

Port Stephens Council

Ocean beaches: Birubi. **Estuarine sites:** Little Beach, Dutchmans (Dutchies) Beach, Bagnalls Beach and Georges Reserve. **Tidal pool:** Lemon Tree Passage and Karuah Tidal Pool.



Local government area description

The Port Stephens Council area borders the Central Coast to the south and the Mid North Coast to the north. It covers an area of 861 square kilometres and has a population of more than 61 000.

Port Stephens is an important tourist and recreational destination owing to the natural beauty of the area, with numerous coastal beaches, waterways and rural areas. The area also supports agriculture, manufacturing, and fishing and oyster industries (Port Stephens Shire Council 2006).

Program outline

Seven swimming locations were monitored in Port Stephens: an ocean beach (Birubi Beach), four estuarine swimming sites (Little Beach, Bagnalls Beach, Georges Reserve and Dutchmans Beach) and two tidal pools (Karuah Tidal Pool and Lemon Tree Passage).

Faecal coliform and enterococci samples were collected between October 2007 and April 2008 at all swimming locations.

Faecal coliform and enterococci levels were assessed against the NHMRC (1990) swimming water quality guidelines to determine suitability for swimming. It should be noted that the five samples necessary to calculate compliance were not collected in all months. In months with only four samples, the closest sample in time from an adjacent month was 'borrowed' in order to provide the five data points required.

Only three samples were collected during April 2008; this was insufficient to calculate compliance with the NHMRC swimming water quality guidelines.

Monitoring was also conducted during the 2004–2005, 2005–2006 and 2006–2007 summer swimming seasons (DEC 2006a and 2006b, DECC 2007). Hunter Water also conducts monitoring at four additional ocean beaches in the Port Stephens Council area (Zenith, Box, Fingal and One Mile) as part of the Beachwatch Program. These data are available in annual State of the Beaches

reports from 1996 onwards. Information is also provided as weekly star ratings in local newspapers and on Hunter Water Corporation's website.

Port Stephens Council issued a number of joint media releases with DECC during the summer swimming season to provide the community with information on water quality at the beaches in the partnership program.

Rainfall

Rainfall data presented in the timeseries plots were obtained from the Bureau of Meteorology's gauge at Nelson Bay.

Ocean beaches

Birubi Beach complied with NHMRC (1990) swimming guidelines in all six months (Figure 7), with generally low levels of indicator bacteria recorded over the monitoring period.

Similar results were obtained during the 2004–2005, 2005–2006 and 2006–2007 summer swimming seasons (DEC 2006a and 2006b, DECC 2007).

Estuarine swimming sites

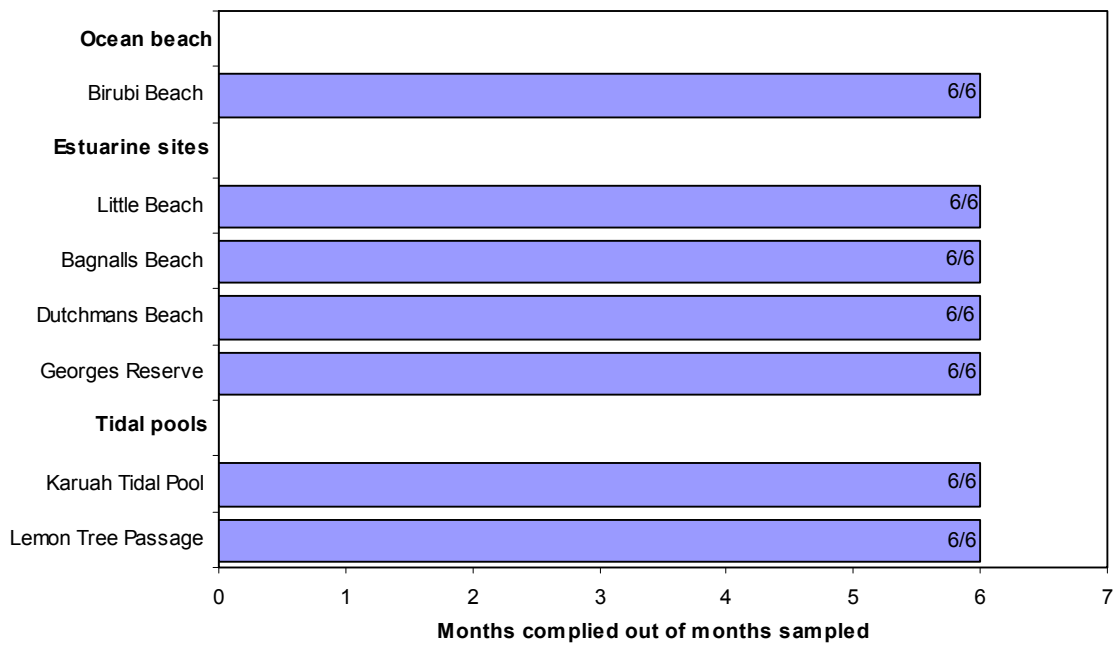
Compliance at the estuarine swimming sites was also very high. Bagnalls Beach, Dutchmans Beach, Georges Reserve and Little Beach all complied with the NHMRC (1990) swimming water quality guidelines in all six months (Figure 7). Bacterial levels at these sites were generally low throughout the monitoring period.

