



Shire of
Serpentine
Jarrahdale

**SHIRE OF SERPENTINE JARRAHDAL
LAKE ALLAMBEE, THE GLADES, BYFORD**

**Feasibility Study for Floating Garden at Lake
Allambee**

Shire of Serpentine Jarrahdale

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OBJECTIVE AND PURPOSE

The Shire was requested by a local community member to install a floating garden within Lake Allambee which is located within the Glades Estate. The purpose of this report is to satisfy the Notice of Motion received from Councillor Mack on 18 March 2024:

1. Investigate the feasibility of putting a floating garden/habitat in Lake Allambee, The Glades, in collaboration with the Byford Community Garden.
2. Investigate external funding opportunities to install a floating garden/habitat in Lake Allambee, the Glades.

Should Council consider this initiative viable, the Shire will advise the Byford Community Garden that the Shire is able to assist with the installation of floating gardens, providing the project is lead and partly funded by the Byford Community Garden. The Shire can assist in on-going maintenance tasks as required.

BACKGROUND

- What is a floating garden?
- Location/Address of Lake Allambee
- Images
- Current Management of Location/Amenity



Figure 1: Floating Gardens installed at Common Lake – City of Subiaco

Floating gardens or floating wetlands are modular units that are created using buoyant materials and planted with appropriate wetland species. A floating garden provides community interest, beauty, significant water quality benefits and a diverse habitat for local birds and other wildlife.

Designed to allow plant roots to spread down through the media, providing an activated surface area in which allows nutrient uptake by microbes adhered to the root system of the plant. This method is considered particularly effective at improving water quality.

The Shire was approached by a local community member to install a floating garden within Lake Allambee within the Glades Estate. Located at the intersection of Gallant Turn and Doley Road, the lake borders Truman Reserve, a recreational area and a local brewery. The brewery and public boardwalk offer an unobstructed view of the lake.

Lake Allambee captures localised stormwater and overflows downstream for approximately 1.2km, filtering into the surrounding site and groundwater.



Figure 2: Lake Allambee in Byford



Figure 3: View of the lake looking towards the board walk and Gallant Turn.

Currently, the Shire's operational team performs the following tasks on a regular basis to ensure that the beauty and aesthetic of the lake is not compromised:

- Rubbish removal,
- Monitoring the water level,
- PH water testing,
- High pressure cleaning of the deck,
- Ensuring the functionality of the aerators.

INVESTIGATION

1. **Current issues and challenges of the site that need to be addressed.**

There are no current issues or concerns in relation to Lake Allambee. A recent inspection of the lake determined that the water quality is good, as it is supported by multiple aerators and topped up by bore water. The edge of the water body is well vegetated and consists of

rushes and sedges, which helps to absorb nutrients and reduces algae blooms, and the fringing vegetation provides extensive habitat for local birds.

2. ***Would a floating garden assist the water quality of Lake Allambee?***

Floating gardens can help to improve water quality and provide habitat for birds, and frogs. In the case of Lake Allambee, it will provide a safe place for aquatic birds to roost and nest. It will beautify the lake and provide an item of interest for park users and visitors to the brewery. In the matter of water quality, Lake Allambee is exhibiting good water quality at this time and a floating garden is not expected to provide any added benefit to the quality of the water.

3. ***Comparative examples and outcomes from those projects.***

Case Study One:

In April 2020, the City of South Perth installed two man-made floating islands at Lake Douglas in South Perth. Installed to encourage swans and other bird life to nest away from predators; the floating islands are an initiative that supports the City's South Perth Foreshore Management Plan, Node 7 -the Lakes.

The two floating islands were constructed from HDPE pipe and polypropylene grate and planted with *Baumea preissii*. Initially covered with netting to allow for the rushes to grow, they were later removed in September 2020 once established. The frame of the installed floating gardens is expected to last up to 18 years.



Figure 4: Image from the City of South Perth news and public notices.

The Shire was able to obtain a report on the performance of the floating gardens created by Ecocraft Environmental – the designers of the floating gardens for the City of South Perth:

Nesting Raft- The plants are performing very well as the photos show. There has been no evidence of birds trampling or eating the plants, which is odd but nice to know. All we need is for some birds to start to use the nest areas. I noticed a Clamorous Reed Warbler leave the island as I approached so even they are enjoying it.



Figure 5: Progress photos of the nesting raft installed at Lake Douglas.

Plain Island – On closer look it seems the birds have done a combination of eating and pushing over. There are a lot of green stems laying flat on the raft. There has been some removal/death of plants at the ends. My thoughts are to leave it for a few weeks as the plants will start to re-sprout from the root bases, as most of them are intact. We can infill once the plants have been regrown and we can see what is missing. It shouldn't take too long once the weather warms. I'm not sure why the last clump was left, it appears to have a tunnel through it which suggests some birds were using for shelter or it is a water rat home, so the Swamp Hens left it alone. There is an old nest about 2/3 along the island, eggs are gone now.



