



STREAM 2

Building Resilience Through Better Collaborations

Session 2 | PANEL



Acknowledgement of Country

We would like to respectfully acknowledge the Traditional Owners, Custodians and Carers of the lands and waters on which we all live, work and meet.

We pay our respect to their elders past and present and extend that respect to all Aboriginal and Torres Strait Islander peoples today.

Introduction



James Gardner

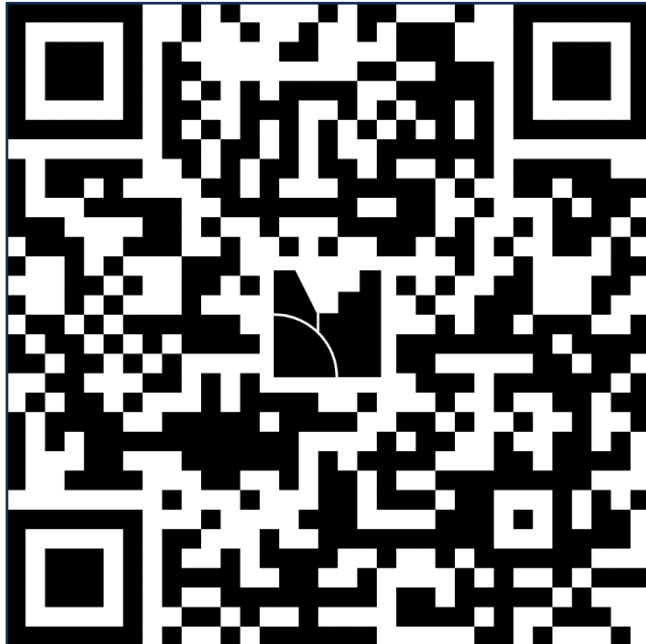
Facilitator

Water Services Association of Australia (WSAA)

Submit your questions for the Q&A section using Mentimeter

How to access Mentimeter

Scan the QR code



Or join online via code

1. Visit www.menti.com
2. Enter code **4722 7914**

Industry and Research: Both sides of the fence



Dr Mariah Sampson
Water and Catchments Analyst
Barwon Water (VIC)



