





Waterway Citizen Science Partnership Plan





Acknowledgement of Country

Waterwatch and EstuaryWatch proudly acknowledge Victoria's Aboriginal community and their rich culture and pay respect to their Elders past, present and emerging. We acknowledge Aboriginal people as Australia's first peoples and as the Traditional Owners and custodians of the land and water on which we rely. We recognise and value the ongoing contribution of Aboriginal people and communities to Victorian life and how this enriches us. We embrace the spirit of reconciliation, working towards the equality of outcomes and ensuring an equal voice.

Contents

Types of Partnerships

Introduction	4	Case Studies	13
Our Partners	6	1. Protecting a National Icon	13
About The Plan	7	2. Adapting to Climate Change	14
Purpose and Scope	7	3. Cultural Values in Environmental	15
Plan Development Process	7	How We Partner	16
Policy Landscape	8	Stage 1: Identifying a Common Interest	16
How to Use The Plan	8	Stage 2: Initiating and Planning	18
Why Partner with Waterwatch and Estuary Watch?	9	Stage 3: Implementing and Maintaining	18
		Stage 4: Reviewing and Revising	19
Partnerships are Central to Our Mission	9	Celebrating Success	20
Defining Partnerships	9		
Benefits of Partnering with	9	Stage 6: Moving On	20
Citizen Science		Resources and Toolkits	22
What Makes a Successful Citizen Science Partnership?	10	References and supporting information	23
About Our Partnerships	11		
Our Vision	11		
Our Principles	11		

Introduction

This document provides an overview of how we plan to work with our volunteers and partners to achieve meaningful outcomes for Victoria's waterways and communities.

Throughout their history, partnerships have been crucial to the success and longevity of Waterwatch and EstuaryWatch. They have created opportunities for collaboration, place-based learning, knowledge-creation and resource sharing with a wide range of stakeholders, including governments, universities, schools and non-government and community-based organisations. These partnerships will continue to play a critical role in the future of both programs as they work towards safeguarding the health of Victoria's water environments and well-being of its communities.

With citizen science now attracting broad support across governments, research institutions and community-based organisations, Waterwatch and EstuaryWatch are in a unique position to share their resources, skills and expertise to enable transformative opportunities for waterway research and management. Through partnerships, Waterwatch and EstuaryWatch can play a significant role in addressing complex waterway issues, such as climate change, urbanisation and the protection of vulnerable species and ecosystems.

The Waterway Citizen Science Partnership Plan (hereafter, "The Partnership Plan") builds on the strong culture of collaboration characterising Waterwatch and EstuaryWatch, and aims to enable new opportunities for local communities to contribute to the science and management of Victoria's waterways.

To achieve this objective, Waterwatch and EstuaryWatch have identified several stakeholder groups and prospective partners to involve in the creation of new, or strengthening existing, collaborative projects and initiatives. From researchers and policymakers to Traditional Owners Organisations and recreational users, each partnership will have a different purpose and approach, reflecting the values and perspectives that each partner brings to the arrangement.

Working together we can create meaningful outcomes for Victoria's waterways and the communities that depend on them.

We are pleased to present the Waterway Citizen Science Partnership Plan – a long-term collaborative strategy for Waterwatch and EstuaryWatch Victoria.

Since the early 1990s, Waterwatch has led the way in creating opportunities for local communities to participate in the science and monitoring of Victoria's waterways. Alongside its sister program, EstuaryWatch, Waterwatch has involved volunteers in a range of stewardship activities, including monitoring water quality, frogs, platypus, fish, macroinvertebrates, water birds and litter, as well as fostering positive working relationships with other organisations and groups in onground works and nature-based activities.



