



Concerned Waterways Alliance Submission to the Victorian Waterway Management Strategy Discussion Starter

The Concerned Waterways Alliance (CWA) is a network of community and environment groups from Gippsland to the Otways. We share a deep concern about the degraded state of southern Victoria's rivers, wetlands and aquifers, and are committed to improving their health for the benefit of current and future generations. We welcome the release of the Victorian Waterway Management Strategy (VWMS) Discussion Starter and the opportunity to comment.

This submission is written from a community perspective with contributions from several of our member groups. We wish to put forward a number of ideas and perspectives for consideration, with an overall theme of rivers and waterways as living and integrated natural entities in need of overarching policy for their protection that will be respected, integrated and funded across government departments and agencies.

Introduction

Waterways, wetland and estuarine health in Victoria will come under an existential threat in the life of the next Victorian Waterway Management Strategy (VWMS). In that time climate change is going to bite and we will see many of our streams start to show the impacts of landscape and hydrologic changes. We are likely to witness many permanent streams become more seasonal or indeed ephemeral. There will be massive challenges from those with a utilitarian bent to prevent the diminished water resource being plundered by those who see river flows to the sea as a waste. To overcome this DEECA will need to have a strong waterway management philosophy underpinned by a strong protective culture and political will.

Recent work done for the Southern Victorian Long Term Water Resource Assessment and the CGRSWS showed that our waterways are already significantly over diverted and utilized and that mean annual yields have declined noticeably due to climate change. Whilst recovery targets have been set for each catchment within the Central and Gippsland region, it is hard to see where the offset water is going to come from even in the medium term. In the time ahead we will see stream flows decline and the associated ecosystems will also decline with wetted perimeter being smaller providing less habitat so less robust instream communities, less fish and fewer platypus. Essentially all the ecosystem services that waterways provide to communities will be seriously degraded. This is likely to become very evident in the drier parts of the state – particularly north of the Dividing range and in the west. Our waterways systems have been significantly modified over the last century to provide for irrigation waters, even into semi-arid landscapes. As a result we have few unregulated waterways left in the state. This has left a legacy of highly disturbed waterways that are no longer natural in their presentation but are now seasonally upside down in their flow regimes and ecology, particularly the nutrient and carbon cycles.

The next 10 years are going to be critical to preparing and adjusting to a severe change in the landscape as waterways cease to flow and wetlands dry. No longer will we see the abundance of vegetation and wildlife along stream corridors and over wetlands as their ability to sustain life diminishes with climate change. We must move into a far more proactive protection mode, particularly of the unregulated waterways and those that are least modified. The activities will arise

from physical protection and rehabilitation through to administrative procedures such as giving rivers full legal rights and protections under the Planning and Environment Act. It is likely that our waterway rehabilitation works will need to shift from physical stability works, to ensuring natural flow regimes are provided, including base flows which sustain the ecosystems along with rewilding and provision of habitats.

Our Groundwater Dependent Waterways (GDEs) are particularly vulnerable to massive changes as groundwater levels decline or are over extracted. The VWMS must be more protective of GDEs and therefore must provide an interconnection to groundwater management policies – they should not be managed as silos as they are at the moment.

We are supportive of the CMAs and Melbourne Water in the work that they have done to date on limited budgets and a controlled delivery environment. They are doing a good job under a challenging environment and have done some good works. But the task left to be done is enormous – we have had a huge legacy of so much disturbance to our waterways and wetlands, in addition to the impacts of climate change. This strategy is the place to start.

Vision – rivers as living entities

A prime requirement for a successful waterway management strategy is the recognition of rivers as living entities, connected from source to sea and to wetlands and floodplains, with ecological processes and functions intact and healthy. This concept mirrors First Nation understanding of rivers as living, breathing entities, as Wurundjeri Woi-wurrung describe the Yarra-Birrarung, for example.¹

Rivers need to be seen as a whole, rather than a collection of reaches, sites and species that somehow exist independently of each other. This concept is central to the Yarra River Protection (Wilip-gin Birrarung murrn) Act (2017), where the river is recognised as ‘one living and integrated natural entity’² and is referenced in other government plans such as the Barwon and Waterways of the West Action Plans. It has not yet found its way into water regulation generally, nor into environmental water science (for example, as the basis of FLOWS studies) and water recovery targets, nor into the VWMS. This is a critical omission and the vision for the new VWMS must move away from the utilitarian words of the current strategy, build on the ideas expressed through the ‘My Victorian Waterway’ survey and genuinely embrace the concept of ‘living and integrated’ natural entities.