Tidal swimming pools

Karuah Tidal Pool and Lemon Tree Passage also complied with the NHMRC (1990) swimming water quality guidelines in all six months (Figure 7). A similarly high level of compliance was recorded at both sites in the previous three summer seasons (DEC 2006a and 2006b, DECC 2007).

Low levels of bacteria were generally measured at both sites during the monitoring period.

Figure 7: Summary of compliance with NHMRC (1990) microbiological guidelines for swimming at Port Stephens Council swimming sites during the 2007–2008 summer swimming season

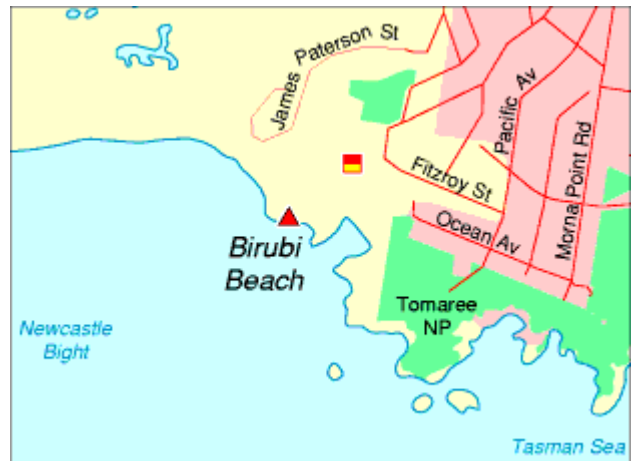


Birubi Beach

See page 74 for key to map

Description

This ocean surf beach is situated among rocky outcrops at the northern end of Stockton Bight, which contains over 30 kilometres of beaches and coastal dunes. There are few facilities close by, but the site is adjacent to a surf club and the area is popular with swimmers and surfriders.



Pollution sources

There are few sources of pollution in the vicinity of the site.

Compliance

Birubi Beach was monitored between October 2007 and April 2008 and complied with the NHMRC (1990) swimming guidelines in all six months in which sufficient samples were collected.

