



Amending the Water Allocation Plan for the River Murray Prescribed Watercourse

Environmental Land Management Allocations

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This paper outlines Environmental Land Management Allocations (ELMA) and how they have been incorporated into the draft Water Allocation Plan for the River Murray Prescribed Watercourse (the plan). Background into ELMA and the options considered for the plan are also detailed in this paper. The Board is keen to hear what you think of the draft plan.

What has been included in the draft plan?	Principles and objectives regarding the allocation and use of ELMA have been included in the draft plan.
Why was this option chosen?	<ul style="list-style-type: none"> ELMA is required to provide for appropriate land management of the Lower Murray Reclaimed Irrigation Area (LMRIA).
How does this change from the current plan?	<ul style="list-style-type: none"> The approach and intent of the current plan has been maintained with minor changes. Objectives highlight the importance of ELMA and it is made clear that ELMA cannot be traded.
What does this mean for me?	<ul style="list-style-type: none"> In practice there is no change to how the policy affects you. ELMA is only available to those within the LMRIA.
How can I provide feedback on this proposal?	<p>You are invited to provide feedback on the draft plan until the close of formal consultation on 27 February 2015.</p> <p>Written submissions can be made:</p> <p>Online: www.naturalresources.sa.gov.au/samurraydarlingbasin Via email: rmwap.feedback@sa.gov.au By post: Peta Brettig, Senior Project Officer, River Murray WAP Natural Resources SA Murray-Darling Basin GPO Box 2834 Adelaide SA 5001</p> <p>Or contact Peta to discuss: Peta Brettig 8463 6877 / 0439 824 477</p>
Key points	<ul style="list-style-type: none"> Appropriate scheduling of ELMA is essential in managing the risks associated with historically high saline groundwater levels, acid sulphate soils and protection of private and public infrastructure, including the integrity of the River Murray levee banks. The application of ELMA is essential to maintaining the productive capacity of the LMRIA and, when applied properly, can assist production. Drought has demonstrated the risks to the soil profile associated with not applying ELMA as intended including cracking and slumping of soils, slumping of levee banks and the generation of acid soil conditions.

Background

This paper relates to Class 8 entitlements known as Environmental Land Management Allocations (ELMA). ELMA is only applicable within the area described as Lower Murray Reclaimed Irrigation Area (LMRIA) (see Attachment 1).

The total area of productive farms remaining in the LMRIA is estimated to be 3,192 ha. Historically there was approximately 5,200ha of productive irrigated farm land (EPA 2009) which was used almost exclusively for dairy production. Approximately 4,200ha of this land was rehabilitated under an LMRIA project in 2008, with approximately 1,000ha of land retired from farming and not



rehabilitated (EPA 2009). Dairy production has reduced from approximately 5,000ha to 1,866ha—a reduction of approximately 63% (Philcox 2012) due to drought and changes in the dairy industry.

