

Management of riparian lands in Victoria, Australia – Issues and opportunities arising from a review of the Regional Riparian Action Plan 2015-2020

Ross Hardie¹, Amanda Wealands², Kira Woods³

1 Alluvium Consulting, Level 1, 105-115 Dover St, Cremorne, 3031. Email: ross.hardie@alluvium.com.au

2. Alluvium Consulting

3. Alluvium Consulting

Key Points

- The RRAP was largely successful in achieving its targets and contributed towards the program focus areas
- Important legacies of the RRAP include the building of new partnerships and strengthening of existing ones and the implementation of a riparian monitoring program.
- Under current policy settings, acceleration of riparian condition improvements requires sustained and higher levels of funding.
- Different policy settings and delivery mechanisms are required to achieve the desired improvement in riparian land condition.

Abstract

The government of Victoria has recently completed its Regional Riparian Action Plan (RRAP) 2015- 2020, a major investment to accelerate the establishment of native riparian vegetation through its river systems. This paper explores the learnings from that program identified through a review of the program outputs and outcomes. The paper describes the program successes and challenges, and explores the opportunities and constraints on achieving significant advances in riparian land management in Victoria. The paper concludes with a vision and pathway for a step change in riparian land management in Victoria.

Keywords

Riparian, crown water frontage, catchment management, Victoria, Regional Riparian Action Plan

Introduction

The degradation of Victoria's riparian zones has long been recognised by the Victorian Government as a threat to the health of rivers, and plants and animals found along river corridors. Action to improve the condition of riparian areas is essential for preventing further decline in waterway condition and improving river health. This is particularly important in the face of climate change. There is a long history of riparian management in Victoria and since the establishment of the CMAs, waterway managers have worked in voluntary partnerships with landholders to undertake riparian management activities.

In 2015, the Victorian government released the Regional Riparian Action Plan (RRAP), a five-year \$40 million plan to accelerate on-ground riparian management works to improve the health of riparian land. The RRAP outlined priority riparian management outcomes to be achieved across regional Victoria over the period of 2015/16 to 2019/20. The RRAP also identified additional state-wide initiatives required to accelerate the delivery of on-ground riparian management works in Victoria and were informed by the policy directions outlined in Victorian Waterway Management Strategy (VWMS). The RRAP focused on four key areas of action:

- Improving on-ground delivery
- Strengthening partnerships
- Improved monitoring, evaluation and reporting

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- Crown frontage management.

Implementation of the plan was overseen by DELWP with CMAs responsible for on-ground delivery of riparian improvement actions in accordance with their existing role and functions. This project evaluated the RRAP in terms of its effectiveness, outcomes, appropriateness, efficiency and legacy and provided recommendations for riparian program improvements in the future.

The RRAP actions were delivered, and targets were largely met

The RRAP set out a program of 28 actions at the beginning of the program and the majority of these were completed. Out of the 28 actions set out in the RRAP, 19 are either completed or ongoing, five actions are on track for completion, two actions have been transferred to the next Waterway Management Strategy and two actions have been delayed.

As well as dedicated actions, the three outcomes measures were developed for the RRAP and tracked over the life of the program. Outcome measures were developed specifically for the RRAP and individual CMAs provided targets for their regions at the beginning of the program to reflect their regions priorities as set out in their Regional Waterway Strategies. Progress against these targets was reported annually in the RRAP achievements report. It is important to note that outcome measures are not outcomes but rather outputs of activities of the program. They are a measure of the works that were delivered throughout the life of the RRAP.

While achievement of the outcome measures is an important success of the RRAP, concerns regarding the accuracy and applicability of the targets set was identified through the evaluation. There are likely inconsistencies between CMA regions in both target setting and reporting of the outcome measures. It is difficult to validate this issue as outcome measures applied in the RRAP were not able to be directly compared to the standard outputs for on-ground works that CMAs capture and report regularly to DELWP (ESS, 2019). There is however, notable variation in the actual versus target achievement rates across regions and outcome measures. A key objective of the RRAP was to accelerate riparian works, however achievement of targets alone is not enough to evaluate the success of this objective given the inconsistencies in target setting. To see an acceleration in riparian outputs, we would expect to see an increase in the number of outputs reported over the RRAP period compared to previous years.