The vision also needs to encompass the whole water (hydrological) cycle to highlight the interconnectedness between ground and surface water, rainfall and runoff, recharge and discharge, that rivers are groundwater dependent ecosystems and vice versa.

¹ ‘The Birrarung is a river of mists and shadows - the river and its environs are a living, breathing entity that follows Wurundjeri songlines and forms a central part of the Dreaming of the Wurundjeri. A Dreaming that links the billabongs, wetlands and swamps in the upstream forests, across the meandering plains and out to the salt water.’ Wurundjeri Woi Wurrung Nhanbu Narran Ba Ngargunin Twarn Birrarung (Ancient Spirit and Lore of the Birrarung): Wurundjeri Input into the Yarra Strategic Plan (N.D) [Wurundjeri Woi Wurrung Birrarung Water Policy.pdf \(amazonaws.com\)](http://Wurundjeri_Woi_Wurrung_Birrarung_Water_Policy.pdf(amazonaws.com))

² Yarra River Protection Act (2017) s1

CWA recommends:

- That the strategy vision embraces the concept of water ways as living and integrated natural entities, and recognizes the essential interconnectedness between rivers, wetlands, floodplains and groundwater.

Whole of government approach required

The importance of healthy waterways to our community cannot be overstated. The temperate rivers and wetlands of southern Victoria are the foundations of ecosystems on which we all depend. They are incredibly diverse, ranging from alpine zones to vast forests, extensive lake systems, agricultural areas, coasts and oceans, and cities. The good health of our local rivers makes all life possible. Whether it's a pristine alpine stream or a modified suburban creek, every waterway brings life, joy and prosperity to its community.

Protecting these diverse and precious ecosystems requires a whole of government approach and co-ordination between different government departments and agencies. This is recognised in the DEECA definition of waterway management.

The existing Strategy provides guidance on who manages what part of Victoria's waterways and guides how decisions are made about where money is invested to help care for them. The Strategy promoted a program of activities for improving waterways. It guided 10 regional-level waterway strategies across the state. Victoria's water management agencies oversee these strategies. 'Many different departments, agencies, organisations and individuals play a role in caring for waterways across Victoria.'³

However, this approach has not been followed in the Discussion Starter and the strategy team repeatedly stressed to us that the VWMS is a water portfolio strategy, and not whole of government. This leaves us deeply concerned about where the VWMS sits in the hierarchy of government priorities and how powerful it will be in guiding decision making by other departments. We seek elevation of this strategy (along with the Biodiversity Strategy and Sustainable Waterway Strategies) in guiding decision-making right across government, not restricted to the water portfolio.

A related question is sources of funding for strategy actions. At present most actions are funded through the Environmental Contribution Levy raised on water corporations, which is currently set at 5% for urban corporations and 2% for regional. While funding has been at record levels, it remains wholly inadequate to address the scale of problems facing our waterways (as outlined in the Discussion Starter). A further problem is that as water corporations increase their efforts to reduce water use in the face of climate change, ECL funds will actually begin to decline.

CWA recommends:

- That the VWMS guides decision-making right across government, not just within the water portfolio and DEECA
- That, overall, new sources of funding are brought to the table
- That the ECL for rural water corporations is raised to match the contribution made by urban water corporations

³ <https://www.water.vic.gov.au/waterways-and-catchments/our-waterways/victorian-waterway-management-program/victorian-waterway-management-strategy>

- That the ECL is raised for all water corporations
- That other sources of funding are directed to protecting and improving waterway health, for example income from fishing, hunting and boating licences or a tourism levy, all of which depend on healthy waterways. A pollution levy is another option.

Community stewardship

As an alliance of community groups, the CWA is well placed to comment on community connection to waterways (Discussion starter s6). Community stewardship is a key feature of the discussion paper, but the proposed actions fall short of a genuine commitment to support the environmental volunteering community.

CWA members have expressed their concerns to the VWMS team:

“We are under-resourced, feel unwanted and unsupported.”

“Our groups are becoming more and more disillusioned.”

“Where is the outcome from all our effort? Are we making a difference?”

“If we don’t get funding, we won’t exist.”

“River keeper roles are so important to bridge that gap seeing the opportunity for education, mental health, physical health, we have such an important role here that is undervalued and underfunded.”

“We put all the effort into river health, all our advocacy work and we can’t see a dividend apart from a little improvement in planning. I see my creek is dying.”

“We listen to the people on the ground who say what is the point of talking to policy people if it doesn’t deliver anything.”

CWA urge the team to reflect on these comments along with our vision when reading our recommendations in this submission.

