

# Water Information Review

2020-21 annual report



## Background

As part of the Murray-Darling Basin Compliance Compact, Basin states are required under Action 3.10 to provide public assurance over the quality and coverage of water information for compliance and enforcement, including from hydrometric networks and hydrologic models. South Australia has accordingly published a 'Water Information Review' on the Department for Environment and Water's website.

This document provides an annual progress report against the improvement activities identified in the 'Water information Review' report, as required under Action 3.11 of the Murray-Darling Basin Compliance Compact. The 2021 annual report is correct as at 1 July 2021.

## Approval

Approval			
Date	Role	Name	Signature
18/05/2022	Director, Water Science and Monitoring	Neil Power	

## Report on 2020-21 activities

Surface Water – hydrometric network optimisation		
Measure	Target	Result
Healthy Coorong Healthy Basin activities <ul style="list-style-type: none"><li>1 x Installation of monitoring station for dissolved oxygen (sensors)</li><li>1 x Installation of monitoring station for temperature with depth on mudflats (sensors)</li><li>1 x Installation of monitoring station for turbidity (sensors)</li><li>1 x Installation of monitoring station for light (sensors)</li><li>Parnka point - 1 x Installation of new meteorology station Rain/wind/evaporation near South Lagoon instrumentation</li><li>1 x Purchase and use of 'mobile' monitoring equipment</li></ul>	Monitoring Equipment installed to HCHB Project requirements.	Complete
Sites changes from 3 to 4G Network	25%	On-Target
New telemetry and logging system for locks on River Murray and Lower Lakes Barrages upgraded.	100%	Complete
Number of hydrometric network sites upgraded <ul style="list-style-type: none"><li>Environmental watering program: 2 upgrades to existing monitoring sites to include logger and water quality monitoring - Sunlands, Overland corner</li><li>SARFIIP program (Katarpako) – 1 upgraded monitoring station - Carparks Lagoon</li><li>Main river channel – 2 upgraded monitoring sites (Berri irrigation pumping station, downstream of Lyrup)</li></ul>	All sites upgraded.	Complete

Number of new hydrometric network sites added <ul style="list-style-type: none"> <li>Environmental watering program: 5 new water quality monitoring stations with loggers (Hogwash, L3 Cobdogla, Lake Bonney NW inlet, Barmera Jetty, Lindsay Creek)</li> <li>SARFIIP program (Pike) – 2 new water quality monitoring stations (Tanyaca Creek, Col-Col bank)</li> <li>SARFIIP program (Katarapko) – 2 new monitoring stations (Eckerts Creek, Splash creek)</li> </ul>	All sites added to network.	Complete
Capital acquisition of appropriate equipment State capital program to ensure appropriate equipment to meet the demands of water monitoring in Lakes, Estuaries and Rivers.	100%	Complete
<b>Surface Water – Maintenance program</b>		
<b>Measure</b>	<b>Target</b>	<b>Result</b>
Data confidence – success rate in data collection	95%	On-Target*
Hydrometric data key stations malfunctions rectified within 3 business days.	100%	On-Target*
Hydrometric data secondary stations malfunctions rectified within 5 business days.	100%	On-Target*
Percentage of routine maintenance of sites completed to schedule.	80%	On-Target*
<b>Groundwater – hydrometric network optimisation</b>		
<b>Measure</b>	<b>Target</b>	<b>Result</b>
Number of wells surveyed to establish a more robust AHD level	TBC	41
Telemetry upgrade of Chowilla groundwater monitoring network	Complete	2 Sites
<b>Groundwater – Maintenance program</b>		
<b>Measure</b>	<b>Target</b>	<b>Result</b>
Percentage of routine maintenance of sites completed to schedule.	80%	On-Target*
<b>Hydrologic Model Review</b>		
Ground Water Models reviewed as agreed with MDBA.	Complete	Complete
Modelling Procedures reviewed.	Complete	Complete

**Note:** \* Result are qualitative from observation of no significant deviation in maintenance of sites and collection of hydrometric data from targets specified. New water monitoring database to be developed to provide quantitative reports.