Compliance with NHMRC (1990) swimming guidelines at Birubi Beach

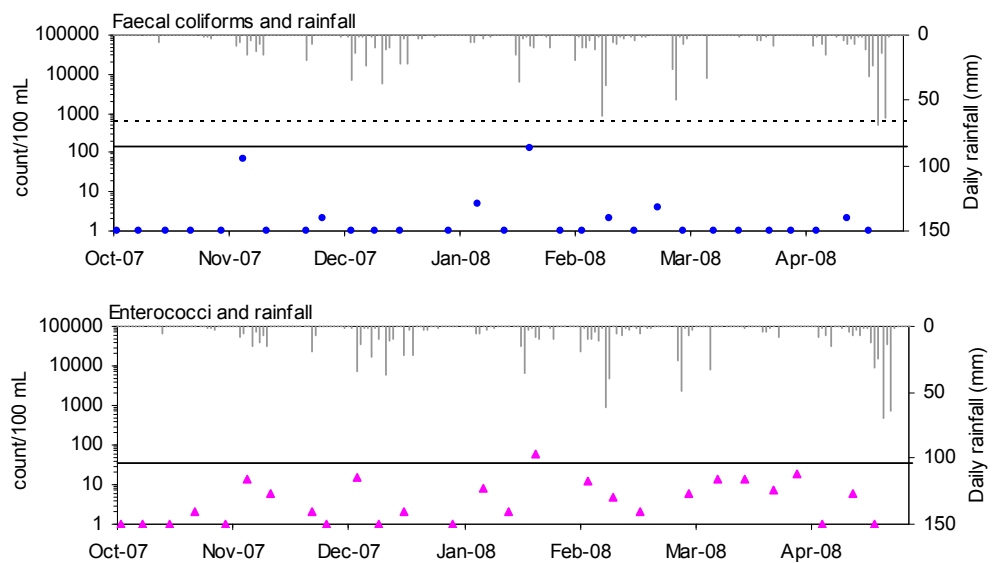
	OCT '07	NOV '07	DEC '07	JAN '08	FEB '08	MAR '08	APR '08
FC	PASS	PASS*	PASS*	PASS*	PASS*	PASS	**
ENT	PASS	PASS*	PASS*	PASS*	PASS*	PASS	**

* Only four samples were collected in this month. An additional data point was borrowed from an adjacent month to calculate compliance.

** Insufficient samples to calculate compliance were collected in this month.

Timeseries plots

Faecal coliform levels were generally very low, remaining below the median guideline limit throughout the sampling period. Enterococci levels were also mostly low, exceeding the geometric mean guideline limit on only one occasion.

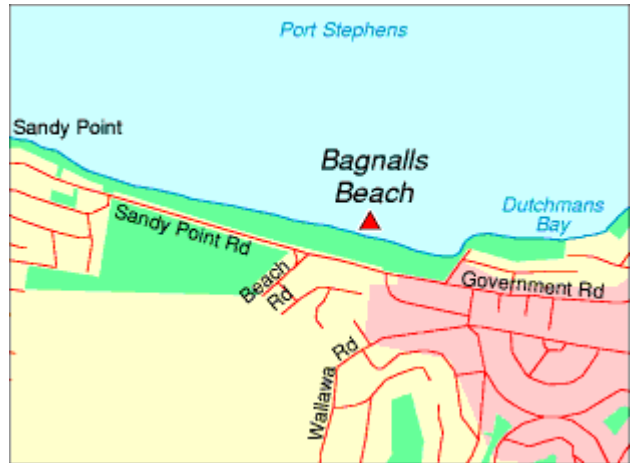


See page 5 for key to graph

Bagnalls Beach

See page 74 for key to map

Description This shallow, sandy estuarine beach is not netted. It is situated in the main channel of Port Stephens, approximately six kilometres from the ocean. The beach is adjacent to a foreshore park and picnic area and is a popular play area for children.



Pollution sources The foreshore in the vicinity is predominantly urban parkland and much of the catchment is undergoing rapid urbanisation. The area is also very popular for off-leash dog walking and for swimming, and this may be a source of faecal contamination.

Compliance Bagnalls Beach was monitored between October 2007 and April 2008 and complied with the NHMRC (1990) swimming guidelines in all six months in which sufficient samples were collected.

