



Flow-MER Basin-scale Evaluation and Research Plan

Attachment 1: Project Management Plan 2024–25

Commonwealth Environmental Water Holder's Science Program:
Flow Monitoring, Evaluation and Research (Flow-MER)

30 June 2024

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The Flow-MER Program

Flow-MER is the Commonwealth Environmental Water Holder's (CEWH) Science Program, Flow Monitoring, Evaluation and Research. Flow-MER's objective is to monitor and evaluate the delivery of Commonwealth environmental water in the Murray–Darling Basin. It provides the CEWH with evidence to inform our understanding of how water for the environment is helping maintain, protect, and restore the ecosystems and native species across the Murray–Darling Basin. This work will support environmental water managers, demonstrate outcomes, inform adaptive management, and fulfil the legislative requirements associated with managing Commonwealth-owned environmental water.

The Flow-MER Basin-scale Project is being undertaken from 2019 to 2025 and is led by CSIRO in partnership with the University of Canberra, and collaborating with Charles Sturt University, Deakin University, University of New England, SARDI, Arthur Rylah Institute, NSW Department of Primary Industry, Australian River Restoration Centre, Alluvium and Brooks Ecology & Technology. The Program delivers to the Commonwealth Environmental Water Holder, Department of Climate Change, Energy, the Environment and Water (DCCEEW).

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Cover photograph

Aerial view of Straw-necked ibis colonies in the Booligal Wetlands.
Credit: Will Higgsion (University of Canberra)

Cover photo

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Abbreviations and acronyms

Abbreviation/acronym	Definition
ANAE	Australian National Aquatic Ecosystem
ARRC	Australian River Restoration Centre
Basin-scale	MDB scale analyses of data under LTIM, EWKR and Flow-MER
CEWH	Commonwealth Environmental Water Holder
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CSU	Charles Sturt University
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DAP	Data Access Portal
EWKR	Environmental Water Knowledge and Research Project (2014–2019)
E&R	Evaluation and research
Flow-MER	The CEWH's Science Program, Flow Monitoring, Evaluation and Research Program (2019–2025)
IMT	Information Management and Technology
IP	Intellectual Property
LTIM	Long Term Intervention Monitoring Project (2015–2019)
MDB	Murray–Darling Basin
MDMS	Monitoring Data Management System
MER	Monitoring, Evaluation and Research Program (2019–2022)
NSW	New South Wales
RDS	Research Data Service
SA	Selected Areas under the LTIM and MER programs
SARDI	South Australian Research and Development Institute
SAP	Science Advisory Panel
TBC	To be confirmed
UC	University of Canberra
UTS	University of Technology Sydney
WG	Working group

1 Introduction

This document accompanies the Flow-MER Basin-scale Project Evaluation and Research Plan 2024–25 (the E&R Plan). This is a different document to the parallel ER Plan and Project Plan for Flow-MER2.0 – the Flow-MER Basin-scale Project Evaluation and Research Plan 2024–30, and Project Plan. Two ER Plans and Project Plans operate in 2024–25; the final year of Flow-MER and first year of Flow-MER2.0.

The Flow-MER Basin-scale Project is managed for effective and efficient delivery of the evaluation and reporting needs of the CEWH, while leveraging opportunities to carry out high quality research that informs ongoing monitoring and evaluation. The Flow-MER Basin-scale Project manages the evaluation and research activities in separate streams even though work in the research stream informs the evaluation stream. This is because the two streams have different project management priorities and work to different time schedules. The aim of project management is to facilitate efficient and transparent management of the two streams and to ensure that activities deliver on Project requirements on time and within budget.

Objectives of the Project Management Plan are to:

- deliver high-quality scientific results from Basin-scale Evaluation and Research activities
- support collaboration and communication across the Flow-MER Basin-scale Project
- provide the officers of the CEWH with timely and informative technical reports and communication products that meet reporting and communication needs.

1.1 The Basin-scale Flow-MER project team

The Flow-MER Basin-scale Project is led by CSIRO in partnership with the University of Canberra and collaborating with Charles Sturt University, Deakin University, South Australian Research & Development Institute (SARDI), Arthur Rylah Institute, Alluvium, the NSW Department of Primary Industries, Brooks Ecology and Technology and the Australian River Restoration Centre. The project brings together a team to provide the scientific capability to undertake and deliver on the requirements of the Flow-MER Basin-scale Project.

The Project team is structured according to a governance and leadership model (Figure 1.1) that combines the Flow-MER Basin Themes with 4 Cross-cutting Themes (described in the Evaluation and Research Plan). The Project leadership group brings together the Leaders of the Basin Themes and the Cross-cutting Activities with the Co-Project Leaders, Project Coordinator and Project Manager. This collaborative approach facilitates integration, communication, and collaboration across Themes.

The structure supports delivery of the contractual requirements of the project, as well as:

- provides continuity with work carried out in LTIM and EWKR and through Selected Areas
- provides the capacity and support required to deliver a large and complex project
- integrates key activities to promote efficiency, collaboration and innovation
- ensures the foundations of effective collaboration are supported, including communication, role definition, decision-making and accountability
- ensures the project meets the CEWH Science Program’s expectations around adaptability, efficiency and effective communication.

