



Australian Government

Australia's National Programme of  
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case study 11: port phillip bay

## executive summary

The catchment draining into Port Phillip Bay is occupied by suburbs of the greater Melbourne City Area with a population of about 3.7 million. In addition the Corangamite catchment also drains to Port Phillip, containing the regional city of Geelong (pop 200, 000). The ten municipalities that abut Port Phillip Bay are predominately metropolitan and generally are the delegated committee of management with responsibilities for beach and foreshore management of the Port Phillip Bay coastline. All are members of the Association of Bayside Municipalities (ABM). Many of these councils have extended their planning scheme boundary 600 metres seaward to improve integration of catchment and marine management.

Management of Port Phillip Bay is complex and involves an established network of government, private sector and community agencies working collaboratively without establishment of a specific Bay or water quality management agency. It is an example of a management system that has evolved in the context of a state government /local government system and has a strong history of addressing specific water management issues for the Bay as a whole.

The co-ordination of actions, education and advocacy is provided through the Association of Bayside Municipalities (ABM), which was formed in 1974 to enhance the effectiveness of local government management of Port Phillip Bay. Originally it provided a forum for local government engineers and service providers, particularly relating to beach cleaning. A primary motivating factor was the amount of urban litter and debris reaching beaches and affecting visual and recreational amenity and over time the understanding of the movement of litter through drains and waterways has informed their approach.

A major environmental study of the Bay was conducted by CSIRO from 1992 -96 and has guided subsequent management planning for overall water quality. The major marine pollution issues are sediment loads in stormwater and the nutrient levels from stormwater and treatment plants entering the Bay. These should be managed in order to reduce the risk of nuisance algal and seaweed blooms.

The ABM conducted a project *Clean Stormwater – a Planning Framework* with financial support from the Commonwealth and Victorian Governments. It involved the community and the private sector. The final report of this project established a framework for water sensitive urban design and management of stormwater for Port Phillip Bay. This led to the *Clearwater* program, a joint initiative of the Municipal Association of Victoria and the Stormwater Industry Association of Victoria, to take the lessons of sustainable urban water management to other parts of Victoria.

## introduction

Port Phillip Bay (see [Figure 1](#)) is a substantial enclosed water mass with a surface area of almost 2,000 square kilometres and a total volume of 26 cubic kilometres receiving the run-off from a major urbanised catchment of almost 10,000 square kilometres. The delivery of nutrients and sediments to the Bay is strongly influenced by rainfall. The Bay is connected to Bass Strait by a narrow channel and the enclosed shallow water mass is poorly flushed but well mixed. The average exchange rate for Bay waters is once every 12 months but more frequent in the southern part closest to Bass Strait and less frequent in the north and in Corio Bay.

From the 1850s to the present the population of the catchment has grown from 75,000 to 3.7 million.

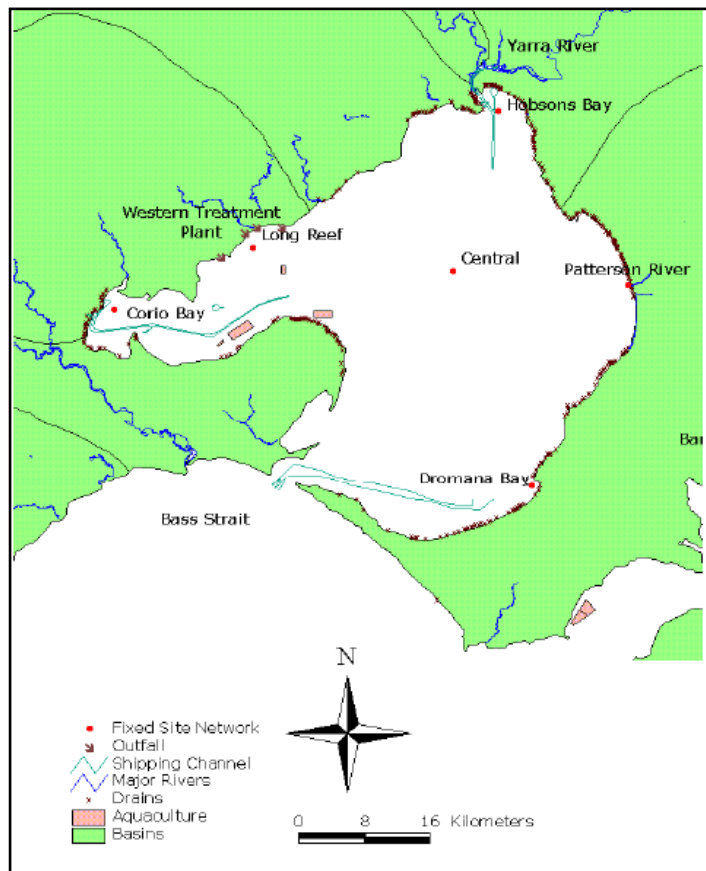
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Water treatment has been a significant issue in the growth and management of the City of Melbourne for more than a century. By the close of the 19<sup>th</sup> century, the waste and sewage pollution of the Yarra River were causing serious health issues. This led the Melbourne Metropolitan Board of Works to embark on a major sewerage program in 1893 with the first Melbourne homes being connected in 1897 to a waste treatment plant at Werribee some 30 kilometres to the south west of Melbourne.