Our Partners



Traditional Owners and Aboriginal Communities

Co-developing opportunities to recognize and include Aboriginal peoples' voices, knowledges and experiences in waterway management



Culturally and Linguistically Diverse Communities

Engaging people from multicultural backgrounds in education initatives and citizen science



Recreational Users

Encouraging and promoting responsible and informed recreational use of water environments



Local environmental groups and citizen science programs

Supporting environmental volunteers through education, scientific discovery and nature-based activities



Technology Developers

Renewing alignment between waterway citizen science and technology for improved information access, management and sharing of waterway knowledge



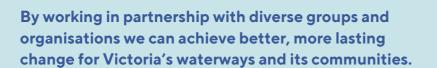
Policymakers and waterway managers

Informing on-ground management actions and supporting water resources policymaking



Researchers and scientists

Advancing knowledge of Victoria's waterways and improving the societal impact of citizen science research



About The Plan

Purpose and Scope

The Partnership Plan outlines how Waterwatch and EstuaryWatch will partner with diverse groups and organisations across the water management landscape to deliver the greatest collective impact for Victoria's waterways and the communities that depend on them. It provides the overarching context, principles and pathways for revitalising Waterwatch and EstuaryWatch through a partnership approach, and presents resources and toolkits to support equitable and effective collaborative initiatives.

Plan Development Process

The Partnership Plan was developed in consultation with Waterwatch and EstuaryWatch coordinators and waterway managers from regional and state governments. The purpose of this consultation was to identify mutual goals and shared priorities in the context of citizen science and waterway management. This process highlighted a partnership approach as a crucial mechanism for citizen science to advance knowledge of water environments, enable mutual learning and policy engagement, and build local community and government capacity.



Policy Landscape

The Partnership Plan aims to enhance the capacity of local, regional and state governments to support citizen science and community participation in waterway management. These objectives are reflected across multiple documents including:

- Water for Victoria (2016)
- Victorian Waterway Management Strategy (2013)
- The Plans for Waterwatch and EstuaryWatch Victoria (2015)
- The Victorian Citizen Science Strategy (2022)
- Regional Waterway Strategies
- Regional Catchment Strategies

How to Use The Plan

The Partnership Plan has been designed as an overarching point of reference to provide guidance and recommendations for equitable and effective waterway citizen science partnerships. It includes a justification for undertaking a partnership approach to citizen science, describes key steps across the partnership lifecycle and provides tools and resources to build and sustain positive working relationships through citizen science.

The Partnership Plan is structured into four sections:

Section 1: Why Partner with Waterwatch and EstuaryWatch?;

Section 2: About Our Partnerships

Section 3: How We Partner

Section 4: Resources and Toolkits.



Why Partner with Waterwatch and EstuaryWatch?

Partnerships are Central to Our Mission

Waterwatch and Estuary Watch have long played a significant role in improving knowledge of Victoria's waterways and fostering local stewardship actions. Partnerships are core to this mission.

Defining partnerships

"Partnerships" are defined as formal or informal arrangements between two or more organisations or groups oriented around a perceived need to accomplish a common goal. In collaborative partnerships, stakeholders work together under the expectation of gaining more from combining their complementary expertise, perspectives resources, capacity, skills and knowledge than from operating individually.

Benefits of Partnering with Citizen Science

Partnerships are crucial to managing water resources sustainably, as well as addressing complex problems spanning multiple sectors and authorities. In citizen science, partnerships and other collaborative engagements can be an effective way to leverage the unique skills and knowledges of volunteers to:

- Advance science, close knowledge gaps and inform waterway decision-making.
- Enable mutual learning and public engagement with waterway policy.
- Build capacity of local communities, government agencies and other groups and organisations.
- 1 DELWP (2016). Community engagement and partnering framework for CMAs. Melbourne: Department of Environment, Land, Water and Planning, Victorian Govern
- 2 OECD (2011). Water Governance in OECD Countries: A Multi-Level Approach, OECD Studies on Water, Paris.
- 3 Margerum, R. D., & Robinson, C. J. (2015). Collaborative partnerships and the challenges for sustainable water management. Current Opinion in Environmental Sustainability, 12, 53-58.
- 4 McKinley, D. C. et al. (2017), Citizen science can improve conservation science, natural resource management, and environmental protection. Biological Conservation, 208, 15-28.
- 5 Danielsen, F., et al. (2017). Citizen science tools for engaging local

Advancing Knowledge of Victoria's Waterways

When designed effectively, citizen science partnerships are capable of linking knowledge and data with waterway decision-making through improved use of monitoring data for informing waterway policies⁴ and harnessing local knowledge to inform management decisions⁵. A growing number of Waterwatch partnerships have led to management actions aimed at improving habitat and waterway condition, as well as advancing science on ecological processes and species distributions6.