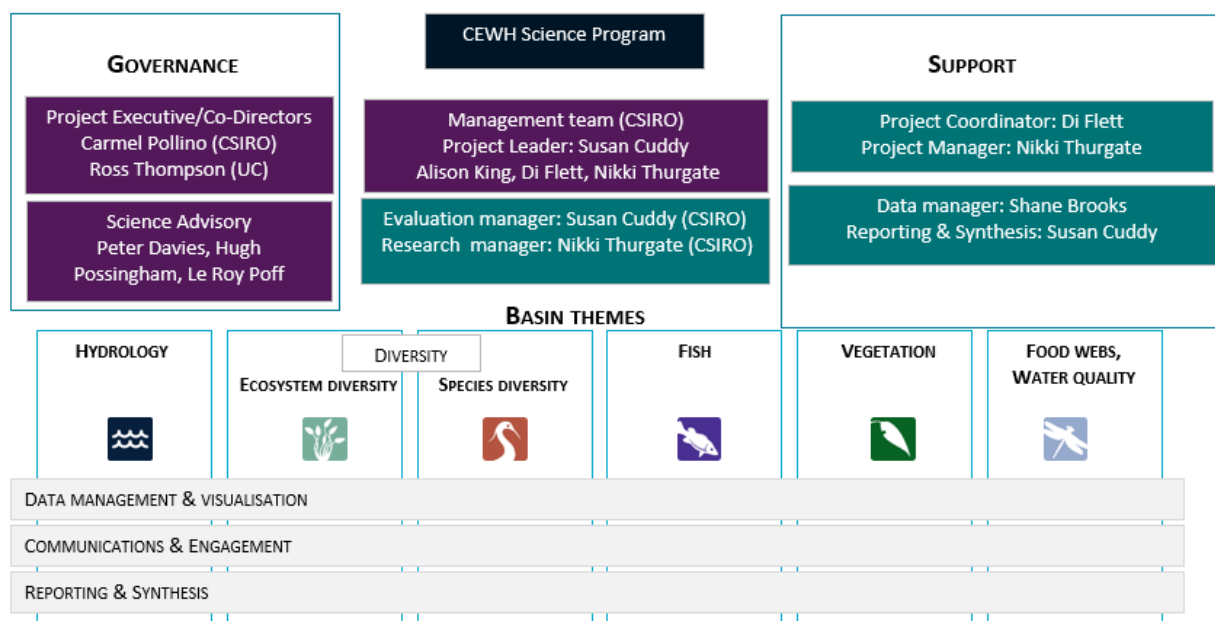


Figure 1.1 Governance and leadership model

1.2 Governance processes

- 1. Executive support.** Project co-Director Dr Carmel Pollino, CSIRO, and Professor Ross Thompson, co-Project Director, University of Canberra, support the Project Leader and the officers of the CEWH to resolve issues that may emerge during the conduct of project activities. In addition, the CEWH's Science Program convenes a Steering Committee to address issues impacting Flow-MER.
- 2. Delegated leadership.** All Project activities are undertaken within Themes, each having a Theme Leader. Leaders report on the progress of activities and are responsible for delivering reporting outputs for their Themes, including research projects. This ensures that a member of the Project Team has ultimate responsibility for each planned activity.
- 3. Approved annual plans.** Each Theme has an approved plan articulating Theme activities, schedule, and outputs. Research Projects have individual research plans that set out the activities, schedule, and outputs for the project. Science review and progress reporting requirements are included in the plans which are reviewed annually and are reflected in this Project Management Plan.
- 4. Progress reports.** Progress is monitored using quarterly progress reporting against agreed plans. Leaders of research projects provide quarterly updates on research progress. Theme Leaders provide quarterly updates on progress against plans. These reports are reviewed by the Project Leaders and reflected in quarterly progress reports to the CEWH on progress against the E&R Plan.
- 5. Key performance areas.** To ensure project management reporting captures the requirements for project success, 5 key performance areas have been described. The project team reports against the key performance areas on an annual basis. This informs the officers of the CEWH and the Project Leaders that corrective action may be required if issues are impacting performance.
- 6. Science review.** A Scientific Advisory Group advise the Project Leaders on the quality of the science being undertaken in the Flow-MER Basin-scale Project. Members of the group review plans and selected reports during the life of the project. These reviews are available to the officers of the CEWH on request and are intended to provide confidence that the Project is scientifically sound.

7. **Risk management.** A risk assessment is included in this plan, and more detailed risk assessments are included in Theme Plans. The Project Coordinator assesses residual risk (risk after mitigation in place) each quarter and any change in risk profile is reported in progress reports to the CEWH.

1.3 Roles and responsibilities

Table 1.1 Roles and responsibilities

Role	Responsibility	Responsible Person
Commonwealth Environmental Water Holder	<ul style="list-style-type: none"> Sponsor and end-user, ultimately responsible for uptake of project outputs 	Simon Banks, CEWH
Flow-MER Program Manager, DCCEEW	<ul style="list-style-type: none"> Responsible for Flow-MER Program management, communication and performance 	Jennie Fluin, CEWH's Science Program, DCCEEW
Basin-scale Project Manager, DCCEEW	<ul style="list-style-type: none"> Primary DCCEEW contact for the project, responsible for DCCEEW liaison, delivery of DCCEEW inputs to the project and receipt of CSIRO outputs from the project 	Mitchell Downey-Bechelet, Assistant Director, DCCEEW (Delegate, Ethan Wignell)
Project Executive	<ul style="list-style-type: none"> CSIRO Executive responsible for financial oversight and Australian Government contract delivery 	Dr Carmel Pollino, Research Director CSIRO Environment
Project Directors	<ul style="list-style-type: none"> Provide institutional support for the Project Leaders Champion the project among key stakeholders Responsible for the delivery of in-kind project contributions and are signatories to agreements 	Dr Carmel Pollino, Research Director CSIRO Environment Professor Ross Thompson, University of Canberra
Project Leader	<ul style="list-style-type: none"> Responsible for project delivery including project requirements, science quality and delivery of all project milestones Primary spokesperson for the project, primary contact for DCCEEW and approve report releases 	Susan Cuddy, CSIRO
Senior management team	<ul style="list-style-type: none"> Team comprising the project Leader, project manager, project coordinator and Flow-MER2.0 project leader – to provide multiple perspectives on project activities and task sharing 	Susan Cuddy, Alison King, Nikki Thurgate, CSIRO Dianne Flett, contractor
Science Advisory Panel	<ul style="list-style-type: none"> Provide independent scientific advice to the project based on extensive scientific knowledge and knowledge of the Basin. Review scientific elements of the project, and in so doing bolster the scientific credibility of the project. External review of evaluation and research outcomes. 	Prof Le Roy Poff (Colorado State University) Prof Hugh Possingham (The University of Queensland) Prof Peter Davies (University of Tasmania).
Project Coordinator	<ul style="list-style-type: none"> The project coordinator reports to the project leader on progress of activities, coordination across the project and exposure to risk, and Secondary contact for DCCEEW on progress reporting. 	Dianne Flett, CSIRO contractor
Project Manager	<ul style="list-style-type: none"> Secondary contact for the project, responsible for communication, project management, financial management and executive support. CSIRO support includes financial management, project management support and collaboration tools. 	Dr Nikki Thurgate, CSIRO
Theme Leaders	<ul style="list-style-type: none"> Each Theme leader has a team from the collaborating organisations with additional specialist expertise from consultants. Responsible for leadership of the Basin Theme, science quality of the Theme, planning and coordination of Theme activities, engagement with Selected Areas, progress reporting and delivery of agreed outputs. 	Refer to Table 2.2
Theme Personnel including research project leaders	<ul style="list-style-type: none"> Responsible for planning, coordination and delivery of activities, reporting on issues and risk and delivery of agreed outputs. 	Refer to Table 2.2

