

# Progress Report

## GB CMA Dry Inflow Contingency Plan 2007-2008



## Background

As part of state government drought planning the Goulburn Broken Catchment Management Authority prepared a Dry Inflow Contingency Plan (Plan) in May 2007. The Plan provides the basis and direction for the management of significant river, floodplain and wetland assets in the Goulburn Broken Catchment if lower than average flows are experienced again in the 2007/08 season.

A total of 65 actions are identified that aim to maintain or avoid the local extinction of the significant river, floodplain and wetland assets. The actions include:

- Regulating flows to maintain or improve aquatic habitat.
- Enforcing or amending existing rules for water extraction to maintain or improve aquatic habitat.
- Monitoring water quality and native fish populations.
- Controlling exotic fish biomass to reduce competition with native fish species.
- Fencing out or removing stock from riparian and wetland habitats to reduce grazing pressure on native vegetation, maintain fauna habitat and reduce nutrient and sediment inputs.
- Controlling pest plants to reduce competition with native flora species and maintain or improve fauna habitat.

Of these actions 31 are of high priority. These actions aim to avoid the local extinction of priority species including Barred Galaxias, Macquarie perch, Trout Cod, Murray Cod, Freshwater Catfish and Water-shield in the Goulburn River, Broken Creek, a number of unregulated streams, and Barmah Forest.

In addition, six actions not originally identified in the Plan have been identified for implementation. These actions include water quality monitoring in the Broken Creek, threatened species monitoring in the upper catchment and habitat protection works in Barmah Forest. Of these action five are of high priority.

As the caretaker of river health and the manager of the environmental water reserve, the Goulburn Broken Catchment Management Authority has the key responsibility of delivering, implementing and monitoring the Plan. This report details the progress of the GB CMA in implementing the 65 actions in the Plan and the additional six actions recently identified for implementation.

## Results

Of the 65 actions identified in the Plan and the 6 new actions, 52% have been completed or have commenced, 16% have not commenced and 32% have not been required to be undertaken due to the scenario conditions not been met (see Table below). Of the high priority actions 74% have been completed or have commenced, 10% have not commenced and 16% have not been required to be undertaken due to the scenario conditions not been met (see Table below).

### Status of Dry Inflow Contingency Plan actions

Action Status	High Priority		Medium Priority		Low Priority		Total	
	No.	%	No.	%	No.	%	No.	%
Actions Completed	14	45	7	39	4	18	25	35
Actions commenced	9	29	0	0	3	14	12	17
Actions have not commenced	3	10	1	5	7	32	11	16
Actions not required to be undertaken	5	16	10	56	8	36	23	32
<b>Total</b>	<b>31</b>	<b>100</b>	<b>18</b>	<b>100</b>	<b>22</b>	<b>100</b>	<b>71</b>	<b>100</b>

The priority and implementation of the actions in the plan will be reviewed as new information becomes available and as the inflows, losses and demands of the river systems change. In addition, the implementation of the actions will inform the development of future Dry Inflow Contingency Plans.

The following tables identify the status of each of the 71 actions. The priority actions are listed first and all the actions are grouped under the three flow scenarios and the following headings:

- actions for regulated streams;
- actions for unregulated streams;
- actions for wetlands; and
- complimentary actions.

### Key to Tables



Action completed



Action commenced



Action has not commenced









Action not required to be undertaken






Priority Actions

Actions for Regulated Streams:

Goulburn River (2006/2007 Inflow Scenario)

