

Watercourse Best Management Practice

Why a Watercourse BMP?

The Best Management Practice (BMP) program began in 2000 with the release of the Angas Bremer Code of Practice for Irrigators. A series of Risk Assessment workshops have been held since then to determine priority risks for the Angas Bremer Irrigation Management Zone (ABIMZ) and what needs to be done to manage those risks.



The watercourse diversion BMP was established following announcement of the Notice of Restriction on the Eastern Mt Lofty Ranges and the possibility of future Prescription of the Angas and Bremer Rivers (watercourses). The possibility of prescription raised community concerns regarding continuation of watercourse diversion practices as all extractions from prescribed water resources must be metered in accordance with the State Metering Policy. However accurate metering of watercourse diversions is extremely difficult.

Lack of watercourse diversions posed another significant risk to maintaining the health of the districts red gums. A study was launched that examined the health of the districts red gums and a key finding of the report was that 90% of the red gums in the region were in the healthy category. These trees were subject to flooding by either a) watercourse diversion events or b) natural flood events. This result suggests that current diversion practices are not detrimentally impacting on the health of the red gums. The remaining 10% of trees that were not in the healthy category were generally not in locations subjected to inundation by flood waters.

In February 2005, a workshop was held to identify BMP for watercourse diversions. Examples of BMP include; only diverting water from the Rivers if the salinity is less than 1,500 mg/L, notifying neighbours and ongoing monitoring and reporting of diversion events. This will enable early detection of potential risks such as water logging, or declining vegetation health.

It is advantageous that everyone who diverts water from either the Angas or Bremer Rivers participates in the ongoing BMP program, as it demonstrates the districts commitment to working towards sustainable development by achieving both economic and environmental benefits.

If you did not attend the training workshops and/or do not feel confident completing the watercourse or vegetation monitoring tools please contact Lyz Risby on 0427 970 142.



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Watercourse Diversion Monitoring Tool guidelines

What?

A watercourse diversion monitoring tool is a record sheet to assist diverters to accurately record their diversion practices, and follow best management practice principles, such as achieving the regional objective of providing environmental water to the red gums and red gum swamps.

Why?

Employment of best management practices regarding watercourse diversions demonstrates the districts commitment to working towards sustainable development. It will also assist in providing first order estimates of the volume of water being diverted or the area of land being flooded.

When?

The Watercourse diversion monitoring tool needs to be filled in at each diversion event (ie. every time you flood your property on purpose). It does not need to be filled in for natural or uncontrolled floods which are already part of the Irrigation Annual Reporting program.

How?

1. *Code your system.* Using the aerial photograph provided by ABWMC showing your weirs, floodgates and/or sluices*, give a unique code to each structure using the following coding system (this is best done prior to flood season):

Weir = in-stream structure used to build up water in creek to flow overbank

Code as W01, W02,

Floodgate = structure in levee that allows water to flow from the stream into the block

Code as F01, F02,

Sluice = structure used to manipulate flow between blocks (including pipes and channels)

Code as S01, S02,

Block = discrete irrigated areas e.g. vineyard block

Code as B01, B02,or use existing block names/numbers

Pumps = pumps used to take water from either the Angas or Bremer Rivers or used to move water between blocks

Code as P01, P02,

*if the photo does not show all your structures please mark additional structures and codify as above.

2. *At each diversion event* fill in the monitoring tool step-by-step, guided by the following:

Trigger what made you decide this was the right time to divert. For example, river height at Stanton's weir, my neighbour let out flood waters etc.

Salinity: the salinity of the Bremer or Angas River water you intend to divert must be measured prior to diversion. **If the salinity is greater than 2,500 EC (1,500 mg/L), then do not divert water.** Water of this salinity or greater is considered too risky to divert and should be left in the rivers to flush salt out of the system. A salinity meter is situated on the Bremer River just upstream of Langhorne Creek township and this can be rung up for the latest salinity reading (ring 08 8537 3127). If you use your own salinity meter make sure it is calibrated and working properly. ABWMC provide a free salinity reading service for samples left at the Post Office but the turnaround time is probably too long for using for assessing whether to divert or not.

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Objectives: tick one or more boxes if they apply and specify any other objectives you had in mind for this diversion.

Targets: a target describes what you want to achieve in a way that can be measured. For example, target = soil wetting front to reach 3m depth within 7 days of flooding or target = fill low spots in vineyard then hold water until moisture reaches 2m gypsum block. Please be as descriptive as possible about what you want to achieve. Describe your target in terms of depth of soil wetting, area of flooding, time of flooding and/or any other targets you may have.