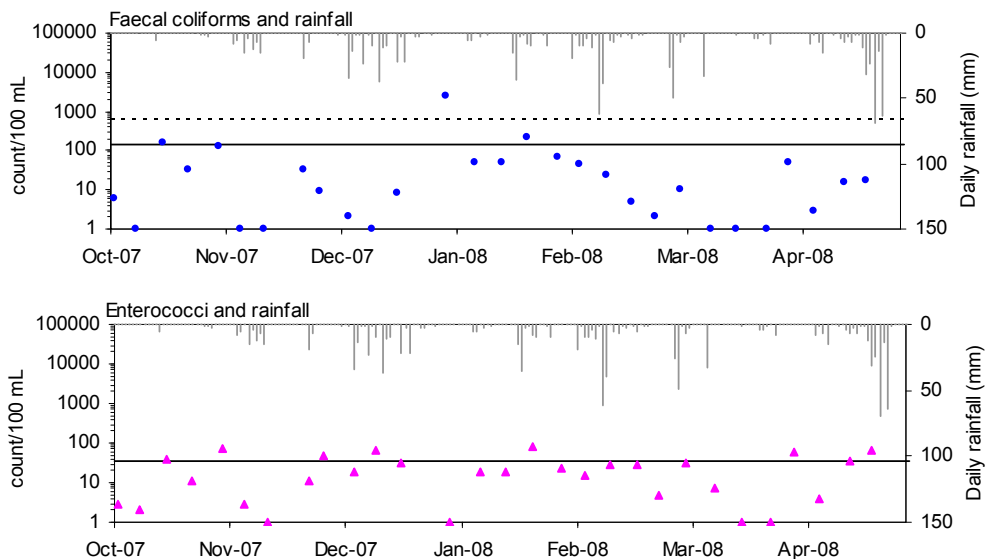
Compliance with NHMRC (1990) swimming guidelines at Bagnalls Beach

	OCT '07	NOV '07	DEC '07	JAN '08	FEB '08	MAR '08	APR '08
FC	PASS	PASS*	PASS*	PASS*	PASS*	PASS	**
ENT	PASS	PASS*	PASS*	PASS*	PASS*	PASS	**

* Only four samples were collected in this month. An additional data point was borrowed from an adjacent month to calculate compliance.

** Insufficient samples to calculate compliance were collected in this month.

Timeseries plots Faecal coliform levels mostly remained below the median guideline limit throughout the monitoring period, with elevated results recorded on three occasions. Enterococci levels just exceeded the geometric mean guideline limit on a number of occasions in both dry and wet weather conditions.



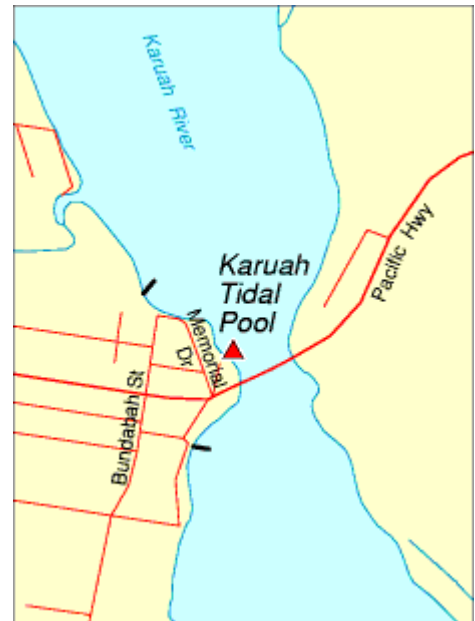
See page 5 for key to graph

Karuah Tidal Pool

See page 74 for key to map

Description

These estuarine tidal baths consist of a netted enclosure in the lower reaches of the Karuah River, approximately 25 kilometres from the ocean. The baths are adjacent to a foreshore park and picnic area and are popular with local residents and tourists with small children.



Pollution sources

Two caravan parks are located in the catchment and a sewage waste pump-out facility for boats is close by. A combination of rural land and bushland is present in the upper catchment. The Karuah township has recently been connected to the sewer. Effluent from the treatment plant undergoes tertiary treatment and is infiltrated into the ground approximately three kilometres from the pool.

