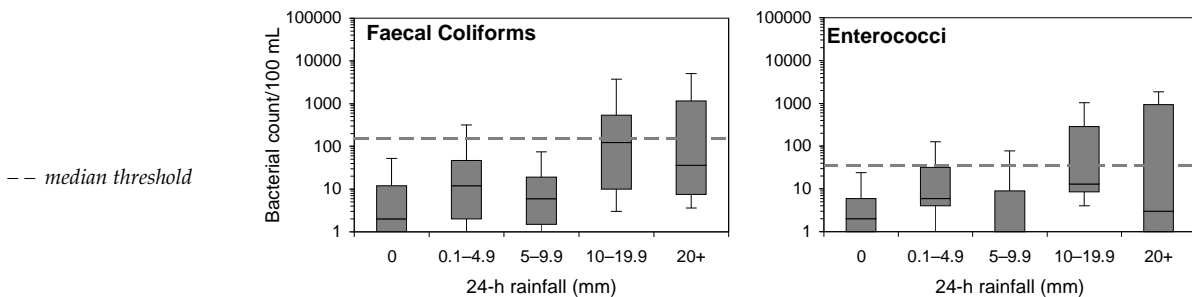
Compliance

With the exception of 2007–2008, faecal coliform levels complied with swimming guidelines 100% of the time over the last five years. Enterococci compliance with swimming guidelines has ranged from 81% to 100% over the last five years.



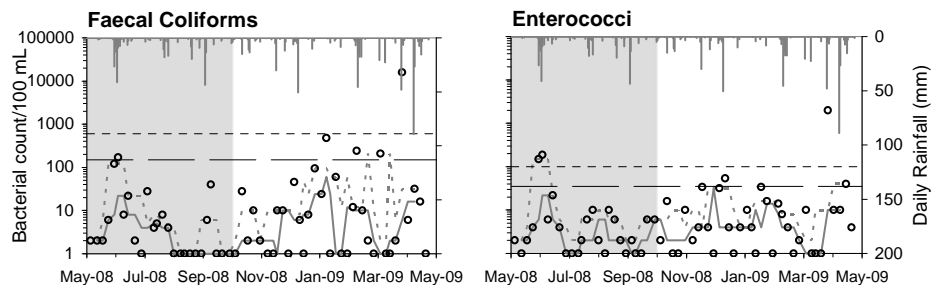
Response to rainfall

Faecal coliform and enterococci densities generally increased with increasing rainfall, occasionally exceeding median guideline limits after light rain and often exceeding the median guideline limit in response to ten millimetres of rain or more in the previous 24 hours.



Season data

- | rainfall
 - o individual result
 - rolling median
 - rolling 80th percentile
- Guidelines
(see page 8 for details)
- median threshold
 - 80th percentile threshold



Brighton-le-Sands Baths

See page 280 for key to map

Description

This 60 by 50 metre netted swimming enclosure is situated towards the centre of Lady Robinsons Beach. The southern edge of the swimming enclosure is a pier.

Pollution sources

Stormwater drains discharge to the beach in the vicinity of the swimming enclosure. Outflow from the Cooks River can also affect the water quality of the swimming area.

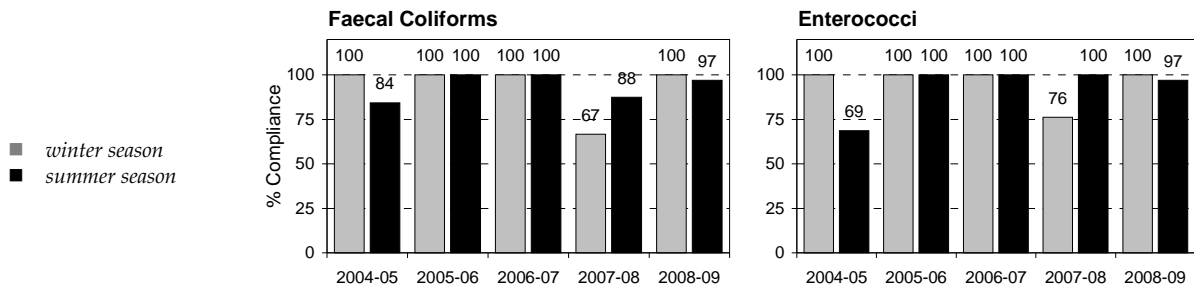
Actions

Rockdale Council continued to service all GPTs around the baths. Council also constructed a small GPT in Cook Park, Brighton, near the new boardwalk to collect pollutant runoff from adjacent Grand Parade. A section of degraded dune on the southern side of the new boardwalk was restored to control beach erosion and address a windblown-sand problem in the area. Sydney Water is cleaning and inspecting sewer mains across the catchment. Where problems are identified they will be fixed.



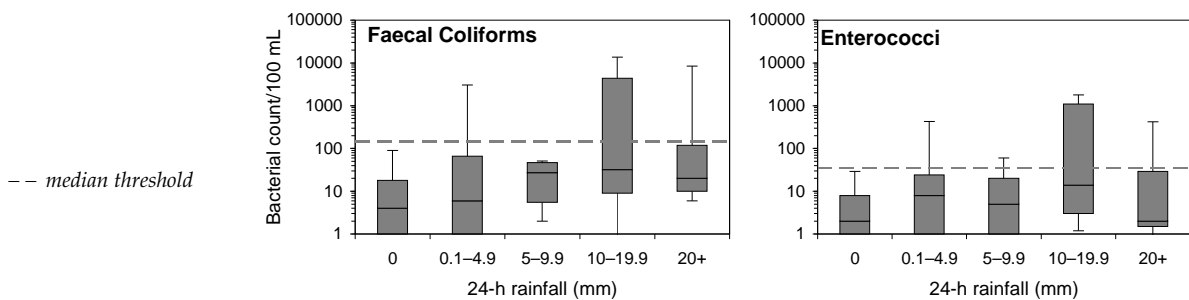
Compliance

Faecal coliform and enterococci compliance with swimming guidelines has varied, ranging from 67% to 100% for faecal coliforms, and 69% to 100% for enterococci over the last five years.



Response to rainfall

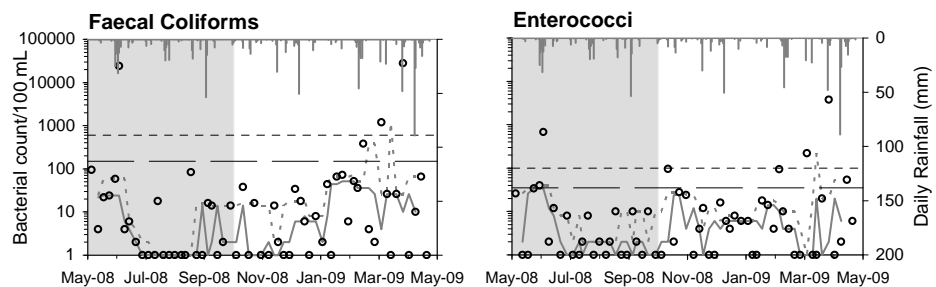
Bacterial densities occasionally exceeded median guideline limits after light rain and often exceeded the median guideline limits after ten millimetres of rain or more in the previous 24 hours.



Season data

- | rainfall
- o individual result
- rolling median
- - - rolling 80th percentile

- Guidelines
(see page 8 for details)
- median threshold
 - - - 80th percentile threshold



Kyeemagh Baths

Description

This 50 by 70 metre netted swimming enclosure is situated at the northern end of Lady Robinsons Beach. The baths have a narrow, sandy beach and are backed by a recreational reserve. These baths are currently out of action until the end of 2009 owing to the construction of the Sydney Desalination Project.