Community groups often have the sense that after initial strong support from agencies it becomes harder and harder as bureaucracy begins to bite. The introduction of Working with Children Checks⁴ with poor consultation by Parks Victoria is an example & not necessarily with a beneficial effect. Waterwatch and Estuarywatch citizen scientists are also required to have Working with Children checks with little discernible reason or benefit, while members of committees appointed by government must have police checks.

In a different example Parks Victoria have refused to give Werribee Riverkeeper Association access to a house to use as a base, a place to accommodate and attract more volunteers, in the new Werribee Township Regional Park, and instead are going to demolish the building. Despite the Riverkeeper’s best efforts, the decision has not been reversed and a huge opportunity for community support for waterways has been lost.

Groups become discouraged from running events, particularly events on waterways that have the additional requirement of approved permits from Councils and Parks Victoria. Groups need to apply

⁴ <https://www.parkconnect.vic.gov.au/Volunteer/>

for permits at least eight weeks in advance, which is a barrier to getting the community involved with waterways in the first place. Further, there are fees associated with permit applications. Groups also require public liability of \$20 million to run events.

Parks Victoria has created Parks Connect an online platform for the community to register their attendance at events. However, this sign-in procedure is a barrier for the community to join community events as it is an extra layer of red tape required for participation. Ongoing participation in events requires individuals to apply for a Working with Children Check.

Achieving the goals outlined in the *Biodiversity 2037 Strategy* and implementing effective water management strategies necessitates the active involvement of community groups. These groups bring local insights and a deep connection to the environment, enabling more tailored and contextually relevant approaches. However, to maximise their potential, it's crucial to secure adequate funding for their core operational costs. By providing core financial support (not only project-related funding), we empower these community groups to fulfill their essential role in training volunteers and engaging them in hands-on initiatives. This engagement not only creates a sense of ownership but also translates into concrete actions that align with the strategies' objectives.

Environmental volunteering is declining due to the aging cohort but also our existing groups have difficulty engaging with the whole community particularly reaching out to younger people.

Only a strategy that is flexible, advocates for more resources and partners with other portfolios and stakeholders to genuinely work together to promote waterway health can be effectual.

*'DEECA will be collaborating closely with a range of project partners to develop the new Strategy, including Traditional Owners, catchment management authorities, water corporations and the Victorian Environmental Water Holder. We will also engage with a range of other stakeholders throughout the project and will invite input from the broader Victorian community through formal public consultation.'*⁵

As environmental groups we feel that 'inviting input' is not commensurate with "in partnership with".

Our regional waterway managers, the CMAs, rely on community to support their efforts to make a difference in the face of climate change. If the community is not adequately resourced to support those efforts the result will be failure, for which accountability will land fairly and squarely on the doorstep of the water minister.

CWA recommends:

- Investigate auspicing of public liability insurance for community groups by existing agencies and land managers
- Remove barriers to participation, such as reviewing the need for working with children checks.
- Reduce bureaucracy for community groups applying for grants

⁵ Discussion Starter p4

- Provide core funding for community groups, for example Riverkeeper and Friends of groups, to provide a voice and advocacy for their river and on-ground action.

Threats to waterways

Section 2 of the Discussion Starter “The challenges ahead” significantly underplays the threats to Victoria’s waterways. For example, climate change will mean not only less rainfall, but less winter-spring rainfall in particular. Rainfall in the cooler months is crucial for refilling wetlands, activating floodplains and recharging groundwater, all essential processes for storing water to provide base flows in dry times. Increased summer rainfall will not compensate for these losses as the higher temperatures increase evaporation and reduce infiltration. Thus, the impacts of climate change may be more extreme than changes in average rainfall predict, particularly in already arid catchments such as the Maribyrnong which are heavily dependent on groundwater recharge.

Rivers and wetlands will have a vital role to play in mitigating the impacts of climate change, as they are refuges and, in some cases, may be the only place to which stressed and threatened species, both plants and animals, are able to retreat to escape rising temperatures and find water. They also play a key connecting role in degraded and fragmented landscapes. It is therefore imperative that statewide climate mitigation and adaptation policies pay particular attention to rivers and freshwater landscapes.

Other threats are not mentioned at all, such as invasive species. Carp are now the dominant freshwater fish species throughout Victoria yet they do not get a mention in the VWMS. Other threatening processes such as riparian degradation, which is a listed threatening process under the Flora and Fauna Guarantee Act, are also missing from the Discussion Starter.