Figure 6: Photos supplied by Ecocraft Environmental.

Final Notes – There are a few weeds starting to establish on both islands so we will plan a maintenance visit for a fortnights time.

As a result of this report and further investigation, it was determined that Pelicans, Swamp Hens, Pied Cormorants, and Coots were using the garden as a roosting point. The large size of these birds resulted in the flattening of the plants, and it was unlikely that they would ever regrow.

The floating garden was proving to be a good resource for the birds, and Ecocraft Environmental advised that it was better to modify the existing raft so that it may still present a safe place to roost, while allowing plant growth.



Figure 7: Photos obtained of pelicans using the plain island as a roosting point.

The modification of the existing raft resulted in additional costs as provided below:

Installation of two platforms 2.4m x 0.8m to sit on top of the new grates and use of existing supports. Plants will be relocated to the centre of the raft.	\$875.00 exc. GST
Supply and install bird netting – includes removal at a later date	\$560.00 exc. GST

Total: \$1,435.00 exc. GST

Case Study Two:

In 2020, the City of Subiaco council operationalised its commitment to the policy adopted by WALGA and adopted its first Corporate Carbon Reduction Plan and Sustainability and Resilience Strategy.

Part of the City’s strategy was the installation of floating islands in Subiaco Common Lake to provide a safe spot for local fauna to roost and nest, and to improve water quality in a natural way. The plants within the islands filter water through the root of the plant, reducing algae bloom and overall, contribute to the aesthetic of the park. The use of native semi-aquatic plants is enhancing biodiversity in the area.



Figure 8: Common Lake – City of Subiaco

LAKE ALLAMBEE FLOATING GARDEN – IMPLEMENTATION COSTS

The Shire contacted the City of South Perth in 2018 and 2024 regarding the project, and obtained the following supply, installation, and establishment costs:

Company: Eco Craft Environmental

Cost to supply, install and establish a 6x1.8m floating wetland with: 3x nesting platforms and ramps. 2x moorings, anti-bird net and plants.	Per wetland: \$6,341.00 exc. GST
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The floating gardens would need to be positioned in the Lake to gain the most efficient usage, under guidance of the Contractor. It should be noted that due to the design of Lake Allambree, we will not be able to anchor the floating gardens using the standard method.

Ongoing maintenance would include:

- Weed control and removal,
- Rubbish removal,
- Replacement and harvesting of plant stock to maintain appropriate densities,
- Re-anchoring to secure the floating garden,
- Remove any trapped or injured fauna from the floating garden.

Monitoring and maintenance should be conducted on a quarterly basis for at least two years following installation. Additional monitoring may be required after large rain fall events.

All maintenance would have to be completed using a boat or a kayak as the floating gardens will not be accessible by foot.

LAKE ALLAMBEE FLOATING GARDEN – ESTIMATED MAINTENANCE COSTS

- Quarterly monitoring and maintenance tasks by a contractor – approximately \$600.00 per quarter.
- Checks exclude the reinstatement or replacement of materials (plants, netting, anchors etc.)

LAKE ALLAMBEE FLOATING GARDEN – TOTAL OVERALL COSTS

Cost to supply, install and establish a 6x1.8m floating wetland with nesting platforms and ramps, moorings, anti-bird netting and plants.	\$6,341.00 exc. GST per wetland
Quarterly monitoring and maintenance by a contractor	\$600.00 per check

Total: \$9,375.10 per wetland.

The design and installation costs could be reduced depending on the funding and in-kind support that the Byford Community Garden can provide.

FUNDING AND PARTNERSHIP OPPORTUNITIES

Shire officers have investigated external environmental funding opportunities with the Peel Harvey Catchment Council, however there are currently no available grants that suit this type of project.

In March 2024, a conversation with Gary Richards from the Byford Community Garden indicated that internal funds may be available to support the project and expertise to support the growing of plants may also be available.

The group have successfully sought funds for community-based projects in the past.

It has also been suggested that a local school group may be able to assist with the construction of the floating garden infrastructure under the guidance of a professional that could make the gardens.

Partnership opportunities include a shared funding arrangement, collaboration, and promotion of the initiative if the Council was to agree that the project go ahead.

LETTER OF PROJECT SUPPORT

The Shire can provide a formal letter to the Council from the Byford Community Garden (BCG) supporting a floating garden at Lake Allambee, detailing:

- Support of the project and a commitment of \$3,750 – in the 2024/2025 financial year.
- The Shire will need to approve the design of the structure.
- The Shire will commit to the maintenance of the structure once installed.
- The Shire requests that BCG lead the project and provide details of how it will be delivered, and what contribution they will make by the 30th of July 2024.