See page 280 for key to map



Pollution sources

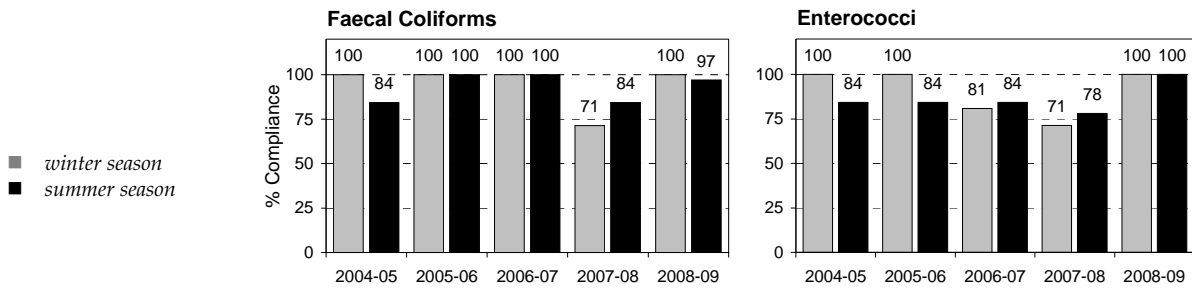
Stormwater drains discharge in the immediate vicinity of the swimming enclosure. Outflow from the Cooks River may also affect water quality.

Actions

Rockdale Council continued to service all GPTs around the baths. Council also constructed a small GPT in Cook Park, Kyeemagh, to collect pollutant runoff from the adjacent General Holmes Drive.

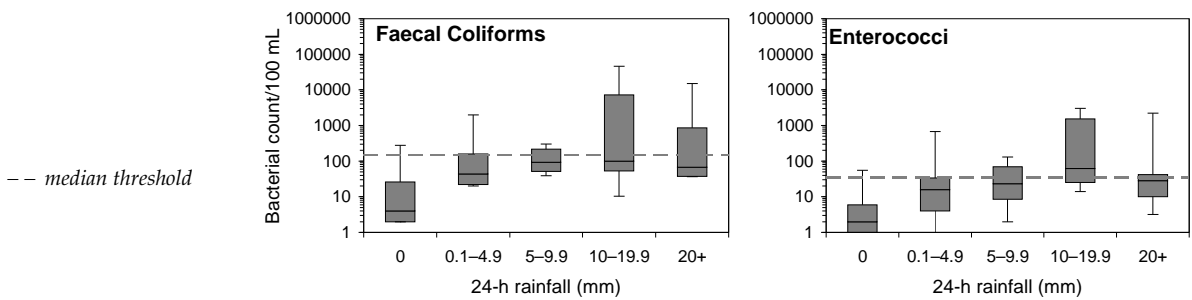
Compliance

Faecal coliform and enterococci compliance with swimming guidelines has varied, ranging from 71% to 100% over the last five years.



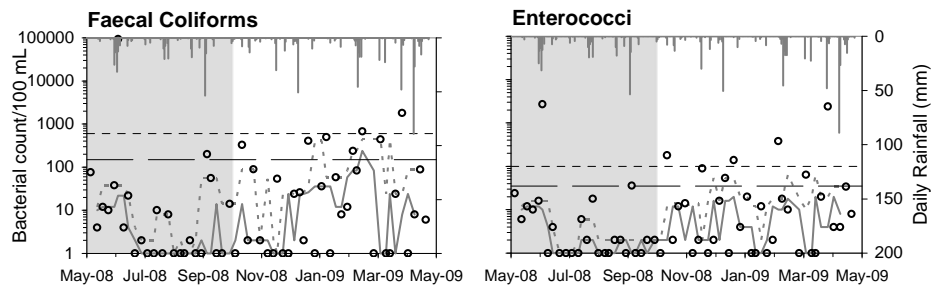
Response to rainfall

Bacterial densities tended to increase with increasing rainfall, occasionally exceeding the median guideline limits during dry weather, indicating a possible dry-weather contamination problem. Faecal coliform and enterococci densities often exceeded median guideline limits in response to even light rain in the previous 24 hours.



Season data

- | rainfall
 - o individual result
 - rolling median
 - rolling 80th percentile
- Guidelines
(see page 8 for details)
- median threshold
 - 80th percentile threshold



Foreshores Beach

See page 280 for key to map

Description

This narrow beach, approximately 2.2 kilometres long, is adjacent Sydney Airport's third runway. The swimming area is not netted. Access to the beach was limited over summer 2008–2009 owing to construction works.



Pollution sources

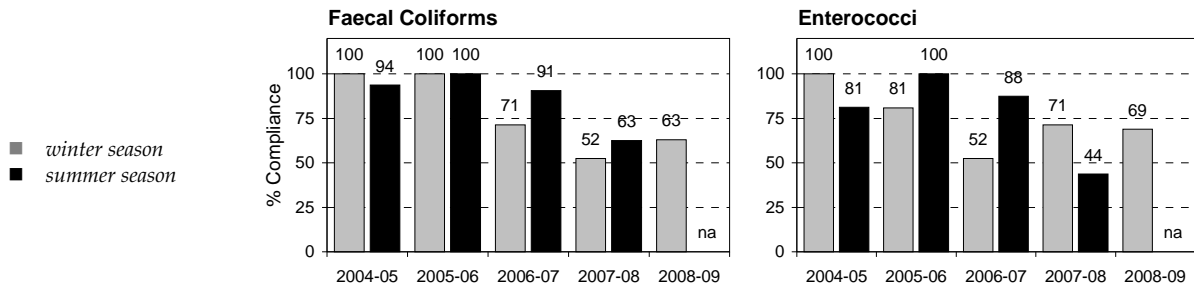
Stormwater drains discharge along the length of the beach. Sewage overflows discharge into Mill Pond Diversion Channel at the western end of the beach, with industrial and urban runoff discharging into Penrhyn Estuary at the eastern end of the beach.

Actions

City of Botany Bay Council has been involved with numerous environmental education programs and has also developed guidelines for the design of stormwater drainage systems to improve water quality.

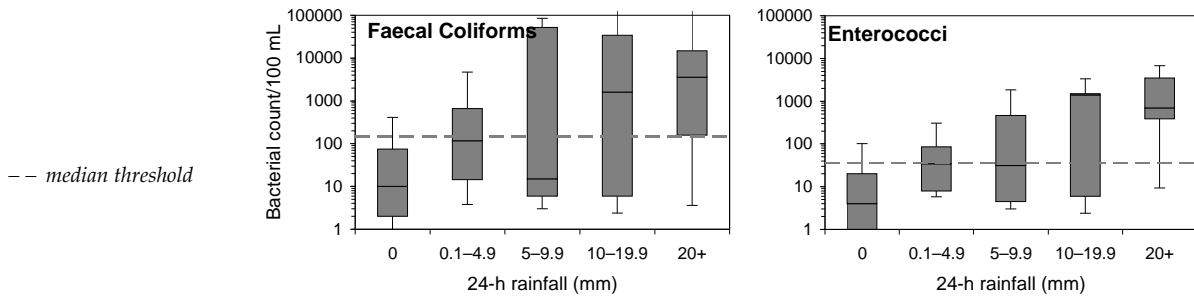
Compliance

Faecal coliform and enterococci compliance with swimming guidelines has varied considerably, ranging from 52% to 100% for faecal coliforms, and from 44% to 100% for enterococci over the last five years. Compliance could not be calculated for summer 2008–2009 because of an insufficient number of samples.



Response to rainfall

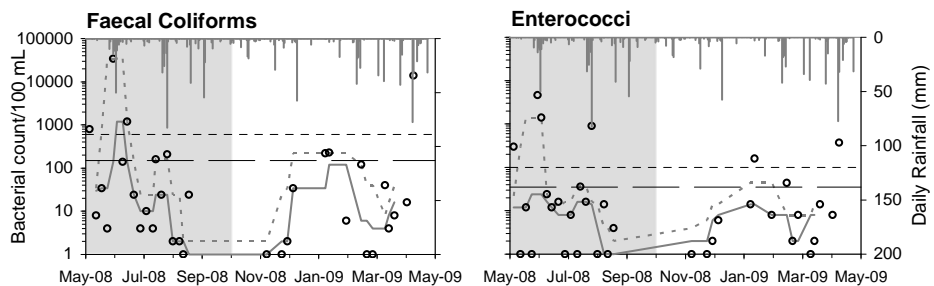
Faecal coliform and enterococci densities increased with increasing rainfall, occasionally exceeding median guideline limits after no rain, indicating a possible dry-weather contamination problem. Bacterial densities often exceeded median guideline limits in response to light rain and frequently exceeded median guideline limits after ten millimetres of rain or more in the previous 24 hours.