Compliance

Karuah Tidal Pool was monitored between October 2007 and April 2008 and complied with the NHMRC (1990) swimming guidelines in all six months in which sufficient samples were collected.

Compliance with NHMRC (1990) swimming guidelines at Karuah Tidal Pool

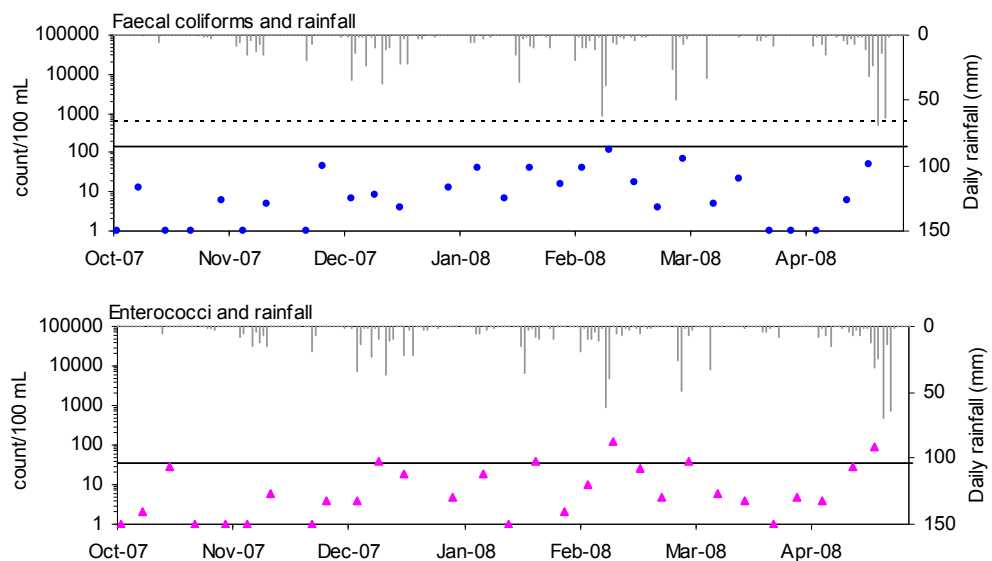
	OCT '07	NOV '07	DEC '07	JAN '08	FEB '08	MAR '08	APR '08
FC	PASS	PASS*	PASS*	PASS*	PASS*	PASS	**
ENT	PASS	PASS*	PASS*	PASS*	PASS*	PASS	**

* Only four samples were collected in this month. An additional data point was borrowed from an adjacent month to calculate compliance.

** Insufficient samples to calculate compliance were collected in this month.

Timeseries plots

Faecal coliform levels remained below the median guideline limit. Enterococci levels were generally low, with slightly elevated levels measured in response to rainfall.



See page 5 for key to graph

Lemon Tree Passage

See page 74 for key to map

Description These estuarine tidal baths consist of a netted enclosure in a shallow arm of Port Stephens, approximately 15 kilometres from the ocean. The baths are adjacent to a foreshore park, boat ramp and picnic areas and are popular in summer.

Pollution sources Much of the immediate catchment is urbanised and a sewage waste pump-out facility for boats is located close to the baths. A combination of rural land and native wetland vegetation is present in the catchment. The tidal pool is downstream from a oyster harvesting zone that has been recently closed owing to bacterial and viral contamination, resulting primarily from failing septic systems.



Compliance Lemon Tree Passage was monitored between October 2007 and April 2008 and complied with the NHMRC (1990) swimming guidelines in all six months in which sufficient samples were collected.