Supporting Mutual Learning and Policy Engagement

Citizen science provides opportunities to promote mutual learning among stakeholders and improve public engagement with waterway management policies and decision-making7. Coordinators can assist waterway managers and other stakeholders to distribute policy messages through the community, build public support for research and management and improve participation in decision-making8.

Building Community and Government Capacity

Partnering with citizen science can build the community capacity through training and resource delivery, enabling volunteers to take action for Victoria's waterways. Additionally, partnerships have proven to be an effective means to build organisational capacity since partner organisations are able to utilise the existing networks and relationships built by regional coordinators over time 9.

- stakeholders and promoting local and traditional knowledge in landscape stewardship. The Science and Practice of Landscape Stewardship, 80-98.
- 6 Bonney, P. et al. (2020). Citizen science in Australia's waterways: investigating linkages with catchment decision-making. Australasian Journal of Environmental Management, 27(2), 200-223.
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- 9 Cockburn, J. et al. (2020). Relational Hubs for Collaborative Landscape Stewardship. Society and Natural Resources, 33(5), 681-693.

What Makes a Successful Citizen Science Partnership?

Successful citizen science partnerships are underpinned by several elements and conditions, including 10,11,12:

- · Adequate funding of financial resources.
- Effective leadership and coordination.
- Broad, inclusive membership that reflects participant views from the outset.
- Cooperative and committed participants and/or a shared sense of place.
- High levels of interpersonal trust and decision-making processes that value all perspectives.
- Adaptive and responsive to all partners needs and changing conditions.
- Effective data management protocols and plans to link knowledge with actions.

Although they can deliver many benefits, partnerships are not without risks and challenges. Common issues include¹³, ¹⁴:

- Aligning values and appreciating diversity where there are differences in cultures, characteristics, structures, methodologies, timescales, expectations, or languages among participating organisations.
- Sustaining participant involvement, managing expectations, building trust, undertaking inclusive activities and ensuring motivations for participation are satisfied.
- Building skills and competencies that all participants will need to achieve the partnership's goals.
- Addressing power imbalances inherent to many partnerships. This includes recognising the contributions, viewpoints and values of each partner, recognising that funding and financial resources are only one aspect successful partnerships.

It is important to recognise that wider social, economic and political factors can also strongly shape the development and implementation of partnerships, including¹⁵:

- Capacities, capabilities and willingness of partners to participate.
- Differences in organisational priorities, preferences and issues of interest and concern.
- Cultural norms and local context.

- 10 Leach, W. D., & Pelkey, N. W. (2001). Making watershed partnerships work: a review of the empirical literature. Journal of water resources planning and management, 127(6), 378-385.
- 11 Koehler, B., & Koontz, T. M. (2008). Citizen participation in collaborative watershed partnerships. Environmental Management, 41(2), 143–154.
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About Our Partnerships

Our Vision

Working together to improve outcomes for Victoria's waterways and the communities that depend on them.



Our Principles

We form partnerships tailored to the needs, interests, and motivations of our volunteers and partners.

and fairness between volunteers and partners by establishing processes that build trust and competency.

We create an environment of mutual respect

We create a shared understanding of, and commitment to, goals within the established partnership and consider formal agreements to support this.

We seek to include marginalised or underrepresented groups to participate in our projects and initiatives.

We commit to ensuring that communications within the partnership is clear, consistent, respectful and in good faith.

We commit to acknowledging the commitment, contributions and achievements of volunteers in our projects and initiatives.