Season data

- | rainfall
- o individual result
- rolling median
- - - rolling 80th percentile

- Guidelines
(see page 8 for details)
- median threshold
 - - - 80th percentile threshold



Yarra Bay

See page 280 for key to map

Description

This is a narrow beach, approximately 750 metres long, with a rock groyne 100 metres from the southern end. The swimming area is not netted. The southern half of the beach is bordered by Yarra Bay Bicentennial Park and Yarra Bay Sailing Club.



Pollution sources

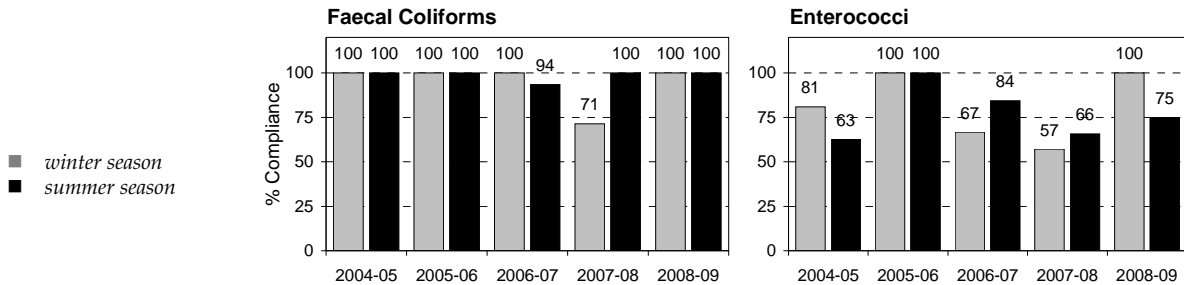
A stormwater drain discharges at the centre of the beach during both wet and dry weather. Leachate from Botany Cemetery and market gardens may contaminate stormwater discharging to the beach.

Actions

Randwick City Council regularly undertakes street sweeping and beach cleaning.

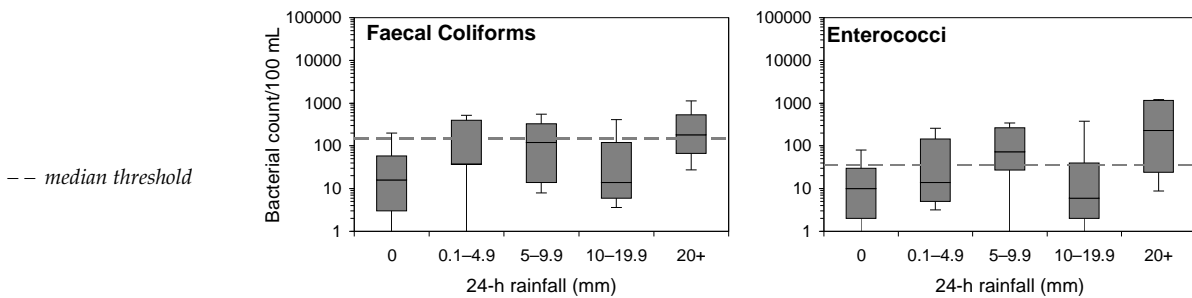
Compliance

Faecal coliform compliance with swimming guidelines has ranged from 71% to 100% over the last five years. Enterococci compliance with swimming guidelines has been more variable, ranging from 57% to 100% over the last five years.



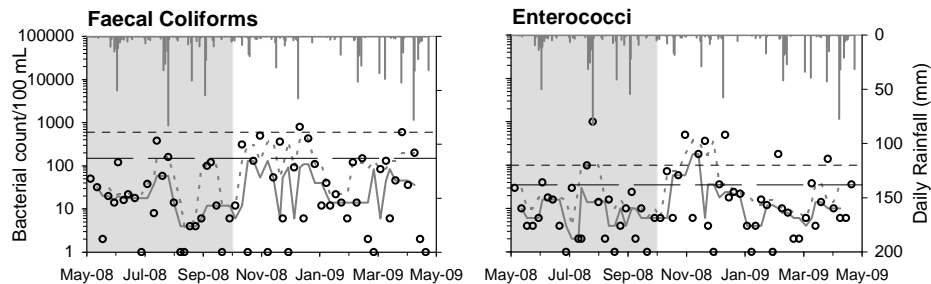
Response to rainfall

Faecal coliform and enterococci densities occasionally exceeded median guideline limits after no rain, indicating a possible dry-weather contamination problem. Faecal coliform levels often exceeded the median guideline limit after light rain in the previous 24 hours. Enterococci levels often exceeded the median guideline limit after light rain and frequently exceeded the median guideline limit after five millimetres of rain or more in the previous 24 hours.



Season data

- | rainfall
 - o individual result
 - rolling median
 - - - rolling 80th percentile
- Guidelines
(see page 8 for details)
- median threshold
 - - - 80th percentile threshold



Frenchmans Bay

See page 280 for key to map

Description

This narrow beach is approximately 500 metres long, with a rock wall towards the northern end. The swimming area is not netted. A small recreational reserve is situated behind the beach at the southern end.



Pollution sources

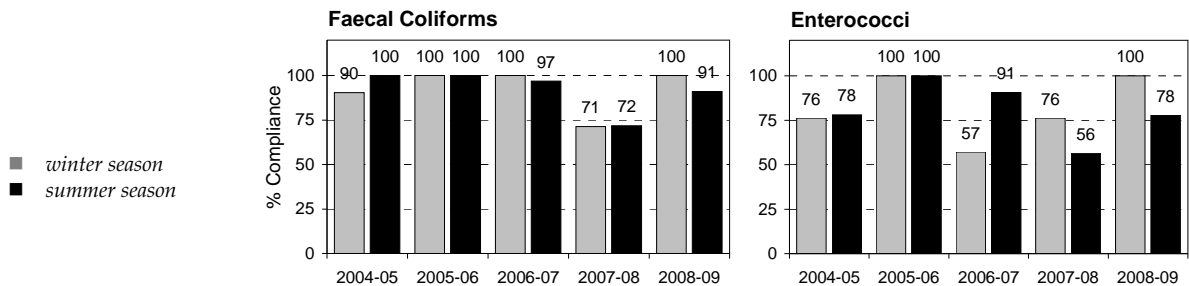
Stormwater drains discharge to the beach.

Actions

Randwick City Council regularly undertakes street sweeping and beach cleaning.

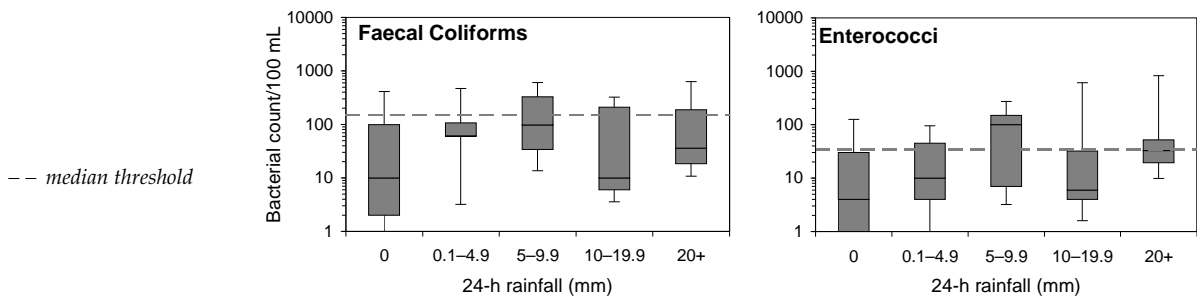
Compliance

Faecal coliform compliance with swimming guidelines has ranged from 71% to 100% over the last five years. Enterococci compliance with swimming guidelines has been more variable, ranging from 56% to 100% in the last five years.