CWA recommends:

- That the next iteration of the VWMS has a full description of threats to waterways, particularly the current and predicted impacts of climate change
- That the VWMS accentuates the role played by rivers and wetlands as climate refuges

Waterway Corridor Protection and planning controls

The CWA is very frustrated by the lack of integration between planning controls and waterway protection. As we understand the situation, the Planning and Environment Act 1987 subverts the Water Act as does the Environment Protection Act 2017. In the absence of any natural capital worth or protective policies applied to waterways, the community see the water minister as being subservient to both the planning and environment ministers.

Currently, policies from the relevant departments that have responsibilities over water harvesting, diversions, discharges and encroachment of our waterways are fragmented leading to systemic problems. It is particularly frustrating (and a waste of precious funding resources) when on-ground works are undone by incompatible land uses upstream as a result of the absence of cumulative impact consideration.

There is no framework in Victoria to assess cumulative impacts, they are not dealt with in planning considerations and are only discussed at all in the context of an EES. The VWMS needs to recognise the legacy of historic over-development/utilisation of our waterways – and the impacts thereof. Our

rivers are not 'working waterways', rather they are highly disturbed waterways with few unregulated or undisturbed streams left in the State.

Our waterways will be highly impacted by climate change so are in need of greater protection. Waterway corridor protection will fail if there continues to be a lack of coordinated policy integration between portfolios, along with inflexible frameworks to deal with our changing environment. There needs to be a comprehensive, consolidated approach to waterway management where the different processes align and are not inconsistent but provide clarity and certainty in a changing environment.

CWA recommends:

- A new classification system for waterways to guide management responses in the VWMS
- A clear Statement of Management Philosophy to guide management. We consider the term "working waterways" a misnomer and would prefer to see waterways recognised as degraded and classified according to their ecological condition.
- Provide all waterways the protection of critical assets at law and in Planning Policy.

Planning and Environment Act 1987

CWA's core view is to 'let rivers be rivers' in recognition of their status as living entities. We developed this view through working together for the Yarra River Protection Act, Waterways of the West and the Barwon Action Plan, which embrace a more holistic approach delivered by Traditional Owner thinking for waterways as natural single living integrated entities.

Despite the development of these good policy documents, there is still a disconnect between departmental bureaucracy, a lack of policy integration with planners and maintenance of siloed thinking which is a major cause of waterway degradation. There needs to be a formal connection between the VWMS and the P&E Act on using waterways and protecting waterways in the planning system.

Currently, VCAT is the fighting ground for battles from all affected stakeholders, particularly, across the urban frontage but also across the state on buffer zones and encroachment. The P&E Act is too vague, has many loopholes with weak and ineffectual referral bodies (CMAs). We need to make protecting waterways via the P&E Act a priority.

Amendments to the planning schemes (made in Dec 2022) change the definition of waterways and expand the definition of wetlands⁶. These changes do not seem to have made their way into the VWMS as yet. A statewide strategy such as this one must be able to use planning tools to protect waterways and improve the health of waterways.

CWA recommends:

- Provide a protective status to all waterways as natural heritage assets at law and in the P&E Act with Environmental significance overlays and Waterway /Floodway zone to be given wider scope to protect their assets and functions
- Provide protective status over waterways via the VWMS as an incorporated document in the P&E Act

⁶ [Barwon rivers and Western waterways planning controls](#)

- Need a comprehensive framework with a consolidated approach to waterway management and appropriate land use from other portfolios.
- Review appropriateness of buffer zones for both encroachment of new greenfield sites onto waterways and loss of connectivity for biolink corridors as well as surface and groundwater recharge. (See plantations section)
- CMAs be given return of referral powers under the P&E Act for impacts on waterways as well as for flood matters

Environment Protection Act 2017

The new EP Act delegates enforcement powers to subordinate legislation. The EPA role is one of setting the Environmental Reference Standards for waterways – formerly State Environment Protection Policies - plus defining standards for discharge etc.

The volume of pollutant cocktails entering our waterways via stormwater, treated wastewater, heavy metal emissions to the atmosphere and off roads, licensed industry discharge, effluent runoff, plantation pesticides and horticultural agrochemicals etc etc is unchecked and unmonitored. Management responsibility sits outside of the water portfolio with our waterways used as drains, channels and sewers.

Water policy continues to be silent on chemicals of concern, trade waste complications and cumulative impacts. The VWMS must address this obvious problem which is impacting the health of waterways and must have greater input to the management actions of other departments.

‘The solution to pollution is dilution’ is not a solution and will become even less so as climate change reduces base flows and freshes. Increased water temperatures will also increase negative biological processes creating potential health complications for those using our waterways as a food source.