Industry and research: Both sides of the fence

Mariah Sampson





East Barwon Willow Removal Project



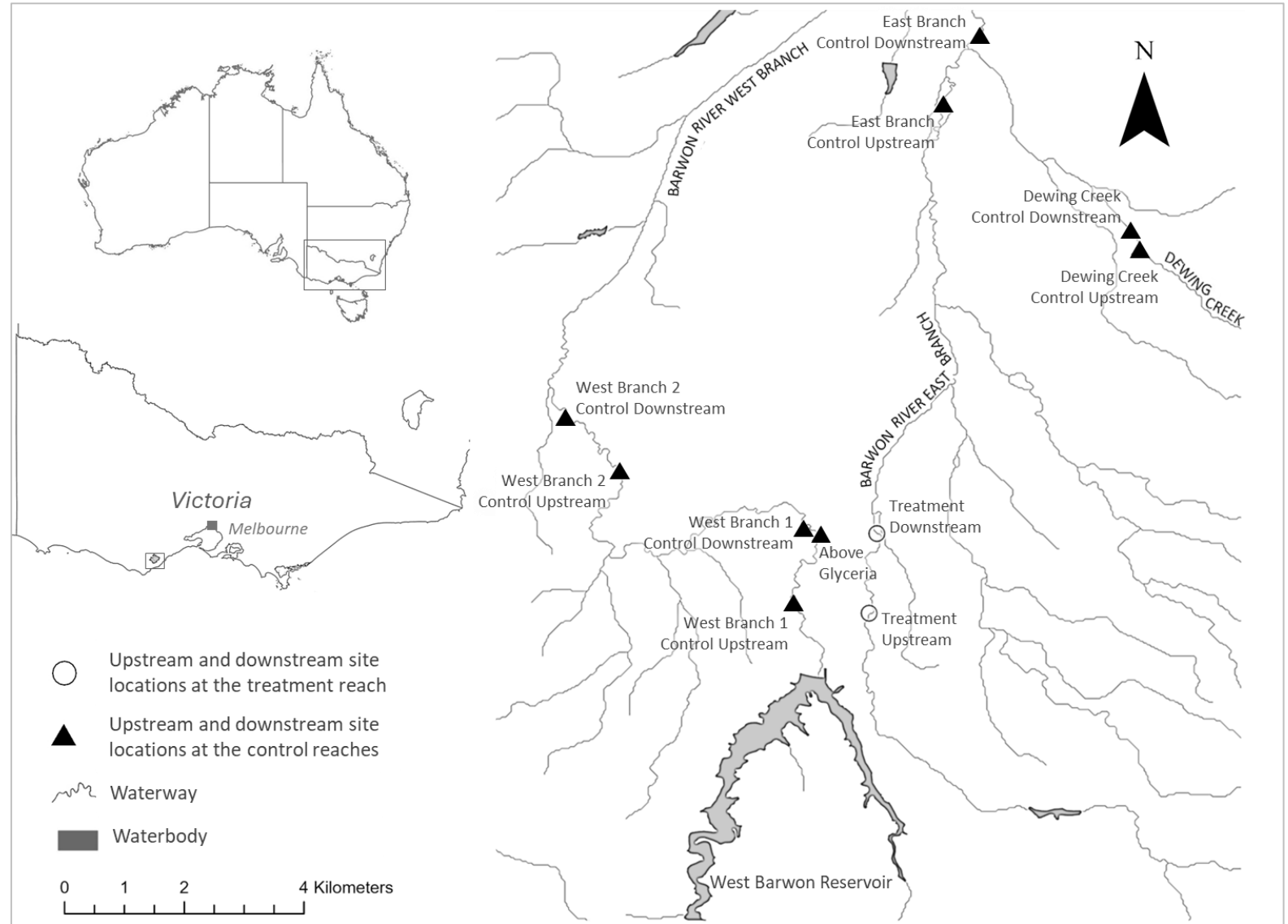


East Barwon Willow Removal Project

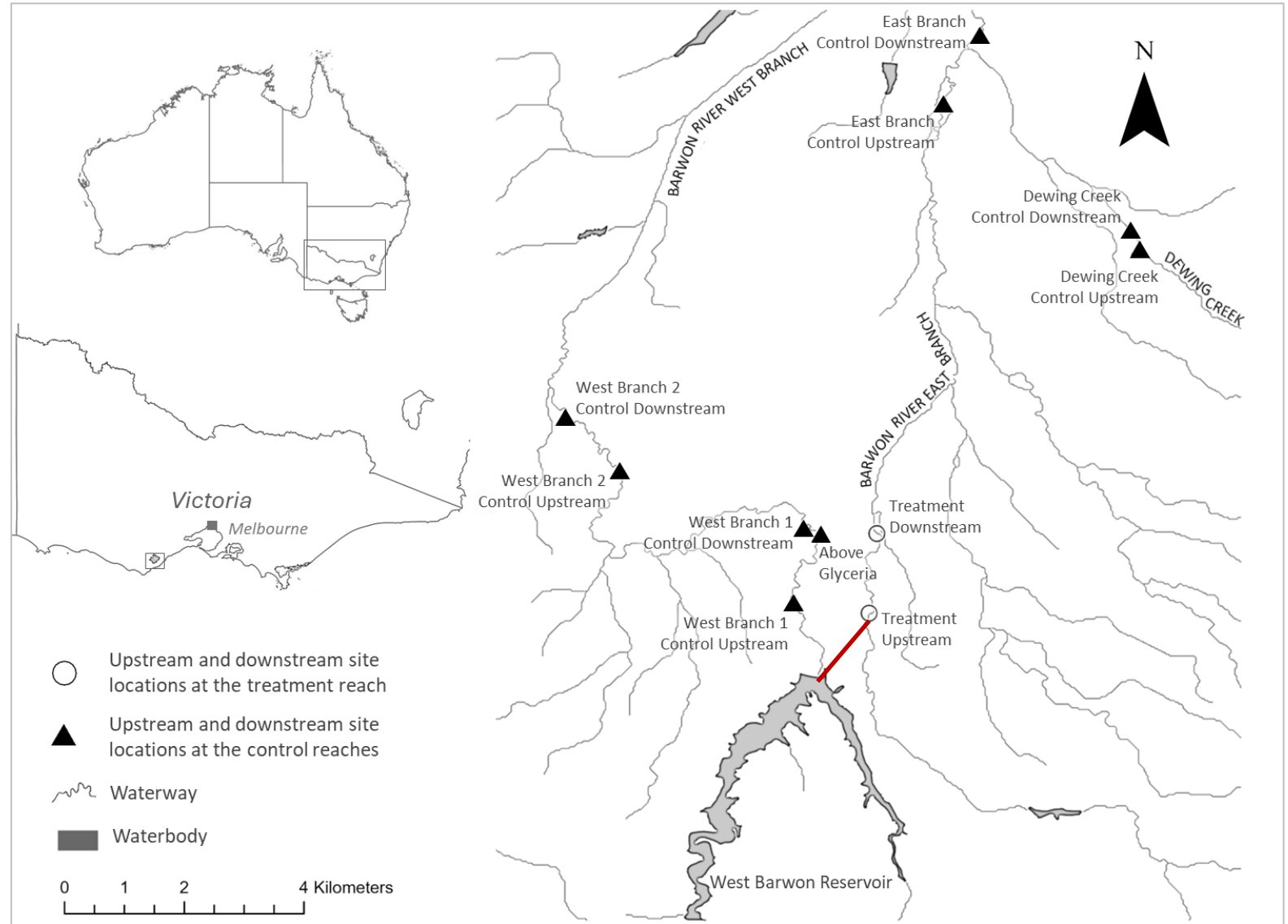


brigid.creasey@barwonwater.vic.gov.au

The Upper Barwon Catchment



The Upper Barwon Catchment



Water is transferred from the West Barwon Reservoir along the East Barwon River before being diverted to the Wurdee Boluc Inlet Channel and onwards to the Wurdee Boluc Reservoir and WTP

A landscape photograph showing a green valley with a stream, trees, and a blue sky with white clouds. The foreground is a grassy field with a fence line. The middle ground features a stream flowing through a valley with trees and a small pond. The background shows rolling hills under a bright blue sky with scattered white clouds.

The Challenge

- 3 km of willow infestation in the inner catchment
- Stock access to the stream
- Limited volume of water that could be transferred along the reach from the reservoir to the offtake
- Many landholders
- Small farms (resistance to large riparian buffers)
- Debate within the catchment about the effects of removing willows

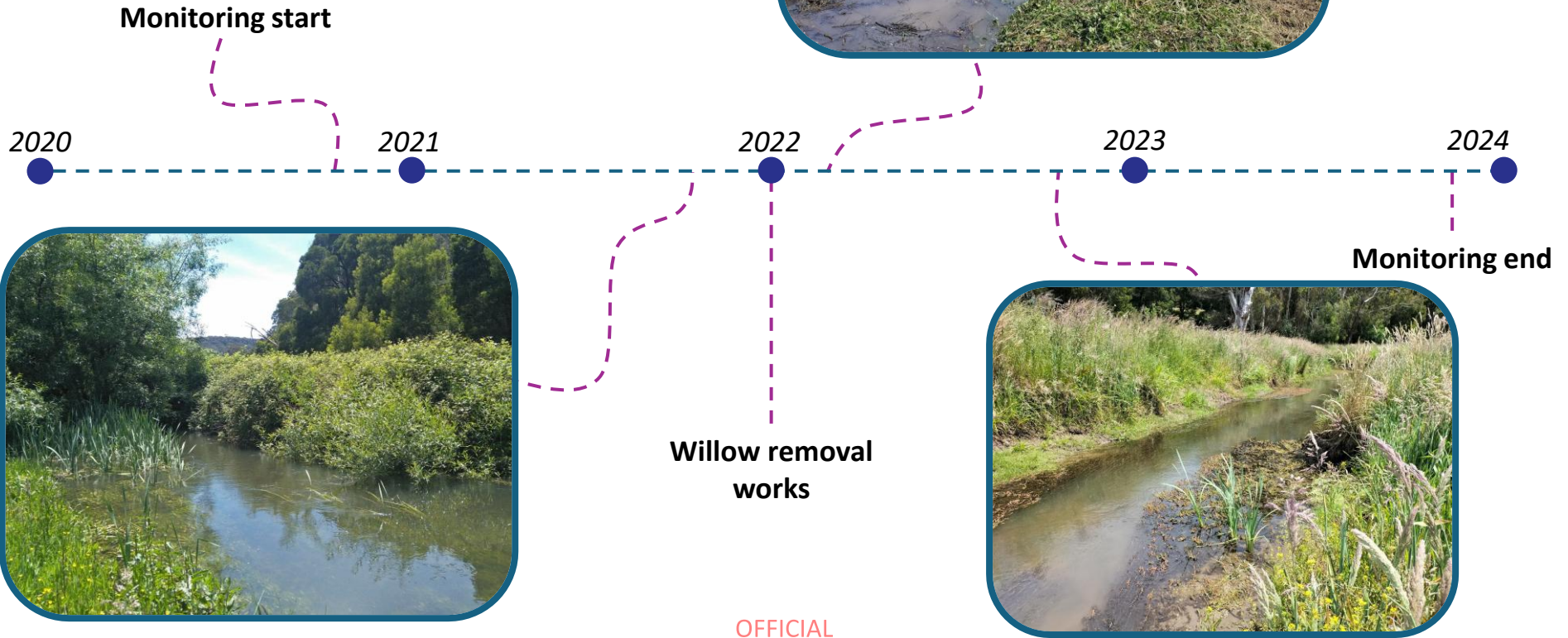
The Solution – A riparian restoration project

- Negotiations with landholders for 11-m wide riparian buffers
- Willow removal and revegetation
- Bank grading and erosion control measures
- Off-stream stock water
- Research – what was the effect of the willow removal and revegetation on the stream?