If we monitor soil moisture and groundwater responses to each flood diversion event then we can refine holding times for future diversions. It is recognised that irrigation blocks naturally vary in height therefore different spots will be wetter for longer or shorter periods.

Communications: this section is voluntary but proof of communications may be useful to you if diverted water flows through your property to a neighbour or over a road. Record the date, time, person you spoke/wrote to, the details of what was said & any actions that were required.

Diversion Actions: this is where you record every action you take to divert water onto and through your property. Actions may be opening or closing structures, putting up 'water over road' signs, reading soil moisture probes etc. etc. Please record the date, the structure code, the action taken, the time & any outcome that was observed. This will improve our understanding of diversion practices at a regional scale as well as providing a tool for you to record and manage your actions. Particular note should be made of any obvious salinisation.

Vegetation Health Monitoring Tool guidelines

What?

The vegetation health monitoring tool is a record sheet to track the health of red gums along the Angas and Bremer Rivers, Mosquito Creek and in swamps throughout the district. This will enable us to determine whether current practice is maintaining their health or whether changes need to be made.

Why?

Red gums need more water than just rainfall to be healthy. Studies in the Angas Bremer Prescribed Wells Area show that approx. 90% of the red gums are in the top health class. For comparison, a survey of red gums along 1450km of the Lower River Murray in 2004 showed only 25% of trees in the top health class. The health of some trees in the Angas Bremer area can be improved, particularly those trees stranded in crops or paddocks that are not regularly flooded. Also the health of the understorey can be improved in many areas. This tool will track red gum health over time and improve understanding (and management) of what makes a red gum stand healthy.

When?

The Vegetation Health monitoring tool needs to be filled in completely between December 2005 and February 2006 and submitted to the ABWMC (please keep a copy for your own records). After that, you will receive a shortened form in December each year to be completed by February. The data on the percentage of red gums in each health class will need to be transferred to your Irrigator Annual Report form each June.

How?

1. *Select a site.* Find a patch of trees along the creek or in a swamp (low lying area) that is at the downstream end of the creek on your property or an area of trees that need

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water diversion to get water in anything but a very large natural flood. A patch of trees approximately 300m long or wide is best but if you have less trees than that just monitor as many as possible, then:

- a. mark the site with a dropper or similar so it can be found each year
- b. take a photo of the trees from different angles to show density and understorey

2. Between December and February each year fill in the monitoring tool.

Section One: Site details

Stream or Swamp Cross-section: draw a simple cross-section of the site showing the direction of water flow, the approximate depth of the stream channel or swamp (depression) and location of red gums and other major plant types.

Overstorey: draw a line to represent how continuous the Overstorey canopy is for approx. 300m length (state approx. distance if less than 300m). A continuous line shows that the tree canopies are all touching and breaks in the line are proportional to the number and length of gaps in the canopy. Under this, give an estimate of the % of the different types of overstorey trees with particular emphasis on which are natives or not.

Understorey: draw a line to represent how continuous the Understorey canopy is. The understorey is the shrubs, reeds and other plants that live under the canopy of the trees. Again, a continuous line shows that the shrubs, reeds etc are all touching and breaks in the line are proportional to the number and length of gaps in the understorey canopy. Under this, tick or cross each type of plant to show which plants are present (tick) and which are absent (cross). Please tick or cross each plant type to show you have looked for each.

Water plants: if water is present, look for water plants and tick the ones that are present and cross those that aren't. Emergent plants are rooted in the ground and stick out of the water, submerged are rooted but mostly underwater and floating are not rooted and float on the water surface.

Weeds: once again tick those that are present and cross those that aren't.

Section Two: Redgum health

Redgum health: using the photos and descriptions of trees in the six different health classes provided, estimate the % of red gums in your patch that fall into each health class. The total should add up to 100%. This is intended to not take more than 10 minutes. Then circle either the green "getting better" arrow or the red "getting worse" arrow to show whether you think the tree health is changing for the better or worse.

Water source: tick the box if irrigation regularly occurs within 5m of the red gums and nominate the dates of recent floods (since 2000) that have given the trees a drink.

Redgum recruitment: recruitment refers to the germination and growth of new red gum trees. If there are young red gums (less than 3m tall) on your patch please fill in as much detail as possible about their heights and dates of germination. If they are grazed, please nominate what animals are grazing upon them.

Section Three: Swamp score card

This is designed to help you understand the risks to the health of the red gums on your patch and how to improve your management. You do not need to supply the results to ABWMC but you should aim to improve your swamp score over the years.