

# Swan Bay Environment Association Inc.



P.O. Box 143, Queenscliff 3225  
Reg. No: A 00 1 7279 U  
<http://sbea.webuda.com>

## NEWSLETTER NO 76 – April 2017

### AGM

The 2017 SBEA Annual General Meeting was held on Friday 17<sup>th</sup> March. This newsletter reprints some of the reports presented to the meeting, including the President's report, a summary of the guest speaker's presentation and Greg Parry's report on water quality monitoring at Moremac.

### President's Report (*Roel Wasterval*)

#### *Community Environment Alliance*

The President attended several meetings to start up the second solar panel round. Over 60 sites have been visited by Radiant Energy Systems and the first installation was last week.

#### *Gardens for Wildlife (GFW)*

Support from Council was obtained and their logo is being used. There have been eight registrations and Felicity Thyer and Mia Cooke have started their assessments.

#### *Moremac*

Following a meeting with the CEO a letter was sent to Council listing actions to be taken on Moremac, GFW and the Nursery. BoQ was successful with their FOI application. We were informed by CEO that no information could be given out from this FOI. Greg Parry met the CEO to clarify this issue. Greg applied for an FOI himself and received it.

#### *Stingray Proposal*

SBEA made a submission on the revitalisation of Fisherman's Wharf.

The original development has been cancelled. Other more suitable projects are being considered.

#### *SBEA Environment Grants*

A letter was sent to the CEO of the BOQ for assistance in promoting this grant.

Four applications were received and three were approved, and following their completion, have been paid out.

#### *Clean Up Australia*

SBEA participated and 12 members cleaned up Murray Road, Fellows Road and the foreshore of Swan Bay up to Burnt Point. 6 bags were collected.

#### *General Comments*

After a request by SBEA the fund held in trust by BoQ was transferred to the SBEA account. This fund was the money left over from the grant made available for the movement of the nursery from Swan Bay foreshore to Nelson Road. Three newsletters were produced by Bob Fuller and sent out. The Queen's birthday pop-up stall was well attended and information on SBEA was distributed. At the October meeting a lengthy discussion was held on SBEA strategies. Topics covered were: Statement of Purpose, Committee membership, Promotion of SBEA. Several suggestions were made. In December Jill Warneke wrote up a document for the organisation of the nursery. Regular Bellarine Catchment Network meetings were attended by the President. The Fungi winter forum was a

great success. It was very interesting and the speaker was very knowledgeable and a great presenter of the world of fungi.

### **AGM Guest Speaker** (Bob Fuller)

The AGM guest speaker was Jennifer Dearnaley, PhD student from the School of Architecture and Built Environment at Deakin University. Below is a summary of her presentation.

The purpose of Jen's research is threefold. Firstly, to conserve and understand the value of Traditional Ecological Knowledge (TEK) in our region relating to plants and their uses; secondly, to participate in the conservation of indigenous vegetation in our region by (thirdly) establishing a reference tool that can be used alongside planning for future urban developments. The speaker reminded us that of the Victoria's 1065 plant species, 82 are rare or threatened. In terms of the 425 animal species, 107 are rare or threatened.

The extent of the Wadawurrung people land was illustrated (see image below), ranging from Beaufort in the northwest to Airey's Inlet in the south. Many Wadawurrung people today are descendents of Queen Mary and her son, John Robinson, of the Buninyong tribe.



Jen explained that the source of her research was ethnobiology, which includes the primary sub-disciplines of ethnobotany (plants), ethnozoology (animals) and ethnoecology (ecosystems). A prime ethnobotanical resource is the work of the late Louis Lane, who has been a rich source of data about local plants and their use by the Wadawurrung.

These people have a 60,000 year-old history, the equivalent of 2800 generations, which has provided a deep knowledge of our local ecosystems. This knowledge should underpin our approach to land development. Key philosophies are that we are transient occupiers of the land, and that we should undertake activities to keep landscape in healthy condition for future generations and know how the land regenerates and what its limits are. These concepts are encapsulated in the 1987 Brundtland definition of sustainability. Several examples of how local plants were used by the Wadawurrung. These include tussock and kangaroo grasses, shrubs such as prickly tea tree and silver banksia, manna gums, moonah and drooping sheoak trees.

One memorable part of Jen's presentation was the reading of the Aboriginal definition of country by prominent anthropologist Debra Bird Rose. It read as follows"

*"In Aboriginal language, the word 'Country' is both a common noun and a proper noun. People talk about Country in the same way that they would talk about a person: they speak to Country, sing to Country, visit Country, worry about Country, grieve for Country and long for Country. People say that*

*Country knows, hears, smells, takes notice, takes care, and feels sorry or happy. Country is a living entity with a yesterday, a today and tomorrow, with consciousness, action, and a will toward life. Because of this richness of meaning, Country is home and peace: nourishment for body, mind and spirit; and heart's ease."*

The SBEA committee would like to thank Jen for her stimulating presentation and wish her well in her ongoing research.

