

## SANCTUARY LAKES AND WATERWAYS.

An overview of the Lake and its management

- We have a 60 hectare man-made lake created over former salt evaporation ponds. It is a healthy and vigorous eco-system. Stormwater run-off from upstream catchment areas flow into the lake. Make-up water is pumped into the lake from the incoming tide of the Skeleton Creek estuary (Port Phillip Bay) to maintain the desired salinity level, lake turn over and also to maintain a constant water level in the lake.
- The Lake has been constructed and is managed to serve as a stormwater retarding basin and water quality management facility for discharges into the downstream wetlands and Port Phillip Bay. The Lake also provides an aesthetically appealing environment for residents. These functions are achieved through implementation of the Lake Management Plan.
- The Lake Management Plan was developed by specialist consultants Ecos Environmental Consulting in consultation with Melbourne Water and other stakeholders. The Plan has adopted water quality management targets from a combination of the Commonwealth Guidelines for Marine and Freshwater Quality (ANZECC) and Melbourne Water Guidelines. The monitoring program required by the Plan includes monthly inspection, testing and reporting by an independent specialist firm, Ecos Environmental Consulting. The main parameters presently being monitored include dissolved oxygen, salinity, turbidity, total nitrogen and total phosphorus as well as the health of the seagrass beds.
- The monitoring program assists in planning seagrass harvesting activities. SLRS must maintain the Lake to meet specified “Key performance Indicators” derived from the Lake Maintenance Plan.
- The ANZECC guidelines nominate three categories for water quality; Primary Contact (such as swimming); Secondary Contact (such as boating); and Visual Use (to look at). The target quality for Sanctuary Lakes is Secondary Contact and Visual Use.
- The Lake’s eco-system is subjected to numerous external influences such as characteristics of inflowing water and prevailing weather. The Lake is a natural system. Accordingly, it must be recognised that there is the potential for periodic algal blooms within the lake and that this is part of its natural lifecycle. A response and communication program is set out in the Lake Management Plan to ensure that the public expectations of the Lake (safety) are addressed in such an event.
- The inflow stormwater is normally high in plant nutrients (nitrogen and phosphorus) and encourages extensive growth of aquatic plants within the lake. This includes seagrass such as Sea Tassel (the main “weed” that people see in the lake), filamentous macroalgae (there are several different kinds) and microscopic microalgae (also known as phytoplankton) which is not visible to

the naked eye but imbues the lake water with varying shades of olive green from time to time.

- The aquatic vegetation also supports a healthy food chain of small invertebrates (e.g. shrimps, snails etc), fish (e.g. Flat-Headed Gudgeon, Black Bream) and water birds (e.g. Black Swans, Eurasian Coot, etc). One of the main goals for the lake ecology is the maintenance of a healthy and vigorous ecosystem within the lake. In particular this involves maintaining the seagrass beds in the lake in order to prevent the lake suffering regular blooms of problem microalgae. Therefore, the frequency and depth of harvesting of the seagrass is managed so as not to reduce the extent of the seagrass beds. Furthermore, regular harvesting of the seagrass benefits the lake through removal of excess nutrients. Because rain, wind, drought and temperature constantly impact on the aesthetic quality of the lake, it is not possible to keep the lake at a consistently high standard at all times during the year. Annual operating budgets have been established to ensure regular maintenance is undertaken to maintain a healthy and aesthetically favourable outcome. This means that at most times (not all) at least 90% of the lake presents visually at a reasonably high standard. We believe the current annual maintenance costs for the lake and waterways provide the desired outcome.
- Even with regular maintenance, from time to time “blow outs” will occur with periodic algae blooms or rapid weed growth in particular areas. Unfortunately, this cannot be avoided, only mitigated, given the nature of this type of water body. Similarly wind will move plant matter and litter on to the Lake and into positions that can make removal difficult and expensive.
- For the avoidance of any doubt, it is not (and never has been) recommended that anyone swim or bathe in the lake or associated waterways. The lake is suitable for kayaks, canoes and small sailboats.
- Sanctuary Lake, like other similar lakes (Albert Park Lake, for example, which is actually much smaller!) is relatively expensive to maintain yet it is deemed a small price to pay for the value it generates and sustains. It is the single, greatest value adding feature at SLR.

December 2010

Updated April 2015