The RRAP has contributed to the focus areas identified in the program

The RRAP has contributed strongly to many riparian program focus areas, in particular through strengthening of existing, and the creation of new partnerships to assist with the restoration and management of riparian areas. CMAs are reported to have worked in partnership with over 1,500 landholders and more than 600 Traditional Owner, Landcare, angling, school and other community groups to deliver riparian works over the life of the program. The Angler Riparian Partnerships Program was highlighted as a notable and successful action to engage a target partner group and establish new relationships. Over the life of the RRAP, a significant amount of on-ground works was delivered in partnership with 156 angling groups across the state.

Two monitoring programs were progressed through the RRAP – the Riparian Intervention Monitoring Program (RIMP) and the Riparian Works Review Standards. The RIMP is a monitoring program designed to evaluate the long-term impact of riparian management actions on riparian condition, while the Works Review Standard is a monitoring program implemented by CMA staff to monitor the maintenance of previous works and gauge landholder attitudes to the works and the riparian land. The RIMP has been well established with monitoring sites across the different CMA areas while the roll out of the works review standard is still progressing across all CMA areas. Delivery partners have highlighted the development of these monitoring programs as a key success of the RRAP with many feeling they now have a firm evidence base to support the works that they are delivering.

A primary intention of the RRAP was to “accelerate the delivery of on-ground riparian management works”. Analysis of standard output data (length of fencing, vegetation works, weed control works, management agreements) did not reveal any clear and sustained trend in the level of works undertaken during the RRAP period compared to prior years. The lack of a consistent data set for all standard outputs for a sufficient period

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prior to 2015 makes it difficult to compare what was delivered in different years. Based on the available quantitative data, it is unclear if the RRAP funding commitment to on-ground delivery increased the amount of works that regions could achieve, or if it replenished investment from previous programs.

Based on the conceptual understanding of riparian management, on-ground action (as outlined in the RRAP) and management of riparian land is expected to result in an improvement or at the very least at maintenance in condition. Condition change and environmental outcomes take time to be detected however, the second RIMP progress report (ARI, 2020) has been able to detect outcomes from riparian interventions at the site scale and will continue to monitor change into the future. At a broader scale, the change in riparian woody vegetation (measured using LiDAR data) is being investigated to detect if condition changes are evident. Resampled LiDAR for selected 2010 ISC reaches in 2018 and 2019 has been captured and analysed for woody riparian vegetation. As a part of this project, baseline measures and metric from the 2010 ISC LiDAR capture were re-calculated and measures and metrics for the 2018/19 data set were calculated. At the state-wide scale, the study found that there was no perceptible change in ISC vegetation scores between the two sample years (2010 and 2018/19) although there was a small decrease in vegetation fragmentation and a small increase in canopy cover. The report suggests that significant state-wide change in vegetation condition is not detected because this type of change is likely to occur over much longer time periods, riparian zones are dynamic and can vary at a range of scales and the aggregation of data means that increases in some locations are likely masked by decreases in others (DELWP, 2021).

The RRAP was well co-ordinated and delivered efficiently given its objectives

Program efficiency improvements were identified as possible but would have directly resulted in the reduction of on-ground works undertaken. Delivering on-ground works through partnerships requires investment of time and money to build capacity and knowledge amongst those who wish to participate. Implementation of the RRAP was coordinated effectively and efficiently. The way in which the program was implemented was identified as a key strength, in particular the co-ordination and engagement with stakeholders, DELWP and on-ground CMA staff throughout the program.

An area of coordination improvement that was identified is the coordination between government departments and within different programs of the same department. The difficulty in achieving outcomes without a coordinated approach between programs is demonstrated by the delay in some actions. A lack of coordination between branches of the same program may also be limiting the outcomes that could be achieved. Improved coordination between closely related programs may result in the most effective management lever being utilised to achieve the desired outcome. When discussed in interviews, many felt that this was one area that could be improved to realise better riparian management outcomes.