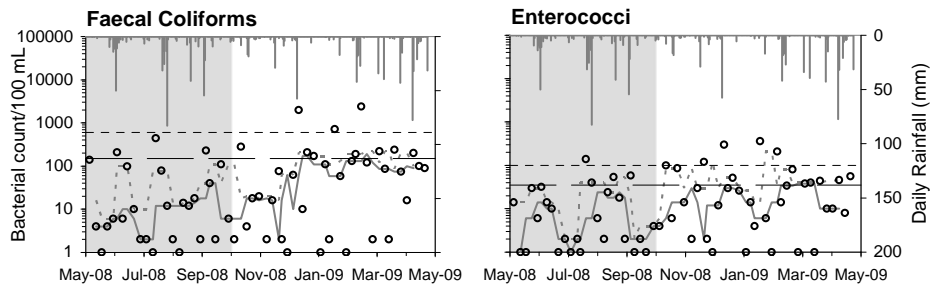
Response to rainfall

Bacterial densities occasionally exceeded median guideline limits in response to no rain, indicating a possible dry-weather contamination problem. Faecal coliform densities often exceeded the median guideline limit in response to five millimetres light rain and enterococci densities regularly exceeded the median guideline limit after light rain in the previous 24 hours.



Season data

- | rainfall
 - o individual result
 - rolling median
 - - rolling 80th percentile
- Guidelines
(see page 8 for details)
- median threshold
 - - 80th percentile threshold



Congwong Bay

See page 280 for key to map

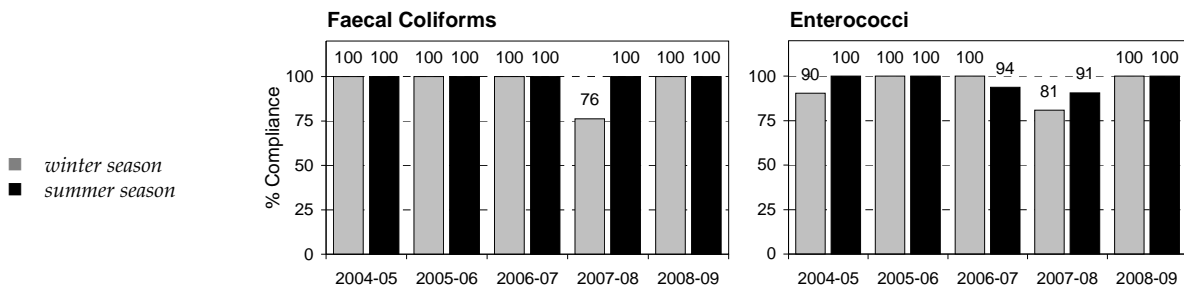
Description This narrow beach is approximately 150 metres long. The swimming area is not netted and the beach is bordered by Botany Bay National Park.



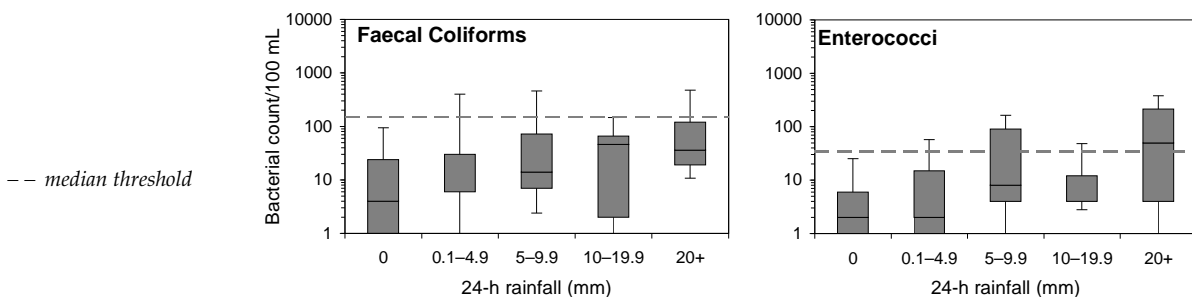
Pollution sources A stormwater drain discharges to the beach. Swimming water quality may also be affected by outflows of poor quality waters from Mill Pond, Cooks River and Georges River during wet weather.

Actions Randwick City Council regularly undertakes street sweeping and beach cleaning.

Compliance With the exception of winter 2007, faecal coliform levels have complied 100% of the time with swimming guidelines over the last five years. Enterococci compliance with swimming guidelines has been more variable, ranging from 81% to 100% over the last five years.

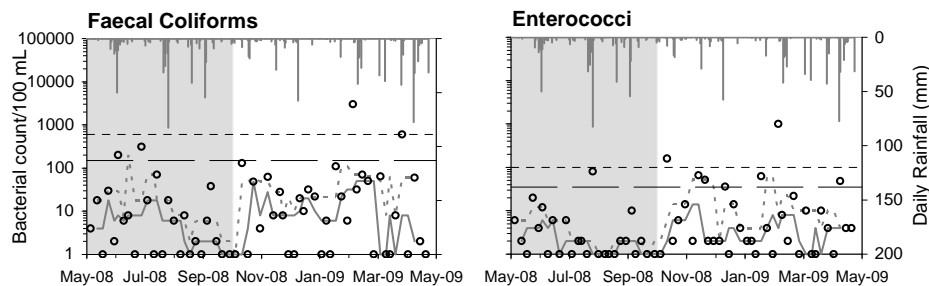


Response to rainfall Bacterial densities increased slightly with increasing rainfall, with faecal coliform densities occasionally exceeding the median guideline limits after light rain in the previous 24 hours. Enterococci densities often exceeded the median guideline limits in response to five millimetres of rain or more in the previous 24 hours.



Season data

- | rainfall
 - o individual result
 - rolling median
 - rolling 80th percentile
- Guidelines
(see page 8 for details)
- median threshold
 - 80th percentile threshold



Silver Beach

See page 280 for key to map

Description

This narrow, sandy beach is approximately 2.8 kilometres long and is divided by a number of rock walls. A 150 by 100 metre swimming enclosure is situated towards the centre of the beach.

Pollution sources

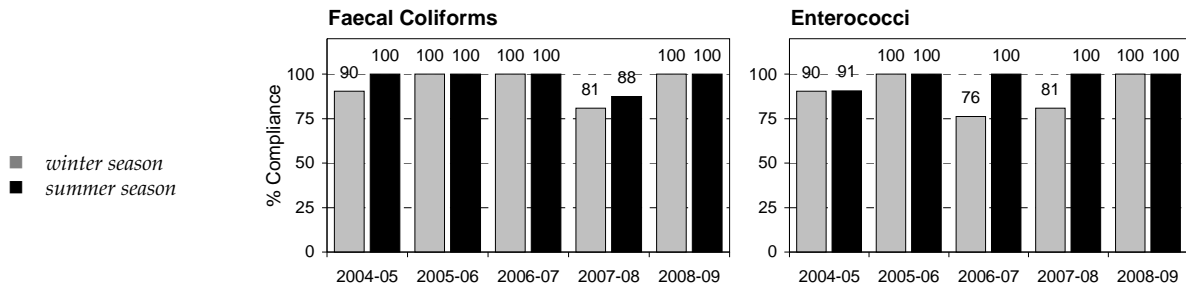
Stormwater drains discharge to the beach immediately behind the swimming enclosure and also in the vicinity of the enclosure.

Actions

Sutherland Shire Council completed an investigation of beach and coastal processes in the Silver Beach area.

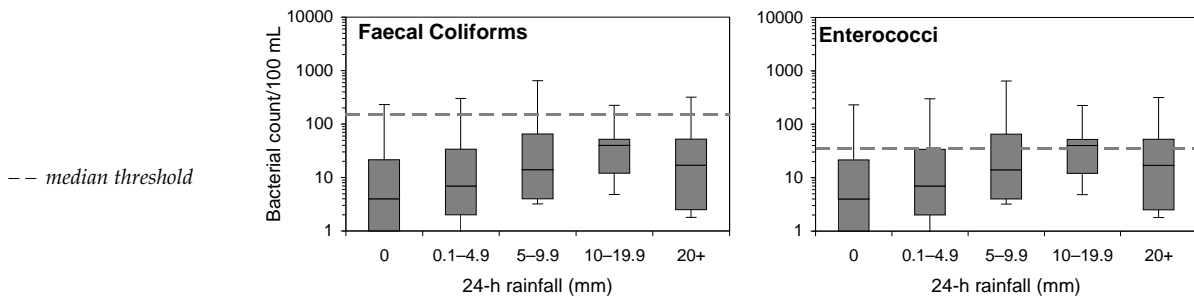
Compliance

Faecal coliform compliance with swimming guidelines has generally been high, ranging from 81% to 100% over the last five years. Enterococci compliance with swimming guidelines has ranged from 76% to 100% over the last five years.