No.	Location	Mgt Objective	Action	Purpose	Ecological Values Targeted	Consultation	Timing	Cost	Funding	Priority	Status	Comments
1	Goulburn Weir - Murray River (reaches 1-8)	i, ii, iii, v, vi	Obtain expert advice from the Goulburn River Scientific Panel on the ecological impacts of running 250 ML/day during winter 2007 and use the water saved in summer 2007/2008 for water quality and environmental flow management in reaches 1-14 (Cottingham et al 2007).	Minimum flow for aquatic habitat and water quality identified	Murray Cod, Silver Perch	GB CMA Board, G-MW, DSE	Completed	\$50,000	7GL	High		No water saved. However, 200GL of the water quality reserve has been made available over summer. Advise still applicable for 2008-2009 irrigation season. Was not implemented over a long enough period to identify any positive or negative ecological responses.
2	Goulburn Weir - Murray River (reaches 1-8)	i, ii, iii, v, vi	Run 250 ML/day during winter 2007 and use the water saved in summer 2007/2008 for water quality and environmental flow management (action no. 1).	Maintain aquatic habitat and water quality	Murray Cod, Silver Perch	GB CMA Board, G-MW, DSE	June 2007	NA	NA	High		Flows reduced from July and reinstated on September 17 <sup>th</sup> . Only ran at low flows in early and mid September and catchment runoff maintained flows at other times. No negative ecological response identified.
3	Goulburn Weir - Murray River (reaches 1-8)	i, ii, iii, v, vi	Monitor water quality and flow (including the installation of dissolved oxygen probes).	Inform management decisions	Murray Cod, Silver Perch	G-MW	May 2007	\$100,000	7GL	High		Dissolved oxygen probes will be installed and the bathometric survey will be undertaken by March 2008. The bathometric survey will identify deeper pools that are most likely to have oxygen stratification problems.
4	Goulburn Weir - Murray River (reaches 1-8)	i, ii, iii, v	Monitor fish abundance, diversity and condition (ARI implementing).	Inform management decisions	Murray Cod, Silver Perch	G-MW , DSE	Ongoing	\$80,000	RCIP	High		Ongoing project. On schedule to be completed in June 2008. Egg and larvae surveys have been completed, Golden Perch have been tagged and electro fishing was undertaken in October 2007 and is also scheduled for May 2008.
5	Lake Eildon – Murray River (reaches 1-14)	i, ii, iii, v, vii	Monitor fish abundance, diversity and condition following the return of normal flows to determine the recovery of fish abundance, diversity and condition.	Inform management decisions	Murray Cod, Silver Perch, other native fish	G-MW, DSE	After return of normal flows	\$100,000	VEFMAP	High		Monitoring design complete. Monitoring to commence in early 2008. In the first year of the program adult fish will be surveyed in the Broken Creek, Goulburn River reaches 1-8 and the Broken River reaches 1-2.
6	Goulburn Weir	i, ii, iii, v, vi	Monitor water quality and flow (including the installation of water quality probes).	Inform management decisions	Murray Cod, Silver Perch, general ecological values and functions	G-MW	May 2007	\$100,000	7GL	High		Extra DO, water level, temperature and EC monitoring probes are to be installed by June 2008. GB CMA is paying for their installation and monitoring for the first year and G-MW will then assume responsibility for their ongoing operation.

Broken Creek (2006/2007 and 99% Probability of Exceedence Inflow Scenarios)

No.	Location	Mgt Objective	Action	Purpose	Ecological Values Targeted	Consultation	Timing	Cost	Funding	Priority	Status	Comments
11	Nathalia to the Murray River (reaches 21-23)	i, ii, iii, v, vii	Run 80-100ML/day of Murray River Water and flushes down the creek to maintain water quality, maintain fish habitat and to operate the fish ladders.  Requires use of the Goulburn River Water Quality allocation to offset any loses (approximately 10GL).	Maintain aquatic habitat and water quality	Murray Cod	G-MW, DSE	July 2007	NA	NA	High		Minimum flow provided from the Murray River (70ML/d on average) and one flush provided from the Goulburn River. Low dissolved oxygen still a concern at Rices Weir.
New	Nathalia to the Murray River (reaches 21-23)	i, ii, iii, v, vii	Monitor water quality (including the installation of dissolved oxygen probes and a weather station)	Inform management decisions	Murray Cod	G-MW, DSE	Jan 2008	\$80,000	7GL	High		Water quality monitoring sites and the site of the weather station have been identified. Quotes have been obtained for the purchase and installation of the instruments. Instruments to be installed in January 2008. Instruments to be operational in February 2008. In addition, two DO probes have been installed in the middle reaches of the Creek as part of the Tungamah Pipeline project.
12	Nathalia to the Murray River (reaches 21-23)	i, ii, iii, v, vii	Implement the following fish monitoring program: <ul style="list-style-type: none"><li>Survey and tag fish in weir pools to understand current fish numbers and species present.</li><li>Install fish pit tag readers in weir pools to monitor fish movement upstream and downstream in response to changing water levels.</li><li>Trial the progressive draining of weir pools to determine if native fish will move downstream towards the Murray River.</li><li>Monitor fish abundance, diversity and condition following the return of normal flows to determine the recovery of fish abundance, diversity and condition.</li></ul>	Inform management decisions	Murray Cod	G-MW, DSE, ARI, DPI Fisheries	June 2007  July 2007  Aug 2007  After return of normal flows	\$200,000	7GL	High		Results of the monitoring program indicated that fish did not move downstream in response to lowering the water level in the weir pool. Part 4 of the project will be implemented following the return of normal flows.
13	Nathalia to the Murray River (reaches 21-23)	iii	If the trial proves successful (action no. 12) and passing flows of 80-100 ML/day can not be secured (action no.11) progressively drain weir pools to encourage fish migration to the Murray River. The action may need to be undertaken earlier if Azolla blooms or low dissolved oxygen levels occur.	Relocation of native fish to suitable habitat	Murray Cod	G-MW, DPI Fisheries, DSE	Sept – Oct 2007	NA	NA	High		Was not implemented as passing flows were secured.
14	All reaches	iii	Control fish biomass in pools as required.	Reduce competition for native fish species	Murray Cod	DPI Fisheries	As required	\$30,000	DPI Fisheries	High		Was not implemented as passing flows were secured.