OFFICIAL

The research: Before-After-Control-Impact



OFFICIAL

The research: Space-for-Time Study



*Revegetation sites
(ages 3-18 years)*



Willow sites

Who was involved in the research

Barwon Water



The image displays a 2x3 grid of colored squares. The top-left square is orange and contains the text 'Barwon Water'. The other five squares are solid colors: dark green (top-middle), blue (top-right), purple (bottom-left), light green (bottom-middle), and a darker orange (bottom-right).

Who was involved in the research

Barwon Water

WaterRA

Who was involved in the research

Barwon Water

Deakin
University

WaterRA

Who was involved in the research

Barwon Water

Corangamite
CMA

Deakin
University

WaterRA

Who was involved in the research

Barwon Water

Corangamite
CMA

Local landcare
groups (Upper
Barwon Landcare
Network)

Deakin
University

WaterRA

Who was involved in the research

Barwon Water

Land holders

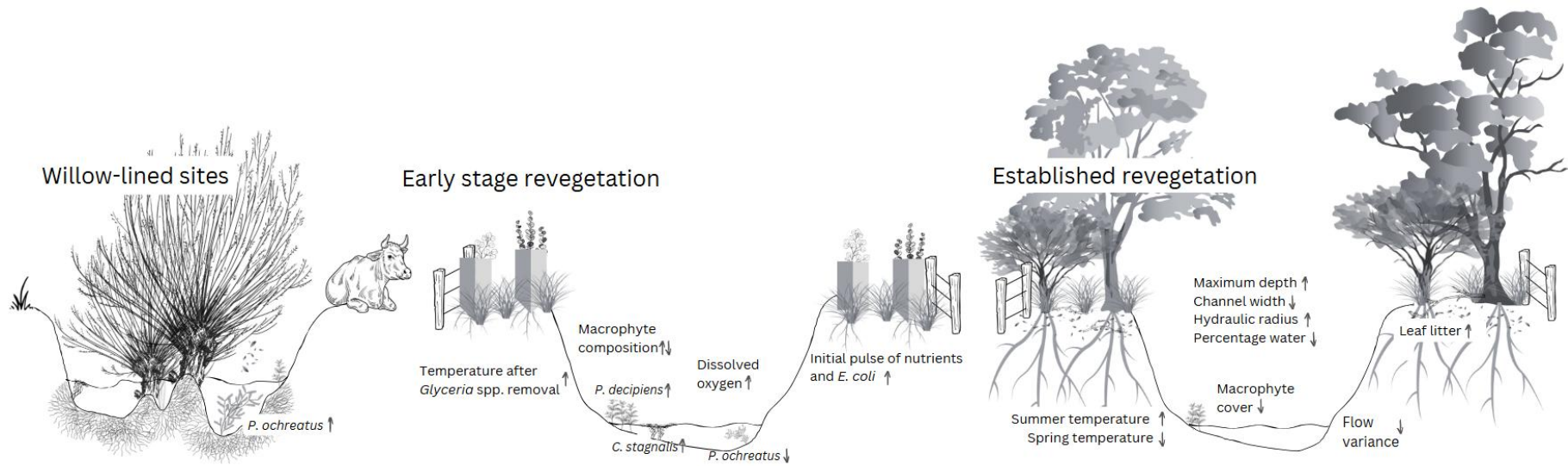
Corangamite CMA

Local landcare
groups (Upper
Barwon Landcare
Network)

Deakin University

WaterRA

Research Outcomes



Reflections



Learnings from the WaterNSW Science Program



Dr Lisa Hamilton
Strategic Research and Innovation Manager
WaterNSW



Learnings from the WaterNSW Science Program

Lisa Hamilton

Ann-Marie Rohlfs

Stephanie Reilly



We acknowledge the Traditional Custodians of the land and water on which we work and recognise the continuing cultural and spiritual connections that Aboriginal and Torres Strait Islander People have to Country.
We pay our respects to Elders past and present.

About WaterNSW

We're at the source of the state's water.

WaterNSW is a State-Owned Corporation and one of the main government agencies tasked with managing water in NSW

We expertly operate 41 major dams and hundreds of waterway structures, including weirs and regulators, capturing, storing and delivering water.

We're also the source of river and dam storage level information.

What we do

We follow the government rules and regulatory frameworks, implementing the rules to deliver water when and where it's needed

We deliver water to customers like farmers, local councils and Sydney Water

We protect the Greater Sydney drinking water catchment and manage Special Areas land.

We monitor and store the water in regional dams

We operate some dams in regional valleys for flood mitigation purposes to minimise the impact of floods to the extent possible

We assist the Bureau and SES on flood response

We measure and report on algae

What we don't do

We don't determine water allocations

We don't deliver water to households

We don't treat the water to meet drinking water quality standards

We don't treat the water in regional dams; that's done by the local council or water utility

WaterNSW is not permitted to release water to make additional space in Warragamba Dam for flood mitigation purposes.

We don't issue flood warnings

We don't treat natural algal outbreaks

Research at WaterNSW

WaterNSW Act 2014

The listed functions of WaterNSW are

'...to undertake research on catchments generally, and in particular on the health of declared catchment areas'



1999

Sydney Catchment Authority formed with a core research function

2005

First science strategic plan delivered



2015



WaterNSW established under the Water NSW Act 2014, operating under an Operating Licence issued and monitored by the Independent Pricing and Regulatory Tribunal (IPART)

2016

Science Program formalised under a rolling 5-year structure

2016-2020
2021-2025

2024

WaterNSW Operating License expands WaterNSW's research function to include 'catchment and river health' statewide

2021-2025 Science Program

71 Projects

37 & 34

Internal External

~\$10m budget
+\$15m co-investment

Catchment Resilience



Integrated Water Management



Risks & Opportunities



Research communication

Technical reports
& presentations

Deep dives

Fact sheets

Media items / posts

Research benefits



2021-2025 Science Program Review

Objectives:

- Evaluate program delivery, outcomes, and benefits.
- Assess ongoing research needs for the next Science Program