Current Investigation and Screening levels under the NEPM are not reflective of world authorities and show an alarming disparity, with Australian standards having much higher thresholds. Both sets of data cannot be correct.

CWA recommends:

- The EPA, as regulator of environmental quality, needs to have stronger and tighter discharge standards in line with USA EPA, WHO and UN databsases that include pharmaceuticals and ‘for life’ chemicals
- The Victorian EPA sets tighter standards for all discharging STPs so streams are not impaired
- That a partnership program be established with the Department of Agriculture to attain a stronger monitoring and enforcement of use of agricultural chemicals

Water interception and Constraints on flows

Farm dams

CWA member group People for A Living Moorabool (PALM) has been raising the issue of the proliferation of private catchment dams for many years. The Moorabool River Catchment has one of the highest volumes of water impounded in private dams in comparison to inflows in the state. The CGRSWS acknowledged in “the Moorabool Basin up to 23% of run-off may be captured by small catchment dams in a dry year.” There are many other catchments experiencing significant impacts of dam development.

A study undertaken by PALM revealed the growth in farm dams within the Moorabool River Catchment to be triple government estimates. It also showed significant shortfalls in monitoring and compliance work by Southern Rural Water. This is a scenario likely being repeated in other catchments.

The unchecked proliferation of private dams poses a significant risk to the future of our waterways, particularly in those systems already flow stressed. This threat should be fully acknowledged within the revised Strategy and directions given on improving monitoring, compliance and future policy changes.

CWA recommends:

- Improved methodologies for estimating and accounting for the water impacts of all interception activities, farm dams in particular. It should not be the responsibility of community groups to do the work of government, and incorrect estimates can lead to significant errors in water accounting.
- An independent compliance regulator is required, as water corporations are under-resourced to do the job properly. The NSW Natural Resource Access Regulator (NRAR) is a potential model.
- The Water Minister's 'zero tolerance' approach to compliance should be extended to farm dams in addition to licensed water use
- All interception activities should ultimately be brought into the licensing framework so they can be measured and monitored.

Flood plains

The connection between rivers, wetlands and floodplains is essential to the ecological health of all three ecosystems and they cannot be seen as separate. They are all part of the single living entity and must be managed together rather than in isolation. Artificial watering of isolated sections of floodplains has localized benefits and can provide drought refuge, but it is not a substitute for natural inundation of the floodplain. Only adequate river flows can provide functional connection.

Unfortunately, floodplains across Victoria have been built on and turned over to agriculture with little regard for their function as floodplains and the ecosystem services they provide. The Water Act prohibition on intentionally flooding private land is a real barrier to using environmental water to inundate floodplains, along with infrastructure such as low-lying tracks, low bridges and pumps. In other cases, blockages to river channel caused by willows and inappropriate structures can cause nuisance flooding and erosion as the river seeks an alternate route.

Dealing with constraints to the delivery of environmental water to floodplains will require a whole of government approach and a number of different levers. But it should be remembered that managing constraints can provide significant benefits in terms of flood mitigation and protection of community assets. They can also provide benefits for water corporations, as demonstrated by the recent Barwon Water project to remove willows and rehabilitate and revegetate a section of the upper Barwon immediately upstream of their major water offtake, the Wurdee Bolac channel. A win for the environment and a win for Geelong's water supply.

CWA recommends:

- Options to relax floodplain constraints outside urban areas include the acquisition of flood easements, various forms of options contracts, private land nature conservation, land acquisition and payments for ecosystem services to land managers, or leases and licensing arrangements for the supply of constraints relaxation as an ecosystem service.
- The Victorian government should also consider how planning laws could be used to gazette flood zones for both natural floods and environmental flows.
- Minister’s discretion should not be able to over-ride Land Subject to Inundation Overlays (LSIO). These are crucial protective planning controls that identify properties and inappropriate infrastructure that may be affected by flood risk⁷

Implications of plantations for groundwater and surface water

Plantations are not included in the water entitlement framework and don’t have diversion rights, rather they are considered as an interception activity and have passive rights to use the water on their site. Plantation water use should be part of the model of water use and losses in each catchment as they impact groundwater as well as overland flows into rivers. Assessment and management of these impacts needs to be considered in this strategy, including consideration of buffer zones to protect groundwater recharge

CWA recommends:

- Groundwater monitoring to inform best practices for planting and harvesting of timber plantations.