2 Key personnel

Table 2.1 Collaborators (confirmed in contract)

CSIRO Environment (lead agency)	The University of Canberra (partner)
Charles Sturt University (CSU)	The Australian River Restoration Centre (ARRC)
South Australian Research and Development Institute (SARDI)	Brooks Ecology and Technology
Arthur Rylah Institute, Victoria (ARI)	Alluvium
University of Technology Sydney (UTS)	

Table 2.2 Basin-scale MER Project team

Project leadership	Leader	
Project Leader	Susan Cuddy, CSIRO	
Senior management team member	Alison King, CSIRO	
Project Coordinator	Dianne Flett, CSIRO contractor	
Project Manager	Nikki Thurgate, CSIRO	
Basin Theme	Leader	Key Personnel
Hydrology	Ashmita Sengupta, CSIRO	Felix Egger, Alluvium Tony Weber, Alluvium
Species Diversity	Heather McGinness, CSIRO	Shane Brooks, Brooks Ecology and Technology
Ecosystem Diversity		Skye Wassens, Andrew Hall, CSU Luke Lloyd-Jones, Micha Jackson, CSIRO
Vegetation	Tanya Doody, CSIRO	Fiona Dyer, Will Higgisson, Alica Tschierschke, UC
Fish	Zeb Tonkin, ARI	Qi Feng Ye, SARDI Brenton Zampatti, CSIRO Sally Hladyz, Jarod Lyon, Charles Todd, Jian Yen, ARI Jason Thiem, NSW DPI
Water Quality and Food Webs	Paul McInerney, CSIRO	Simon Linke, CSIRO
Cross-cutting Activity	Leader	Key Personnel
Data Management and Visualisation	Susan Cuddy, CSIRO	Shane Brooks, Brooks Ecology and Technology Martin Nolan, Xinyu Hou, CSIRO
<i>Modelling (activities completed)</i>	<i>Danial Stratford, CSIRO</i>	<i>Rebecca Lester, Ashley MacQueen, Galen Holt, Deakin Luke Lloyd-Jones, CSIRO</i>
Communication and Engagement	Siwan Lovett, ARRC	Pat Gudhka, Andy Lowes, ARRC
Reporting and Synthesis	Susan Cuddy, CSIRO	Dianne Flett, Jackie O'Sullivan, Martin Nolan, Jane Thomas, CSIRO

3 Key performance areas

Table 3.1 Key performance areas, indicators and measures

Key Performance Area	Key Performance Indicator	Accountability measure
Leadership and governance	Deliver on the requirements of the CEWH	Project outputs meet CEWH's requirements
	Project team has capacity and capability	Project teams deliver project requirements
	Meet project requirements within budget	Approved financial statements
Science and Evaluation quality	Science suitable for Flow-MER Project	Science advisory group endorse project science
	Valid and viable long-term data set(s)	Data informs evaluation over multiple years
	Quality assurance processes in place	Team deliver project outputs of high quality
Reporting	Evaluation logic underpins analysis and reporting	Evaluation and analysis utilise documented logic and rationale
	Evaluation outcomes inform the CEWH	Reports meet the requirements of the CEWH
	Reports deliver on Basin-scale Flow-MER Project objectives	Reports provide information that is able to be used by the Officers of the CEWH and inform management
Project management	Meet project objectives	Project outputs deliver on project objectives
	Deliver project outputs on time	Project outputs to the Officers of the CEWH on time
	Resolve issues as they arise	No (preventable) disruption to project delivery
Communication, engagement and impact	Develop relationships to inform the Basin-scale Flow-MER Project	Increased stakeholder engagement in Basin-scale Flow-MER Project via forums and other mechanisms
	Bring stakeholders together to foster relationships	Forums held and positive feedback (survey)
	User friendly products for a range of audiences	Positive user response to products (metrics)

4 Project management approach

The Flow-MER Basin-scale Project includes activities requiring 2 approaches to project management:

- Application of standard methods where the methods are known and agreed, and desired outcomes are well understood. Project management focusses on monitoring progress, quality, changes and exceptions using progress reporting, quality reviews and documented methods to capture variations.
- Application of known methods in new ways and where the desired outcome is planned but unknown in practice. Project management aims to ensure outcomes are fit-for-purpose and meet stakeholder requirements through regular cycles of review and user-testing of the suitability of outcomes.

Table 4.1 Project type

Project type	Known method, known outcome	Unknown method, known outcome	Known method, unknown outcome	Unknown method, unknown outcome
Project management approach:	Standard methods, best practice procedures	Method development, pilot studies or trials	Regular reviews to test suitability of outcomes	Adaptive / agile approach to learn by doing
Key activity areas				
1. Basin-scale Evaluation	✓	✓		
2. Research Projects			✓	
3. Data management	✓			
4. Data visualisation			✓	
5. Basin-scale modelling			✓	
6. Stakeholder Engagement and Communication	✓			✓*

* The Indigenous engagement case study (Brad Moggridge) is testing approaches to engagement.

Activities progress through 5 phases. Each activity proceeds through a checkpoint from one phase to the next. The first 3 phases have been completed and the remaining 2 phases are the subject of this plan.