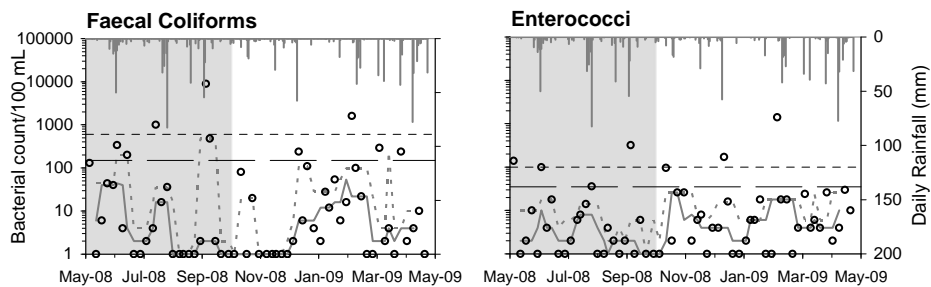
Response to rainfall

Faecal coliform and enterococci densities increased slightly with increasing rainfall, occasionally exceeding median guideline limits after no rain, indicating a possible dry-weather contamination problem. Enterococci densities often exceeded the median guideline limit in response to five millimetres of rain or more in the previous 24 hours.



Season data

- | rainfall
 - o individual result
 - rolling median
 - rolling 80th percentile
- Guidelines
(see page 8 for details)
- median threshold
 - 80th percentile threshold



Sydney Metropolitan Area Harbour Swimming Sites

Port Hacking

Port Hacking

Sites: Gunnamatta Bay Baths, Gymea Bay Baths, Lilli Pilli Bay Baths, Horderns Beach and Jibbon Beach



Port Hacking Catchment

Port Hacking is the downstream reach of the Hacking River, which flows into Bate Bay. Land use in the Port Hacking catchment is mainly residential on the northern shore, with the Royal National Park on the southern shore.

Sutherland Shire Council operates in this area. DECCW's National Parks and Wildlife Service is also responsible for a large area of the catchment.

Compliance with guidelines

Compliance with swimming guidelines at Port Hacking swimming sites was very good during summer 2008–2009 (Table 23).

Gunnamatta Bay Baths, Lilli Pilli Bay Baths and Gibbon Beach all complied with both bacteria criteria 100% of the time.

Gynea Bay Baths complied 100% of the time with faecal coliform criteria and 94% with enterococci criteria. Hordens Beach complied 100% of the time with faecal coliform criteria and 97% with enterococci criteria.

The range of indicator bacteria levels measured at Botany Bay, lower Georges River and Port Hacking swimming areas during summer 2008–2009 is shown in Figure 30. Port Hacking sites are highlighted in grey. The levels of faecal coliforms and enterococci were similar to or slightly lower than those measured in other local estuaries.

Ranking of beaches

All monitored harbour and ocean beach swimming locations in the Hunter, Sydney and Illawarra regions were ranked on the basis of their compliance with swimming guidelines during summer 2008–2009. A total of 14 distinct ranks were determined for the 131 sites monitored for both faecal coliforms and enterococci, with many sites ranked equally.

Gunnamatta Bay Baths, Lilli Pilli Bay Baths and Gibbon Beach all ranked highly at equal first. Hordens Beach ranked equal second and Gynea Bay Baths ranked equal third (Table 23).

Actions to improve water quality

Actions specific to individual swimming sites are included on the 'swimming area' pages. Improvements in water quality within Port Hacking should also be achieved as a result of various management plans and council programs.

Port Hacking Integrated Environmental Management Plan

Sutherland Shire Council and DECCW have developed an Integrated Environmental Management Plan for the Hacking River catchment. The plan has identified a number of short- and long-term stormwater management strategies and was adopted by council in February 2009. Initiatives arising from the plan include researching and monitoring sources of poor water quality in the catchment; a program of works at hotspots; conducting and assessing the benefit of community education campaigns; an audit of industrial and commercial premises; and the production of a step-by-step brochure describing development application requirements in relation to stormwater management.

Sutherland Council

Estuary Management Plans (EMP): Sutherland Shire Council has established plans for the Gunnamatta and Gynea Bay estuaries. These plans have made recommendations on specific actions to protect water quality in those bays.

New Stormwater Quality Improvement Devices (SQID): Council installed one gross pollutant trap (GPT) in Cronulla as part of larger project incorporating Stormwater Harvesting and Reuse and one GPT in Sutherland. This resulted in a total of two SQIDs installed in 2008–2009.

Water monitoring program: Council has undertaken weekly water quality monitoring from December to March of two popular swimming spots at Darook Park (located at the entrance of Gunnamatta Bay) and Swallow Rock (at Grays Point). The results will help identify areas for water quality improvement and further monitoring.

Strategic Water Monitoring Program (SWAMP): Council undertook their SWAMP program for 2008–2009, starting in September 2008. Samples were collected from 17 locations across the Sutherland Shire approximately every six days for five weeks from September to October and the same again from January to February. Samples were also collected from the inlets and outlets of six SQIDs during different rain intensities (none, low, medium and high) and from four wetlands and two GPTs. Samples were analysed for ammonia, biochemical oxygen demand, metals, enterococci, total nitrogen, total phosphorus, total suspended solids and field parameters. Preliminary results indicated that the wetlands were performing well compared with the gross pollutants traps (GPTs). Data also indicated that if the GPTs were not cleaned regularly, levels of bacteria increased, resulting in higher levels of bacteria in the outflow than the inflow of the GPT.

Port Hacking and Georges Riverkeeper Program: Council and the NSW Maritime Authority are responsible for implementation of the environmental management plans applicable to Port Hacking and Georges River. The program provides enforcement of regulations, development of policy, and coordination of programs to rehabilitate the waterways and foreshores and enhance their natural, commercial and recreational values.

Sydney Water

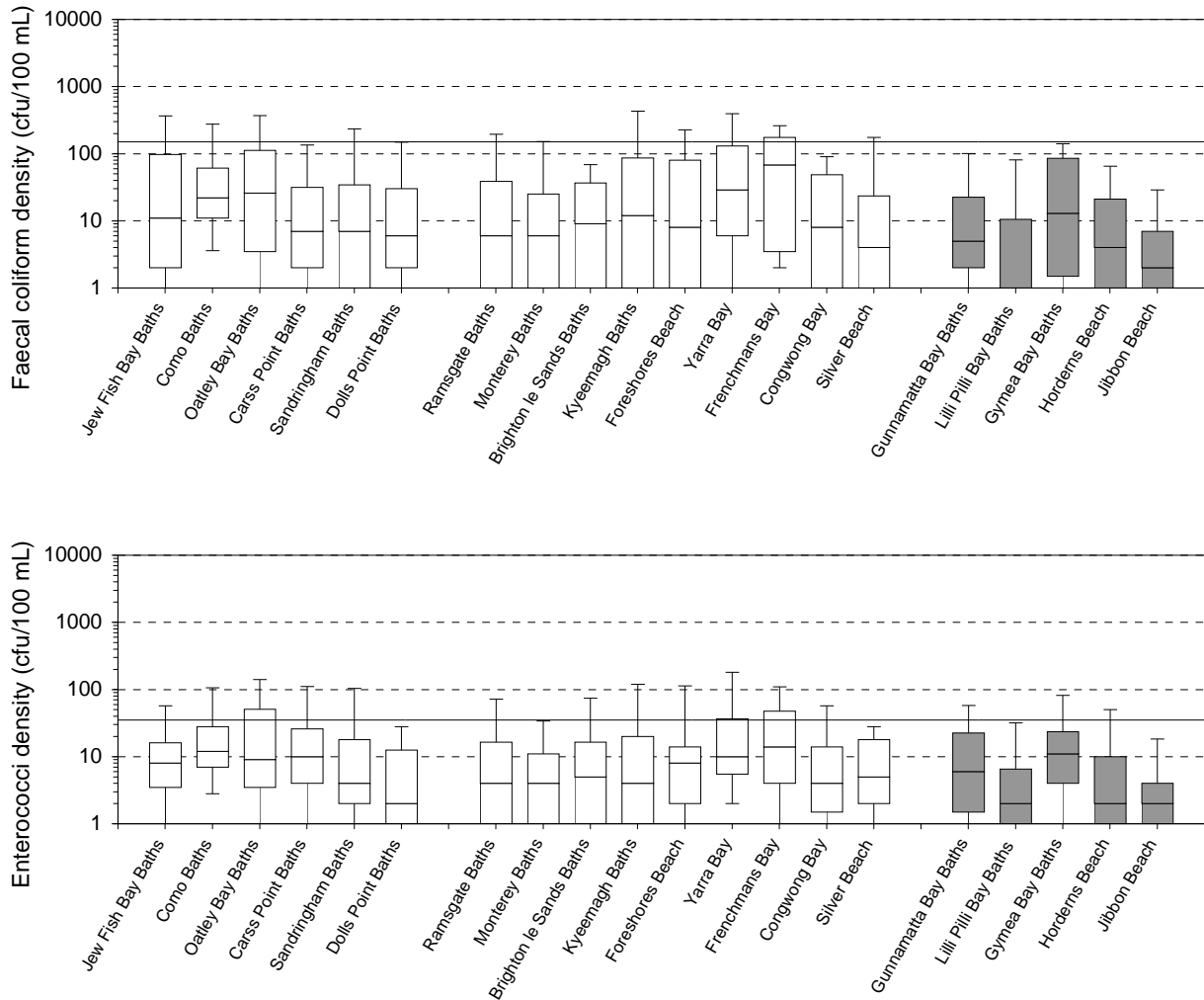
The Sydney Water SewerFix Program completed works in the catchment of Gunnamatta Bay and across the Cronulla Peninsula to achieve a long-term wet weather overflow target of not more than 40 overflows per ten years on average.