Actions for Unregulated Streams:

2006/2007 Inflow Scenario


No.	Location	Mgt Objective	Action	Purpose	Ecological Values Targeted	Consultation	Timing	Cost	Funding	Priority	Status	Comments
16	Seven Creeks (reach 19)	i, ii, iii, v, vii	Increase urban winter extraction directly from the creek into Abbingers Reservoir in reach 17 to minimise impacts on Trout Cod habitat (reach 19).	Maintain aquatic habitat and water quality	Macquarie Perch, Trout Cod	GVW	July 2007	NA	NA	High	<div></div>	
17	Ryans Creek and King Parrot Creek	i, ii, iii, iv, v, vii	Maintain existing urban passing flows.	Maintain aquatic habitat and water quality	Ecologically Healthy River, Growling Grass Frog, Macquarie Perch	GVW, Melbourne Water, North East Water	July 2007	NA	NA	High	<div></div>	Water authorities have not requested qualification of rights. The risk to aquatic habitats posed by water extraction is in mid to late summer.
18	Holland Creek, Hughes Creek and King Parrot Creek	i, ii, iii, v, vii	Enforce existing irrigation restriction and suspension rules.	Maintain aquatic habitat and water quality	Macquarie Perch, Murray Cod	G-MW	July 2007	NA	NA	High	<div></div>	Existing irrigation restrictions and suspensions rules still in place. The risk to aquatic habitats posed by water extraction is in mid to late summer.
19	Holland Creek, Hughes Creek and King Parrot Creek	i, ii, iii, v, vii	Continue to enforce irrigation suspensions until flow conditions improve.	Maintain aquatic habitat and water quality	Macquarie Perch, Murray Cod	G-MW	July 2007	NA	NA	High	<div></div>	Irrigation suspensions are still enforced. The risk to aquatic habitats posed by water extraction is in mid to late summer.
20	Holland Creek, Hughes Creek, King Parrot Creek, Leary's Creek Seven Creeks and Sunday Creek	i, ii, iii, iv, v, vii	Establish risk management protocols for fish populations in drought affected streams.	Inform management decisions	Macquarie Perch, Murray Cod, Barred Galaxias, Trout Cod	DPI Fisheries, ARI, DSE	July 2007	\$50,000	7GL (ERA)	High	<div></div>	Contacted DSE for guidance and support on project. Have not received a response.
21	Selected streams and reaches	i, ii, iii, iv, v, vii	Continue to monitor the impact of drought on water quality, in-stream health and riparian health at a number of streams (includes purchase of a water quality monitoring kit).	Inform management decisions	Macquarie Perch, Murray Cod, Barred Galaxias, Trout Cod, general ecological values and functions	G-MW DSE	Ongoing	\$40,000	RCIP/ EWR/ RHWQ	High	<div></div>	Due to commence in early in 2008.
22	Leary's Creek	i, ii, iii,	Support the temporary removal of Barred Galaxias populations by DSE and ARI if they determine that suitable habitat is not available.	Avoid local extinction of population	Barred Galaxias	DSE ARI	Spring – summer 2007	Unknown	DSE/ARI	High	<div></div>	The Creek largely dried out. Approximately 40 fish were removed from remnant pools and are currently held in tanks at ARI. In March 2008 ARI and DSE will return the fish to the creek if suitable habitat is present. Works to enhance existing refuge pools are planned for January 2008.
23	Sunday Creek	i, ii, iii,	Support the temporary removal of Barred Galaxias populations by DSE and ARI if they determine that suitable habitat is not available.	Avoid local extinction of population	Barred Galaxias	DSE ARI	Spring – summer 2007	Unknown	DSE/ARI	High	<div></div>	The Creek dried out. A sample of the fish population was removed in October and November 2006 and is currently held in tanks at ARI. In March 2008 ARI and DSE will return the fish to the creek if suitable habitat is present.
New	Holland Creek, Hughes Creek, Seven Creeks	i, ii, iii,	Monitor fish abundance, diversity and condition.	Inform management decisions	Macquarie Perch, Murray Cod, Trout Cod	DPI Fisheries, ARI, DSE	Summer 2007	TBD	TBD	High	<div></div>	Monitoring completed and awaiting report.
New	Upper Goulburn River, Howqua River, Jamieson River, Snake Creek, Black River, Toponga River, Whire Creek	i, ii,	Population monitoring and implementation of recovery plan.	Inform management decisions	Spotted Tree Frog	DSE ARI	Summer 2007	Unknown	DSE/ARI	High	<div></div>	Monitoring completed in November and December 2007. Low numbers of frogs were recorded.