### **Adequacy of Proposed Monitoring of the Moremac Development**

*(Greg Parry)*

I have been critical of the secrecy Moremac have imposed on documents their consultants prepared on the modelling and monitoring of the discharge from 'The Point' development. The need to pursue the FOI process, and the unique application of "copyright" to these documents, delayed access to this public information for >18 months, but does not of itself mean the documents themselves are inadequate.

The Moremac development may be seen as a new source of nutrient discharge to Swan Bay Marine Park, or as an increase in marine habitat adjacent to a marine park. Which of these alternatives provides the most realistic description of the outcome of the development depends critically on the nutrients released by the housing development into Swan Bay, and their capture within the development by reed beds, etc. The export of nutrients to Swan Bay needs to be kept low, and enough monitoring undertaken to ensure this is the case.

This article considers the adequacy of the Water Quality Management Plan (WQMP), and 4 large reports, including a report on modelling, that support the WQMP. I have concentrated on the role of nutrients: Nitrogen (N) (as nitrate  $\text{NO}_3$ , nitrite  $\text{NO}_2$  and ammonia  $\text{NH}_4$ ), and Phosphorus (P) (as filterable  $\text{PO}_4$  and total P) as these are probably the greatest threat to Lakers Cutting.

### *Adequacy of modelling*

Two different models were employed to predict water quality of water discharged from the waterway in 'The Point' development. A DHI (Danish Hydraulic Institute) model (MIKE 11 connected to an Ecolab module) predicted WQ in the final discharge. A MUSIC (Model for Urban Stormwater Improvement Conceptualisation) model, developed initially in Australia by CRC for Catchment Hydrology in 2001, was used to estimate storm water inputs of N and P to the waterway. The MUSIC model has been widely used to assist in "water sensitive urban design" and enables the effect of different water treatment options (e.g. roadside swales and wetland treatment systems) on water quality to be modelled. The MUSIC model is state of the art, but its outputs appear to have been used only as inputs to the other model. The MIKE11-Ecolab module model was developed for freshwater rivers and was modified for this saline/hypersaline application. Many of the relationships embedded within this model are likely to differ between marine vs freshwater systems, so the model would appear poorly suited to the task of modelling N and P at the 'The Point'.

Evaluating both models was difficult as they are very poorly described in a very

large (>200 page) report. But the confidence we have in the model to predict levels of N and P in the discharge depends critically upon the model's ability to simulate the measured values of these parameters. Two key parameters are dissolved  $\text{PO}_4$  and dissolved inorganic nitrogen ( $\text{DIN} = \text{NO}_3 + \text{NO}_2 + \text{NH}_4$ ). The model predicted concentrations of these near the discharge to Lakers Cutting, but these predictions could not be compared to measurements as (1) dissolved  $\text{PO}_4$  was not measured (a mistake acknowledged in the reports) and (2) DIN was not measured accurately enough (an unacknowledged limitation). All 2013 measurements near Lakers Cutting of  $\text{NO}_3$  and  $\text{NO}_2$  were below detection limits, and all but 2 of 14 measurements of  $\text{NH}_4$  were below detection limits. As the capacity of the model to simulate nutrient concentrations realistically could not be confirmed, we should be sceptical of its output.

One of Minister Garrett's conditions was that modelling was to be independently reviewed. This does not appear to have happened – at least by someone with modelling skills.

*What parameters should be monitored?*  
Recommendations for parameters to be measured differ between reports. The WQMP recommends that for ongoing monitoring should include "the same scope and procedures as used for 2003/2004 and 2009/2010", while the overview report (both written by Withers) recommends monitoring the following parameters: Chlorophyll – A, TSS,  $\text{PO}_4 - \text{P}$ ,  $\text{NH}_3 - \text{N}$  and  $\text{NO}_3 - \text{N}$ "

The above recommendations are more appropriate as they include  $\text{PO}_4$ , which

was not included in 2009/10. It is also important that salinity is also measured so that the influence of hypersaline inputs from Lake Victoria (a periodically important input to the lake waterway) and freshwater inputs (Yarram Creek and storm water from Nelson Rd) into Lakers Cutting can be assessed.

Detection limits for nutrients reported in monitoring should be  $1 \mu\text{g/L}$ . The detection limit in monitoring undertaken so far is too high ( $5 \mu\text{g/L}$ ). This value is suitable for freshwater systems, but lower values are more appropriate in marine systems such as Swan Bay that typically have very low natural concentrations of N ( $\sim 7\text{--}14 \mu\text{g/L}$   $\text{DIN} = \text{NO}_3 + \text{NO}_2 + \text{NH}_4$ ). There are at least two local laboratories that can measure these parameters this accurately (one of these is on the shores of Lakers Cutting!).

