



## INFORMATION BULLETIN

# WESTERN PORT BEACH WATER QUALITY – A TWO-YEAR SUMMARY OF THE 2005–07 SUMMERS

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## SUMMARY

Western Port includes many popular swimming beaches, particularly on the western shores from Flinders to Somers and on Phillip Island.

As part of the Better Bays and Waterways plan, EPA conducted a two-year project to assess beach water quality. Sampling occurred fortnightly at ten beaches in Western Port. The results will help to target further investigations and actions to improve beach water quality in the region.

This report details the results of this work focusing on the 2006–07 season. The 2005–06 results were published in EPA publication 1053, *Western Port Beach Water Quality 2005–06*.

Over the 2005–06 and 2006–07 summers, water quality was generally good at Western Port beaches. Poor water quality was detected on two occasions in January and March 2007. These events were both associated with rainfall.

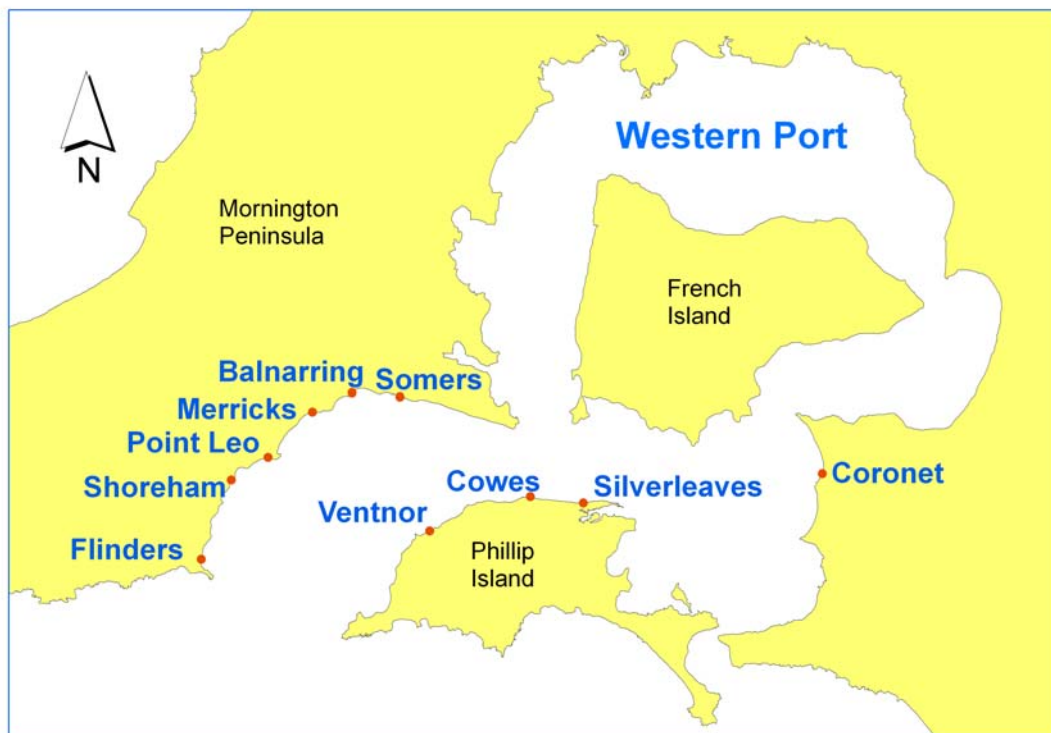
These results are similar to those from historical monitoring in Western Port which was undertaken in 1987 and 1992 (discussed in EPA publication 1053).

EPA advises to avoid swimming near stormwater drains and creeks, especially during and for 24 hours after rain.

## WHERE DID WE MONITOR?

Ten popular swimming beaches were monitored in Western Port (see Figure 1), including:

- six sites along the strip of sandy beaches from Flinders to Somers
- one site located on the eastern shore at Coronet Bay
- three sites on Phillip Island, a popular holiday destination during summer.



**Figure 1: Map of monitored beach sites in 2005–06 and 2006–07**

## WHAT DID WE MONITOR?

Water samples were tested for enterococci bacteria, the recommended indicator of recreational water quality in marine and estuarine environments. Enterococci are a group of bacteria found in the intestinal tract of warm-blooded animals and are a sign of faecal pollution. Another bacterial indicator; *E. coli*, was also monitored to assist comparison against historical data.

Further detail on the methods employed for beach sampling is outlined in EPA publication 1138, *Beach Report 2006–07*.

### Water quality objectives

Beach water quality is assessed against the recreational water quality objectives as outlined in the *State Environment Protection Policy (Waters of Victoria) 2003*, as follows:

- a median of 35 enterococci orgs/100 mL
- a 75th percentile of 150 enterococci orgs/100 mL.
- a median objective for *E.coli* of 150 orgs/100 mL.