Another element of the governance arrangements that was identified through the synthesis workshop was the absence of a Project Control Board (PCB) to oversee the delivery of the program. Unlike other action plans or strategic initiative of a similar funding scale within DELWP, the RRAP did not have a PCB overseeing the delivery and implementation of the program. A PCB was not necessarily required as the RRAP could be a continuation of business-as-usual program delivery, rather than a new approach or direction. However, a cross-government control board would have been a useful mechanism to provide oversight, support to the project team, and improve coordination with other DELWP teams/programs and assisted with the issues faced regarding crown water frontage (CWF) management.

There are improvements to program design that could increase the achievement of outcomes

The RRAP actions, effort and investment in riparian management were well aligned to current policy settings. The RRAP did not outline any new policies relating to riparian management, rather it was an action plan to implement the strategic and policy direction outlined in VWMS. However, the timeframe to meet riparian management objectives is long and, as confirmed in this evaluation, progress can be difficult to detect. While there has been ongoing investment in riparian improvement for over 20 years, the desired change is yet to be realised. Acceleration of riparian outcomes is not feasible without continued and higher levels of funding given

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the current policy setting. Current funding arrangements were identified as a barrier to achieving effective and efficient outcomes. Increasing costs of delivery and a reduction in funding, combined with increasing responsibilities for CMAs are perceived as significant constraints to the effectiveness of riparian programs.

One of the biggest barriers to achieving riparian outcomes is landholder participation in voluntary management. Actions in the RRAP sought to target the issue of landholder participation and examined the evidence base for the benefits to landholders of adopting riparian works (Evidentiary 2016). The output from this action was noted as useful in engaging landholders with simple to understand information. When information is not easily comprehensible, landholders may fail to identify the riparian practice best suited to their capacity and conclude that it is not financially viable (Lin et al., 2013). Landholder participation was highlighted as the biggest barrier to implementing effective riparian management programs. Barriers to landowner participation are multiple, including a lack of willingness to participate, a lack of understanding about their obligations in relation to crown frontages and lack of capacity in terms of time, money, knowledge and skills to participate in CMA programs. Therefore, different policy settings and delivery mechanisms should be explored to achieve the desired improvement in riparian land condition.

The RRAP has a legacy that will continue into the future

Benefits of decision tools, research and capacity building undertaken in the RRAP are expected to continue over time. An important legacy of the RRAP that was identified by interviewees are the partnerships and relationships that have been established and nurtured over the life of the program. The RRAP meant that CMAs created new relationships with landholders, angling groups, local Landcare networks and crown frontage management staff. This is supported by the sheer volume of partnerships that were recorded over the life of the RRAP (more than 600 covering angling groups, Landcare, schools and other community groups). These relationships have the potential to endure beyond the life of the RRAP and will be important in successfully implementing future riparian programs. There is support for continued focus on a number of regional riparian actions. There are three key areas that there is a desired to see continued focus on in the future;

1. **Monitoring program:** The RIMP has been highlighted as a key achievement of the RRAP. It has provided the foundation to allow those responsible for the improvement of riparian lands to see the outcomes of interventions. This is seen as critical for ongoing riparian management programs to be able to demonstrate outcomes and justify continued investment.
2. **Partnerships:** The RRAP focus on partnerships was seen as a key strength of the program and many are supportive of continuing the effort in this space. The focus on partnerships allowed CMAs to target new audiences and engage with a wider cross-section of the community. Delivering on-ground works through partnerships with community and recreational groups helps to foster a sense of ownership of the management and condition of riparian lands.
3. **Funding of compliance:** The funding of compliance and transaction centre staff was a positive initiative that particularly benefited CMA staff. These positions were valuable resources for delivery staff to rely on. CMAs developed strong relationships with these staff which helped to streamline the process of converting grazing licences to riparian management licences and ensure the appropriate use and management of crown frontages.

The evaluation of the RRAP has identified four key areas for improvement.