*Where should these parameters be measured?*

Minister Garrett's approval required that sampling must establish a baseline of water quality at Lake Victoria **and** Lakers Cutting. While three series of measurements (2003-4, 2009-10, 2012-13) were obtained at Lake Victoria, there was only one series obtained in Lakers Cutting (2003-04), and these were not associated with flow measurements. In my view the "baseline" established for Lakers Cutting remains inadequate.

The WQMP recommends that the effect of the development should be monitored by measuring the difference between nutrient concentrations at the 'start' and 'end' of the circulating waterway. This approach would be suitable if the waterway inlets and outlets were well separated – and there was no input from Lake Victoria. But the inlet and outlet are so close that water from both inlets

will be substantially mixed, reducing the sensitivity of this test by the extent of the mixing.

The WQMP suggests that “Water quality monitoring will not be conducted at the southern end of Lakers Cutting or Swan Bay as this has no value for the project and because there are many factors beyond the control of this project that affect the quality of water at these locations. This renders almost impossible the interpretation and discernment of the contribution of the proposed site lake to the water quality monitoring data obtained from these locations. Therefore such data would not help the management of water quality in the proposed site lake”

The above argument places excessive emphasis on management of processes within the site lake/canal, and grossly undervalues the importance of fully assessing impacts of the discharge from the waterway on Lakers Cutting. If there is no sampling of water quality in Swan Bay any deterioration due to “The Point” will be unmeasurable. While the circulating waterway will not be the only input impacting Lakers Cutting, we need to know whether this region is becoming degraded as a result of cumulative impacts.

I note also that the recommended comparison of the annual means of the intake and discharge inlets would be a very insensitive test, as it will be dominated by seasonal differences. A more appropriate and sensitive test would be an annual comparison of the average difference between paired samples taken monthly from the intake and discharge.

*How long should parameters be measured?*

The WQMP proposes ‘that the scope and frequency of water quality sampling and testing should be adjusted in the event:.....that the post-construction waterway water quality has demonstrated consistent and sustained compliance over a period of 3 years with the proposed compliance requirement, such that the scope and frequency can be reduced”.

The above proposal is inconsistent with the proposal in the WQMP for five-yearly 13 month baseline water quality monitoring. If water quality monitoring is undertaken only every 5 years how can a reduction in frequency be justified after only 3 years? I note also that any declines in water quality are likely to be cumulative and will peak when the housing development is fully occupied. Thus any reduction in monitoring should not be considered until several years after houses have been established on all the development.

The WQMP also proposes that the five-yearly monitoring of nutrients at the northern end of Lakers Cutting and at Lake Victoria should cease in 2020. This is far too early to see the effects of nutrients from the discharge on Lakers Cutting, especially as the “baseline” monitoring at this site is limited to that undertaken in 2003/04.

**AGM Nursery Report** (*Guy Werner*)

The nursery hosted 14 members of the South East Australian Naturalists Association (SEANA: in town for a conference) in April.

The nursery tea room was broken into in May. Nothing was stolen fortunately.

Nevertheless, the incident was reported to police.

Also in May, volunteers learnt about shore birds during the World Migratory Bird Day event at Lake Victoria hosted by the Geelong Field Naturalists' Club and Birdlife Australia.

Nursery Coordinator, Jill Warneke, and volunteers attended the May opening of the Moonah Memorial Walk at the Queenscliff Cemetery. The walk comprises pathways through woodland with opportunities for burial or the scattering of cremation ashes. The Geelong Cemeteries Trust previously oversaw the removal of fencing, rubbish and weeds from the area. Our nursery supplied the indigenous plant seedlings for revegetation of the walk. Past Deputy Nursery Coordinator, Jacque Smith, was instrumental in liaising with Geelong Cemeteries, identifying significant species and supplying the seedlings.

The annual working bee at The Narrows was held in July. The nursery supplied the plants for the revegetation *gratis*.

A sewage leak from the Barwon Water Pump Station at the nursery was detected in August. It turned into a major leak requiring half road closure, excavations, soil refills, sewage being carted away, etc. over a period of two weeks. Two working bees were cancelled and much cleaning up needed to be done to get the nursery back into working order.

The annual working bee on the Rail Trail was held in August, with the plants having been supplied *gratis* by the nursery.

Nursery volunteers presented families attending the Borough of Queenscliff Australia Day ceremony with coast flax lilies (*Dianella brevicaulis*) and information on the Gardens for Wildlife scheme. Two hundred of the plants were distributed.

Jill has been instructing volunteers, during the year, in the art of seed collection.

Plant production is going well; raising \$12,949 for the year ended 31 December. This was a 20.7% increase from the previous year. While the funds allow the association to pursue its aims, revegetation with indigenous plants is the goal, not profit.

### **2017-18 SBEA Committee**

Following elections at the AGM, the 2017-18 SBEA Committee will be:

Roel Wasterval  
Guy Werner  
Eva Mutton  
Greg Parry  
Michelle Wilson  
Bob Fuller