

Dracula Once Again Being Given Keys to the Blood Bank?

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(One Hopes Not)



OTWAY WATER BOOK 42 C

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www.stopgroundwatermining.com.au

October 2018

Malcolm Gardiner

Email: otwaywater@yahoo.com.au www.otwaywater.com.au

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Introduction.

Since late in 2016 there had been much discussion at Barwon Water's Groundwater Community Reference Group (CRG) and Public Forum meetings also held by Barwon Water, referring to remediation that would be conducted in Phase One of Barwon Water's three phase future works regarding the Barwon Downs Borefield operations.

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Once talk of remediation was mentioned it was asked many times what is to be remediated. Believing that there are multiple impacts requiring remediation the question is, had a list of things requiring remediation been compiled. Reluctance. No one was prepared or seemed to be able to cite any impact other than those of the Big Swamp Wetlands and Boundary Creek.

In November 2017 Barwon Water tabled a remediation plan. It only included remediation of Boundary Creek and the Big Swamp Wetlands. Otway Water Book 42 examined this report highlighting many concerns. The remediation plan was also very limited in its scope considering the wider context and area that the drawdown from the Barwon Downs Borefield was influencing.

As a consequence, letters were sent to Water Minister Lisa Neville, Southern Rural Water Officer Angus Ramsay and General Manager of Barwon Water, Tracey Slatter, asking for a list of all impacts. Answer - no change to the very limited and narrow impacts as outlined in the November 2017 remediation plan.

In 2018 following the first two Barwon Water Community workshops on the Boundary Creek Remediation, Otway Water Book 42B was written challenging Jacobs basic project procedure. It also included comment on the involvement of three additional experts; the Water Minister's media release on the issue; Barwon Water's response; the brief given to Jacobs; discussion on data gaps; Charley Kohout's book on the lack of scientific and technical expertise procedures and a summary of the April 2018 Barwon Water Groundwater Community Reference Group recommendations to the Barwon Water Board.

Book, 42C, continues with this tale examining the Water Minister's latest directives whereby she has giving these tasks to the very same authorities responsible for the decades of mismanagement.

The Quest for a List of Impacts Created by the Groundwater Extractions from the Barwon Downs Borefield.

In October 2013 the Barwon Water Groundwater Community Reference Group (CRG) met for the first time. This Group was charged with having community involvement in the processes involved in the lead up to the renewal of the 2019 groundwater licence. From the very first meeting of the CRG, members strove to understand the degree of impact caused from groundwater extraction.

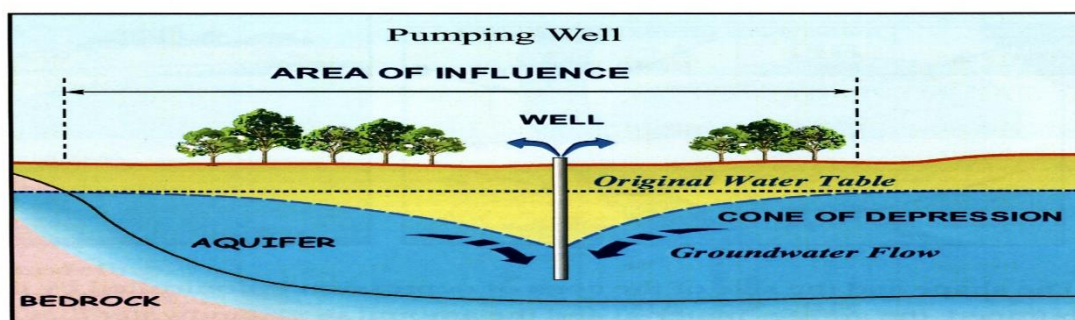
Local concerns go back as far as 1984 and one of the early queries of the CRG was impact on the adjoining Gellibrand River Catchment. The history of impact predictions is some decades old.