Table 4.2 Project phase

Project phase	Purpose	Outputs	Time frame	Quality assurance	Checkpoint
1. Initiation	Agreed scope	Scoping documents	Apr 2019	Theme review	Scoping docs
2. Planning	Agreed activities	Theme and cross-cutting activity plans	Jun 2019	Project Leader Project Coordinator	E&R Plan
	Agreed plans for activities	Activity and research plans	Sep 2019	Project Leader, SAP	Gateway 1
3. Commencement	Implementation	Progress reviews	Mar 2020	Project Leads	Gateway 2
4. Performance monitoring	Review of progress	Quarterly progress reports, annual review and updates to E&R Plan	Quarterly Annual (June)	Project Leader Project Coordinator	Reporting milestones
5. Completion	Final reporting	Final reports and outputs	Q4 2022/23 Q4 2023/24 Q4 2024/25	Project Leader, SAP	Reporting milestones

5 Project activities

5.1 Key activity areas

Table 5.1 Key activity areas ('-' denotes activities as needed)

Key activity areas	19-20	20-21	21-22	22-23	23-24	24-25
Evaluation						
1. Foundation Reports (as needed)	✓	✓	✓	✓	✓	✓
2. Standard Methods and Protocols	✓	✓	✓	✓	✓	-
3. Theme analysis and evaluation	x	✓	✓	✓	✓	✓
4. Reporting and reporting products	x	✓	✓	✓	✓	✓
5. Basin-scale synthesis	x	✓	✓	✓	✓	✓
6. Communication of evaluation outcomes	x	✓	✓	✓	✓	✓
Research						
1. Research project plans finalised (Gateway 1)	✓	x	x	x	x	x
2. Develop research capability and capacity	✓	x	x	x	x	x
3. Research project implementation (Gateway 2)	✓	x	x	x	x	x
4. Research meetings including progress reviews	✓	✓	✓	✓	✓	x
5. Research reporting	x	✓	✓	✓	✓	✓
6. Communication of research outcomes	x	x	✓	✓	✓	✓
Cross-cutting activities						
1. Data management	✓	✓	✓	✓	✓	✓
2. Data visualisation	x	✓	✓	✓	✓	✓
3. Basin-scale modelling	✓	✓	✓	x	x	x
4. Reporting processes and report management	x	✓	✓	✓	✓	✓
5. Stakeholder engagement	✓	✓	✓	✓	✓	✓
6. Communication activities	✓	✓	✓	✓	✓	✓
Project management and coordination						
1. Project Steering Committee	-	-	-	✓	✓	x
2. Quarterly progress reporting, plan updates	✓	✓	✓	✓	✓	✓
3. Science quality including SAP	✓	✓	✓	✓	✓	✓
4. Engagement with CEWH and Selected Areas	✓	✓	✓	✓	✓	✓
5. Flow-MER Theme and team meetings	✓	✓	✓	✓	✓	✓
6. Flow-MER Forum (LTIM Forum in first year)	✓	✓	✓	✓	✓	✓

5.2 Project timeline

Table 5.2 Activity and reporting timeline

Quarter	Activity	Deliverables	Meetings
2019–20 COMPLETE			
2020–21 COMPLETE			
2021–22 COMPLETE			
2022–23 COMPLETE			
2023–24 COMPLETE			
2024–25 Final year of Flow-MER (overlapping Flow-MER2.0)			
Jul-Aug-Sep	Research progress* (5 year) Data management	Final Research progress report* Quarterly progress report	Annual Flow-MER Forum Thematic WG Basin-scale team
Oct-Nov-Dec	Data management Research reports*	Quarterly progress report Final Research reports*	Research Meeting Basin-scale team
Jan-Feb-Mar	Basin-scale Evaluation	Quarterly progress report	Basin-scale team
Apr-May-Jun	Basin-scale Synthesis Basin-scale Evaluation – 6 Theme reports Data sets and meta data	Quarterly progress report Draft Synthesis and 6 Theme reports Final Synthesis and 6 Theme reports	Basin-scale team Thematic WG

* Research projects approved by the CEWH for continuation into 2023-24 and communication in 2024-25.

5.3 Research Management Plan

Research projects are outlined in the Evaluation and Research Plan.

Annual reports (referred to as the Synthesis report) deliver to Basin Matter theme needs (as described in the Evaluation Plan), deliver to the Stakeholder Engagement and Communications Plan, and adhere to the Data Management Plan and human and animal ethics requirements. Annual reports are reviewed by the project leadership team and external review by a member of the Science Advisory Group, prior to submission to the CEWH.

Table 5.3 Research project gateways and deliverables

Research milestone	Timeline	Deliverable
Gateway 1	September 2020	Draft research project plans Stakeholder Engagement and Communication Plan
Gateway 2	March 2020	Final research project plans Indigenous Engagement Plan
Milestone 1	June 2020	Year 1 Annual report
Milestone 2	June 2021	Year 2 Research Summary
Milestone 3	April 2022	Draft research reports
Milestone 4	June 2022	Year 3 Research Summary
Milestone 5	June 2022	Research reports (where scheduled)
Milestone 6	April 2023	Draft research reports
Milestone 7	June 2023	Year 4 Research Summary
Milestone 8	June 2023	Research reports (where scheduled)

Research milestone	Timeline	Deliverable
Milestone 9	April 2024	Draft research reports*
Milestone 10	August 2024	Year 5 Research Summary
Milestone 11	June 2024	Research reports* (where scheduled)
Milestone 12	June 2025	Year 6 Research Summary

* Research projects approved by CEWH for continuation into 2023-24 and communication in 2024-25.