Protection of unregulated rivers

Unregulated rivers are highly susceptible to disturbance in their catchment, particularly logging, plantations, etc., and are vulnerable to the cumulative impacts of catchment practices. There are few options to provide dedicated environmental flows to alleviate these problems, so the setting of catchment caps based on robust science and control of catchment practices is crucially important.

CWA recommends:

- The setting of scientifically based Sustainable Diversion Limits that protect the environmental condition of unregulated rivers and streams and are robust under climate change
- Protection of unregulated waterways from disturbance, in particular from logging and other land use changes and interception activities
- Protection of recharge areas for groundwater.

Disconnection of vital nutrient supplies in regulated systems

Unregulated rivers protect the fresh flows, food flux and sediment loading for the whole energetic food web that feeds our waterways. Organics and sediments are transferred through the river systems via drainage from hillslopes, floodplains, lakes, wetland and channels. In contrast, regulated systems are burdened with dams and diversion weirs for harvesting. These disconnect and grossly

⁷ [Port Albert reprieve | Gippsland Times \(archive.org\)](#)

alter the organic and sediment loads that are vital to the food webs of our streams, dis-connecting and depriving downstream reaches of vital nutrients and organic matter so they can't establish robust ecosystems downstream. These dams and weirs are altering water and energetic and sediment dynamics. The implications are huge for river health, but are ignored in current policy.

The role of sediment dis-connectivity and lack of organic matter is overlooked in the VWMS. Critically we must make a requirement that water corporations must maximise the transfer of sediment and organic loads around their diversion weirs where possible to sustain healthy ecosystems downstream.

Environmental flow releases do not answer all of the needs of environmental connections, as many releases of environmental water from dams are nutrient depleted with little or no organic matter. Organic matter is essential for maintaining the foodweb and ecological health of the waterways. The Environmental Water Holder should have the role of managing all passing flows including the mechanisms to bypass organic matter and sediment around harvesting structures.

CWA recommends:

- Water corporations must maximise the transfer of sediment and organic loads around their diversion weirs where possible to sustain healthy ecosystems downstream.
- The Victorian Environmental Water Holder be given the role of managing all passing flows at all diversion weirs and reservoirs, including the mechanisms to bypass organic matter and sediment around harvesting structures.

Impacts to groundwater dependent ecosystems

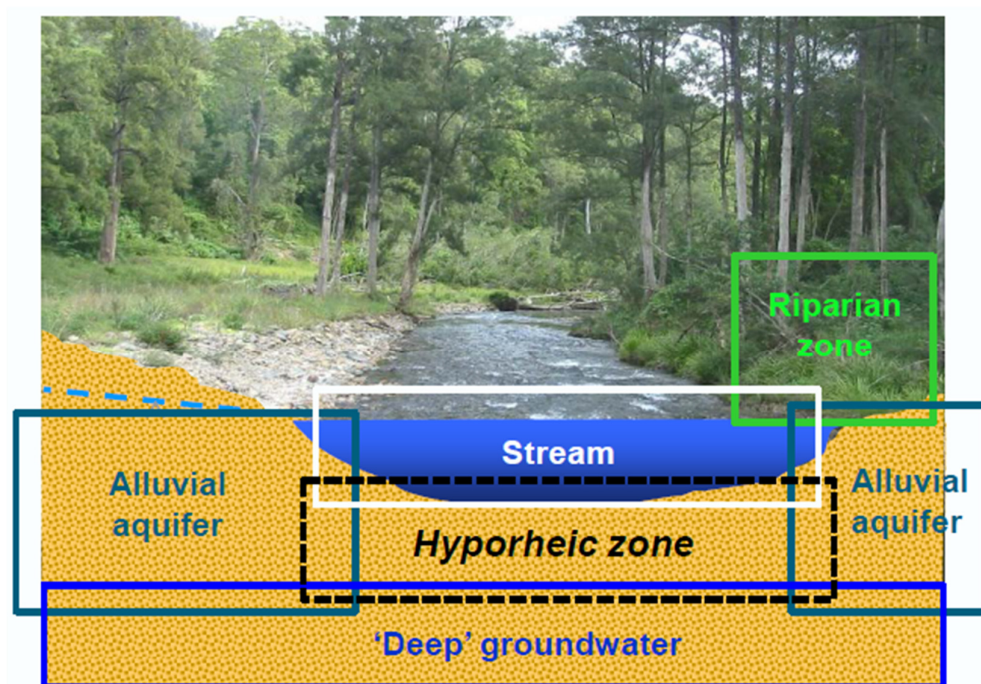
Regulated rivers also create catchment-scale impacts to groundwater dependent ecosystems (GDEs) from dis-connectivity (longitudinal, lateral and vertical), disturbing the natural balance and flow regimes. Groundwater and GDEs are overlooked in the strategy, yet it is groundwater that supports a range of GDEs and streams across the state.