Actions for Wetlands:

Barmah Forest (All Inflow Scenarios)






No.	Location	Mgt Objective	Action	Purpose	Ecological Values Targeted	Consultation	Timing	Cost	Funding	Priority	Status	Comments
40	All of the Forest	i, ii, v, vii	Prohibit stock grazing.	Reduce grazing pressure and maintain aquatic habitat	Moirs Grass, Growling Grass Frog	DSE, PV	May 2007	NA	NA	High	<div></div>	All stock removed by end of April 2007. First time stock have been excluded from Barmah Forest in approximately 150 years.
New	War and Steamer Plain	i, ii, iii,	Maintain Murray River water levels below 10,000 ml a day to avoid shallow flooding of which encourages giant rush and RRG establishment.	Avoid local extinction of population.	Moirs Grass	DSE, PV, MDB, Murray River Water	Summer	NA	NA	High	<div></div>	Ongoing negotiation with the Murray River Water.

Barmah Forest (90% Probability of Exceedence Inflow Scenario)



No.	Location	Mgt Objective	Action	Purpose	Ecological Values Targeted	Consultation	Timing	Cost	Funding	Priority	Status	Comments
42	Selected wetlands	i, ii, v, vii	Flood selected wetlands (not the broader floodplain) using up to 10 GL as per the Murray Bulk Entitlement.	Provide aquatic habitat and drought refuge	A variety of fish, amphibians, macroinvertebrates and birds.	MDBC	Winter and spring	NA	NA	High		Scenario condition not met.

Complimentary Actions:

(2006/2007 and 99% Probability of Exceedence Inflow Scenarios

No.	Location	Mgt Objective	Action	Purpose	Ecological Values Targeted	Consultation	Timing	Cost	Funding	Priority	Status	Comments
45	Broken Creek (all reaches)	i, v, vii	Reduce Arrowhead infestations.	Reduce competition with native flora and maintain aquatic habitat	Murray Cod	DSE, PV, G-MW	October 2007	\$50,000 \$100,000	RCIP/DEP TBD	High		Details to be confirmed with Mark Finlay (G-MW).
46	Selected unregulated streams	all	Fence riparian vegetation along stream reaches which support or provide refuge for high priority ecological values to reduce stock grazing pressure.	Protect riparian and instream habitat and maintain water quality	Macquarie Perch, Murray Cod, Trout Cod, Barred Galaxias	DSE, DPI	Autumn – Spring 2007	\$90,000	RCIP/DEP	High		Details to be confirmed.
47	Unregulated streams affected by the recent fires	i, ii, iii, iv	Continue to support fire recovery planning and the development of a fire recovery plan.	Protect riparian and instream habitat and maintain water quality	Macquarie Perch, Murray Cod, Trout Cod, Barred Galaxias	DHS, DSE, DPI	Ongoing	NA	NA	High		2006/2007 program underway including water quality monitoring (water watch) and remedial works.
48	Creeks and wetlands in Barmah Forest and along the Murray River	i, v, vii	Reduce Arrowhead infestations.	Reduce competition with native flora and maintain aquatic habitat	Moirra Grass, Freshwater Catfish, Growling Grass Frog	DSE, PV, G-MW	My 2007	\$100,000	DEP	High		Infestations have been mapped by DPI Tatura. Spraying did not take place for EPA NSW did not approve the use of Glyphosate along the Murray River.
New	Priority unregulated and regulated streams	i, ii, iii	Identify drought refuges in the catchment.	Inform management decisions	A variety of fish, amphibians, macroinvertebrates and birds.	DSE, PV, DPI, CMAs	Early 2008	TBD	TBD	High		Part of larger project managed by DSE Melbourne to identify important drought refuges in northern Victoria.