Project Audit

- Delivery mode
- Research outputs, outcomes, benefits and impact



Qualitative evaluation

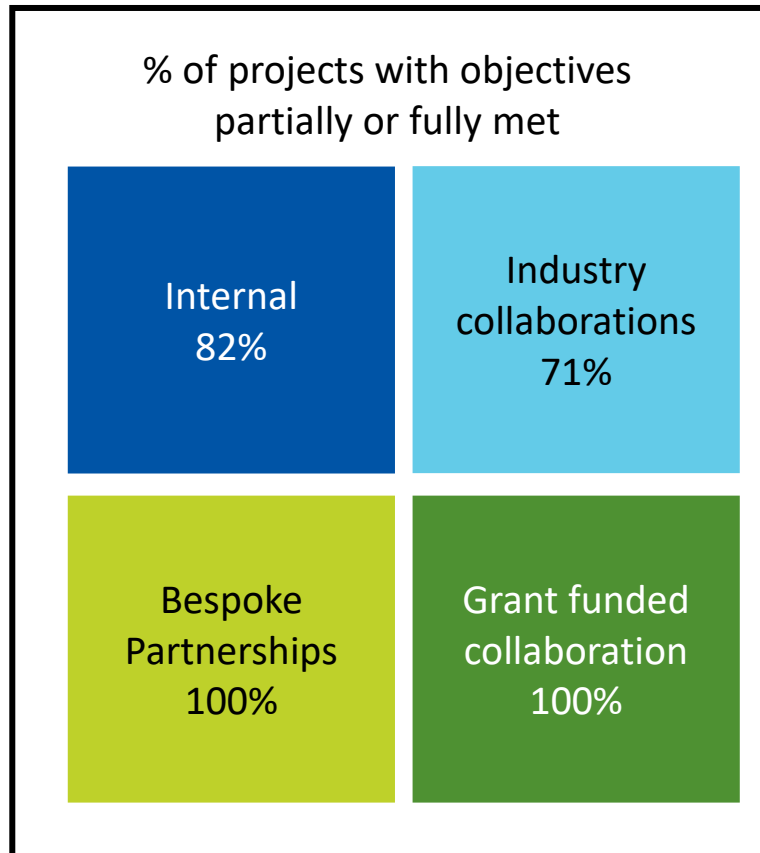
- Were intended objectives met?
- Benefits assessment
- Blockers and constraints



Gap analysis

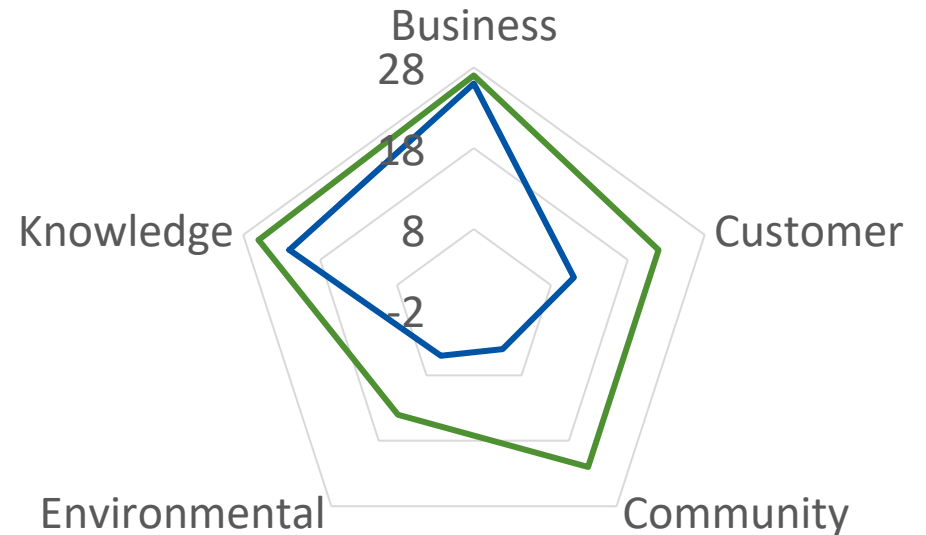
- Uptake and implementation
- Research governance processes
- Ongoing research needs

Review findings



Benefits realised from completed projects

— Realised ~~Possible~~ Benefits



Lessons Learnt – Barriers to Impact

- **Research Governance:** Different levels of project management maturity and varying governance and reporting practices.
- **Change Management:** Reliance on key knowledge holders for project objectives - challenges with our own and our collaborators.
- **Scaling complexity:** The more collaboration partners involved the fewer direct benefits were achieved.
- **Capacity and Capability:** Trying to do too much and different skills needed for active project delivery vs collaboration management.
- **Translation of Research:** Finding the right path for knowledge transfer and change management – moving beyond the technical report and presentations.

Lessons Learnt – What worked well

Up Front Clarity



- The objectives were understood and shared
- The business and research value proposition was clear

Deep Collaboration



- When the research was integrated with the business
- Working as a partnership rather than a fee for service

Adoptable



- Technology trials involved business client
- Student internship outcomes fed into other projects
- Appropriate and actionable recommendations

Top 3 learnings for impactful research collaboration



Vision: Develop a shared understanding and language to communicate project objectives and benefits



Governance: Capture outputs, outcomes and benefits throughout the project life-cycle



Engagement: Identify project beneficiaries and maintain stakeholder buy-in

Thank you



Lessons Learnt in Developing ARC Industrial Transformation Research Hub in IoT for Water



Prof. Yang Liu

Professor and Chair; Hub Director

Queensland University of Technology



Lessons Learnt in Developing ARC Industrial Transformation Research Hub in IoT for Water

Yang Liu, PhD, PEng (CA), FIEAust, CPEng

Professor and Chair in Sustainable Water Technologies
ARC Future Fellow
Director, ARC Research Hub in IoT for Water
Queensland University of Technology, Australia

David McCarthy, PhD

Professor and Chairholder (CERC)
microSCAPE: Surveillance & Control of AMR & Pathogens in the Environment
School of Environmental Science
University of Guelph, Canada





Australian Government
Australian Research Council

ARC Industrial Transformation Research Hub in IoT for Water October 2025 - September 2030

ARC funding \$5 million over 5 years, plus \$5 million industry funding

Water authorities/utilities:



Regulators, councils, & national alliances:



Telecoms, service providers & manufacturer:



Consultancy firms:



Research organisations:



TEQSA Provider ID PRV12079 Australian University | CRICOS No.00213J





IoT for Water October 2025 - September 2030



Theme 1: Sensors,
placement &
operation



Theme 2: Networks, data,
security, governance &
standards



Theme 3: Advanced
analysis & visualization of
integrated data



Theme 4: Asset
control, optimisation
& decision making



Theme 5: Business models & engaged communities

Building new relationships between water agencies,
government, business, and communities.



Theme 6: Best-practice application & upscaling

Validating our research outcome and helping to scale
and implement the solutions developed by the Hub



Theme 7: Training and knowledge transfer

Ensuring that the expertise and innovations we create lead to
lasting transformation across the water industry.