Aquifers are not just conduits for water but hold a wide variety of sub-surface groundwater ecosystems and habitats for biota (microbes and invertebrates) which form a unique ecosystem. GW must be fit for purpose to support these unique GDEs –this means GW quality as well as GW quantity/regime.

Stygofauna burrow/bioturbated which may enhance water flow in some aquifers and graze on microbes, improving water quality. Increased vulnerability to habitat loss through altered groundwater regime/water quality therefore vulnerable to extinction.

Connectivity between groundwater and surface water is essential with hydrologically connected vertically and laterally via hyporheic zone. Physical and biochemical filter between river water and groundwater (e.g. microbial activity transforms nutrients along flow path).⁸

⁸ Groundwater Quality: An Ecotoxicology Perspective - Jenny Stauber, Grant Hose and Andrew Boulton



The interface of groundwater with surface waters is not well understood, but we know from the Millennium Drought that most groundwaters systems suffered badly and, in many cases, have not reestablished to their historic levels. This is important for Groundwater Dependant Ecosystem streams as the flow regimes are almost entirely dependent on groundwater interactions for their periodicity. The State has dropped the ball on monitoring groundwater systems across the state, with a lack of critical knowledge to inform us of changes in the future. This needs to be addressed urgently.

CWA recommends:

- That the VWMS takes an integrated view of the hydrological cycle and includes the hyporheic zone, GDEs and the interconnection between ground and surface water in policy
- That the VWMS builds and expands on policy in the GM2030 strategy to protect GDEs
- Increased monitoring of GDEs (see general comments on monitoring below)

Riparian corridors

Riparian corridors provide essential connection across the landscape and protect ecosystems from climate change. Intact riparian zone provides natural flood mitigation, erosion control, reduced water temperatures and improved water quality.

While the value of intact riparian land is well recognized, most Victorian river banks outside of national parks remain in a degraded state and poor condition, as a result of past practices and a lack of action and funding to improve condition. The recent Regional Riparian Action Plan provided a welcome boost to effort and resulted in the fencing and revegetation of 3,500 kilometres of river banks across the state, exceeding its targets⁹. It is an exemplar of what can be achieved when

⁹ [Regional Riparian Action Plan \(water.vic.gov.au\)](http://water.vic.gov.au)

government makes a commitment, but has unfortunately come to an end with no successor plan in sight. Renewed policy and investment are desperately needed, especially in the face of climate change.

CWA recommends:

- New policy for a holistic approach to riparian management, and a successor to the Regional Riparian Action Plan
- New policy formation must include passive interventions getting vegetation back to lock up sediment in the right places. Volunteering communities put considerable effort into plantings to support sediment trapping, but river managers can only be reactive to the original cause of dis-connectivity which is dams and diversion weir.
- Increased buffer zones with a prescribed minimum width for maximum effectiveness

Monitoring

The maintenance of the water monitoring network across the state is fundamental to understanding water volume, quality, residual risks through to water theft, yet it has never been a big component of government investment.

Differential investments in the CMAs have led to poor quality data sets upon which management decisions are made. For example, in West Gippsland the monitoring is a hodge podge of small unrelated programs undertaken by partners organisations that have left us with an incomplete picture of the real status of waterway health of the tributary streams and that of the Gippsland Lakes. The lakes themselves are poorly monitored leaving us with a lack of understanding on the health of the Lakes, particularly with regard to nutrient status and salinity issues. Similarly, the skeletal monitoring programs across the other CMAs, with reliance upon citizen science in some instances, does not give us a confident set of quality data on which to make decisions.

The stream flow gauging network is vital to our understanding of how our waterways are being impacted by changes in flow regimes, particularly with the impending impacts of climate change. Unfortunately, the stream gauging network is run by the wholesale water companies who have a different motive for monitoring – that of harvesting water from the systems. Even they do not monitor all streams being used for abstraction and in many cases don't measure passing flows at critical points in the system. Where streams are not part of the harvesting system, many gauging stations have been decommissioned such that our picture of streams is no longer comprehensive. We submit that the stream flow gauging network needs to be reviewed, refreshed and new gauges installed to inform on critical flow regimes within our system.

There is critically a shortage of fish, invertebrate and mammal monitoring in most regions with only limited programs being undertaken, as noted in sequential State of the Environment reports. An almost complete lack of high flow event monitoring denies a true picture of what loads are being created from the larger events, with this maybe representing up to 80% of Mean Annual Loads.