Sydney Water is cleaning and inspecting the sewer mains in Caringbah South and on the Burraneer Peninsula that have a high likelihood of discharging sewage to waterways if they become blocked. Where problems are identified they will be fixed by repair or preventive maintenance.

Table 23: Compliance and Ranking of Port Hacking Sites during Summer 2008–2009

Site	Compliance (%)		Overall rank (out of 14)
	Faecal Coliforms	Enterococci	
Gunnamatta Bay Baths	100	100	1
Lilli Pilli Bay Baths	100	100	1
GyMEA Bay Baths	100	94	3
Horderns Beach	100	97	2
Jibbon Beach	100	100	1

Figure 30: Bacterial Levels at Lower Georges River, Botany Bay and Port Hacking Sites during Summer 2008–2009



Gunnamatta Bay Baths

See page 296 for key to map

Description

This is a 50 by 30 metre enclosed tidal swimming area with a narrow sandy beach. The beach is adjacent to a large reserve and picnic area.

Pollution sources

Stormwater drains and sewage overflows discharge to the bay during wet weather. There is a large overflow in Tonkin Park at the head of Gunnamatta Bay.

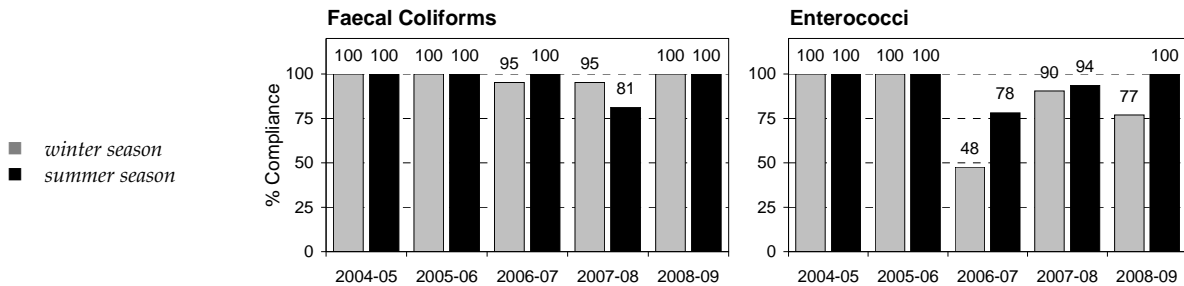
Actions

Sutherland Shire Council maintained a GPT at Tonkin Park, adjacent to the baths. As part of the SWAMP program, Council monitored the concentrations of contaminants present in the inflow and outflow of the GPT. Sydney Water completed works across the Cronulla peninsula in 2007. It enlarged pumps and pipes to improve transport of sewage, diverted excess flows to sewers with more capacity, and added storage. Sydney Water is also cleaning and inspecting sewer mains across the catchment. Where problems are identified they will be fixed.



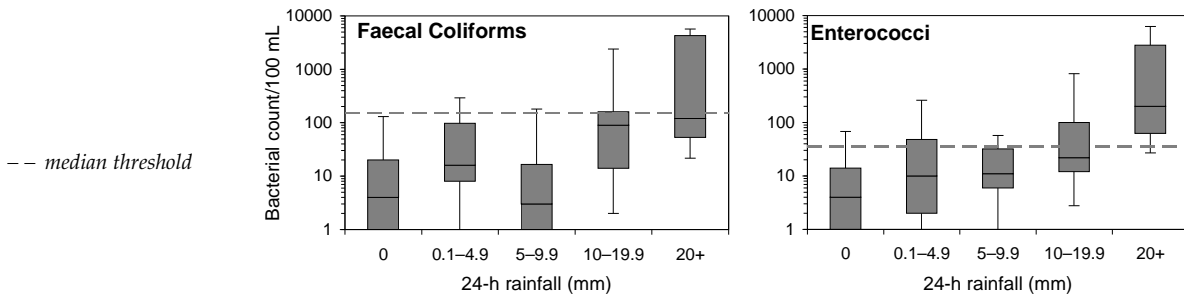
Compliance

Faecal coliform compliance has generally been high ranging from 81% to 100% over the last five years. Enterococci compliance has been more variable, ranging from 48% to 100% over the last five years.



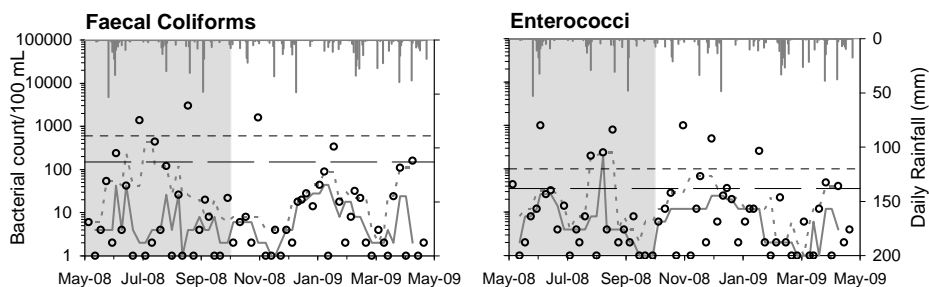
Response to rainfall

Faecal coliform and enterococci densities generally increased with increasing rainfall with enterococci exceeding median guideline limit after no rain, indicating a possible dry-weather contamination problem. Enterococci densities often exceeded the median guideline limit after light rain and frequently after 20 millimetres of rain or more in the previous 24 hours. Faecal coliform densities often exceeded the median guideline limit after ten millimetres of rain or more in the previous 24 hours.



Season data

- | rainfall
 - o individual result
 - rolling median
 - rolling 80th percentile
- Guidelines
(see page 8 for details)
- median threshold
 - 80th percentile threshold



Lilli Pilli Bay Baths

See page 296 for key to map

Description

This is a 50 by 30 metre tidal swimming area on the western side of Lilli Pilli Point. The pool is netted and is backed by a narrow strip of recreation reserve.