Our Timeline – A Collaborative Journey

2019/2020

Flyer and workshop, initial interest

2022

Expanded partner groups, putting in place the structure, developed 28 industry-led projects

Early 2023

Partners ranked and voted on the projects - selection of 17 projects

End 2023

ARC Project Proposal Submitted

CONTEXT AND BACKGROUND

Our systems are under increasing pressure, climate change, increased urbanisation

Unaffordable to cope by simply increasing size and capacity

BUT, potential benefits may be realised by actively monitoring & controlling our systems

- Only upgrade existing
- Proactive
- Reduce equipment height
- Allow when to maintain
- Reduce water usage

Project hypothesis: a combination of passive and actively controlled urban water management systems will result in operational systems and better level of protection, reduced costs, no surface water pollution, delayed upgrades, flood and drought resilience. BUT, to achieve this, we must work together to develop tools, techniques and processes that can consistently be used to meet our stretched needs.

RIM-C WATER HUB
an industry, research and training hub for real time control and monitoring of water systems

IoT
Internet of Things

REAL TIME MONITORING AND CONTROL OF WATER SYSTEMS
— all sources, types and purposes

FREE Research & Industry Event
9am-5pm, 6 February 2020, South East Water
101 Wells Street, Frankston

THE PROBLEM
Increasing urbanisation, climate change, population growth and fast aging water systems are placing significant pressure on the availability of our health and water supplies and are threatening our natural environment. To ensure an environmentally and economically sustainable water future, we need new approaches to transform and enhance the management and performance of our aging and new water assets.

THE SOLUTION
We believe the answer to a sustainable water future is through the connection and optimisation of all types of water using the internet, big data, advanced data science, remote monitoring and automation, on the internet, to optimise water system performance, reduce our energy, water usage, improve our management and transform our future (using to enhance our water response and protect our environment).

THE IoT WATER HUB
This hub will provide a central place for industry, academia, government, and community to discuss, share, and collaborate on water system challenges, to share water system solutions, to discuss the supporting science, to share research and to coordinate, test and report on the future of water systems. This will help address the development of smart water systems and their use in the water future, making water systems cheaper and easier to run, and providing benefits to the community and the environment.

IoT WATER HUB
an IoT space of your time, monitoring and control to deliver our water future, increasing security of water sources, monitoring and responding and engaging our community.

PROJECT TITLE
ARC Research Hub in the Internet of Things for Water

PROJECT AIMS AND BACKGROUND
Our vision is to establish a truly integrated water system for Australia by creating and implementing a sophisticated Internet of Things (IoT) infrastructure for real-time monitoring and control. Aligned with the National Reconstruction Fund (NRF), our integrated system secures the water needed to deliver the priorities areas of mining, agriculture, and transportation. By enabling the advancement of Australia's industrial capability through manufacturing of innovative sensing and the development of Artificial Intelligence (AI) technologies, this HUB creates new jobs and export potential for our Partner Organizations (POs). We strive to enhance Australia's resilience to drought and floods to maximise our productivity and improve community well-being, while protecting our environment and ecosystems. For this exclusive submission, our program has evolved over five years through seven collaborative workshops with national and international partners, that span end-users, regulators, service providers, developers, manufacturers, and researchers (Figure 1).

Australia's water system faces imminent and increasingly greater threats from population growth, urbanisation and densification, climate change, and aging infrastructure. System vulnerabilities include (1) systemic droughts that impact our manufacturing capabilities, agriculture and communities⁽¹⁾, (2) the heightened frequency of major flooding incidents⁽²⁾ which continue to damage infrastructure, choke manufacturing and inflict financial strain on society (e.g. \$74 for 2022 South East Queensland floods⁽³⁾), (3) the growth of aging infrastructure, repair of which interrupts essential transportation and costs our community \$1.4B annually⁽⁴⁾, and (4) widespread ecosystem degradation and pollution⁽⁵⁾, which impacts our health and well-being⁽⁶⁾ and reduces our productivity⁽⁷⁾.

Drivers
Existing solutions don't work

We need an integrated water future
Industrial transformation through the Internet of Things for Water

39 Partners
Investment Service Regulator End users

Figure 1. Drivers and needs of the proposed IoT for Water HUB

TEQSA Provider

Voting on project priorities (2023 workshop)

17	1.1: Sensors for measuring water quantity and quality
14	1.2: Non-contact sensing
12	1.3: Smart and remote-triggering sampling devices
15	2.1: Optimising Data collection and its management
11	2.1A: Optimizing IoT device deployment for accurate and efficient Data Management
13	2.2: The Ultimate in Visualization – the whole water cycle Digital Twin
11	2.2A: Standardizing Governance, Storage, and Asset Descriptions for Effective Use and Management
10	2.2B: WSUD asset performance and modelling
9	2.3: Emerging Networks and Security
12	3.1: Develop active real-time control approaches to better protect our ecosystem
11	3.2: RTC for flood mitigation and emergency control
12	3.3: RTC for providing alternative water sources
10	3.4: Leveraging RTC for de-carbonisation
11	4.1: The Here and Now of IoT Governance & Standards in Water
9	4.2: The IoT Water Operating Models of the Future
12	4.3: A safe Data Platform to work and play
10	4.4: Converging OT, IT and IoT data governance
12	5.1: Evaluating the social, environmental and economic benefits of real-time monitoring IoT water systems
9	5.2: Upscaling IoT systems from the catchment- to city- scale
9	5.3: Identifying investment models for Real-time Monitoring and Control water systems
11	6.1: IoT/RTC for Healthier Communities
9	6.2: Mapping social perceptions of waterways and water systems
12	6.3: Citizen driven IoT/RTMC water systems
8	6.4: Establishing 'common language' between community and water industry



MEDIA RELEASE

21 June 2024

More than \$64 million in funding to support research partnerships

Today, the Australian Research Council (ARC) announced \$29.8 million in funding for new Industrial Transformation Training Centres and \$34.7 million for 7 Industrial Transformation Research Hubs.

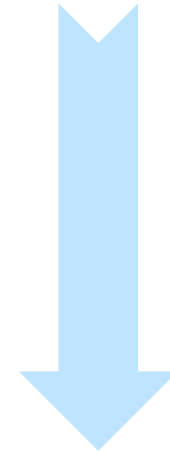
The ARC Acting Chief Executive Officer, Dr Richard Johnson, said research Hubs and Training Centres funded under the ARC's Industrial Transformation Research Program support and foster industry and university research collaboration in areas capable of driving innovation in Australian industries and developing industry-focused researchers.

"The breadth and reach of the industrially-focused research effort being funded through the program is significant for Australia. One of the Hubs aims to position the nation as a global leader in digital technologies for the water sector, delivering new real-time monitoring and control techniques to secure water for industry, society, and the environment. The Hub comes from a five-year Australia-wide industry-driven process involving 40 partners from across the water sector."