Figure a

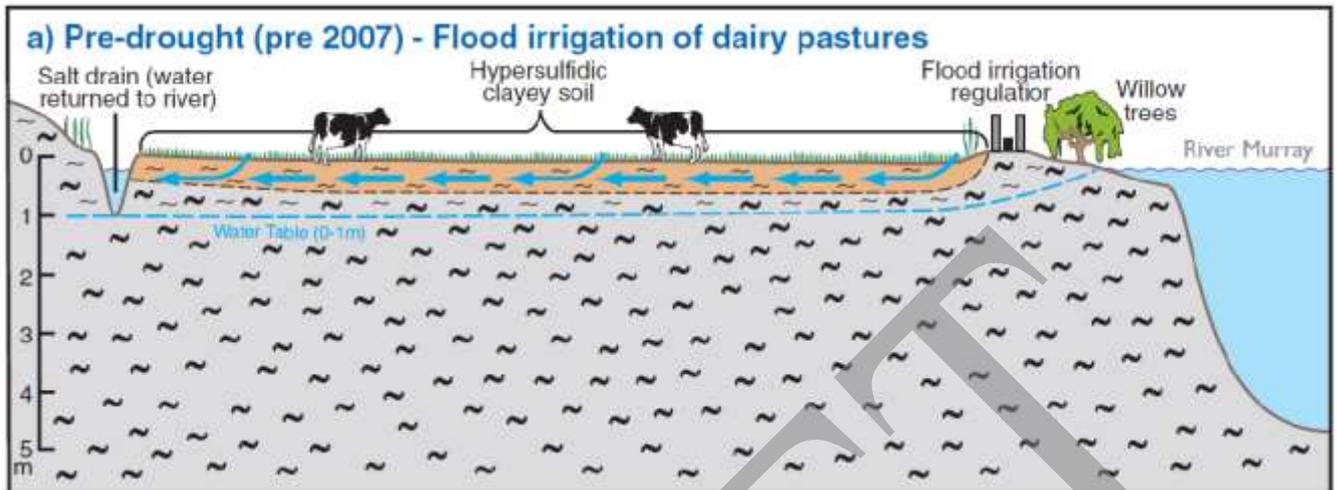


Figure b

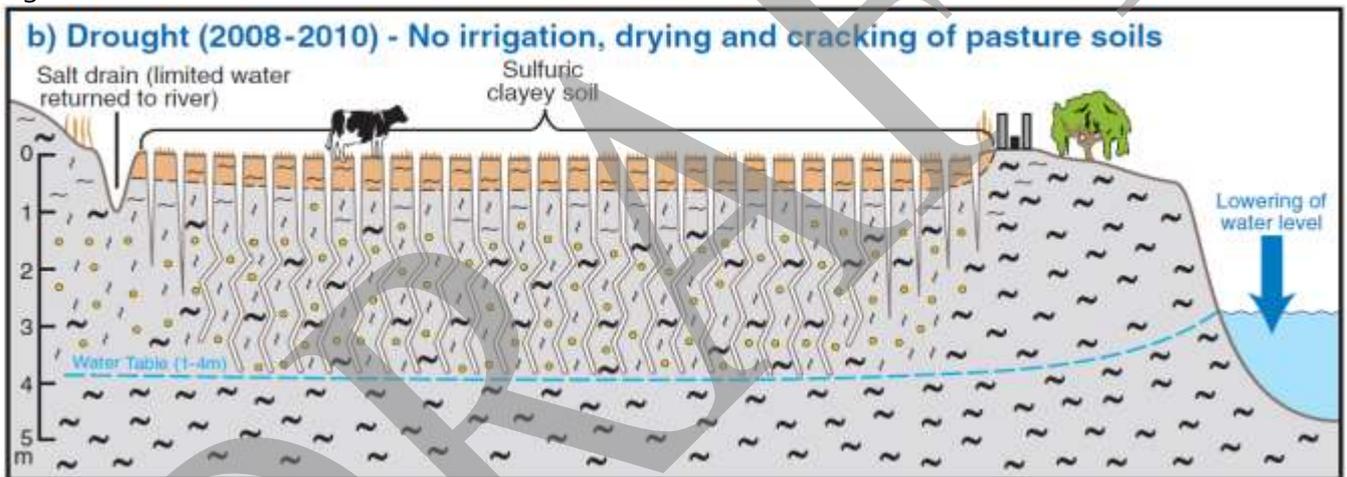
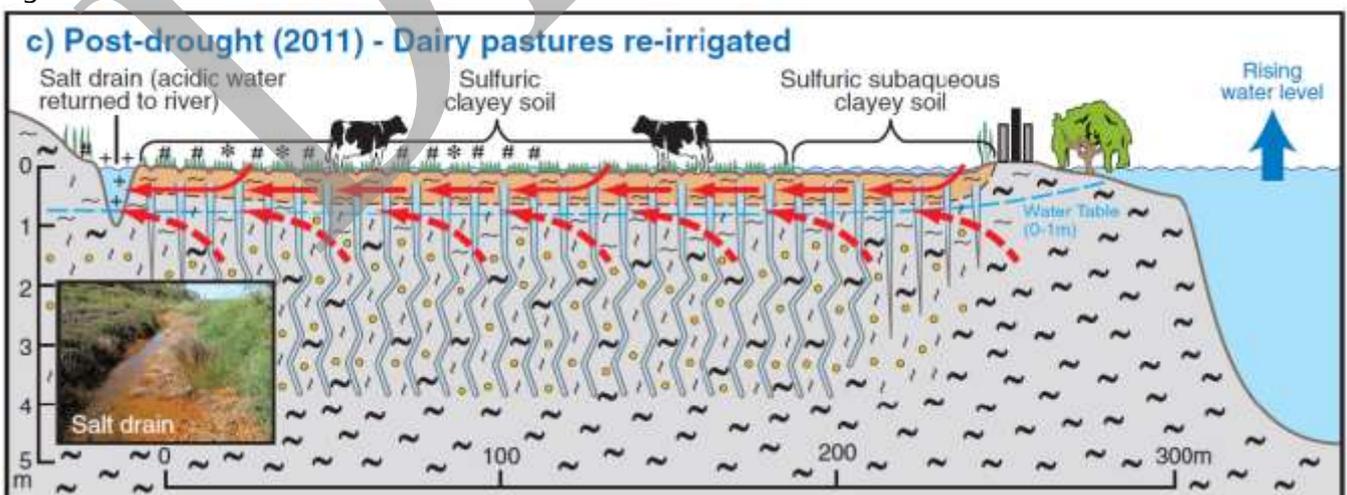