Pollution sources

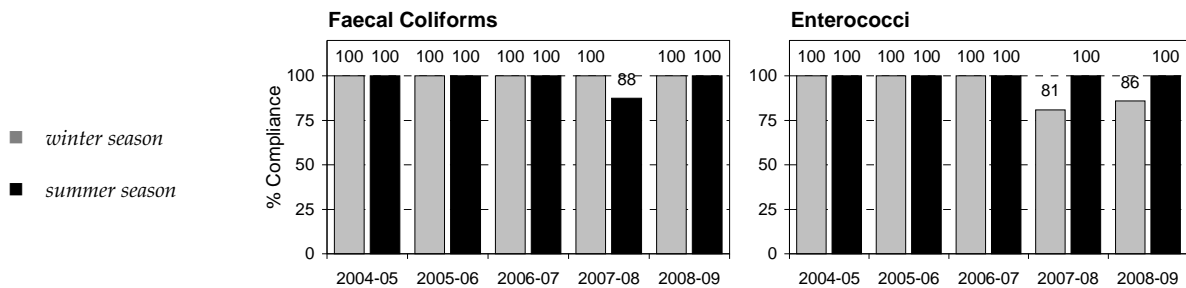
Stormwater discharges from residential areas into Lilli Pilli Bay and nearby water bodies are a potential source of pollution.

Actions

Sutherland Shire Council regularly maintained the baths. Sydney Water is cleaning and inspecting sewer mains across the catchment. Where problems are identified they will be fixed.

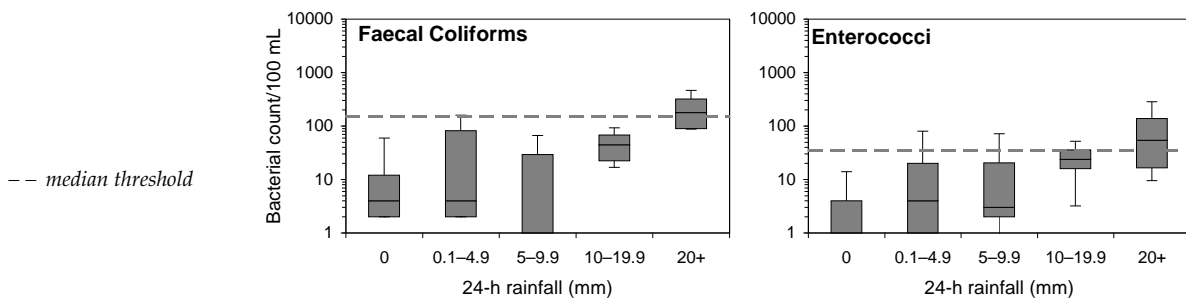
Compliance

With the exception of summer 2007–2008, faecal coliform levels have complied 100% of the time with swimming guidelines over the last five years. Enterococci compliance with swimming guidelines has been high, ranging from 81% to 100% over the last five years.



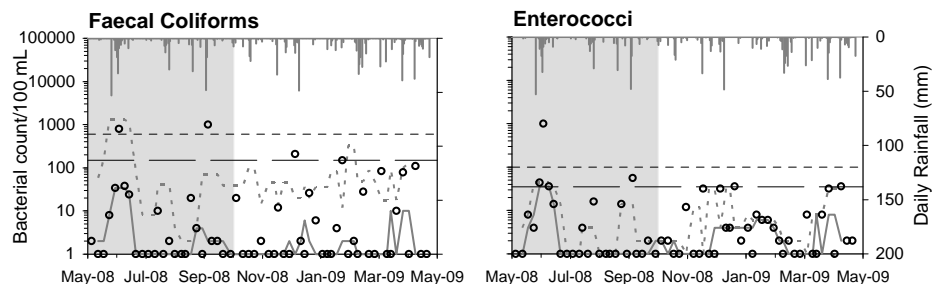
Response to rainfall

Faecal coliform and enterococci densities tended to increase with increasing rainfall, occasionally exceeding median guideline limits in response to light rain. Bacterial densities frequently exceeded the median guideline limit in response to 20 millimetres of rain or more in the previous 24 hours.



Season data

- | rainfall
 - o individual result
 - rolling median
 - rolling 80th percentile
- Guidelines
(see page 8 for details)
- median threshold
 - 80th percentile threshold



Gymea Bay Baths

Description

This is a 50 by 30 metre enclosed tidal swimming area with a narrow, sandy beach. Two small recreation reserves lead to the beach. Coonong Creek flows to Gymea Bay behind the beach.

Pollution sources

Stormwater discharges from the surrounding residential area and sewers may overflow from blocked sewer mains.

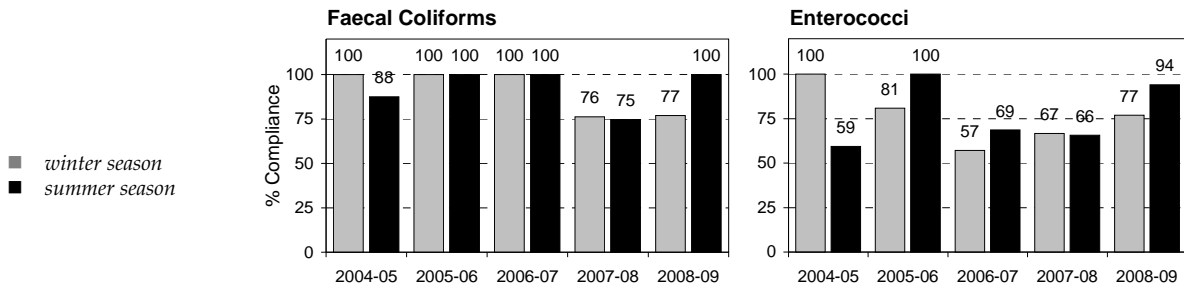
Actions

Council has allocated funding in its draft 2009–2010 budget for an upgrade of the baths and associated infrastructure.

Compliance

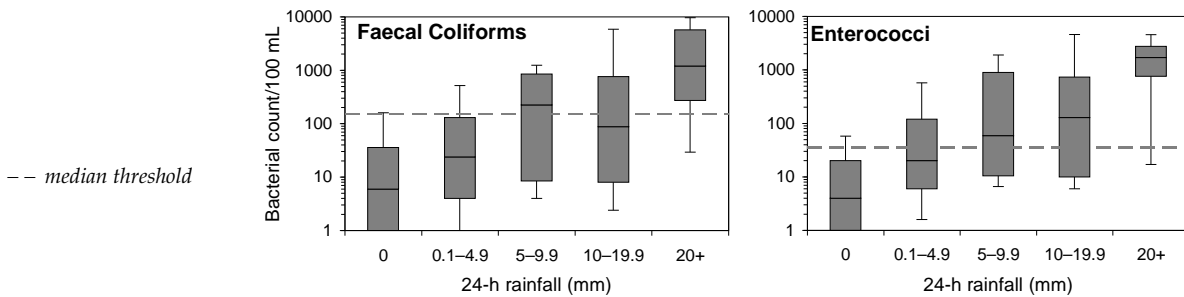
Faecal coliform compliance with swimming guidelines has ranged from 75% to 100% over the last five years. Enterococci compliance with swimming guidelines has varied considerably, ranging from 57% to 100% over the last five years.

See page 296 for key to map



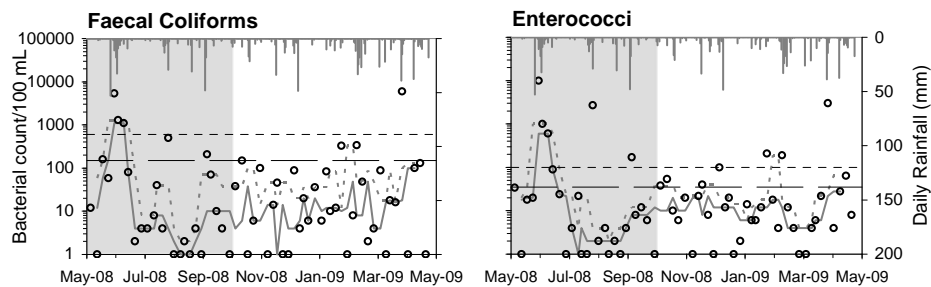
Response to rainfall

Bacterial densities increased with increasing rainfall, often exceeding median guideline limits after no rain, indicating a possible dry-weather contamination problem. Faecal coliform and enterococci densities regularly exceeded median guideline limits after light rain and frequently exceeded median guideline limits in response to five millimetres of rain or more in the previous 24 hours.