We collect scientific data that is accurate, trusted, reliable and aligned with waterway management priorities.

We advocate for and promote the work of volunteers and partners and implement a communications plan to support this.

We have appropriate mechanisms in place for timely feedback of processes, data, and achievements of the partnership. We endeavour to ensure that our partnerships have adequate resources and support throughout their lifecycle.

We are committed to seeking solutions to challenges and are open to new ideas and innovative technologies.

We evaluate our engagement and our partnerships to understand the effectiveness and efficiency of our approach and continue to improve our practice.

We create opportunities for volunteers and their local knowledge to have a genuine impact on activity planning and implementation.

We support our regional coordinators to facilitate meaningful collaborative initiatives through resourcing, training and networking opportunities.

Types of Partnerships

Waterwatch and EstuaryWatch Victoria develop a range of partnerships that differ in composition and aim. Although partnerships may not be necessary for every situation, and not every relationship will develop into a partnership, there are three main types¹⁶:

- Leverage and Exchange: These partnerships are relationships usually focused on specific and easily defined problems where partners share information or resources to improve each other's or their own work.
- Combine and Integrate: These partnerships are made up of multiple partners working together to exchange resources and expertise to generate outcomes that, if each partner acted alone, could not be achieved.
- Transform: These partnerships usually involve multiple partners to address complex and dynamic problems in view of achieving the necessary improvements required for wider transformations in how environments are understood and managed.

Any one partnership is likely to have elements of each type. Each will have their own strengths and weaknesses. Creating an impact through citizen science partnerships requires that a strong collaborative culture is cultivated carefully, appreciating these strengths and weaknesses, while recognising that transformative partnerships may best be suited to developing long-term solutions to the complex problems currently facing water environments (see Case Study: Cultural Values in Environmental Water).

Partnerships come in many shapes and sizes.

Waterwatch and Estuary Watch create multiple pathways for achieving collective action.



Leverage and Exchange

Partners share resources or contribute to one anothers work so that one or both can delivery more.

Case study: Protecting a National Icon





Combine and Integrate

Two or more partners achieve more than each could do alone by combining complentary resources and expertise.

Case study:
Adapting to a Changing
Climate





Transform

Multiple partners work together through collective action to tackle complex challenges required for wider transformations

Case study:
Cultural Values in
Environmental Water

Case Studies



Protecting a National Icon

Waterwatch Victoria proudly partnered with the Odonata Foundation through the Great Australian Platypus Search, a state-wide investigation into platypus populations using environmental DNA (eDNA).

With samples collected from 2,000 sites across
Victoria, the data produced as part of this project will
help scientists to develop a comprehensive map of
platypus populations across the state and will be used
by waterway managers to better understand risks to our
waterways and inform appropriate management efforts.

Waterwatch Victoria worked closely with Odonata and the project control group which included the Department of Environment, Land, Water and Planning (DELWP), enviroDNA and LaTrobe University, to influence sites sampled, align sites to existing citizen science sites, provide safety advice and engagement expertise, recruit volunteers, and promote the program to citizen scientists across Victoria. Regular meetings were undertaken with Odonata and Environmental Education Victoria to streamline coordination of the registration of sites and promotion of the project to volunteers. As a result of Waterwatch Victoria's involvement, the project saw Waterwatch sites, and additional Traditional Owner sites included as part of the project.

"Waterwatch Victoria were instrumental in the Odonata Foundation's 2021 project, the Great Australian Platypus Search (Victorian Phase). Thanks to Waterwatch Victoria, we were able to collect an astonishing 2,000 eDNA samples from waterways across Victoria in just three months with 600 citizen scientists.

This project relied on the participation of citizen scientists and Waterwatch gave us access to an amazing network of sample-ready people from across the state. Because of Waterwatch we were able to ensure that the Great Australian Platypus Search had a comprehensive and reliable group of volunteers on our side gathering ground-breaking data.

This partnership not only meant that we connected with a very well-respected and like-minded organisation but were also lucky enough to be aligned with Waterwatch's gold-standard volunteering program."