90% Probability of Exceedence Inflow Scenario

No.	Location	Mgt Objective	Action	Purpose	Ecological Values Targeted	Consultation	Timing	Cost	Funding	Priority	Status	Comments
59	Unregulated streams affected by the recent fires	i, ii, iii, iv, v, vii	Continue to support fire recovery planning and the development of a fire recovery plan.	Protect riparian and instream habitat and maintain water quality	Macquarie Perch, Murray Cod, Trout Cod, Barred Galaxias	DHS, DSE, DPI	Ongoing	NA	NA	High		Scenario condition not met.
60	Creeks and wetlands in Barmah Forest and along the Murray River	i, v, vii	Reduce Arrowhead infestations.	Reduce competition with native flora and maintain aquatic habitat	Moirra Grass, Freshwater Catfish, Growling Grass Frog	DSE, PV, G-MW	My 2007	\$100,000	DEP	High		Scenario condition not met.

Other Actions

Actions for Regulated Streams:

Goulburn River (2006/2007 Inflow Scenario)

No.	Location	Mgt Objective	Action	Purpose	Ecological Values Targeted	Consultation	Timing	Cost	Funding	Priority	Status	Comments
7	Goulburn Weir – Lake Eildon (reaches 9-14)	i, ii, iii, v, vi	Monitor water quality and flow (including the installation of water quality probes).	Inform management decisions	General ecological values and functions	G-MW	May 2007	\$80,000	TBD	Low		
8	Goulburn Weir – Lake Eildon (reaches 9-14)	i, ii, iii, v	Monitor fish abundance, diversity and condition.	Inform management decisions	Native fish	G-MW, DSE	June 2007	\$100,000	TBD	Low		
9	Goulburn Weir – Lake Eildon (reaches 9-14)	i, ii, iii, v, vii	Monitor the ecological health and functioning of the river in response to the drought.	Inform management decisions	General ecological values and functions	G-MW, DSE	June 2007	\$80,000	TBD	Low		



Broken River (2006/2007 Inflow Scenario)

No.	Location	Mgt Objective	Action	Purpose	Ecological Values Targeted	Consultation	Timing	Cost	Funding	Priority	Status	Comments
10	Casey's Weir - Goulburn River (reaches 1-2)	i, ii, iii, v, vii	Monitor water quality, flow and fish movement (MDFRC implementing project).	Inform management decisions	Murray Cod, Silver Perch, Trout Cod	G-MW, DSE	Current	\$100,000	VWT	Medium	<div></div>	Ongoing project. Monitoring program developed and is currently been implemented.

Broken Creek (90% Probability of Exceedence Inflow Scenario)

No.	Location	Mgt Objective	Action	Purpose	Ecological Values Targeted	Consultation	Timing	Cost	Funding	Priority	Status	Comments
15	All reaches	i, ii, iii, v, vii	Run 80-100ML/day down the creek and flushes.	Maintain aquatic habitat and water quality	Murray Cod, general ecological values and functions	G-MW	July 2007	NA	NA	Medium	<div></div>	Scenario condition not met.

