

Terrestrial ecology monitoring:

Vegetation and frogs

Terrestrial ecology monitoring consists of vegetation and frog surveys. We capture information over time to develop a baseline data set, which is used to assess changes over time and identify if pumping from the Anglesea borefield is contributing to these changes.

What we are doing

We conduct vegetation assessments in spring each year, at six sites in the Anglesea Swamp and four sites in the Anglesea Estuary. The data takes into account Ecological Vegetation Classes (EVC), which are used to determine the vegetation's relationship with water. This is a standardised way to classify the vegetation across Victoria, and provides a benchmark to measure potential change.

We also conduct frog surveys in spring at six sites in the Anglesea Swamp and four sites in the Anglesea Estuary. Currently, we conduct this every second year. If the borefield is operating, we would conduct these yearly.

What we have found

A review of the frog monitoring to date has indicated that:

- The frog groups present at any particular site have been relatively stable over the monitoring period.
- The variability observed within the data is considered to be within natural variation.
- Rainfall and presence of water is likely to be driving frog abundance and occupancy across the catchment.

Historical data collection identified that autumn frog surveys produce fewer results than spring surveys. Based on this information the autumn frog survey was replaced with an additional spring frog survey.

The vegetation monitoring data has shown:

- Vegetation composition, functional groups and cover of bare ground have been largely unchanged in the swamp and estuary since monitoring commenced.
- The Anglesea estuary is prone to naturally occurring acid events, and while the vegetation appears to be fairly resilient to low pH, frogs may be susceptible

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Vegetation



AS2: General habitat description						
Ecological Vegetation Class (EVC)			Aquatic Sedgeland			
Wetland permanence			Ephemeral			
Moderate cover of emergent vegetation (50–70%), mostly comprising Zig-zag Bog-sedge, Square Twig-sedge and some Southern Water-ribbons, interspersed among pools of shallow (<10cm) open water. Filamentous algae occurs as both submergent (10–20%) and floating (<5%) vegetation. Aquatic vegetation is surrounded by dense (70–100%) cover of fringing vegetation, comprising Scented Paperbark and Manuka, and woodland at further distance from the swamp.						
AS2: Frog abundance and richness						
Southern Brown Tree Frog		Common Froglet		Southern Bullfrog		Species Richness
1		10–20		1–5		3
AS2: Water quality parameters						
pH	3.92	Turbidity	9 NTU	Water temperature		18.6 °C
EC	1060 µs/cm	Salinity	0.04%	Dissolved Oxygen		5.7 mg/L
Comments						
Common Froglets and Southern Bullfrogs heard during the first survey, in both diurnal and nocturnal surveys. One Southern Brown Tree Frog observed perching on rushes during the second survey. Southern Bullfrogs (1–5) heard calling in the distance, to the northwest, during the second survey.						

Figure 3 Anglesea Borefield Terrestrial revised ecological Monitoring and Assessment Program, Anglesea Swamp, Site AS2, Frog summary data, 2017