"Another of the Centres will provide capacity and training to the next generation of leaders within the building construction sector, including by focusing on circular construction processes and productivity enhancements in building construction," said Dr Johnson.

"The breadth and reach of the industrially-focused research effort being funded through the program is significant for Australia. One of the Hubs aims to position the nation as a global leader in digital technologies for the water sector, delivering new real-time monitoring and control techniques to secure water for industry, society, and the environment. The Hub comes from a five-year Australia-wide industry-driven process involving 40 partners from across the water sector."

June 2024
ARC Announcement



10 October 2025
Completed Signing of all
Agreements

Key Success Factors



Good timing

- Idea was new and exciting
- Industry recognised needs at the right moment
- Fit with industry's financial and strategic planning

Patience

- Took years to refine scope
- Industry partners needed time for internal processes
- Grant application also takes time

Effective leadership

- Champions needed in both academia and industry
- Significant time and commitment required

Collaboration

- Complementary skills across partners
- Right expertise + collaboration mindset
- Willingness to compromise made a difference

Truly industry-driven

- Projects grounded in industry needs
- Balance of industry needs and academic curiosity
- Research aligned with real-world impact

Strategies for Success



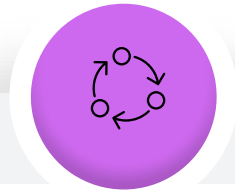
Clear governance and structure
Theme leads, working groups, and transparent decision-making processes.



Open communication
Frequent workshops, honest discussions, and willingness to adjust plans.



Balanced decision-making
Combining industry priorities with academic input, ensuring projects were feasible and impactful.



Flexibility
Being prepared to adapt when partners' needs or external conditions changed.

Challenges



Ensuring resources were allocated fairly across partners and themes. Balancing industry priorities and financial needs to deliver.



Changes in personnel, industry financial involvement, industry priorities. Need adaptive team, and build resiliency into our management

Advice for Future Hubs

Don't do it alone

Don't do it alone

Building a leadership team right from the beginning is critical



Plan ahead

Think in years, not months. If you're in a hurry, this is not the right program



Expect surprises

Partners will join, some will leave, and plans will change.



Celebrate small wins – and have fun!

Because the big wins take years to arrive

One Health: Collaboration across sectors



Monique Binet
Senior Project Manager
CSIRO (Sydney)



One Health: Collaboration across Sectors

Monique Binet, CSIRO Minimising
AMR Mission

Australia's National Science Agency





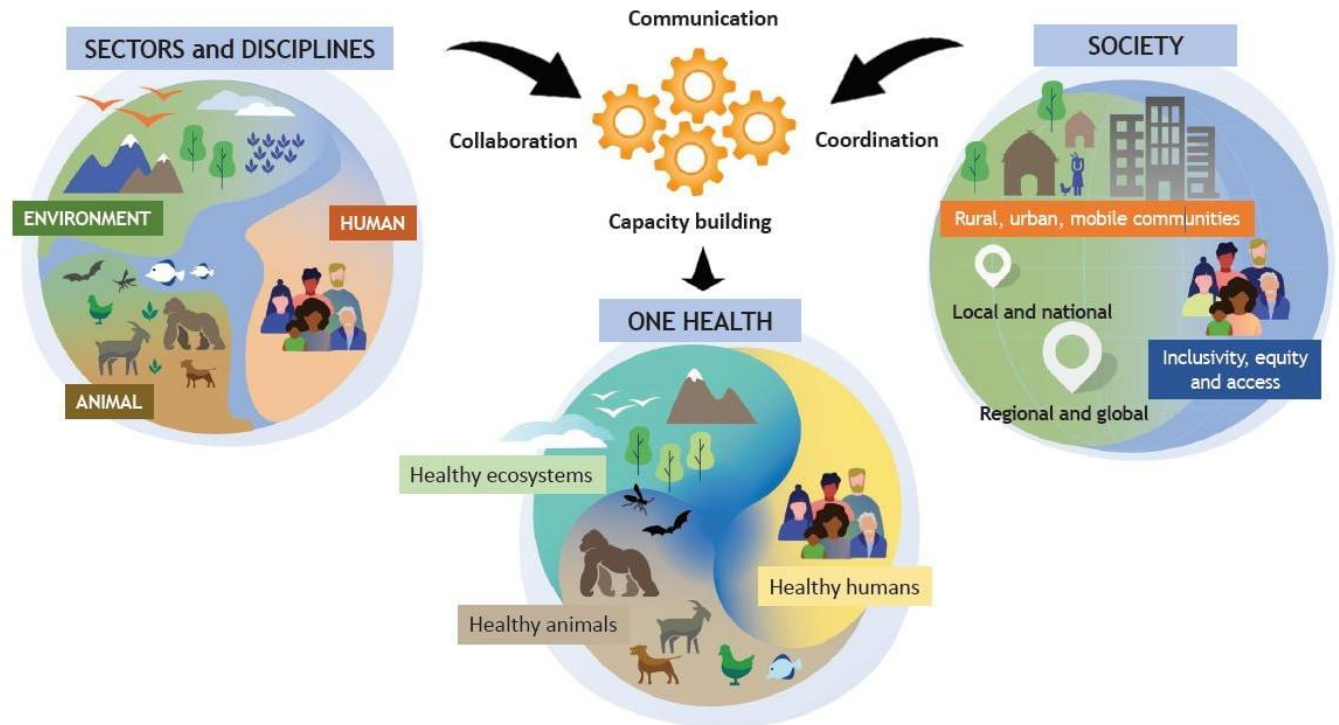
CSIRO Minimising Antimicrobial Resistance (AMR)

‘to connect, coordinate, and convene people, organisations and resources to initiate and implement evidence-informed and impact-led advice, decisions, and solutions for minimising AMR’

Links to [Minimising AMR site](#) and [AMR Action and Insights](#)

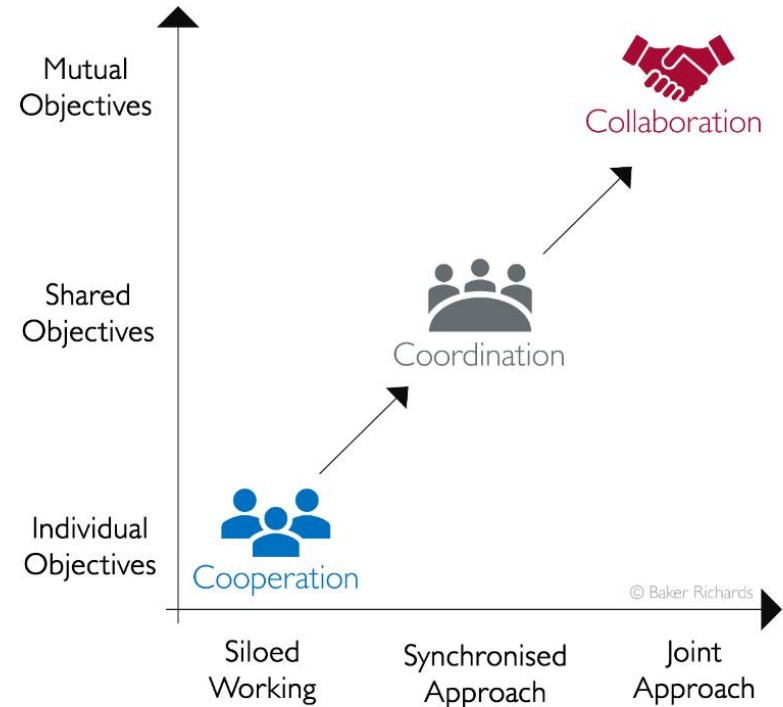
One Health – where collaboration is crucial