Actions for Unregulated Streams:

2006/2007 Inflow Scenario

No.	Location	Mgt Objective	Action	Purpose	Ecological Values Targeted	Consultation	Timing	Cost	Funding	Priority	Status	Comments
24	Yea River	i, ii, iii, v, vii	Maintain existing urban passing flows.	Maintain aquatic habitat and water quality	Macquarie Perch	GVW, Melbourne Water	July 2007	NA	NA	Medium	<div></div>	
25	Yea River	i, ii, iii, v, vii	Enforce existing irrigation restriction and suspension rules.	Maintain aquatic habitat and water quality	Macquarie Perch	G-MW	July 2007	NA	NA	Medium	<div></div>	
26	Yea River	i, ii, iii, v, vii	Continue to enforce irrigation suspensions until flow conditions improve.	Maintain aquatic habitat and water quality	Macquarie Perch	G-MW	July 2007	NA	NA	Medium	<div></div>	
27	Acheron River, Delatite River, Ryans Creek and Seven Creeks	i, ii, iii, iv, v, vii	Enforce existing irrigation restriction and suspension rules.	Maintain aquatic habitat and water quality	Brown Toadlet, Murray Spiny Cray, Murray Cod, Stonefly, Ecologically Healthy River, Growling Grass Frog	G-MW	July 2007	NA	NA	Low	<div></div>	
28	Delatite River	i, ii, iii, v, vii	Maintain existing urban passing flows over summer. If extra water is required it is to be extracted prior to the end of December.	Maintain aquatic habitat and water quality	Murray Cod, Stonefly	GVW	July 2007	NA	NA	Low	<div></div>	
29	Acheron River, Delatite River, Ryans Creek and Seven Creeks	i, ii, iii, iv, v, vii	Continue to enforce irrigation suspensions until flow conditions improve.	Maintain aquatic habitat and water quality	Brown Toadlet, Murray Spiny Cray, Murray Cod, Stonefly, Ecologically Healthy River, Growling Grass Frog	G-MW	July 2007	NA	NA	Low	<div></div>	

99% and 90% Probability of Exceedence Inflow Scenarios

No.	Location	Mgt Objective	Action	Purpose	Ecological Values Targeted	Consultation	Timing	Cost	Funding	Priority	Status	Comments
30	Yea River and King Parrot Creek	i, ii, iii, v, vii	Maintain existing urban passing flows.	Maintain aquatic habitat and water quality	Macquarie Perch	GVW Melbourne Water	July 2007	NA	NA	Medium	<div></div>	Scenario condition not met.
31	Holland Creek, Hughes Creek and King Parrot Creek	i, ii, iii, v, vii	Enforce existing irrigation restriction and suspension rules.	Maintain aquatic habitat and water quality	Macquarie Perch, Murray Cod	G-MW	July 2007	NA	NA	Medium	<div></div>	Scenario condition not met.
32	Holland Creek, Hughes Creek and King Parrot Creek	i, ii, iii, v, vii	Continue to enforce irrigation suspensions until flow conditions improve.	Maintain aquatic habitat and water quality	Macquarie Perch, Murray Cod	G-MW	July 2007	NA	NA	Medium	<div></div>	Scenario condition not met.
33	Yea River	i, ii, iii, v, vii	Enforce existing irrigation restriction and suspension rules.	Maintain aquatic habitat and water quality	Macquarie Perch	G-MW	July 2007	NA	NA	Medium	<div></div>	Scenario condition not met.
34	Yea River	i, ii, iii, v, vii	Continue to enforce irrigation suspensions until flow conditions improve.	Maintain aquatic habitat and water quality	Macquarie Perch	G-MW	July 2007	NA	NA	Medium	<div></div>	Scenario condition not met.
35	Holland Creek, Hughes Creek and King Parrot Creek	i, ii, iii, v, vii	Enforce existing irrigation restriction and suspension rules.	Maintain aquatic habitat and water quality	Macquarie Perch, Murray Cod	G-MW	July 2007	NA	NA	Medium	<div></div>	Scenario condition not met.