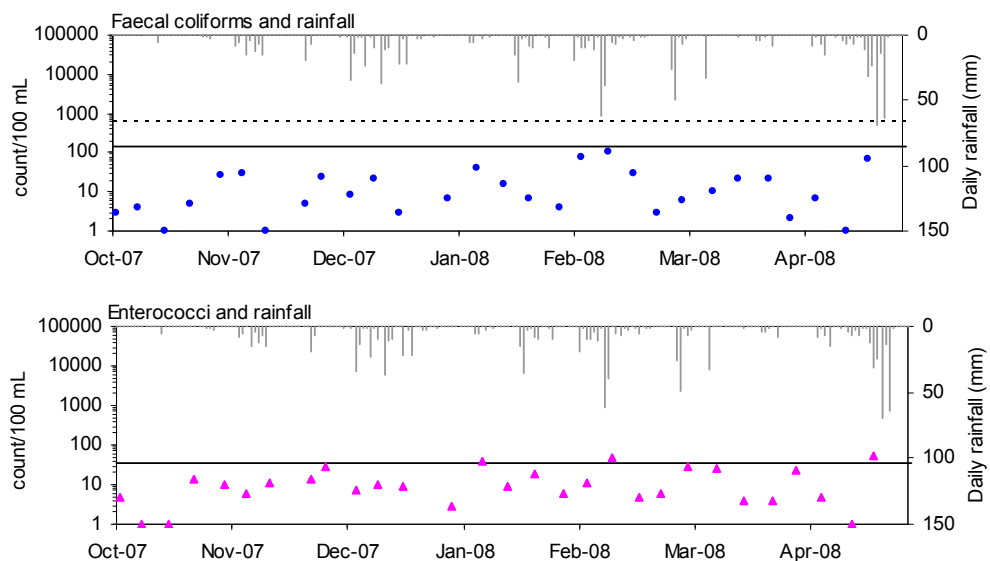
Compliance with NHMRC (1990) swimming guidelines at Lemon Tree Passage

	OCT '07	NOV '07	DEC '07	JAN '08	FEB '08	MAR '08	APR '08
FC	PASS	PASS*	PASS*	PASS*	PASS*	PASS	**
ENT	PASS	PASS*	PASS	PASS*	PASS*	PASS	**

* Only four samples were collected in this month. An additional data point was borrowed from an adjacent month to calculate compliance.

** Insufficient samples to calculate compliance were collected in this month.

Timeseries plots Faecal coliform levels remained below the median guideline limit throughout the monitoring period. Enterococci levels were also generally low, just exceeding the geometric mean guideline limit on three occasions following rainfall.



See page 5 for key to graph

Little Beach

See page 74 for key to map

Description

The swimming area is a netted, shallow, estuarine beach located on the main channel of Port Stephens, approximately three kilometres from the ocean. The beach is adjacent to a foreshore park and picnic area and is popular with families with small children.



Pollution sources

The foreshore in the vicinity of the beach is predominantly urban parkland. The catchment contains mainly National Park, along with some urban development and a golf course.

Compliance

Little Beach was monitored between October 2007 and April 2008 and complied with the NHMRC (1990) swimming guidelines in all six months in which sufficient samples were collected.

Compliance with NHMRC (1990) swimming guidelines at Little Beach

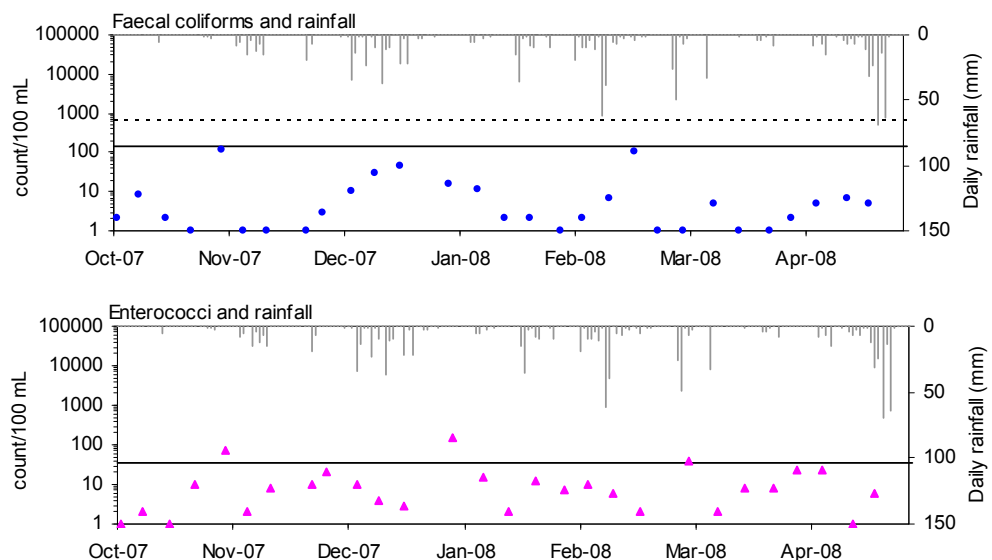
	OCT '07	NOV '07	DEC '07	JAN '08	FEB '08	MAR '08	APR '08
FC	PASS	PASS*	PASS*	PASS*	PASS*	PASS	**
ENT	PASS	PASS*	PASS*	PASS*	PASS*	PASS	**