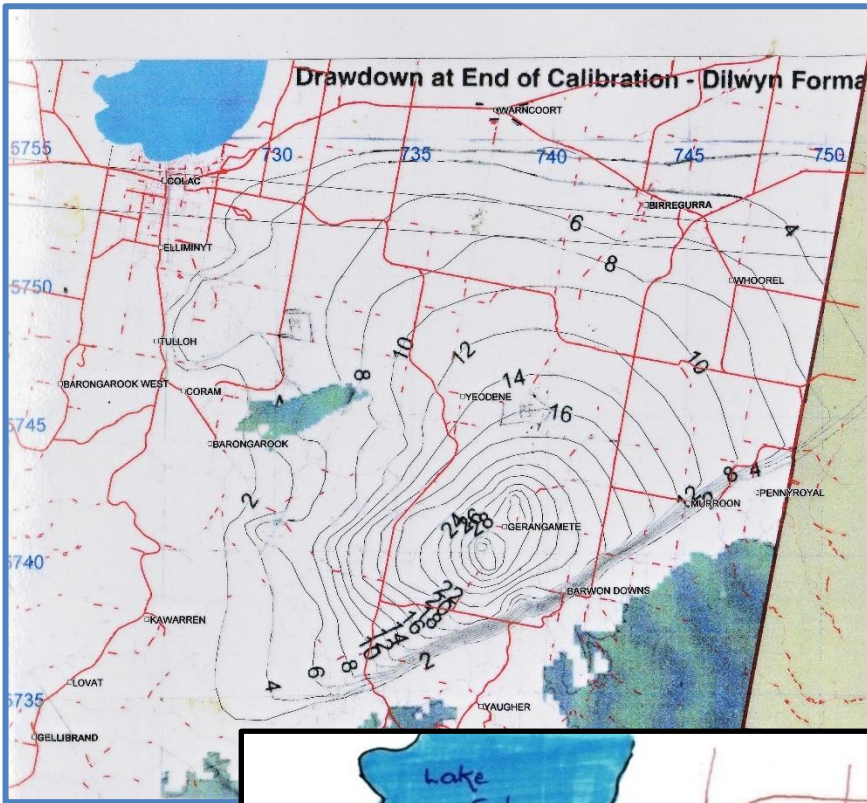
Late in the CRG process, during 2016, Barwon Water officers and consultants began to speak of remediating impacts. However, after many requests to list what was actually going to be remediated the only discussion was always restricted to Boundary creek and the Big swamp Wetlands (Yeodene Swamp). In November 2017 a Jacobs report set out this Yeodene Swamp remediation plan. Still no comprehensive impacts list.

Considering the Barwon Water officers and their consultants, Jacobs, would not, or could not provide a list of known impacts created by the borefield extractions, it was decided that perhaps the State Government Water Minister, Southern Rural Water (the regulator/policemen) or the Managing Director of Barwon Water may be able to provide such a list.

Pages (7-16) deal with the futile attempts contacting these authorities aimed at broadening the list of impacts created by the Barwon Downs Borefield groundwater extractions.