- CEO Odonata Foundation, Sam Marwood.



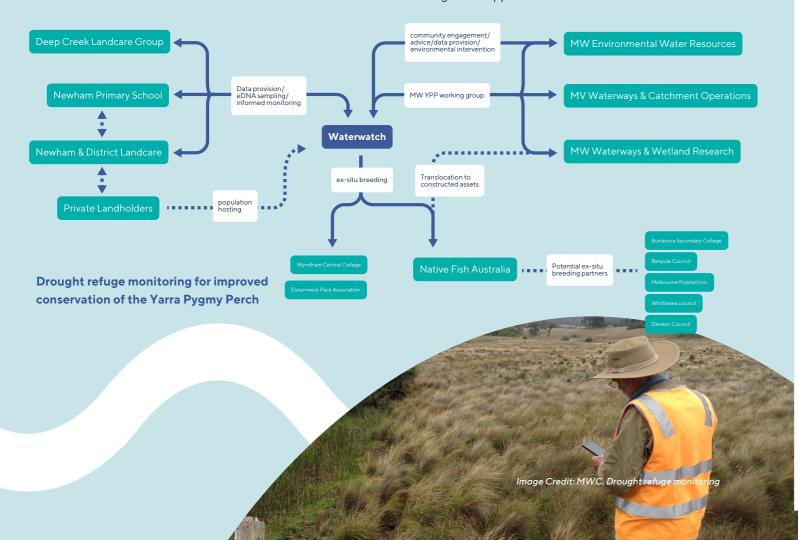
2. Adapting to a Changing Climate

The purpose of the project was to monitor the water quality of key habitat refuges for the Yarra Pygmy Perch across the Melbourne region to inform the ongoing sustainable management of its habitat

Climate change threatens to reduce the available habitat for this species, requiring ongoing monitoring to determine the need for emergency watering of pools that serve as important habitat for the species.

The Waterwatch Coordinator collaborated with Melbourne Water's (MW) Environmental Water Resources and Waterways & Catchment Operations teams and local community groups to facilitate site monitoring, provide advice and inform management decisions. In the 2016 and 2019 summer seasons monitoring trigger points were reached, leading to environmental interventions of 28,000 litres of water to top up the drought refuges in both years to ensure ideal conditions for survival.

Additionally, the Waterwatch Coordinator engaged with private landholders, environmental groups and Native Fish Australia to partner on ex-situ breeding of the Yarra Pygmy Perch. Key outcomes of the project include preservation of vital habitat of the Yarra Pygmy Perch, additional secure populations on private land, increased stock of fish for release into Deep Creek and other constructed habitats, and improved trust in waterway citizen science as an effective waterway management approach.



3. Cultural Values in Environmental Water

Corangamite Waterwatch and Wadawurrung Traditional Owner Aboriginal Corporation (WTOAC) have been walking together on a journey for Wadawurrung water since 2018 when our partnership began with a Wadawurrung Family Fishing Day.

Out on Wadawurrung Country beside the beautiful Murrabul Yaluk, Community shared their aspirations for Wadawurrung waterways and a desire to skill share. Many of the visions of that day have influenced important work in both the Citizen Science and Environmental Watering sectors of the Corangamite CMA and in the establishment of dedicated Water Officer positions within WTOAC.

In 2019 Wadawurrung representatives were key members of the technical advisory panel for the "Upper Barwon, Yarrowee and Leigh River FLOWS study". Cultural flow objectives designed to support Aboriginal Cultural values on Wadawurrung Country were developed and now form a key component of

Corangamite

Waterwatch

annual Seasonal Watering Plans on Wadawurrung waterways. As part of monitoring the impact of environmental watering on these Wadawurrung Cultural values WTOAC staff have committed to a water quality monitoring program to capture water quality data before and after the release of environmental water or "freshes" and conducting Autumn and Spring macroinvertebrate sampling at four sites of Cultural significance on the West branch Murrabul Yaluk. Control sites on the East branch which does not currently receive environmental water releases have also been monitored by WTOAC. An annual WTOAC Citizen Science Water Quality Report has been developed to contribute to Wadawurrung water knowledge and to promote this Citizen Science partnership on Wadawurrung Country.