99% and 90% Probability of Exceedence Inflow Scenarios continued

No.	Location	Mgt Objective	Action	Purpose	Ecological Values Targeted	Consultation	Timing	Cost	Funding	Priority	Status	Comments
36	Ryans Creek,	i, ii, iii, iv, v, vii	Maintain existing urban passing flows.	Maintain aquatic habitat and water quality	Ecologically Healthy River, Growling Grass Frog	North East Water	July 2007	NA	NA	Low	<div></div>	Scenario condition not met.
37	Delatite River	i, ii, iii, v, vii	Maintain existing urban passing flows.	Maintain aquatic habitat and water quality	Murray Cod, Stonefly	GVW	July 2007	NA	NA	Low	<div></div>	Scenario condition not met.
38	Acheron River, Delatite River and Ryans Creek	i, ii, iii, iv, v, vii	Enforce existing irrigation restriction and suspension rules.	Maintain aquatic habitat and water quality	Brown Toadlet, Murray Spiny Cray, Murray Cod, Stonefly, Ecologically Healthy River, Growling Grass Frog	G-MW	July 2007	NA	NA	Low	<div></div>	Scenario condition not met.
39	Acheron River, Delatite River and Ryans Creek	i, ii, iii, iv, v, vii	Continue to enforce irrigation suspensions until flow conditions improve.	Maintain aquatic habitat and water quality	Brown Toadlet, Murray Spiny Cray, Murray Cod, Stonefly, Ecologically Healthy River, Growling Grass Frog	G-MW	July 2007	NA	NA	Low	<div></div>	Scenario condition not met.

Actions for Wetlands:

Barmah Forest (All Inflow Scenarios)

No.	Location	Mgt Objective	Action	Purpose	Ecological Values Targeted	Consultation	Timing	Cost	Funding	Priority	Status	Comments
41	Murray River	i, ii, v, vii	Seek consistent flows in the Murray River over time to provide habitat for fish.	Maintain aquatic habitat and water quality	Freshwater Catfish, Murray Cod, Macquarie Perch, Trout Cod, Silver Perch, Crimson-spotted Rainbowfish	MDBC	May 2007	NA	NA	Medium	<div></div>	Consistent flows achieved and should be maintained over the summer period.
New	Gulf and Smith Creeks	i, ii, iii,	Pass environmental flows down Gulf and Smith Creeks if habitat is compromised.	Provide aquatic habitat and drought refuge	Pygmy Perch.	DSE, PV, MDBC	Summer 2008	NA	NA	Medium	<div></div>	The Creeks still provide suitable habitat.

Tahbilk Lagoon (All Inflow Scenarios)








No.	Location	Mgt Objective	Action	Purpose	Ecological Values Targeted	Consultation	Timing	Cost	Funding	Priority	Status	Comments
43	All of the lagoon	i, ii, v, vii	Isolate from Goulburn Weir fluctuations and keep water levels topped up as required.	Maintain aquatic habitat and water quality	Freshwater Catfish, Watershield	G-MW, Tahbilk Winery	May 2007	NA	NA	Low	<div></div>	Lagoon is currently supplied with water from the Goulburn River via losses. G-MW will alert the GB CMA of any reductions in Goulburn Weir that may threaten the supply.
44	All of the lagoon	i, ii, v, vii	Prohibit recreational fishing	Protect population	Freshwater Catfish	DSE Fisheries, Tahbilk Winery	May 2007	NA	NA	Low	<div></div>	Recreational fishing occurs infrequently and does not pose a threat to native fish populations.

Complimentary Actions:






2006/2007 and 99% Probability of Exceedence Inflow Scenarios

No.	Location	Mgt Objective	Action	Purpose	Ecological Values Targeted	Consultation	Timing	Cost	Funding	Priority	Status	Comments
49	Goulburn Weir - Murray River (reaches 1-8)	i, v, vii	Reduce Arrowhead infestations.	Reduce competition with native flora and maintain aquatic habitat	Murray Cod, Silver Perch, Western Water-starwort	DSE, PV, G-MW	Winter 2007	\$20,000	RCIP	Medium	<div></div>	
50	Goulburn Weir - Murray River (reaches 1-8)	i, ii, v, vii	Reduce stock grazing pressure on riparian habitat on crown land	Protect riparian and instream habitat and maintain water quality	Growling Grass Frog, River Swamp Wallaby-grass, Murray Cod, Silver Perch, Western Water-starwort	DSE, PV	June 2007	NA	NA	Medium	<div></div>	Details to be confirmed.
51	Selected unregulated streams	all	Fence riparian vegetation along stream reaches which support or provide refuge for medium priority ecological values to reduce stock grazing pressure.	Protect riparian and instream habitat and maintain water quality	Macquarie Perch, Spotted Tree Frog, Barred Galaxias, Ecologically Healthy River	DSE, DPI	Autumn – Spring 2007	\$90,000	RCIP/DEP	Medium	<div></div>	Details to be confirmed.