Season data

- | rainfall
 - o individual result
 - rolling median
 - rolling 80th percentile
- Guidelines
(see page 8 for details)
- median threshold
 - 80th percentile threshold



Horderns Beach

See page 296 for key to map

Description

This is a 700 metre long, narrow, sandy beach in Bundeena Bay on the southern side of Port Hacking. The Cronulla–Bundeena wharf and a recreation reserve border the beach on the eastern end. The beach is backed by the township of Bundeena.



Pollution sources

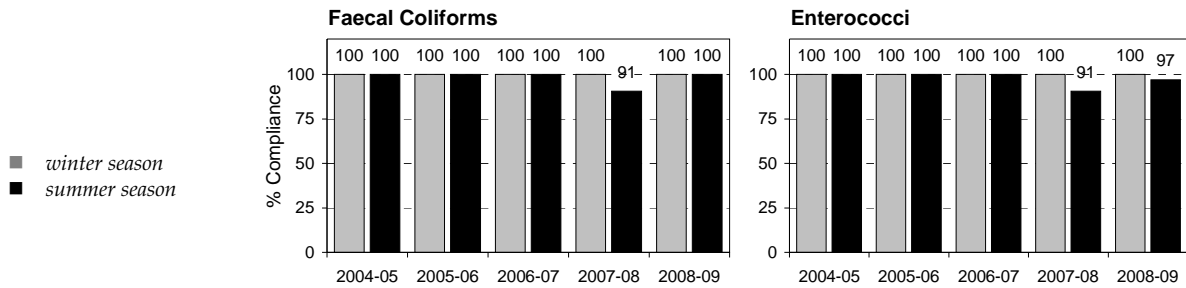
There is potential septic tank seepage from an unknown number of properties in Bundeena and Maianbar not yet connected to Sydney Water's sewerage system. Stormwater discharge and a small creek at the eastern end of the beach may also be a potential source of pollution.

Actions

There were no actions specific to this beach.

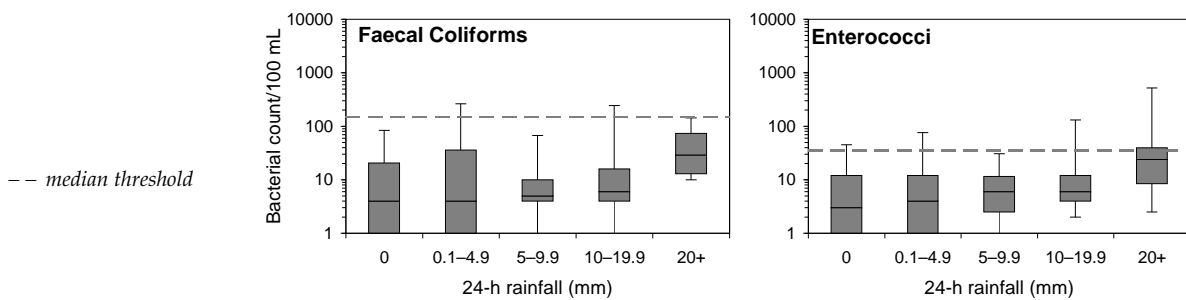
Compliance

With the exception of summer 2007–2008, faecal coliform levels have complied 100% of the time with swimming guidelines over the last five years. Enterococci compliance with swimming guidelines has been high, ranging from 91% to 100% over the last five years.



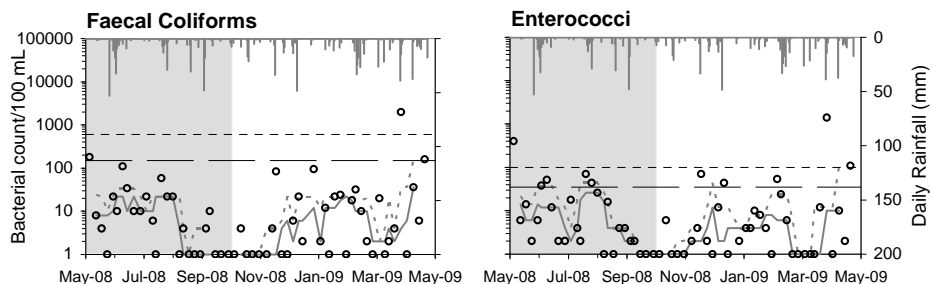
Response to rainfall

Faecal coliform and enterococci densities tended to increase slightly with increasing rainfall, occasionally exceeding median guideline limits after five millimetres of rain or more in the previous 24 hours. Enterococci densities occasionally exceeded the median guideline limit after no rain, indicating a possible dry-weather contamination problem.



Season data

- | rainfall
 - o individual result
 - rolling median
 - rolling 80th percentile
- Guidelines
(see page 8 for details)
- median threshold
 - 80th percentile threshold



Jibbon Beach

Description

This is a 700 metre long sandy beach located inside the southern entrance to Port Hacking. The beach is backed by the Royal National Park and can be accessed via Bundeena. The water is deep inshore and a popular boating destination. Beach conditions are safest in the eastern corner.

See page 296 for key to map



Pollution sources

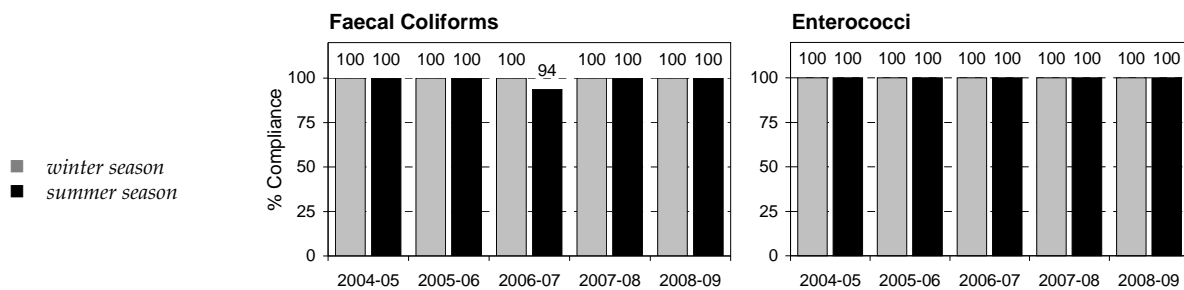
Stormwater discharge from the nearby residential area of Bundeena is a potential source of pollution, along with illegal discharge of untreated sewage from visiting vessels without holding facilities.

Actions

There were no actions specific to this beach.

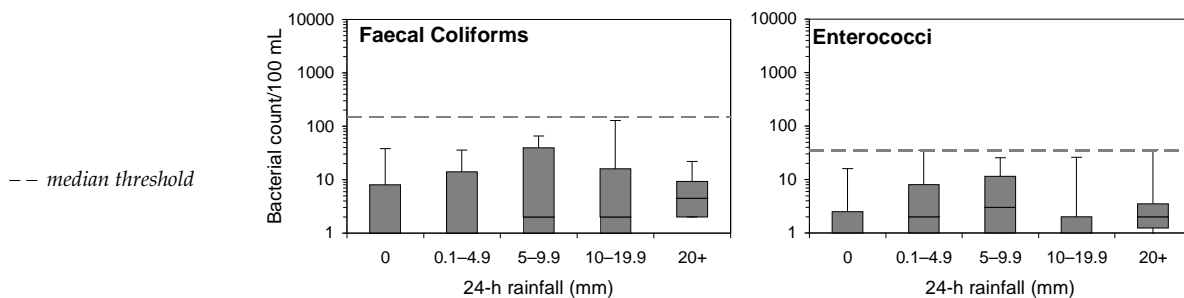
Compliance

With the exception of summer 2006–2007, faecal coliform levels complied with swimming guidelines 100% of the time over the last five years. Enterococci levels complied with swimming guidelines 100% of the time over the last five years.



Response to rainfall

Faecal coliform densities showed little response to rainfall and generally remained below the median guideline limit across all rainfall categories. Enterococci densities occasionally exceeded the median guideline limit in response to light rain in the previous 24 hours.



Season data

- | rainfall
 - o individual result
 - rolling median
 - rolling 80th percentile
- Guidelines
(see page 8 for details)
- median threshold
 - 80th percentile threshold