- One Health (OH) is a lens not a program
- All contexts of health considered
- OH approach reduces unintended negative consequences
- Collaboration at the heart



Collaboration, coordination and cooperation

- Collaboration continuum: from silos to shared vision
- Expect One Health collaborations to be messy!
- Expect One Health collaborations to take time

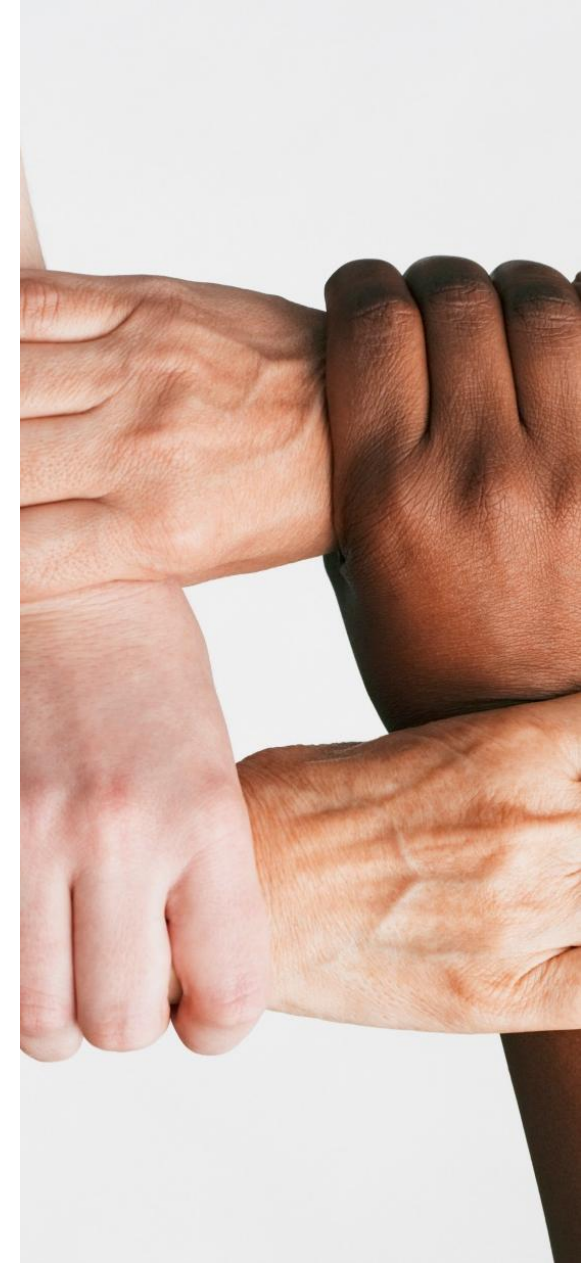
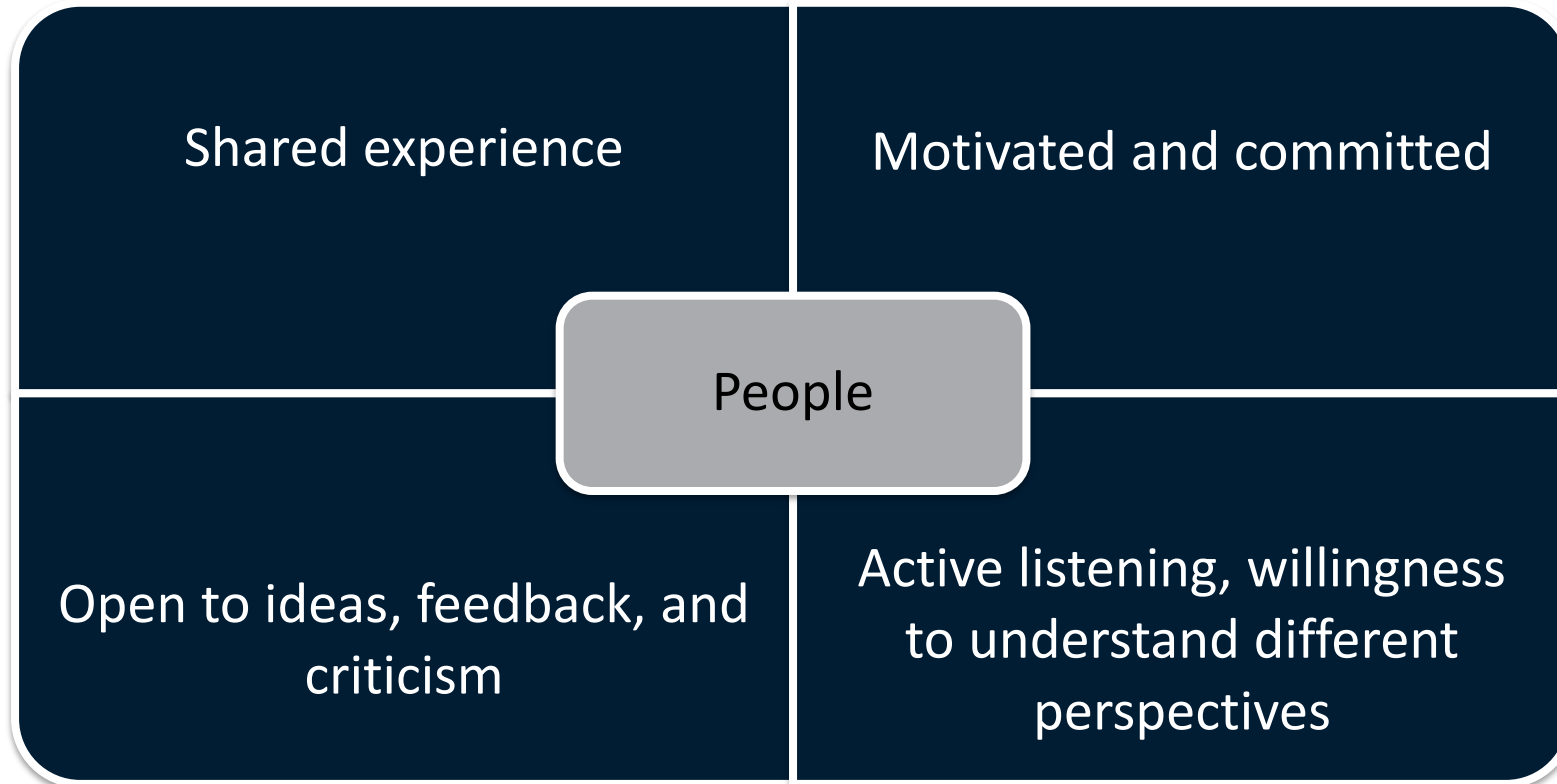