5.4 Schedule of tasks

Table 5.4 Schedule of activities and tasks

Activity	Task	Start	Finish	Inputs	Outputs	Milestone	Due
Research							
Research plans	Prepare research proposals	Jul 2019	Sep 2019	Research plan	Full research proposals	Gateway 1	Complete
	Review and initiation	Sep 2019	Mar 2019	Research plan	First progress report	Gateway 2	Complete
Research data	Publish research data	Jul 2019	Jun 2025	N/A	Published data	Published data	30 June 2025
Research Projects	Refugia (BW1) Complete and published						
	Flow ecology relationships (BW2) Complete and published						
	Fish movement (F2) Complete and published						
	Remote sensing vegetation (V2) Complete and publication pending						
	Scaling (E3) Substantially complete, awaiting finalisation of reporting						
	Integrative Modelling (CC1) Complete and published						
	Data visualisation (CC2) Complete and published						
	Indigenous engagement case study Complete and published (internally)						
	Ecosystem energetics (BW3) Complete and publication pending						
	Fish populations (F1) Complete and publication pending; extension publication pending						
	Waterbird movements (E1) Complete and publication pending						
	Non-woody plant responses (V1) Complete and publication pending						
	Condition assessment (E2)	Gateway 1	Jun 2024	Research plan	Research report and outputs	Completion	30 Jun 2025
	Extended						
Evaluation Foundation activities – 2019–20 COMPLETE							
Evaluation – 2020–21 COMPLETE							
Evaluation – 2021–22 COMPLETE							
Evaluation – 2022–23 COMPLETE							
Evaluation – 2023–24 COMPLETE							
Evaluation – 2024–25							
Hydrology	Inundation mapping & modelled counterfactual flow time series	July 2024	Dec 2024	N/A	Mapping	Quality check	Feb 2025

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Activity	Task	Start	Finish	Inputs	Outputs	Milestone	Due
Data management	Data standards and meta data and publish all data	July 2024	June 2025	N/A	Approved data standards and published data and meta data	Approved data sets published	June 2025
SA data uploads	Coordination of SA data uploads	Aug 2024	Dec 2024	N/A	Approved data	Quality check	Dec 2024
Data review and analysis	Basin-scale Theme data	July 2024	Feb 2025	N/A	2024 Data products	Quality check	Mar 2025
	Compilation and review of data and SA reports	Jan 2025	Feb 2025	Data set, SA reports for Year 8	Summary, visualisation and mapping of SA data	Quality check	Mar 2025
	Analysis and evaluation	Jan 2025	Mar 2025	Compilation of data	Theme evaluations	Quality check	Mar 2025
Basin-scale Synthesis	Integrated evaluation across themes	Apr 2025	Apr 2025	Theme evaluations	Integrated evaluation	Quality check	Apr 2025
Report preparation	Theme Evaluation Reports (6)	Mar 2025	Apr 2025	Theme evaluations	Evaluation report Drafts (Themes)	CEWH and SAP review	Apr 2025
	Executive Summaries (6)	Apr 2025	May 2025	Evaluation reports	Draft report summaries (6)	CEWH and SAP review	May 2025
	Basin-scale Synthesis report (1)	Apr 2025	May 2025	Integrated evaluation	Draft Synthesis	CEWH review	May 2025
	Final reports and summaries (13)	May 2025	June 2025	Drafts and reviews	Final reports	Submission of final reports	June 2025
	Communication products including visualisations	May 2025	June 2025	Evaluation and Summary reports	Products TBA	Products completed	June 2025
Communication and engagement – including Research communication							
Develop tools	Website, resources, social media	July 2019	Dec 2019	Input from Themes, CEWH, SAs	Resources	Review	Dec 2019
Engagement	Scheduled activities	July 2019	June 2025	Input from Themes, CEWH, SAs	Ongoing activities	Annual review	June 2025
Support to SAs and team	Consultation and support	July 2019	June 2025	Input from Themes, CEWH, SAs	Ongoing activities	Annual review	June 2025
Synthesise knowledge	Briefings, stories, visualisations	July 2019	June 2025	Input from Themes, CEWH, SAs	Ongoing activities	Annual review	June 2025
Science presentation	Papers, articles, presentations, etc.	July 2019	June 2025	Input from Themes, CEWH, SAs	Ongoing activities	Annual review	June 2025
Research communication	Articles, webinars, seminars	July 2022	June 2025	Input from Themes, CEWH, SAs	Products TBA	Final review	June 2025

6 Reporting processes

A Basin-scale Evaluation Report is prepared each year for each Theme.

The outcomes are reported for the evaluation, where the outcomes of Commonwealth environmental watering will be evaluated as described in the Evaluation Plan. The research teams prepare discipline focussed progress reports and include any journal publications. These reports are for the CEWH, including the CEWH's delivery teams, and will include information collected at the Selected Area, with other information, and aggregated to a Basin-scale. These reports are written for a more technical and scientific audience and are published by the CEWH. Research outputs such as datasets are published by the CEWH.

A shorter synthesis report is produced as a high-level overview of the Evaluation and Research Reports. The audience for this report is the CEWH, water managers, stakeholders and the general public. The Synthesis is published by the CEWH.

A research synthesis is produced each year. This is an internal document summarising the outcomes of research on an annual basis. It is provided to the CEWH along with the Synthesis report and is not published. It provides the CEWH with a more detailed record of research progress over the year.

Data visualisation is used to integrate and interpret the outputs from the research and analysis themes and will be incorporated into the publications and communications products.

As part of the project governance the foundation reports (for 2020-23) for each of the six Basin Themes will be revised as required. Standard methods will also be updated as required. The research plan will be updated annually.

All of the technical and scientific outputs from the project are subject to CSIRO's rigorous internal peer review process to ensure they meet high quality standards before they are approved for delivery to the CEWH. This review is carried out by one of the project's Science Advisory Group members or expert reviewers. Reviews are recorded and approved as a part of CSIRO's ePublish review and approval process.

Table 6.1 Reporting schedule

	Annual	Start stage 2	End stage 2	As required
Progress reports to the CEWH	Quarterly			
Annual Evaluation and Research Report including Executive Summaries	Theme (6) Basin-scale			
Annual Synthesis report	✓			
Foundation reports				✓
Update to the E&R plan	✓			
Research publications			✓	✓
Communication products				✓
Data sets and meta data	✓			

6.1 Reporting milestones for the Basin-scale Flow-MER Project

Table 6.2 Reporting milestones (formal milestones are shaded darker blue)

Reporting activity	Milestone	Due
[Milestones for 2019-24 removed and available in prior versions of the PMP]		
Flow-MER 2024-25		
Satisfactory progress against research plan (5 year)*	Final research progress report	30 September 2024
Flow-MER Project synthesis materials available on-line (year 5)	Materials published	30 September 2024
Progress report to CEWH	Progress report	30 September 2024
Organise and attend annual Flow-MER Forum	Forum held	30 September 2024
Progress report to CEWH	Progress report	30 December 2024
Progress report to CEWH	Progress report	30 March 2025
Draft annual evaluation and research report to CEWH – comprising 6 Theme reports (2023/24 water year) plus final research synthesis	Draft reports	30 April 2025
Executive summaries – 6 report summaries (2023/24 water year)	Draft summaries	31 May 2025
Basin-scale Evaluation – Synthesis report (2023/24 water year)	Draft synthesis report	31 May 2025
Final annual evaluation and research reports to CEWH	Final reports	30 June 2025
Data sets and meta data published in public domain	Data published	30 June 2025
Progress report to CEWH	Progress report	30 June 2025
Flow-MER Project synthesis materials available on-line (year 6)	Draft materials ready to be published	31 July 2025
Flow-MER completion and close	All materials archived	30 September 2025

* Research projects approved by CEWH for continuation 2023–24 and communication in early 2024-25.

