

October 28th, 2015

Ms Penny Armytage
Chair – Ministerial Advisory Committee (EPA Victoria review)

Dear Ms Armytage,

On behalf of the Waterway Ecosystem Research Group (<http://thewerg.org>) at the University of Melbourne, we would like to thank you for your invitation to make a submission to the review into EPA Victoria. We are cognisant that the committee will likely receive a large number of submissions. We therefore aim to be concise in our submission, focussing on the specific issues in which we have recognised expertise. We assure you, however of our willingness to contribute further to the review, by providing specific technical information that may be required. We are happy to do this in a verbal or written format, or by providing specific scientific or technical papers that may be helpful. Our group is one of Australia's leading research groups on urban stormwater and its links to waterway health, and we value the opportunity to contribute our expertise to this valuable process.

Our submission in a nutshell

- Urban stormwater runoff is the primary cause of the poor health of our cities' streams, rivers, and coastal waters.
- The threat from urban stormwater comes from both its impact on flow regimes and on water quality; the EPA thus needs to take an integrated approach in tackling this threat.
- Effectively managing both the threat and opportunities presented by stormwater will require integrated governance that regulates discharge of stormwater to stream ecosystems and provides incentives to use it through appropriate harvesting systems.
- While the EPA cannot tackle the urban stormwater problem alone, it should play a leading role in the development and implementation of appropriate regulation, and work in partnership with agencies such as water authorities to deliver the management strategies to meet these regulations.

Stormwater is a major threat to Victoria's waterways

Stormwater is the primary driver of the degradation of streams, estuaries and embayments in Australia's cities, and indeed in cities around the world (Walsh *et al.* 2005; Roy *et al.* 2009). In most Australian cities, wastewater is now relatively well managed, meaning that its threat to receiving waters has been reasonably well mitigated. The same cannot be said for urban stormwater runoff, which remains generally unmitigated.

The threat of urban stormwater runoff to streams is severe: major loss of ecological values is observed if only a very small proportion of a catchment is developed and drained conventionally (Walsh & Kunapo 2009). The ecological health of streams flowing from urban catchments is generally much worse than degraded rural streams, with greatly reduced biodiversity and failing to provide ecosystem services that could be provided by healthy streams (e.g. retention and treatment of pollutants; safe water bodies for primary contact; urban amenity). While the degraded state of urban streams is almost universal, work by our research group has demonstrated that healthy urban streams are possible, if uncontrolled and untreated flows of urban stormwater runoff are prevented from reaching streams (Walsh, Fletcher & Burns 2012).

The nature of the threat and its implications for the role of the EPA

Importantly, the degradation to streams occurs through both changed flow and water quality regimes (Burns *et al.* 2012). In other words, waterway ecosystems are degraded both because flows are altered (typically major increases in peak flows, causing erosion and scouring of aquatic organisms, and a loss of baseflow, resulting in a loss of dry weather habitat) and water quality is degraded. Pollutants include a wide range of nutrients, metals and synthetic contaminants, including a range of ‘emerging’ pollutants, such as herbicides and endocrine disruptors.

To mitigate the threat to Victoria’s waterways caused by urban stormwater requires an integrated approach, whereby both flow and water quality are managed. Artificial separation of these two mechanisms of degradation will lead to sub-optimal outcomes.

The EPA’s role as part of a larger institutional, regulatory and economic system

There is currently a lack of effective regulation to prevent stormwater impacts to waterways. While stormwater load targets exist for residential development in Victoria, overall stormwater is still not generally managed in a way that properly protects receiving waters by ensuring that both the flow and water quality regimes remain in a state which will support healthy stream ecosystems (Burns *et al.* 2012). *At the same time as incentives are required to encourage the appropriate harvesting of stormwater, suitable disincentives (through regulation) are required to prevent the discharge of stormwater runoff to streams. EPA Victoria is the appropriate body to implement and enforce such regulation.* Indeed, the success of reducing the environmental threat caused by wastewater has been largely due to the regulations which prevent its uncontrolled discharge to receiving waters. A similar approach needs to be taken to the management of urban stormwater.

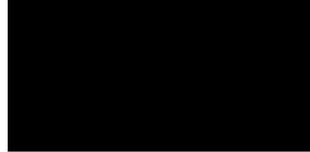
Clearly, EPA Victoria cannot and should not take on sole responsibility for the management of urban stormwater. In part, this is because part of the solution to it as a problem lies in the exploiting of its potential as an important alternate water resource; indeed, the volume of stormwater runoff from Melbourne exceeds the typical potable demand for Melbourne in any given year (source: <http://urbanstreams.net/tools/melbrunoff/>). Using stormwater as a resource is the best strategy for keeping it out of our streams, and thus giving them some hope of maintaining both a natural flow and water quality regime. However, the use of stormwater as a resource needs to be both encouraged and controlled by appropriate regulation with environmental protection as its central aim. For example, while stormwater harvesting is a critical prerequisite to reducing the impacts of stormwater runoff on receiving waters, if it is conducted solely with a view to maximizing the resource, there is the potential to instead further degrade receiving waters (Knights & McAuley 2009).

Conclusion

Victoria’s waterways in urban areas are almost universally degraded by urban stormwater runoff – as a result of its changes to stream flow and water quality regimes. Mitigating against this threat requires EPA Victoria, in partnership with others, to (i) take an integrated approach to managing the flow and water quality threat from urban stormwater, and to (ii) ensure that appropriate regulation is in place to prevent uncontrolled and untreated discharge of stormwater to streams. The aim of such regulation should be to protect, as much as possible, the natural flow and water quality regimes of waterways in urban areas.

We would also be delighted to provide any further input – either verbally or in written form. We wish the Ministerial Advisory Committee the best in their deliberations, and thank you for the opportunity to provide input to such an important process.

Sincerely,



Prof. Tim Fletcher



Assoc. Prof. Chris Walsh

References

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