Figure c





The 2009 plan provides (and limits) 22.2GL (representing 22,200,000 unit shares) for ELMA, and categorises it as its own water access entitlement class (or consumptive pool). ELMA is only available to those that own land within the LMRIA.

The Murray-Darling Basin Agreement requires that the Government of South Australia ensures that at least 22.2GL of the state's diversion is reserved for ELMA purposes and is not transferred to another purpose. The WAP can only allocate to ELMA; it cannot force the application of ELMA to the land.

ELMA is provided to landholders to minimise the historical effects of high saline groundwater levels on irrigated pasture or on land that has been retired from irrigation within LMRIA. More recently, it has become evident that the application of ELMA assists with minimising the production of acid sulphate soils, which in turn generate acid water upon hydration. Production of acid water finds its way back into the river through subsurface drains and poses a water quality risk to SA Water offtakes at Mannum, Murray Bridge and Tailem Bend. Land within the LMRIA is typically lower than the river level and as such is a natural discharge point for saline regional groundwater (Figure a).

There has been extensive cracking of swamp soils through reduced application of water due to low river levels, when landowners are unable to siphon or pump the water, and low irrigation allocations. Experience shows that with repeated rewetting of these soils combined with some rotary cultivation, these soils can again be suitable for flood irrigation and pasture productions (Philcox 2010; EPA 2013).

While the application of ELMA on land (more specifically land that is not regularly irrigated) is unable to be enforced (as there are some areas without appropriate infrastructure), the lessons learned from drought should provide landholders with the understanding that correct use of ELMA has a range of benefits while acting as an insurance policy against risks including cracking of soils and generation of acid sulphate soils. The EPA Guidelines for the Lower Murray Reclaimed Irrigation Area provide a good basis when determining appropriate land management practices and should be considered by all LMRIA landholders undertaking land and irrigation management actions.

Many of the issues around ELMA have been realised during and following the drought. Drought conditions lowered the local groundwater table to the point where the soils lost their hydration and began cracking (Figure b). Farms that watered to some degree during the drought, sometimes as little as one irrigation per season, appeared to have recovered faster post drought. This highlights the importance of the application of some water during dry conditions, even if it is limited to ELMA (Philcox 2012). Exposure of cracked soils to air also generated acid sulphate soils (Figure c). Once these soils were rewetted, high levels of acid were formed causing significant impacts to the water, land and its productive capacity.