How We Partner

Waterwatch and EstuaryWatch follow a systematic process for cultivating and nurturing partnerships to deliver the greatest possible impact for Victoria's waterways and communities.

The following six stages of partnership development is adapted from The Partnering Cycle¹⁷ and aims to maximise the benefits and achievements of citizen science and minimise any potential risks and challenges. This approach to partnership development is a guide only, acknowledging that partnerships may not follow these stages sequentially as they deliver on their program and activities.

Stage 1: Identifying a Common Interest

Stage 1 involves laying the groundwork to establish a good working relationship and sets out a shared vision and objectives of the partnership. It is about finding a common interest that unites partners and that drives the development of future joint initiatives.

This stage involves asking questions about whether a partnership is needed and for what purpose. Regular meetings with prospective partners are crucial to maximise success and provide an important opportunity to build trust and good working relationships and identify partner interests and capabilities, as well as reflecting on any possible risks.

Key questions:

- Is there a perceived need for the partnership?
- Is there a shared understanding of the goals of the partnership?
- Are partners prepared to share their knowledge, skills and expertise?
- Do partners have sufficient capacity, capabilities and willingness to participate?
- Do potential benefits of the partnership outweigh any possible risks?

We follow a systemic process to ensure our partnership deliver the greatest collective impact for Victoria's waterways and communities.





Stage 2: Initiating and Planning

Stage 2 involves initial planning of activities and setting out the rules of engagement. Planning will involve ensuring all relevant partners are included in these initial discussions and their voices are heard. Data management protocols, communications plans and processes for partnership evaluation will be developed. Partners may also discuss the need for formal agreements through a Memorandum of Understanding (MoU) or other signed letter of agreement.

Although formal agreements are not necessary in all cases, they can be beneficial in promoting accountability and ensuring all partners are on the same page. It provides the basis for how partners will engage and interact, governs how the partnership will achieve its outcomes and provides necessary baseline conditions for subsequent review and monitoring of success.

Discussions should also centre on the rules of engagement and determining roles and responsibilities throughout the partnership. This includes whether the decision-making processes is perceived to be fair, inclusive and representative.

Key questions:

- Are all relevant partners included in setting priorities and activities?
- Who else should be involved? How should they be engaged?
- What resources will be required to achieve the partnership's aims and vision?
- Are roles and expectations of partners clearly communicated?
- Is the decision-making process fair, accountable and inclusive?
- How will data and knowledge generated through the partnership be shared and managed? Who is responsible for data stewardship and management?
- How will the partnership and its outcomes be evaluated?
- How will the partnership be promoted? Has a communication plan been developed?
- How formal or informal will the partnership be?
 Will a partnership agreement need to be signed?

Stage 3: Implementing and Maintaining

Stage 3 is about ensuring that the joint activities have been implemented appropriately and are on track to deliver their expected outcomes. At this point, partners should feel comfortable sharing their insights and understandings about the partnership goals and benefits. However, great partnerships are also underpinned by a level of flexibility and openness to new possibilities. Discussions can centre anticipated barriers or obstacles that could impede the partnership's momentum.

Maintaining the partnership will require commitment from all partners to avoid losing track or stagnation in activities. It is also important to communicate its progress as well as providing regular feedback to volunteers and to external stakeholders. Here, it will be important to rely on your communication plan to ensure internal and external stakeholders are kept up to date with partnership activities and achievements.

Key questions:

- Are there sufficient opportunities for all partners including volunteers to connect and share their experiences?
- Are there appropriate levels of investment of all partners in terms of time and resources contributed?
- How are successes being communicated?
 Who has responsibility for this communication?
- How are potential differences in organisational priorities, goals and tasks being addressed?
- When issues or disputes arise, how will these be resolved?