6.2 Meeting schedule for the Basin-scale Flow-MER Project

Table 6.3 Meeting schedule

Meeting	Attendance	Organiser	Proposed quarters
[Meetings for 2019-24 removed and available in prior versions of the PMP]			
2024–25			
Annual Flow-MER Forum	Whole of Flow-MER Project	Basin-scale Team	July Quarter 2024
Thematic Working Group(s)	Theme Leads (SAs)	Basin Theme Leads	Twice per year
Basin-scale Team	Basin-scale Team	Basin-scale Team	Quarterly

7 Communication guidelines

- All whole-of-project communication will be undertaken by the Project Leaders, Project Coordinator, Project Manager or Theme Leader for Stakeholder Engagement and Communication.
- All project communication with the staff of the CEWH will be undertaken by Susan Cuddy, Alison King, Dianne Flett, Siwan Lovett or Nikki Thurgate unless otherwise delegated.
- Theme Leaders are responsible for oversight of communication relating to their Theme.
- The Project Coordinator and the Stakeholder Engagement and Communication Theme are delegated communication responsibilities according to the Stakeholder Engagement and Communication Plan.
- Each project team member will be delegated responsibility by their Theme Leader for communication in relation to their specific expertise and project contribution.
- Project team members will be expected to alert other team members to any internal or external communication where there is overlap in responsibilities or where there are likely to be benefits from sharing communication (including to avoid confusion).
- Records are to be kept of all communication with the CEWH, staff of the CEWH, Selected Area teams and external stakeholders in accordance with CSIRO, partner organisation and contract requirements. For phone calls, dated notebook entries covering the main discussion points from the conversation will be sufficient. E-mail dialogue needs to be kept for the duration of the project.
- Decision registers or minutes are to be kept for all formal meetings.
- All project reports and published communication will be approved by CSIRO prior to public release, via the project director.
- All project reports and published communication will be branded DCCEEW and co-branded by partner organisations unless otherwise advised.
- All media enquiries will be communicated to the staff of the CEWH through the Project Director. Response to enquiries will be agreed between the staff of the CEWH and CSIRO.
- Team members are to abide by the intellectual property conditions outlined in their contract. Where they plan to publish information that is not constrained under their contract, but where the subject matter is related to the Basin-scale Flow-MER Project, it would be considered appropriate that prior notification is provided to both CSIRO and staff of the CEWH.
- It is expected that communication with external stakeholders, in any format and under any circumstances, is planned and/or coordinated through the project.
- Indigenous engagement needs to be undertaken according to the Indigenous Engagement Plan (Appendix 4) and human ethics approvals.
- Human ethics approval is required before undertaking any engagement activity involving active participation of stakeholders in the project.

8 Quality assurance, information and document management

8.1 CSIRO quality and performance management

CSIRO prides itself on scientific excellence, supported by industry best practice, project and financial management, quality assurance and review of scientific outputs. The Basin-scale Project team consists of experienced research scientists and senior research scientists who are leaders in their fields, with demonstrated track records of delivering high quality applied research.

The Basin-scale Project is managed by a CSIRO project leader who is supported by a dedicated project manager, business manager, finance team, financial management and accounting system and mandatory project management and quality assurance systems.

The technical and scientific outputs from the Basin-scale Project are subject to internal peer review processes before they are approved for delivery to the CEWH. ePublish is CSIRO's publications approval and reporting system. It supports the CSIRO publications policies and procedures and provides a workflow for the formal review and approval of all CSIRO publications.

8.2 Information management practices

Project data management is to be undertaken in accordance with the Data Management Plan.

CSIRO applies best practice information management for research data assets (records, files or other evidence from project observations, findings or outcomes). The CSIRO Research Data Management Procedure is consistent with the requirements of the Australian Code for Responsible Conduct of Research, the recommendations of the Australian Government 2.0 Taskforce and the research data management requirements of the CSIRO Code of Conduct.

8.3 Document management

Information management platforms are supported in CSIRO by the Information Management and Technology (IMT) Service. IMT provides support services collaborating both within CSIRO and externally with partners through SharePoint (Microsoft) and Confluence Wiki (Atlassian). MS Teams is used within this project for access by the project team.

8.4 References and resources

Australian Code for Responsible Conduct of Research <https://www.nhmrc.gov.au/about-us/publications/australian-code-responsible-conduct-research-2018#block-views-block-file-attachments-content-block-1> Viewed date: 30 June 2020.

Australian Government 2.0 Taskforce <https://www.finance.gov.au/tags/government-20-taskforce/> Viewed date: 3 February 2020.

PLOS ONE Data Availability <https://journals.plos.org/plosone/s/data-availability#loc-recommended-repositories> Viewed date: 14 June 2023.

9 Risk management

Risk management is a process of identifying and managing the hazards in what you are going to do, where you are going to do it, who you are going to do it with, when are you going to do it, and how you are going to do it safely and without injury, harm, damage to the property or environment, jeopardising delivery or regulatory non-compliance. The Risk Management Plan outlines when risk assessments must be undertaken, how they should be conducted, when they must be approved and reviewed, and who is responsible for them.

CSIRO has a strong track record in managing risk across projects involving a range of collaborators. All work will be conducted in accordance with CSIRO health, safety and environment policy and CSIRO's commitment to scientific and project management excellence. We require CSIRO staff to comply with the Risk Management and Control Plans established for desk-based assessments at their respective work-place sites and laboratories.