ELMA provides maximum benefit when it is taken in full, annually. Consequently it is not eligible for private carryover.

Current policy

Key policies from the current plan that deal with ELMA include:



- Policy 33 Water allocations obtained on account of class 8 entitlements for environmental land management purposes shall only be applied to land within an Irrigation Area listed in Table 1*
- Policy 34 Water allocations obtained on account of class 8 entitlements used on land upon which pasture is irrigated shall not be used at a rate greater than the relevant rate applicable to the Irrigation Area (as set out in Table 1).*
- Policy 35 Where pasture is not irrigated on the land upon which water allocations obtained on account of class 8 entitlements are to be used, the rate of application shall reflect a rate that is appropriate for managing the effects of rising saline groundwater on the particular land.*
- Policy 45 Water allocations obtained on account of a class 8 entitlement will revert to the Minister upon sale of land*
- Policy 7 The Minister will determine the volume of water available for allocation under each entitlement class pursuant to Section 146(4) of the Natural Resources Management Act 2004. The Minister will determine the volume of water available for allocation under each entitlement class pursuant to Section 146(4) of the Natural Resources Management Act 2004.*

For the purpose of developing an amended water allocation plan for the River Murray, it is considered appropriate that the intent of the above policies remain and continue to be administered.

Table 1

Irrigation Area	Rate (ML/Ha)	Irrigation Area	Rate (ML/Ha)
Cowirra	6.49	Mobilong	4.68
Neeta North	6.14	Burdett	4.56
Baseby	6.44	Long Flat	4.46
Neeta	6.23	Long Island	4.22
Wall Flat	6.06	Swanport	4.15
Pompoota	5.86	Yiddinga	4.13
Mypolonga	5.50	River Glen	3.98
Burbridge	5.37	Monteith	3.87
Paiwalla	5.15	Kilsby	3.61
Glen Lossie	5.10	Woods Point	3.58
Toora	4.87	Westbrook	3.46
Jervois	2.96	Seymour	2.33
Finniss	1.38		



Current ELMA Administration

The following points outline the key characteristics of ELMA:

- ELMA entitlements are granted by the department responsible for water licensing administration on behalf of the Minister for Sustainability, Environment and Conservation. The granting of allocations is guided by the policies within the plan.
- ELMA is considered as the first water taken through the meter.
- Upon sale of a property, it is the responsibility of the ELMA entitlement holder to surrender the ELMA entitlement back to the minister, whereby it can be allocated to the new landowner upon application.
- ELMA allocations do not attract a water-based levy.

Proposed policy

Many of the issues experienced with the management of ELMA stem from an operational perspective rather than a policy perspective. Access to river water can be dependent on a number of factors including river height and access to infrastructure or delivery systems. Land rehabilitation, drought and economic markets have all contributed to changing the LMRIA landscape, and adaptive management needs to complement these changes. The following areas are those that the water allocation plan is able to influence.

Annual ELMA allocation

Between 2003 and 2012, ELMA ranged between 18% and 100% of entitlement. From experience we now know that application of ELMA water is essential in helping maintain land management aspects of the LMRIA. As a separate water access entitlement class, ELMA are able to be independently managed in a dry condition scenario. While it is difficult to detail a precise approach for ELMA in all water allocation scenarios (where irrigation allocations are less than 100%), the draft plan is proposed to outline a high level objective regarding the importance of ELMA in all water allocation scenarios, to the effect of:

“When determining annual allocations for individual consumptive pools, consideration be given to maintaining ELMA at the highest level possible in order to protect environmental land assets (private and public) of the LMRIA.”