Consequently, as we have a disparate and generally skeletal system of flow monitoring, there is limited understanding of climate change impacts or ability to evaluate trends, past intervention outcomes and strategy actions – we are left far too many gaps and assumptions.

The receiving waterway environments disproportionately wear the burden of land use hierarchy statewide which promotes agriculture, mining and development to the detriment of waterway health. Monitoring informs on ground works and programs – we need better and consistent data as you can't fix what you don't know.

There must be a greater program of investment for both monitoring and on-ground works not as a trade-off of one over the other, otherwise regional waterway managers can only ever be reactive to poor decision-making and compliance across the different portfolios sectors. This is not efficient use of taxpayer monies.

We submit that as the CMAs are primarily funded by State Grants, that monitoring be a separable and non-negotiable portion of these grants and must be undertaken to a consistent standard of monitoring across the State. Simply the State must invest in the establishment of a quality data gathering program to gauge the trajectory of River Health across all regions. Such a program is essential to meet statutory requirements and be able to answer the question posed in Long Term Water Resource Assessments as to whether there has been 'any deterioration in waterway health for reasons related to flow'.¹⁰

CWA recommends:

- more resourcing from Treasury to develop an effective and consistent monitoring network statewide across all parameters.
- developing a framework to ensure data collation, methodologies align to develop coordination policy directives across relevant portfolios
- considering a pollution tax on those industries that contribute to pollutant discharges to our waterways.
- reviewing the cost of water for big industry, particularly groundwater, with imposition of a charge to fund monitoring systems.

Pollutants

The draft VWMS should have an aspirational target of no direct discharge of pollutants going into our waterways. We know that we heavy metals from mining, toxic pollutants from heavy industry, pharmaceuticals, PFAS, micro plastics, ag/vet chemicals and nutrient loading from agriculture, hydrocarbons and various other chemicals contaminating stormwater are all going into our waterways. Simply the large discharges of moderately treated sewage effluent or nutrient laden runoff from our intensely stocked areas is going to have an increased impact on our flow stressed streams.

Yet the role of EPA to prevent harm is undermined by their approval of licensed discharges of pollutants to the airshed and watershed that is poorly managed and, in some instances, unchecked. Lack of monitoring of key areas of rural industries leaves us all poorly informed as whether they are being compliant – from observations there is a lot of noncompliance but no one seems to be monitoring and checking.

¹⁰ Water Act 1989, s 22L(b)

PFAS is a current focus of many groups with state EPA having jurisdictional control but also choosing to follow the remit of the Federal Government and Department of Health which is not inline with international standards. Again, we have lack of consistency across state boundaries 'guided' by the federal government based on advice only, not evidence.

The issue of microcontaminants is prevalent across all our waterways -from Heavy metals, including mercury and nickel from Power stations in the Gippsland through to pesticides, herbicides and fungicides across agricultural areas. Again, the monitoring is insufficient to define this problem but it is known to be widespread

Water quality of urban areas plus that of runoff from freeways and major roads is severely impacting on the Water Quality of our streams. If we are serious about protecting our streams significantly more investment needs to be made in addressing these issues.

DEECA's role in instituting the second stage of BPEM is crucial in limiting the impacts of high flows and the pollutant loads being discharged to our streams. Without the Second stage criteria being introduced into the State Planning Provisions we are staring at a continued decline in the quality of our urban streams. Unfortunately, many greenfield areas are being developed on highly sodic soils with massive sheet erosion occurring, blighting receiving waters with very high turbidities and suspended solids levels. A full sodic soils response is needed across the whole of government to control development on these terrains. The EPA's 'new' guidelines are weak and ineffectual and generally not applied, leaving municipalities to try and manage a situation without the necessary technical capability and capacity.

Runoff from our more intensive rural agricultural areas including dairying is impacting on our waterways and also receiving bodies such as the Gippsland Lakes. The pollutant loads are not well understood as the monitoring programs are skeletal and not undertaken in high flows situations. There are few initiatives to try and retain those pollutants on land and more needs to be done.

CWA recommends:

- Sewerage Treatment Plants stop discharging to seasonal streams and GDEs -there is insufficient dilution for eutrophic discharges to streams and other contaminants which limits ecosystems
- Improved monitoring regimes for water quality with a full design of programs including dedicated funding, accountability, and analysis.
- DEECA should institute Stage 2 BPEM controls in the VPPs as soon as possible
- A whole of government response is required to address sodic soils and dispersive erosion across the development sector.



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