Shared Vision and Goals

- Shared vision is more than a project title
- Problem formulation through a team effort
- Real vs. perceived shared vision – are you on the same page?
- Example: One Health Surveillance - different sectors perceptions of the same identified goals



Success comes with Trust



Communication and Shared Language



Communication is more than emails and meetings



Same-same but different e.g., environment, ecosystem, environmental sampling, environmental health vs health of the environment



Early and frequent clarification prevents misunderstandings and builds trust



Flexibility in communication style is essential (project management)

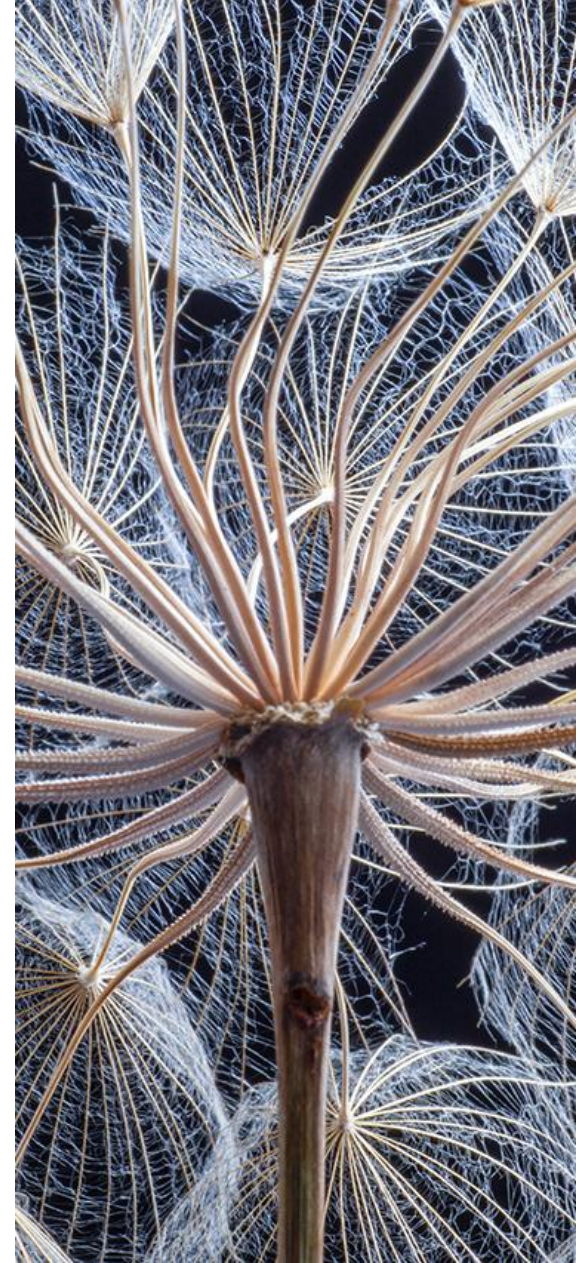
Effective Project Management (PM)

Effective PM in OH is more than just Gantt charts, meetings and risk assessments

Relationship nurturing, trust-building

Clear concise Project Plan with defined roles and responsibilities (including some weeds)

Large, complex teams benefit from a multi-sector PM team



Process Challenges in OH Projects

Timing: Stakeholder readiness varies

Funding: Ideally follows shared goal definition, but often reversed

Delays to timeframes

Contracting: Can delay projects; address issues early with project leaders

Unrealistic short timeframes for delivery on OH projects

Take-home messages



One Health is a lens to consider healthy people, animals and environments



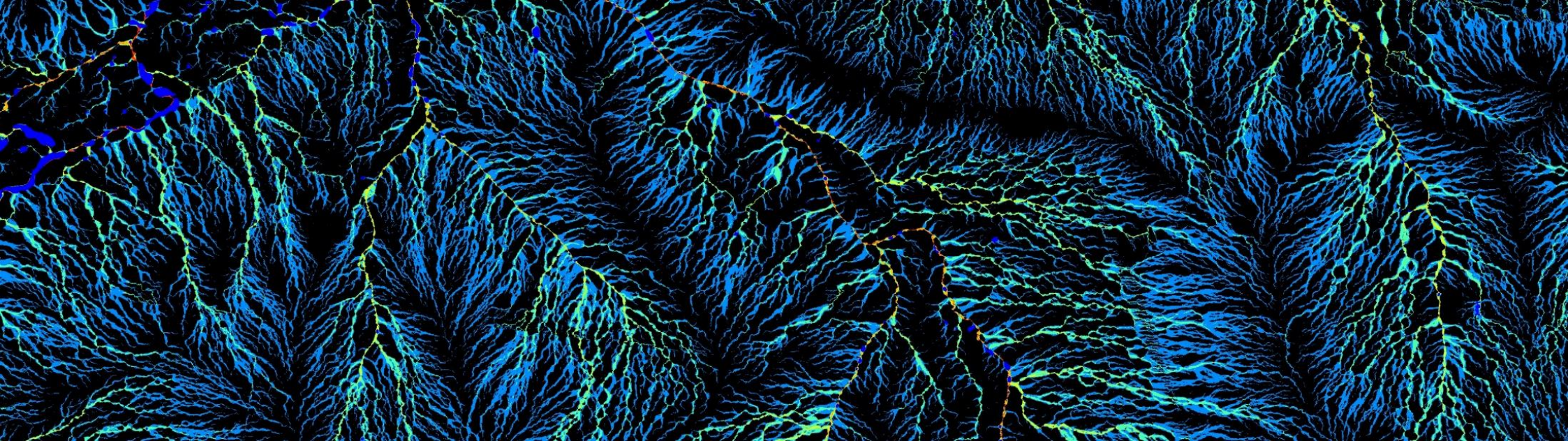
Successful One Health collaborations take time and trust



Same-same but different: shared language is everything



‘Further together’, but are we set up properly for this?



Thank you

Monique Binet
CSIRO

Monique.binet@csiro.au
csiro.au/lorem

Australia's National Science Agency



Q&A with the Panel

Join the conversation



www.menti.com

code **4722 7914**

Thank you

waterra.com.au



WaterRA_updates



WaterResearchAustralia



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