2006/2007 and 99% Probability of Exceedence Inflow Scenarios continued

No.	Location	Mgt Objective	Action	Purpose	Ecological Values Targeted	Consultation	Timing	Cost	Funding	Priority	Status	Comments
52	Shepparton Irrigation District	i, v, vii	Reduce Arrowhead infestations.	Reduce spread and establishment of weed	Priority streams and wetlands	G-MW	October 2007	\$100,000	G-MW	Low		Details to be confirmed.
53	Goulburn Weir	i, v, vii	Reduce Mexican Water-lily infestations	Reduce competition with native flora and maintain aquatic habitat	Water-shield	G-MW	Summer 2007–2008	\$10,000	G-MW	Low		Control trials completed. Control program to commence in February 2008
54	Benalla Lake and Casey's Weir	i, iii, v, vii	Reduce Cabomba infestations	Reduce competition with native flora and maintain aquatic habitat	Murray Cod, Trout Cod, Macquarie Perch	G-MW	TBD	\$80,000	WONS	Low		Details to be confirmed.
55	Selected unregulated streams	all	Fence riparian vegetation along stream reaches which support or provide refuge for low priority ecological values to reduce stock grazing pressure.	Protect riparian and instream habitat and maintain water quality	Murray Spiny Cray, Brown Toadlet, Murray Cod, Stonefly, Dookie Daisy, Growling Grass Frog, Ecologically Healthy River, Barred Galaxias, Damselfly	DSE, DPI	Autumn – Spring 2007	\$90,000	RCIP/DEP	Low		Details to be confirmed.
56	Boosey Creek (reach 32)	i	Monitor condition and abundance of the Amulla population.	Inform management decisions	Amulla	PV	Spring 2007	NA	NA	Low		
57	Boosey Creek (reach 32)	i	Fence Amulla population to protect from native grazing pressure if required.	Maintain population	Amulla	PV	Spring 2007	\$500	DEP	Low		
58	Boosey Creek (reach 32)	i	Collect Amulla seed for potential re-establishment.	Maintain population and its genetic diversity	Amulla	PV	Spring – summer 2007	NA	NA	Low		

90% Probability of Exceedence Inflow Scenario

No.	Location	Mgt Objective	Action	Purpose	Ecological Values Targeted	Consultation	Timing	Cost	Funding	Priority	Status	Comments
61	Selected unregulated streams	all	Fence riparian vegetation along stream reaches which support or provide refuge for high priority ecological values to reduce stock grazing pressure.	Protect riparian and instream habitat and maintain water quality	Macquarie Perch, Murray Cod, Trout Cod, Barred Galaxias	DSE, DPI	Autumn – Spring 2007	\$90,000	RCIP/DEP	Medium		Scenario condition not met.
62	Selected unregulated streams	all	Fence riparian vegetation along stream reaches which support or provide refuge for medium priority ecological values to reduce stock grazing pressure.	Protect riparian and instream habitat and maintain water quality	Macquarie Perch, Spotted Tree Frog, Barred Galaxias, Ecologically Healthy River	DSE, DPI	Autumn – Spring 2007	\$90,000	RCIP/DEP	Medium		Scenario condition not met.
63	Broken Creek, Broken River and Moodies Swamp	i, ii, v, vii	Direct spring winter freshes down the Broken Creek to inundate Moodies Swamp and the middle sections of the creek.	Provide aquatic habitat	Brolga, wetland of nationally significance, general ecological values and functions	G-MW, PV	Winter and spring	NA	NA	Low		Scenario condition not met.
64	Moodies Swamp and Broken Creek (reaches 25-27)	i, ii, v, vii	Monitor the impact of diverted freshes on the health and functioning of the Creek and Moodies Swamp	Inform management decisions	Brolga, wetland of nationally significance, general ecological values and functions	PV, DSE	Following the event	\$80,000	OWOF	Low		Scenario condition not met.
65	Selected unregulated streams	all	Fence riparian vegetation along stream reaches which support or provide refuge for low priority ecological values to reduce stock grazing pressure.	Protect riparian and instream habitat and maintain water quality	Murray Spiny Cray, Brown Toadlet, Murray Cod, Stonefly, Dookie Daisy, Growling Grass Frog, Ecologically Healthy River, Barred Galaxias, Damselfly	DSE, DPI	Autumn – Spring 2007	\$90,000	RCIP/DEP	Low		Scenario condition not met.