Advice 1. Clarify the desired outcomes, the multiple benefits accruing, from healthy, riparian corridors, and processes impacting on this outcome

a. Objective for riparian management

An agreed objective is essential for the effective management of Victoria's riparian corridors. This objective should be complemented with a description of the processes that both contribute to and detract from the attainment of that objective. While specific riparian priorities (e.g. establishing riparian corridor connectivity, protection of refuge pools, protection of threatened species) have been

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established for Victoria and its regions, such targets should be set within the context of larger and longer term objective. This objective should describe the desired condition and timeframe for attainment of that condition for Victoria's riparian corridors. Such an objective can provide the basis upon which more detailed targets can be set, threatening processes identified, priorities and policies developed, funding secured and, implementation and monitoring programs developed and commissioned.

Development of riparian outcomes should be undertaken through deliberative, collaborative or co-design processes. Such an approach provides an opportunity to strengthen partnerships developed through the RRAP but also to make progress on partnerships that still require work, such as those with Traditional Owners. Design of desired outcomes through this type of process will provide benefits in terms of reaching a joint agreement on priority values and the most effective management actions required to achieve desired outcomes. The state and regional waterway management strategies are appropriate avenues for the development of an agreed objective for the health of Victoria's riparian corridors.

b. Multiple benefits arising

The outcomes of healthy riparian corridors are multiple. Healthy riparian corridors:

- provide recreation opportunities for the community
- contribute to Victoria's cultural values
- reduce flood related erosion damage to infrastructure
- reduce flood levels on downstream communities
- complement the significant investment in Victoria's environmental water program and will be necessary to realise the benefits from that investment
- regulate carbon and nutrient loadings to waterways
- reduce and treat sediment and nutrient runoff from adjoining lands
- can contribute to the cooling of the landscape and to the capture and storage of atmospheric carbon.

Stock exclusion programs that contribute to healthy riparian corridors have the added benefit of protecting Victoria's water supplies from faecal contamination. Fundamental to the attainment of such healthy riparian corridors will be the establishment of vegetation communities of sufficient width, complexity and diversity to meet the multiple demands of the environment and society.

c. Threatening activities and processes

While Victoria's native vegetation framework and other regulations limit direct vegetation clearing, ongoing processes and activities not covered by the framework will, in the absence of appropriate policy and management intervention, result in an ongoing decline in the health of Victoria's riparian corridors. Activities and processes impacting on the attainment of healthy riparian corridors across Victoria are many and varied. Dominant threatening processes and activities include stock grazing, weed invasion (willow, blackberry) pests (rabbits, pigs, deer) and in some systems, excess stream energy and an absence of seed stock that limit the ability of a riparian corridors to naturally regenerate. In addition, there are emerging threats that will exacerbate these existing and ongoing threats, such as climate change leading to increasing temperature and reduced water availability, and new and emerging weeds and pests.

Being clear on what activities and processes threaten the achievement of objectives at state, regional and landscape scales is crucial for designing and adopting the most appropriate intervention program and effective delivery mechanism.

Advice 2. Better understand the spatial extent of the problem to enable informed investment

a. Are we there yet?

A fundamental question is often posed by stakeholders in Victoria's riparian program - "are we there yet?" or, "have we achieved *healthy riparian corridors throughout all (ISC) waterways in Victoria?*". This evaluation

and the outcomes of ongoing stream condition assessments across Victoria indicate that such an objective has not yet been achieved. However, there remains considerable uncertainty over how far we are from such an objective.

We acknowledge that much work has been undertaken to understand the issues associated with the management of riparian lands. DELWP have strong conceptual models of response to intervention but there is a poor spatial understanding of key metrics and at present the scale of unprotected riparian land across the state is unknown. Basic knowledge about the status of riparian areas would not just provide probity and confidence in the program but could also underpin much better management planning. Recent advances in research, combined with high-resolution LIDAR and advances in spatial modelling, mean that future investments in riparian areas should be much better targeted. It should be possible to prioritise investment and management actions to the scale of individual properties in each region. There is no reason why Victoria should not become a leader in spatial optimisation of riparian management. Our recommendation is that a more sophisticated approach be deployed for riparian planning in the next Victorian and regional waterway management strategies.

b. Consistency of data

Essential for this improved understanding will be the need for consistency of data collection and analysis. Data collection and analysis should reflect the program objective, threatening processes and potential funding allocation and priorities. It was the consensus of the participants in this evaluation that basic reporting of outputs could be done much better. It is our view that there should move away from regular ‘project’ or ‘program’ level reporting by CMAs and others, and instead move to a spatially explicit database approach. Under this model, everyone engaged in the riparian program would record what they did in the database and the database would provide the material for all involved in the program to report at an appropriate scale.