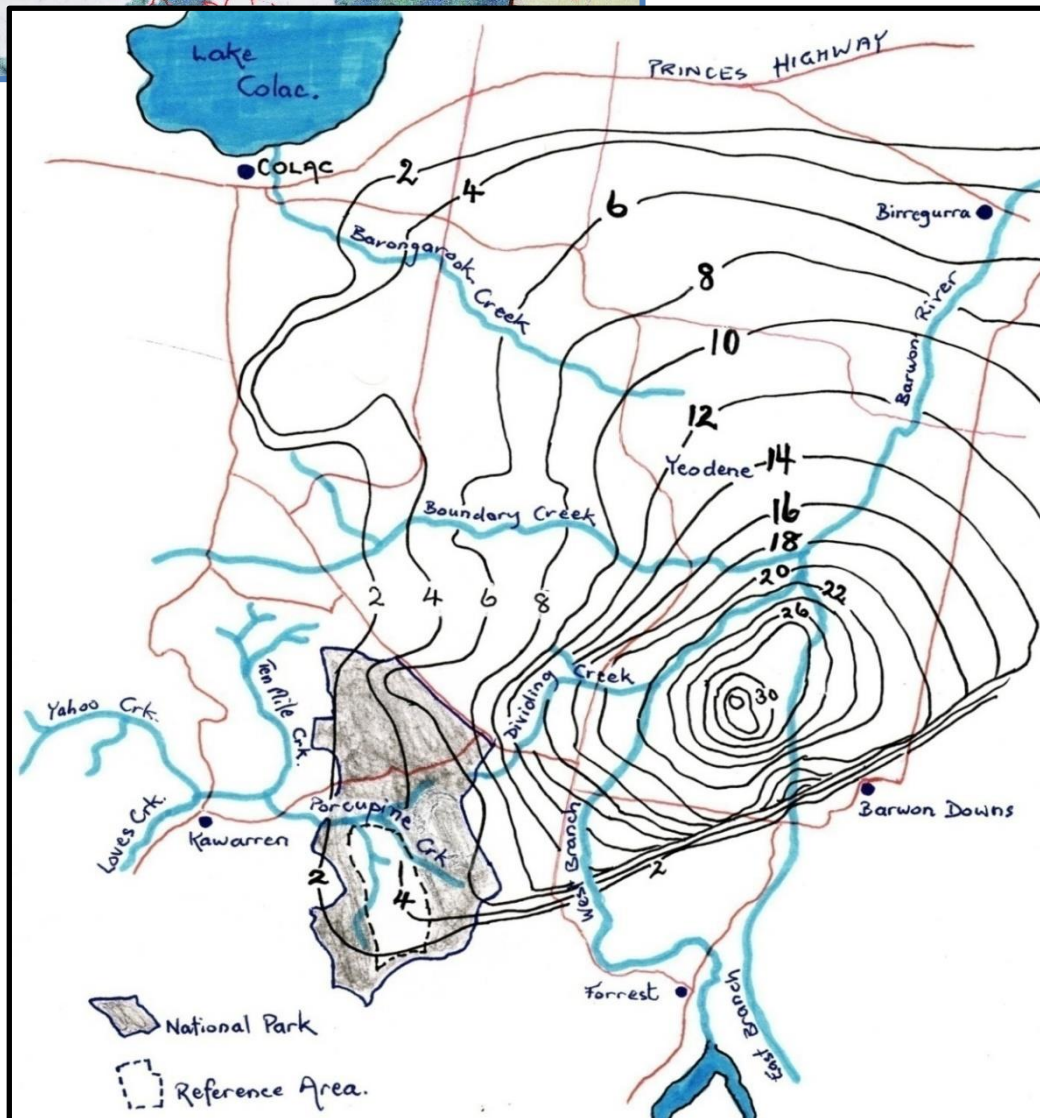
The area of drawdown influence is quite extensive as can be seen in these maps (see page 6) provided as part of the 2002 licence renewal process. In any groundwater extraction with such a wide area of influence the impacts over time can be varied and profound.





(Source of drawdown influence for these two maps: Barwon Water handout 2000.)

This drawdown influence spread further during the millennium Drought.



Request for List of Remediations sent to Tracey Slatter.

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Hello Tracey,

The Barwon Downs Borefield has been in operation for over three decades now and I believe Barwon Water plans little to no extraction during a remediation period in phase one of the new licence.

At this stage and even after numerous requests during the public consultative process a list of what has to be remediated has not been given.

Considering there have been so many extensive studies conducted over the years starting way back in the 1980s,

"...monitoring impact and changes with regular reports and upgrades." (Barwon Water to NREC, August 1988) and

"as indicated previously in evidence to the committee, the Board wishes to ensure that environmental needs are adequately recognised and safeguarded in any water resource development that it may seek to undertake." (BarwonWater to NREC hearing, 1989),

this remediation list should be easily compiled, if not already in existence.