1. Application of ELMA

The primary purpose of ELMA is to protect soils against high saline groundwater levels and minimise the risk of acid sulphate soil production, along with long-term integrity of the Murray River levee bank within the LMRIA. Application of ELMA, having regard to the EPA Guidelines for Lower Murray Reclaimed Irrigation Areas, is essential to the long-term management of the area.

A secondary benefit of ELMA is to support production in both irrigated and non-irrigated environments. Most benefit is obtained by using ELMA to extend the wetter months, so application of ELMA in autumn and spring provides the greatest benefit.



2. River level

The landscape of the LMRIA has changed considerably over the last 10 years due to the effects of drought. Today, much of the laser levelling has been compromised due to cracking or slumping and the return of normal river levels has introduced the impacts of acid sulphate soils. As such, landholders are facing management issues additional to those 10 years ago. It is acknowledged that ELMA alone is not adequate to address all of the land management issues currently experienced. The role of river levels is critical as a complementary tool to long-term management of the LMRIA.

Below Lock 1, river level is primarily driven by the amount of water being delivered to South Australia. The WAP can only set policy for water that is delivered to the state. Local factors (e.g. wind direction) also play a part in river levels. During the drought, it became clear that there was a minimum level below which access to water became problematic. As such, an objective of the 2012 Basin Plan is to manage water levels in the Lower Lakes to help prevent acidification and river bank collapse. This is to be achieved by maintaining levels above 0.4 metres Australian Height Datum (AHD) for 95% of the time, as far as practicable; and above 0.0 metres AHD at all times.

While the plan is unable to guarantee a minimum river height, it is appropriate for the plan to articulate the reasons why a minimum river height is critical to the LMRIA. This will be expressed in the WAP as an overarching objective consistent with the Basin Plan.

Proposed policy positions:

In addition to the general principals of the plan, the following policies are proposed for the management of ELMA:

1. ELMA to be retained as a consumptive pool comprising 22.2GL.
2. ELMA shall only be applied to the land described as the LMRIA having regard to the EPA Guidelines for the Lower Murray Reclaimed Irrigation Area.
3. ELMA are not to exceed the relevant rate applicable to the irrigation area (as per Table 1).
4. ELMA may be granted by the minister upon application and remain subject to policies relating to application rate and location.
5. ELMA entitlements expire upon sale of land.
6. ELMA are not eligible for private carryover.
7. The minister may consider the objectives of the plan with respect to ELMA in determining the volume of water available from the ELMA consumptive pool pursuant to s146(4) of the *NRM Act*.

Objectives to be included in the plan:

1. Maintain ELMA at the highest level possible in order to protect environmental land assets (private and public) of the LMRIA.
2. Assist where possible to maintain water levels in the Lower Lakes above 0.4 meters AHD to complement land management practices within the LMRIA.



Environmental Land Management Allocations

OPTIONS	ADVANTAGES	DISADVANTAGES
Maintain current policy approach.	Provides for appropriate management of LMRIA, including soil salinity and acidification.	Unable to guarantee application and use of ELMA across LMRIA.
Remove ELMA consumptive pool.	Provides more water for the environment/transmission. ELMA consumptive pool could be reallocated to other consumptive pools.	Poses a demonstrated risk to the LMRIA. ELMA is considered a "right" by LMRIA landowners. ELMA consumptive pool could be reallocated to other consumptive pools.
Increase the size of the ELMA consumptive pool.	Provides more water for application to mitigate local risks, including soil salinity and acidification.	Does not guarantee application. Would need to reduce the size of other consumptive pools.
Maintain current policy and enforce the take and use of ELMA.	Guarantees application of water to the land.	Not feasible under existing legislation

FEEDBACK

Feedback on the draft plan is invited up until **5pm, Friday 27 February 2015.**

Written submissions can be made:

Online: www.naturalresources.sa.gov.au/samurraydarlingbasin

Via Email: rmwap.feedback@sa.gov.au

By post: Peta Brettig

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Or contact Peta to discuss:

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ATTACHMENT 1

The Lower Murray Reclaimed Irrigation Areas