It is important that dedicated resources are provided for DELWP to have custody of the dataset, maintain its accuracy, quality control and be responsible for documenting assumptions and guidelines around its use. A similar level of central control is provided over hydrologic models used for the planning and assessment of Victoria’s water resources.

c. Monitoring and evaluation

The protocols and processes adopted to understand the current status of Victoria’s riparian corridors, threatening processes and active management can form a part of an ongoing monitoring and evaluation program. We are aware of the extensive data collection and ongoing monitoring programs across Victoria. These data have been used in this review of the RRAP. The existing monitoring and evaluation programs should be reviewed and updated to reflect the needs of an ongoing program of riparian corridor management.

Advice 3. Better understand the spatial extent of the problem to enable informed investment

a. Combined policy instruments

Victoria’s riparian policy is impressive, but it is also inward looking. A combination of policy and delivery instruments is required to deliver complex natural resource programs. As a part of this evaluation of the RRAP, a literature scan was undertaken with a focus on best practice riparian management, especially in the context of appropriate policy and delivery mechanisms. While there is no single set of factors or tools that represent best practice, we have examined some of the key elements of policy and delivery mechanisms.

b. Partnerships

While much of the focus of the RRAP has been on partnerships with landholders (which is essential), there are many examples in the literature of successful partnerships of different types. These partnerships could be with larger groups (e.g. committees of management, Landcare Networks), including industry groups (e.g. the dairy industry such as in New Zealand). There are novel approaches that can be used to foster such partnerships.

c. Whole of government approach

Fundamental to the development of the policy options should be a whole of government approach to the establishment of healthy riparian corridors. Such a whole of government approach was not apparent in the implementation of the RRAP. The RRAP was complemented by resources for Crown Frontage management.

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Indeed, this was identified as a key success of the program that should be retained. However, the program did not include a wider government project control board nor was it evident that the program was fully integrated with Victoria's crown frontage management program. A process of policy review and development should inform, or form a component of, any ongoing program of riparian land management. Any future investment in riparian land management should be integrated with and supported by a whole of government commitment to and support for the program.

Advice 4. Long-term funding commitment is an essential element of successful on-ground riparian works

Within the policy context set out above is the need for long term funding commitments. A clear strength of the RRAP was the commitment of multi-year funding. The five-year plan with committed funding to actions, created an environment that enabled timely action and decision making that accounted for regional differences and state-scale priorities. Providing funding for on-ground actions in this way enabled flexibility in its application based on different regional models.

Ongoing and a commitment to long term funding is required to:

- **Provide CMAs with confidence to enter into agreements with landholders.** These agreements often include commitments from a CMA to provide priority support to these 'partner' landholders following major events and disasters (e.g. fire or flood). Such commitments cannot be made in the absence of funding security,
- **Maintain the investment in relationships with partner landholders that the CMA has frontage management agreements established.** Funding is required to enable CMA staff to make regular contact with these landholders to support and encourage their ongoing commitment to the riparian management agreement, to listen to landholder concerns and address management issues that might arise,
- **Provide for the ongoing Crown frontage management compliance**
- **Monitor the condition of sites.** Ongoing funding is required to enable the CMA's to monitor the subject sites, to confirm sites are responding as expected and to take remedial action if and as required, and
- **Provide for ongoing improvements in the condition of Victoria's riparian corridors for the benefit of all Victorians**

Confidence in an ongoing funding commitment is essential to planning longer term implementation programs that engage landholders in a partnership approach that secures government investments and supports effective riparian management.

Acknowledgments

Text.

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