* Only four samples were collected in this month. An additional data point was borrowed from an adjacent month to calculate compliance.

** Insufficient samples to calculate compliance were collected in this month.

Timeseries plots

Faecal coliform levels remained below the median guideline limit throughout the monitoring period. Enterococci levels were generally low, exceeding the geometric mean guideline limit on three occasions, not always in response to rainfall.



See page 5 for key to graph

Georges Reserve

See page 74 for key to map

Description This shallow, sandy estuarine beach is not netted and is situated in the main channel of Port Stephens, approximately ten kilometres from the ocean. The beach is adjacent to a foreshore park and picnic area. The beach and park are popular with the local community and tourists.

Pollution sources The foreshore in the vicinity of the beach is predominantly urban parkland and a sewage pumping station is located close to the sampling site. The catchment contains both urban residential and recreational parkland uses.

Compliance Georges Reserve was monitored between October 2007 and April 2008 and complied with the NHMRC (1990) swimming guidelines in all six months in which sufficient samples were collected.



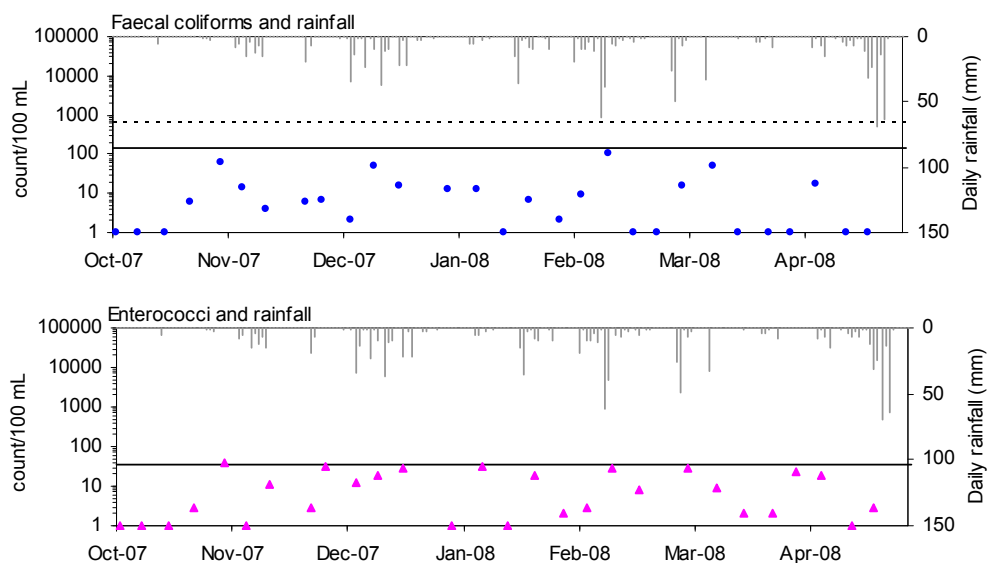
Compliance with NHMRC (1990) swimming guidelines at Georges Reserve

	OCT '07	NOV '07	DEC '07	JAN '08	FEB '08	MAR '08	APR '08
FC	PASS	PASS*	PASS*	PASS*	PASS*	PASS	**
ENT	PASS	PASS*	PASS*	PASS*	PASS*	PASS	**

* Only four samples were collected in this month. An additional data point was borrowed from an adjacent month to calculate compliance.