## HOW WAS THE WATER?

The sites were monitored fortnightly from the end of November 2006 until the end of March 2007. Results show that beach water quality in Western Port was generally good. Individual enterococci and *E.coli* monitoring results are presented in Appendix 1 and 2 respectively.

All sites in Western Port met the Policy objectives for the 2006–07 summer period (see Table 1 and the graph in Appendix 3 and 4). This was also the case in 2005–06.

### Wet weather effects

The summer of 2006–07 was generally dry; however, sampling did include two days when there was over 5 mm of rain in 24 hours. EPA conducted additional targeted sampling on these rainy days to better understand how stormwater affects beach water quality in Western Port. Wet weather temporarily reduces water quality in Port Phillip Bay, and a similar trend was observed in Western Port.

One of the projected impacts from climate change includes increased frequency and intensity of storms. The effect of storms on beach water quality was demonstrated, to a limited extent, on the rainy day of 24 March 2007.

On this day, there was over 20 mm of rain, based on results from Bureau of Meteorology automated weather stations located at Cerberus and Rhyll.

The highest recorded enterococci level was 1900 enterococci/100 mL at Shoreham. Of the ten beaches sampled on this day, six recorded levels above 500 organisms/100 mL, compared to a median value ranging from 9 to 20 for the summer. The results are detailed in Appendix 1.

The difference between dry weather and wet weather at each site is displayed in Figure 2. The results indicate that, similarly to Port Phillip Bay beaches, there is a strong relationship between rainfall and deterioration in beach water quality in Western Port.

As with Port Phillip Bay beaches, some Western Port beaches are more susceptible to poor water quality from rainfall and the associated inputs from creeks and drains. The limited information available indicates that Balnarring, Somers and Shoreham beaches are more susceptible to poor water quality impacts after rain than other Western Port beaches. Generally the Western Port beaches had lower levels of impact for similar rainfall than is typically found at Port Phillip beaches.

Beach	2005 - 06		2006 - 07	
	Median	75th %tile	Median	75th %tile
<b>Objective</b>	<b>35</b>	<b>150</b>	<b>35</b>	<b>150</b>
Flinders	<10	<10	<10	10
Shoreham	<10	<10	<10	<10
Point Leo	<10	<10	<10	<10
Merricks	10	25	<10	10
Balnarring	10	10	20	63
Somers	<10	<10	<10	<10
Coronet Bay	<10	<10	<10	<10
Silverleaves	<10	10	<10	<10
Cowes	10	18	<10	20
Ventnor	<10	10	10	10

**Table 1: Median and 75th percentile enterococci (orgs/100 mL) results for 2005–06 and 2006–07.**

\* includes routine samples only.



Figure 2: Dry vs wet weather – enterococci results.

## PROJECT BACKGROUND

This two-year project is a component of the 'Better Bays and Waterways' water quality improvement plan for Port Phillip and Western Port, which is supported by funding from the Commonwealth Government.

## CONCLUSIONS

During the summer of 2006–07 the water quality at the monitored beaches in Western Port was good. All sites met both the median and 75th percentile Policy objectives for recreational water quality. Wet weather sampling, conducted on two occasions, demonstrated

that wet weather events in Western Port had similar effects on beach water quality as in Port Phillip Bay. Rainfall is generally associated with highly variable results and poor water quality at some beaches.

These findings reinforce EPA's advice to avoid swimming near stormwater drains and creeks, especially during and 24 hours after rain.

## ACKNOWLEDGEMENTS

EPA wishes to thank the following organisations for their support of the project:

- Life Saving Victoria
- Department of Human Services
- Melbourne Water
- Mornington Peninsula Shire Council
- Cardinia Shire Council
- City of Casey
- Bass Coast Shire Council.