In Stage 4, it is time to reflect on the progress and achievements of the partnership and adjust any activities to overcome challenges and maintain the established momentum. Think of this as a 'health check' to ensure that the original focus of the partnership is being met and that the partnership aims are still relevant.

Meet with partners to decide on the most appropriate mechanism to evaluate the partnership's progress and achievements, which may include a short survey, running a workshop or setting up interviews with key participants. Prepare a short report of summary findings based on what was learnt, some key recommendations and communicate this to interested stakeholders or the wider community.

Key questions:

- How will you evaluate the achievements of your partnership? Which methods will you use?
- Who will be involved in conducting the evaluation?
- Do roles and responsibilities need to be expanded or re-defined?
- Does the partnership need to change focus? How will you implement these changes?



Stage 5: Sustaining Outcomes and Celebrating Success

Stage 5 involves determining the next steps of the partnership, celebrating its achievements and sharing its "story". A key part of this stage is to think about whether the activities implemented could be scaled up (i.e. to affect policy processes) or scaled across (i.e. to different social and environmental contexts). Doing so creates pathways for citizen science to have a lasting positive impact for science, environments, policy and community.

Partnership facilitators will ensure that volunteers have been acknowledged, recognised and rewarded for their participation and their contributions to the partnership. This may include events to disseminate partnership outputs, acknowledgement in publications or reports or simply personal communication to thank volunteers for contributing time and effort.

Key questions:

- How will the partnership's "story" be communicated with partners and the wider community?
- Are events planned to celebrate the success of the
- Are there opportunities to scale up or scale across activities to different contexts?
- Are research publications planned from the partnership? Who will lead this process? Who are the
- How will volunteers be suitably acknowledged in project outputs and rewarded for their time, resources and energy contributed?

Stage 6: Moving On

Stage 6 prepares all partners for when it is time for the partnership to end. If it has reached its expiry date or other issues lead to its cessation, consider how its end will be formalised. If a partnership agreement was developed, refer to it as you implement cessation or succession activities. In this stage, it is also important to document the partnership's key learnings, challenges and history. These insights will be critical for all partners as they enter into future relationships and agreements with others.

Key questions:

- Have the partnerships major achievements been identified and communicated?
- Have all partners both inside and outside the partnerships been acknowledged and recognised?
- Have all partners been informed on the decision to end the partnership?
- Have the key lessons of the partnership been documented?

Partnership facilitators will ensure that volunteers have been acknowledged, recognised and rewarded for their participation and their contributions to the partnership.



Resources and Toolkits

We have developed and compiled a series of resources and toolkits to help inform the planning, assessment, monitoring and ongoing effectiveness of waterway citizen science partnerships. These include:

- Citizen Science Partnership Agreement Tool
- Citizen Science Partnership Evaluation and Monitoring Tool
- Other Supporting Documents and Resources

These tools and resources intended to support Waterwatch and EstuaryWatch coordinators and their delivery partners in maximising the potential and ongoing effectiveness of their joint initiatives. The goal is to help form agreements between partners, reflect on the partnerships already in place, find ways to strengthen new and existing partnerships and minimise the barriers to successful joint initiatives.

The resources and toolkits can be found on the Waterwatch and EstuaryWatch website: http://www.vic.waterwatch.org.au/cb_pages/resource.php



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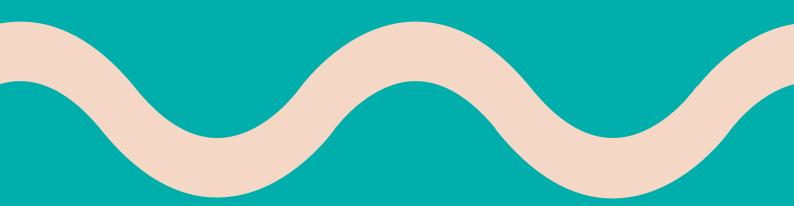
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 a long-term collaborative strategy for Waterwatch and EstuaryWatch Victoria.



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