** Insufficient samples to calculate compliance were collected in this month.

Timeseries plots Faecal coliform levels were generally low, remaining below the median guideline limit throughout the sampling period. Enterococci levels were also mostly low, slightly exceeding the geometric mean guideline limit on only one occasion.



See page 5 for key to graph

Dutchmans (Dutchies) Beach

See page 74 for key to map

Description

This shallow, sandy estuarine beach is situated in the main channel of Port Stephens, approximately five kilometres from the ocean. The beach is adjacent to a foreshore park and picnic area. The beach is popular with the local community and tourists.



Pollution sources

The vast majority of the immediate catchment is urbanised, with some parkland. A sewage pumping station is located close to the sampling site, and the beach is upstream from the Nelson Bay Marina.

Compliance

Dutchmans Beach was monitored between October 2007 and April 2008 and complied with the NHMRC (1990) swimming guidelines in all six months in which sufficient samples were collected.

Compliance with NHMRC (1990) swimming guidelines at Dutchmans Beach

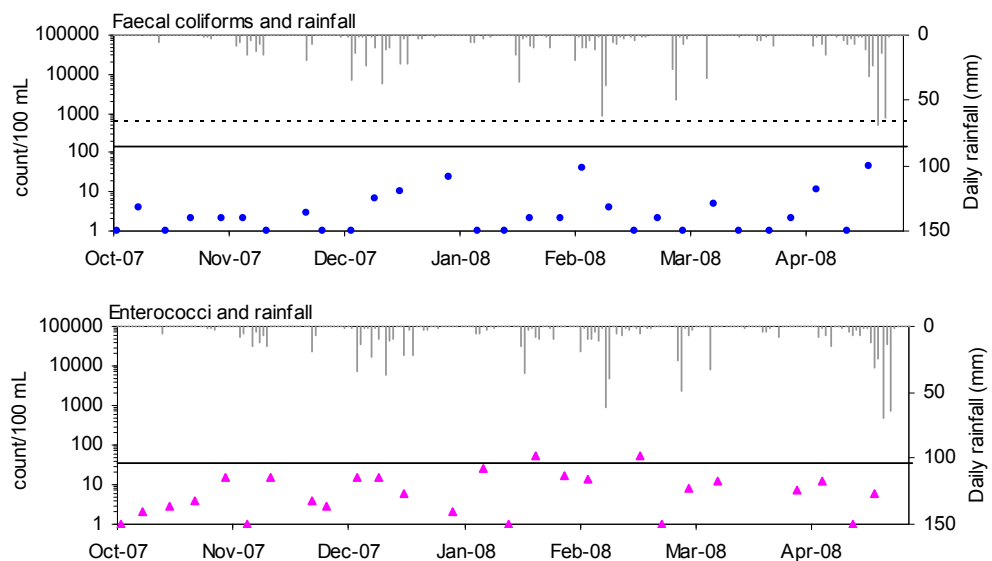
	OCT '07	NOV '07	DEC '07	JAN '08	FEB '08	MAR '08	APR '08
FC	PASS	PASS*	PASS*	PASS*	PASS*	PASS	**
ENT	PASS	PASS*	PASS*	PASS*	PASS*	PASS	**

* Only four samples were collected in this month. An additional data point was borrowed from an adjacent month to calculate compliance.

** Insufficient samples to calculate compliance were collected in this month.

Timeseries plots

Faecal coliform levels were generally very low, remaining below the median guideline limit throughout the sampling period. Enterococci levels were also mostly low, slightly exceeding the geometric mean guideline limit on only two occasions.



See page 5 for key to graph