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Model No.	Software	Custodian	Name	Type	Extent	Purpose/application	Status	Description of improvements
1	Source	MDBA <sup>1</sup>	Source Murray Model	Hydrological - Flow routing	Murray-Darling Basin	Resource Assessment, planning, compliance, operations. Used by South Australia for s71 <sup>7</sup> reporting and policy assessment including Critical Human Water Needs and deferral and delivery from the SA Storage Right.	Active – Independently reviewed and determined to be fit for purpose.	Ongoing improvements to functionality and extension of key inputs for application to a range of Basin Plan compliance and operational requirements.
2	Source	DEW <sup>2</sup> – SW <sup>3</sup> Team	SA <sup>4</sup> Murray	Hydrological - Flow routing	SA <sup>4</sup> River Murray – border to barrages	Long term and annual environmental water planning and actions, operations/scenario modelling	Active – Calibrated and reviewed by the MDBA <sup>1</sup> . Fit for purpose.	Ongoing improvements to functionality related to water quality and operational requirements.
3	MSM BigMod	MDBA <sup>1</sup>	MSM-BigMod	Fortran code system model	Murray-Darling Basin	Resource Assessment	Active – Historic Basin model being superseded by Source Murray Model	No longer actively developed aside from occasional development testing by MDBA.
4	MIKE FLOOD	DEW <sup>2</sup> – SW <sup>3</sup> Team	Lock 3 - Lock 6	2D Hydraulic – inundation extent	SA <sup>4</sup> River Murray – Lock 3 – Lock 6	Structure design, operations/scenario modelling including constraints management	Active – Calibrated and externally reviewed	Ongoing as necessitated by project demands and updated input data
5	MIKE FLOOD	DEW <sup>2</sup> – SW <sup>3</sup> Team	Lock 1 – Lock 3	2D Hydraulic – inundation extent	SA <sup>4</sup> River Murray – Lock 1 – Lock 3	Structure design, and operations/scenario modelling including constraints management	Active – Calibrated and externally reviewed	Ongoing as necessitated by project demands and updated input data
6	MIKE FLOOD	DEW <sup>2</sup> – SW <sup>3</sup> Team	Lock 1 – Wellington	2D Hydraulic – inundation extent	SA <sup>4</sup> River Murray – Lock 1 - Wellington	Operations/scenario modelling including constraints management	Active – Calibrated and externally reviewed	Ongoing as necessitated by project demands and updated input data
7	MIKE 11	DEW <sup>2</sup> – SW <sup>3</sup> Team	Gurra Gurra Wetland	1D Hydraulic – inundation extent	SA <sup>4</sup> River Murray – Gurra Gurra Wetland	Long term operations/scenario modelling	Active – Calibrated and used for specific project use	None planned, fit for purpose
8	MIKE FLOOD	DEW <sup>2</sup> – SW <sup>3</sup> Team	Gurra Gurra Wetland	2D Hydraulic – inundation extent	SA <sup>4</sup> River Murray – Gurra Gurra Wetland	Detailed structure design and operations/scenario modelling	Active - For specific project use	None planned, fit for purpose

9	MIKE FLOOD	DEW <sup>2</sup> – SW <sup>3</sup> Team	Lake Bonney/Loch Luna	2D Hydraulic – inundation extent	SA <sup>4</sup> River Murray – Lake Bonney/Loch Luna	Structure design and operations/scenario modelling	Active – Calibrated and used for specific project use	Ongoing as necessitated by project demands and updated input data
10	MIKE FLOOD	MDBA <sup>1</sup>	Chowilla FM	2D Hydraulic – inundation extent	SA <sup>4</sup> River Murray – Chowilla Icon Site	Operations/scenario modelling	Active – Calibrated and maintained by MDBA <sup>1</sup>	Ongoing as necessitated by project demands and updated input data
11	MIKE FLOOD	MDBA <sup>1</sup>	Chowilla Grid	2D Hydraulic – inundation extent	SA <sup>4</sup> River Murray – Chowilla Icon Site	Operations/scenario modelling	Active – Calibrated and maintained by MDBA <sup>1</sup>	Ongoing as necessitated by project demands and updated input data
12	HEC-RAS	DEW <sup>2</sup> -SW <sup>3</sup> Team	Bookmark Creek	1D Hydraulic	SA <sup>4</sup> River Murray – Bookmark Creek	Assess structure modifications and operations/scenario modelling	Active – For specific project use	None planned, fit for purpose
13	TUFLOW FV	DEW <sup>2</sup> – SW <sup>3</sup> Team	CLLMM <sup>5</sup> TUFLOW FV	Hydrodynamic	Lock 1 to Coorong	Long-term and annual environmental water planning and actions, operations/scenario modelling	Active – For specific project use	As required by specific projects
14	CHM	CSIRO	Coorong 1D Hydrodynamic Model	Fortran code	Coorong and Murray Mouth	Long-term and annual environmental water planning and actions, operations/scenario modelling	Active – Calibrated and maintained by CSIRO	As required by specific projects
15	Excel	DEW <sup>2</sup> – SW <sup>3</sup> Team	SWET wetland models	Formula	36 wetlands within SA River Murray region	Calculation of water consumption at wetlands for annual environmental water planning and actions.	Active – Calibrated and for specific project use	Transition to combined Source flow routing model ongoing