## FURTHER INFORMATION

### EPA Information Centre

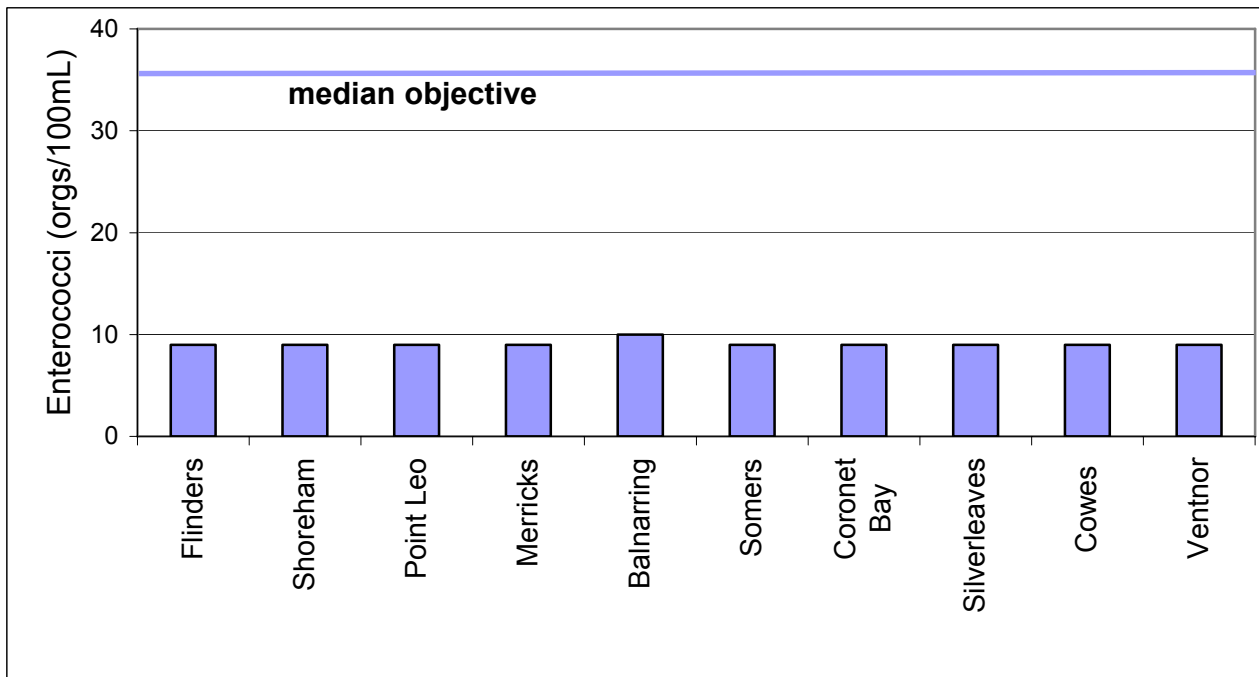
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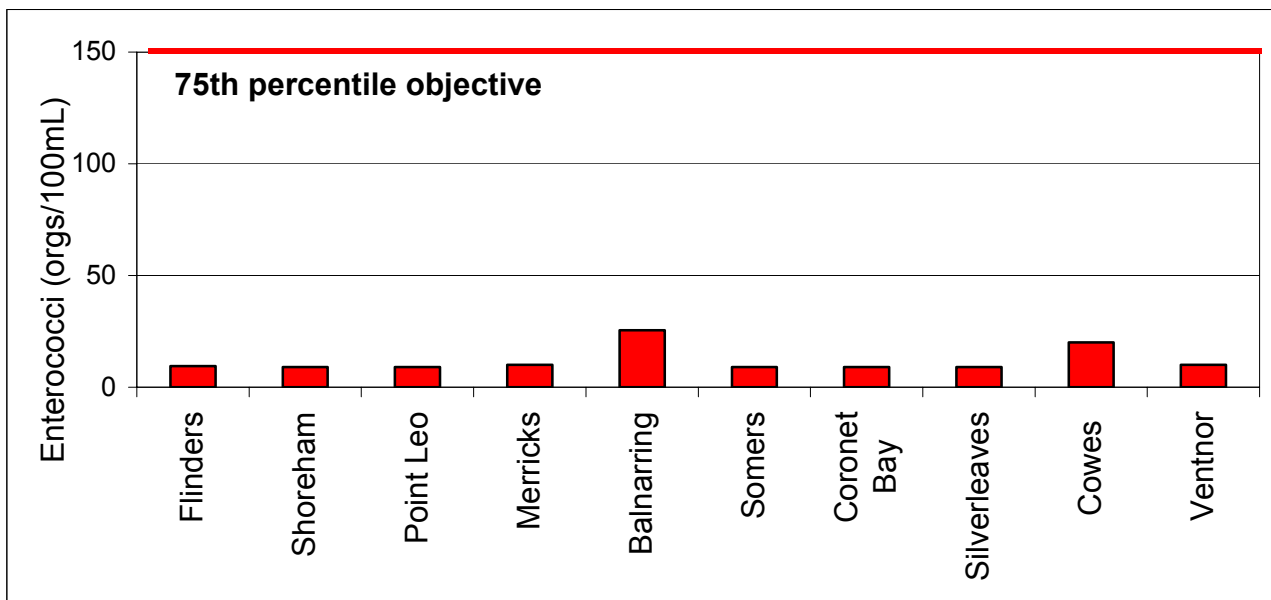
Beach sign at Stony Creek at Shoreham



Appendix 3: Summary graph of median objective compliance from routine data in 2005–06 and 2006–07



Appendix 4: Summary graph of 75th percentile objective compliance from routine data in 2005–06 and 2006–07



# Includes only data from routine samples taken in the 2005–06 and 2006–07 seasons.

The 75th percentile and median objectives applies to primary contact recreation in marine and estuarine segments as stated in the *State Environment Protection Policy (Waters of Victoria) 2003*.