Project Leaders are responsible for assessing and monitoring project risk. Theme Leaders are responsible for assessing and monitoring risk associated with Theme activities. Each Theme have assessed risk associated with their activities these are documented in Theme Plans (internal). Project Leaders and Theme Leaders are to use the governance structure of the Program, including quarterly progress reports, to document and respond to deteriorating risk. This should be reported to Project Leaders and where necessary, to the CEWH, through quarterly reporting.

The approach to risk management adopted for this project is based on the process outlined in *AS/NZS ISO 31000:2009 Risk Management - Principles and Guidelines*, the *Commonwealth Risk Management Policy* and the *Public Governance, Performance and Accountability Act 2013 (PGPA Act)*. The project must adhere to CSIRO's Risk Policy and Procedures.

9.1 Principles

- Everyone is responsible for the effective management of risk.
- Risk management creates and protects value, and is an essential element of the overall governance of the project.
- Risk management will be applied in a consistent and systematic basis in all teams.
- Risk management is adequately resourced.
- Risk management uses the best available information to regularly monitor and report on the status of risk faced.
- Risk management is dynamic, iterative and responsive to change.

9.2 Policy

- The project activities must adhere to CSIRO's Risk Policy and Procedures including use of DoneSafe.
- The identification and management of risk is central to delivering the functions of the Basin-scale Project. This includes understanding scientific, financial, commercial and legal, health & safety, environmental, and reputational risks.
- Effective management of risk is vital to successfully capturing opportunities and delivering.

- Effective and appropriate risk management practices should be designed to assist project staff to achieve the project objective.
- The management of risk is the responsibility of all staff.
- We will maintain a consistent framework for identifying, assessing, ranking and managing risks and capturing opportunities.
- Risk controls will be put in place to manage these risks to an acceptable level. These controls will be regularly reviewed for their effectiveness and improved where necessary.
- Risk management performance will be monitored, evaluated and reported.
- By actively identifying and managing risks we aim to increase our effectiveness and provide greater certainty and confidence for the collaborators, partners, and other stakeholders.

9.3 Approach

1. Identify project risk, by:
 - Undertaking a risk identification workshop
 - Consult with project leaders, theme leaders and team members
 - Identify emerging risks through analysis of key documents and processes, and/or
 - Through project review processes.
2. Estimate the likelihood and consequence of risk and determine a risk rating
3. Describe existing risk controls and/or mitigation strategies
4. Estimate residual risk with controls and/or strategies in place
5. Implement mitigation activities and reflect these in project planning
6. Maintain a risk register and monitor residual risk
7. Report on the effectiveness of mitigation activities in progress reports
8. Use governance structure to manage issues in a coordinated and responsive manner, and
9. Annually review risk assessment in line with an annual review of the E&R plan.

10 Project risk assessment

Table 10.1 Project risk assessment (key at end of section)

Strategic Level Risks and Impacts	Inherent Risk			Mitigation Strategies	Assessed Risk		
	Likelihood	Consequence	Inherent risk rating	Risk management strategies	Likelihood	Consequence	Residual risk rating
<p>1. Path to Impact Risk</p> <p>The Basin-scale Flow-MER Project falls short of the CEWH objective to support adaptive management of Commonwealth Environmental Water</p>	Possible	Major	High	CSIRO and key collaborators to co-develop strategies with the CEWH for longer term adaptive management to ensure project benefits extend beyond the life of the project.	Unlikely	Moderate	Medium
<p>2. Reputational Risk</p> <p>In a collaborative project, no party has full control over project communication, leading to a risk that roles are misconstrued, science is misrepresented, or parties are not recognised for their contribution</p>	Possible	Major	High	The project has a Communications Protocol to ensure key messages emerging from internal research activities are communicated accurately. A collaborative governance approach ensures all parties have representation in decision making and can ensure a balanced outcome.	Unlikely	Minor	Low
<p>3. Governance Risk</p> <p>Failure of the collaboration or subcontracted collaborators to deliver to scope, standard and budget</p>	Possible	Major	High	The governance structure seeks to hold all parties accountable for delivery. Regular program reporting assists this process. Risk is shared across parties through sub-contracts.	Rare	Moderate	Low
<p>4. Market Risk</p> <p>Parties are perceived as having a conflict of interest between their role in the Basin-scale project and other research and advisory roles</p>	Possible	Major	High	See reputational risk above. In addition, maintaining transparency and regular communication through governance structure that will include all Basin-scale project partners.	Rare	Moderate	Low
<p>5. Research Risk</p> <p>Resources needed to deliver the Research and Evaluation Plan throughout Stage 2 are not available within the initial project team</p>	Possible	Major	High	The risk of not being able to secure sufficient staff to implement the Evaluation and Research Plan is reduced through the collaboration between CSIRO and the University of Canberra.	Unlikely	Minor	Low

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Strategic Level Risks and Impacts	Inherent Risk			Mitigation Strategies	Assessed Risk		
	Likelihood	Consequence	Inherent risk rating	Risk management strategies	Likelihood	Consequence	Residual risk rating
6. Financial Risk The 5-6-year project timeframe increases the risk of scope creep or over-servicing	Possible	Major	High	Quarterly financial reporting and sub-contract agreements will seek to control scope creep and under or overspend	Unlikely	Minor	Low
7. Data Risk Data from Selected Areas cannot be used for Basin-scale evaluation due to issues at the SA scale, quality, timing, delivery or application	Possible	Significant	Very high	Risk to be managed through redundancy and multiple lines of evidence (an issue with one data source shouldn't impact on evaluation using other data sources)	Rare	Minor	Low
Inadequate, insufficient, wrong scale or poor-quality data impacts quality of evaluation	Possible	Significant	Very high	Quality checks and annual evaluations to uncover issues before they impact evaluations	Rare	Minor	Low
Catastrophic loss of data, data corruption or failure of data platform	Rare	Significant	High	Data management plan in place and monitored	Rare	Moderate	Low
8. Capability Risk Analysis and evaluation impacted by lack of specialist analytical, statistical and modelling capabilities leading to incomplete, delayed or less sophisticated evaluation reports	Possible	Major	High	Spread capability risk across the team and partner organisations to reduce dependency on any one specialist. Post-doctoral fellows augment capability	Unlikely	Minor	Low
9. Capacity Risk Inability to complete reports on time due to factors impacting on the short time period for analysis, evaluation and reporting such as loss of key personnel, disruption to data, etc	Possible	Major	High	Processes in place to mitigate the impact of the tight time frames for analysis and evaluation. Quarterly reporting aims to uncover issues early and CSIRO has some capacity to fill short-term gaps in capacity across the team	Unlikely	Moderate	Medium
10. Science risk Proposed approaches don't deliver anticipated results and the evaluation is impacted	Unlikely	Significant	High	Regular scientific review and progress reporting aims to uncover any issues in the delivery of anticipated scientific outcomes	Rare	Minor	Low