**Table 7: Summary of surface water models used in the SA Murray-Darling Basin – Eastern Mount Lofty Ranges**

Model No.	Software	Custodian	Name	Type	Extent	Purpose/application	Status	Description of improvements
1	WaterCress	DEW <sup>2</sup> – SW <sup>3</sup> Team	Angas	Rainfall-Runoff	EMLR <sup>6</sup> – Angas Catchment	Various Basin Plan reporting requirements under Schedule 12 <sup>8</sup> including s71 <sup>7</sup> and Matter 8 <sup>9</sup> .	Active – Accredited & accepted by MDBA <sup>1</sup>	None planned, fit for purpose

2	WaterCress	DEW <sup>2</sup> – SW <sup>3</sup> Team	Bremer	Rainfall-Runoff	EMLR <sup>6</sup> – Bremer Catchment	Various Basin Plan reporting requirements under Schedule 12 <sup>8</sup> including s71 <sup>7</sup> and Matter 8 <sup>9</sup> .	Active – Accredited & accepted by MDBA <sup>1</sup>	None planned, fit for purpose
3	WaterCress	DEW <sup>2</sup> – SW <sup>3</sup> Team	Currency	Rainfall-Runoff	EMLR <sup>6</sup> – Currency Catchment	Various Basin Plan reporting requirements under Schedule 12 <sup>8</sup> including s71 <sup>7</sup> and Matter 8 <sup>9</sup> .	Active – Accredited & accepted by MDBA <sup>1</sup>	None planned, fit for purpose
4	WaterCress	DEW <sup>2</sup> – SW <sup>3</sup> Team	Finniss	Rainfall-Runoff	EMLR <sup>6</sup> – Finniss Catchment	Various Basin Plan reporting requirements under Schedule 12 <sup>8</sup> including s71 <sup>7</sup> and Matter 8 <sup>9</sup> .	Active – Accredited & accepted by MDBA <sup>1</sup>	None planned, fit for purpose
5	WaterCress	DEW <sup>2</sup> – SW <sup>3</sup> Team	Tookayerta	Rainfall-Runoff	EMLR <sup>6</sup> – Tookayerta Catchment	Various Basin Plan reporting requirements under Schedule 12 <sup>8</sup> including s71 <sup>7</sup> and Matter 8 <sup>9</sup> .	Active – Accredited & accepted by MDBA <sup>1</sup>	None planned, fit for purpose
6	WaterCress	DEW <sup>2</sup> – SW <sup>3</sup> Team	Marne	Rainfall-Runoff	EMLR <sup>6</sup> – Marne Catchment	Various Basin Plan reporting requirements under Schedule 12 <sup>8</sup> including s71 <sup>7</sup> and Matter 8 <sup>9</sup> .	Active – Accredited & accepted by MDBA <sup>1</sup>	None planned, fit for purpose
7	WaterCress	DEW <sup>2</sup> – SW <sup>3</sup> Team	Saunders	Rainfall-Runoff	EMLR <sup>6</sup> – Saunders Catchment	Various Basin Plan reporting requirements under Schedule 12 <sup>8</sup> including s71 <sup>7</sup> and Matter 8 <sup>9</sup> .	Active – Accredited & Accepted by MDBA <sup>1</sup>	None planned, fit for purpose

8	Source	DEW <sup>2</sup> – SW <sup>3</sup> Team	Angas	Flow routing	EMLR <sup>6</sup> – Angas Catchment	Environmental Flow - Low flow release modelling and WAP <sup>10</sup> implementation (derivation of sustainable extraction limits).	Active – For specific project use	Ongoing in line with project demands
9	Source	DEW <sup>2</sup> – SW <sup>3</sup> Team	Bremer	Flow routing	EMLR <sup>6</sup> – Bremer Catchment	Environmental Flow - Low flow release modelling and WAP <sup>10</sup> implementation (derivation of sustainable extraction limits).	Active – For specific project use	Ongoing in line with project demands
10	Source	DEW <sup>2</sup> – SW <sup>3</sup> Team	Currency	Flow routing	EMLR <sup>6</sup> – Currency Catchment	Environmental Flow - Low flow release modelling and WAP <sup>10</sup> implementation (derivation of sustainable extraction limits).	Active – For specific project use	Ongoing in line with project demands
11	Source	DEW <sup>2</sup> – SW <sup>3</sup> Team	Finniss	Flow routing	EMLR <sup>6</sup> – Finniss Catchment	Environmental Flow - Low flow release modelling and WAP <sup>10</sup> implementation (derivation of sustainable extraction limits).	In development - For specific project use	Ongoing in line with project demands
12	Source	DEW <sup>2</sup> – SW <sup>3</sup> Team	Tookayerta	Flow routing	EMLR <sup>6</sup> – Tookayerta Catchment	Environmental Flow - Low flow release modelling and WAP <sup>10</sup> implementation (derivation of sustainable extraction limits).	In development - For specific project use	Ongoing in line with project demands. Current focus on improving base flow representation.