Ten Bayside municipalities have immediate local government responsibilities for beach and foreshore management. In 1974 the Association of Bayside Municipalities was formed to enhance the effectiveness of local government management of beaches and coastal waters of Port Phillip Bay and to provide a collaborative forum for advocacy and action.

As the City of Melbourne and its transport network have grown, land use has progressively transformed from areas of primarily agricultural use, through to coastal recreational and rural residential, to primarily urban residential use. The environmental setting and the recreational amenity of the beach and foreshore areas are integral to the character and management of the Bay.

Figure 1: Port Phillip Bay



## pollution issues

From early in the history of European settlement, management of water quality affecting Port Phillip Bay has been addressed with best contemporary methods. Current management objectives were developed in the light of a major environmental study of the Bay conducted by CSIRO from 1992 -96 and long term trends identified by the Environment Protection Authority Victoria from ongoing monitoring data for 1984 – 1999.

An important factor in raising public awareness was a tagged litter study conducted by Melbourne Water Corporation. The publication of the report of this study in 1993 attracted major media interest and led directly to behavioural change programs addressing pet faeces, cigarette butts and litter from cafes and take away foods.

Nutrient discharges have fluctuated in a broad range largely influenced by rainfall and runoff. The CSIRO study compared recent long term monitoring with earlier sampling data and suggested that nutrient levels have been reasonably stable since 1984 and are less than those in the 1970s prior to major upgrading of sewage treatment.

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Stormwater loads of litter, debris and silts are the issues of primary focus for local government. The effects of urban stormwater pollution are experienced most directly by the communities of the councils that border Port Phillip Bay. This is most evident when polluted runoff after summer storms causes beach closures or significant deposit of litter on beaches.

Water saving and reuse has a role in reducing flows of nutrients and sediments reaching the marine environment even though this is not the driving motivation.

#### management context

The management framework is provided through an established network of government, private sector and community agencies working collaboratively without a specific Bay or water quality management coordinating agency.

The Victorian State Government responsibilities for strategic management and monitoring of water quality of Port Phillip Bay rest with the Environment Protection Authority. The targets for water quality are established by the Environment Protection Authority through enforceable regulations. The Port Phillip Bay Environmental Management Plan was prepared in 2002 by the Department of Natural Resources and Environment to provide the framework for meeting the water quality targets. Melbourne Water is responsible for water harvesting, supply and treatment.

Specific issues currently targeted in management are:

- Reduction of total nitrogen discharges to the Bay by 1,000 tonnes per year;
- Reduction of sediment loads through management of stormwater;
- Reduction of litter and debris through water sensitive urban design;
- Saving and re-use of freshwater; and
- Identifying and managing introduced marine pests – particularly the Northern Pacific starfish *Asterias amurensis*.

Local government, through the ABM, is closely engaged in water quality management of Port Phillip Bay. The councils have direct responsibilities for beach cleaning and management of local creeks and drains and have developed a coordinated approach for advocacy, public education and media use to promote awareness and response to beach and water quality. The executive of the ABM consists of Council Chairs and there is annual rotation so that the position of Chair of ABM moves from council to council. The executive consists of the current, immediate past, and designated successor Chair. This ensures continuity, gives fresh energy and brings new perspectives to motivate the work of the group. The ABM has worked with state government, Melbourne Water, the Municipal Association of Victoria, local communities and industry to develop guidelines and standards for water sensitive urban design. The standards are being applied in the catchment for new "greenfield" developments and opportunistically in redevelopment and public works engineering of established areas. Consequently they are actively contributing to improvements to the quality of stormwater from catchments that drain into Port Phillip.

A continuing feature of ABM management is the use of a small number of consistent seasonal public campaign messages on issues such as litter and proper waste disposal by all councils

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## **stormwater management**

The ABM councils, with support from the Australian and Victorian governments and funding raised by community groups, have undertaken capital works programs for installation of gross pollution and sediment traps. Because these “end-of-pipe” treatments are only part of the solution, the ABM embarked on a major project Clean Stormwater – a planning framework with support from the Commonwealth and State Governments. The project developed a water sensitive urban design toolkit for the design, disposal, filtration, detention and storage of freshwater at scales at the local, precinct and regional levels.

This project has been carried out in parallel and in collaboration with Clearwater Information Exchange, a joint initiative of the Municipal Association of Victoria and the Stormwater Industry Association of Victoria. This is an environmental education program funded through the Environment Protection Authority Victoria as part of the Victorian Stormwater Action Program. It conducts educational projects and events and maintains a website with comprehensive databases on experiences, achievements and management lessons learned by local and state government and industry in managing stormwater, wastewater and water conservation. Neighbouring councils along the Yarra and the Maribyrnong have engaged in the program actively with positive impacts and repeated behaviours ‘upstream’.