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Strategic Level Risks and Impacts	Inherent Risk			Mitigation Strategies	Assessed Risk		
	Likelihood	Consequence	Inherent risk rating	Risk management strategies	Likelihood	Consequence	Residual risk rating
11. Collaboration risk Evaluation impacted by related external work losing funding or failing to deliver required results, data or findings.	Unlikely	Major	High	The project will leverage other projects and collaborate where appropriate to the achievement of project objectives but will not tie core deliverables to external opportunities	Rare	Negligible	Low
12. Knowledge risk Loss or lack of access to key people who have essential and rare or specialist knowledge	Possible	Significant	Very high	The project team has redundancy in capacity and capability so that if a core team member leaves, there is sufficient capacity to deliver	Rare	Minor	Low
13. Engagement risk Stakeholders fail to support the project, undermine objectives or disrupt activities.	Unlikely	Significant	High	A dedicated engagement team will seek to mitigate these risks. The CEWH's communication team will also be seeking to mitigate these risks	Rare	Minor	Low
14. Communication risk Poor, untimely or unfortunate communication damages the project's credibility and the ability of the team to be effective.	Possible	Significant	Very high	Communication guidelines, strong governance and due diligence around all project communications aim to minimise this risk	Unlikely	Minor	Low
15. External event risk Risk of external events impacting on the delivery of the project. So far, events have included drought, bushfires, floods and COVID-19 pandemic.	Likely	Major	Very high	Strategies to manage the impact of external events that disrupt data collection (reschedule field work and manage gaps in data) and communication (virtual communication tools)	Possible	Minor	Low

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ASSESS the risks of the activities																																															
CONSEQUENCE (credible risk)		LIKELIHOOD		IMPACT		RISK SCORE																																									
Significant	Fatality, permanent/severe impairment	Almost Certain	> 90% chance of the risk occurring or Has occurred in the last year or is expected to occur in the next year	<table border="1"> <thead> <tr> <th rowspan="2">LIKELIHOOD</th> <th colspan="5">CONSEQUENCE</th> </tr> <tr> <th>Sig</th> <th>Maj</th> <th>Mod</th> <th>Min</th> <th>Negl</th> </tr> </thead> <tbody> <tr> <td>Almost Certain</td> <td>S</td> <td>VH</td> <td>VH</td> <td>H</td> <td>H</td> </tr> <tr> <td>Likely</td> <td>VH</td> <td>VH</td> <td>H</td> <td>H</td> <td>M</td> </tr> <tr> <td>Possible</td> <td>VH</td> <td>H</td> <td>H</td> <td>M</td> <td>L</td> </tr> <tr> <td>Unlikely</td> <td>H</td> <td>H</td> <td>M</td> <td>L</td> <td>L</td> </tr> <tr> <td>Rare</td> <td>H</td> <td>M</td> <td>L</td> <td>L</td> <td>L</td> </tr> </tbody> </table>		LIKELIHOOD	CONSEQUENCE					Sig	Maj	Mod	Min	Negl	Almost Certain	S	VH	VH	H	H	Likely	VH	VH	H	H	M	Possible	VH	H	H	M	L	Unlikely	H	H	M	L	L	Rare	H	M	L	L	L	Severe
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Whole site/significant multiple equipment damage Long term damage from toxic pollutants Significant legal breach, loss of licences																																															
Major	Permanent/major impairment	Likely	60-90% chance of the risk occurring or Has occurred in the last 2 years or is expected to occur in the next 2 years			Very High																																									
	Whole building/major multiple equipment damage Prolonged damage from toxic pollutants Major legal breach, loss of one licence																																														
Moderate	Reversible medium term impairment	Possible	40-60% chance of the risk occurring or Has occurred in the last 3 years or is expected to occur in the next 3 years			High																																									
	Partial building/moderate multiple equipment damage Short term damage from toxic pollutants Moderate legal breach, non-compliance																																														
Minor	Reversible short term impairment	Unlikely	10-40% chance of the risk occurring or Has occurred in the last 4 years or is expected to occur in the next 4 years			Medium																																									
	Moderate single/minor multiple equipment damage Transient damage from toxic pollutants Minor legal breach, no sanctions																																														
Negligible	No impairment, injury or illness	Rare	<10% chance of the risk occurring or Has occurred in the last 5 years or is expected to occur in the next 5 years			Low																																									
	Temporary restriction to single piece equipment Transient damage, no external report Minor legal failing with no breach																																														

10.1 References and resources

International Organization for Standardization: ISO 31000:2009 Risk management -- Principles and guidelines <https://www.iso.org/standard/43170.html> Viewed date: 30 June 2020.

Commonwealth Risk Management Policy.

<https://www.finance.gov.au/government/comcover/commonwealth-risk-management-policy>
Viewed date: 30 June 2020

Public Governance, Performance and Accountability Act 2013 (PGPA Act).

<https://www.legislation.gov.au/Details/C2017C00269> Viewed date: 30 June 2020

CSIRO Risk policy. <https://www.csiro.au/en/About/Policies-guidelines/Our-core-policies/Risk-Policy>.

Viewed date: 30 June 2020

<https://flow-mer.org.au>



Australian Government
Commonwealth Environmental Water Holder

Partners



Collaborators



Department of Primary Industries

