

# Protecting Victoria's Waters

## State Environment Protection Policies

The State Environment Protection Policy (Waters of Victoria) (SEPP (WoV)) is a comprehensive policy framework for the protection of water quality in Victoria. A key component of SEPP (WoV) is the identification of beneficial uses (e.g. protection of aquatic ecosystems) that the community want to protect and which are used as the basis for maintaining environmental quality. Environmental quality objectives are set for each segment of the environment to ensure the protection of designated beneficial uses.

### EPA marine fixed site monitoring

EPA Victoria commenced the Marine Fixed Sites Monitoring Program in 1984. The aims of this monitoring program are to:

- Identify any long term trends in water quality;
- Assess the general condition of marine and estuarine environments; and
- Assess the success of management actions through the compliance with environmental objectives.



Figure 1 EPA water quality monitoring team

EPA currently undertakes monitoring in three of Victoria's major embayments: Port Phillip Bay, Western Port and the Gippsland Lakes. Monitoring is undertaken at 16 sites on a monthly basis for nutrient and algae levels, oxygen conditions and water clarity, which can have a negative effect on marine systems. For example, excess nutrients in the Gippsland Lakes have led to significant algal blooms in recent years, negatively impacting both the ecosystem and its recreational use.

### Gippsland Lakes fixed site water quality monitoring

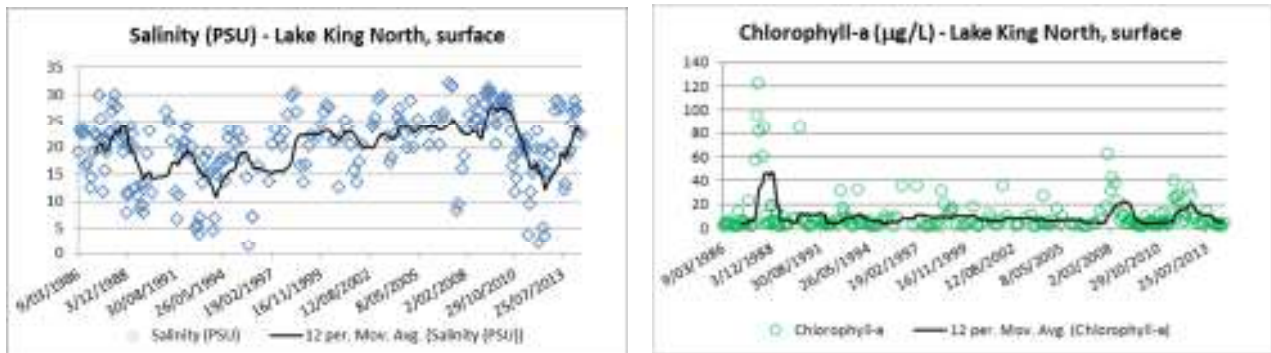


To assess against the environmental quality objectives in SEPP (WoV) and report on the condition of the Victorian marine and estuarine environments, EPA Victoria has been conducting a monthly water quality monitoring program in the Gippsland Lakes since 1986 as part of its marine fixed sites monitoring program. Under this program, water samples are collected at five sites throughout the Gippsland Lakes (Figure 2).

Figure 2 Fixed sites monitored by EPA Victoria in the Gippsland Lakes

## Water quality measurements

Monthly water quality samples are collected and analysed for a suite of nutrients and phytoplankton pigments (predominantly chlorophyll-a), as well as physical condition indicators such as temperature and salinity, dissolved oxygen, suspended solids, water clarity (Secchi depth). Samples are assessed over time to determine trends and sensitivity to climatic conditions (Figure 3). As previous investigations have shown that the waters of the Gippsland Lakes can become salinity stratified at times, water samples and measurements are undertaken at the surface and bottom of the water column.



**Figure 3 Salinity and Chlorophyll-a time series at Lake King North site show sensitivity to inter-annual climatic variations, such as the 1997-2009 drought, and wet events that resulted in significant blooms in 1988, 2009 and 2011.**

## What does EPA do with the data?



**Figure 4 Burren dolphins are an endemic species to the Gippsland Lakes that rely on a healthy environment.**

EPA assesses the monitoring data from these five sites for water quality trends over time and the attainment of water quality objectives to ensure the protection of beneficial uses. These assessments are currently provided as condition reports published by the EPA. The data is also used to understand the triggers that cause excessive nutrient levels that lead to algal blooms, and define thresholds to work towards to minimise the impact of these events. This information informs policy development and targets actions for improvements. The data is freely provided by the EPA upon request (1300 EPA VIC or 1300 372 842) to stakeholders for their use.

EPA is currently using the monitoring data to assist developing bio-geochemical models that are able to mimic the nutrient plankton dynamics in the Gippsland Lakes. This work assists in defining problem areas, and can test for impacts of future growth and climate, as well as informing the effectiveness of mitigation actions.