My requests are:

1. Do you have a list of the impacts caused by extraction at the Barwon Downs Borefield?
2. Is there a list of which things are to be remediated, and
3. If you do have these two lists could you send me copies, please?

Kind regards,
Malcolm.

Sent from Yahoo Mail for iPad Emailed 11/02/2018

Reply from Tracey.

Dear Malcolm,

Email Reply 21/02/2018

Thank you for your email dated 11 February.

As you correctly point out Barwon Water has developed a proposed management plan based on outcomes the community identified as important for the next licencing period.

This plan aims for us to work with our community and stakeholders over the next 15 year journey and will include the three phases of remediation, adaptive yield assessment and long term sustainable operation.

Barwon Water is committed to remediation efforts in the Boundary Creek catchment regardless of the outcome of the licence application.

We have also committed to not using the borefield again, other than if necessary for operational maintenance purposes, until the current licence application is resolved.

Further to this, as part of the licence application we will propose to reduce the reliance on the borefield during the first two phases of remediation and adaptive yield assessment. This will be assisted by shifting the borefield's use from the first to the last alternate source ie after the Anglesea borefield and the Melbourne Geelong Pipeline.

In response to your information requests:

1. Do you have a list of the impacts caused by extraction at the Barwon Downs Borefield?

In 2016, a major update of the Barwon Downs groundwater model was complete. The updated model can separate groundwater extraction and natural climate fluctuations to simulate historical impact. The technical reports (which can be found on the Have Your Say website) concluded:

- Barwon Water's pumping from the Barwon Downs borefield over the past 30 years is the main cause of a reduction in baseflow (groundwater contribution to streamflow) in the lower reach of Boundary Creek increasing the frequency and duration of no flow periods.
- No other rivers or creeks have been impacted as significantly as Boundary Creek by the operation of the bore field.
- Operation of the borefield has likely resulted in a minor reduction in base flow in a small section of the Gellibrand River (in the order of 0.3ML/day or 0.8% of low flows). Dry climate conditions have caused a greater reduction in base flow (in the order of 0.6ML/day or 1.6% of low flows) according to the groundwater model.

- Shallow aquifers across most of the study area have not been significantly influenced by operation of the bore field suggesting that there is very little impact to vegetation outside the Boundary Creek catchment.

2. Is there a list of which things are to be remediated

As outlined at the workshops sessions Barwon Water is keen to develop the remediation approach with members of the catchment community. While there is a report that outlines a proposed approach to remediation, Barwon Water would like to test this approach further. To this end a Boundary Creek remediation working group will be established. The purpose of this working group is to actively engage with Barwon Water to jointly design a remediation plan for Boundary Creek and Big Swamp via a series of workshop sessions. An Expression of Interest will be advertised soon for interested community members to participate in this process. We envisage this process running from March to September, 2018.

The remediation approach under review includes the information presented to the Community Reference Group in October 2017.

Ongoing monitoring will continue with emphasis placed on sites that the groundwater model has identified at risk of impact from future pumping. These include:

- Gellibrand River - recommend site specific study is undertaken south of Kewarren to confirm the effectiveness of the alluvial aquifer in maintain base flow to the rivers and presence of high value GDEs. Additional groundwater or streamflow monitoring and vegetation mapping is likely to be required as part of this study.
- Barwon River East and West Branch south east of the Bamba Fault – recommend site specific study to confirm the effectiveness of the alluvial aquifer in maintaining base flow to the rivers and presence of high value GDEs. Additional groundwater or streamflow monitoring and vegetation mapping may be required as part of this study.
- Ten Mile Creek – Reinstate stream flow gauge
- Yahoo Creek – Reinstate stream flow gauge
- Barongarook Creek – recommend site specific study to confirm presence of high value GDEs. As part of this study additional groundwater monitoring and stream flow monitoring may be recommended.
- Porcupine Creek – review the need for an additional PASS site for ongoing monitoring.

3. If you do have these two lists could you send me copies, please?

All reports have been circulated to all Community Reference Group members and are available on the Have You

Say webpage – if you require a hard copy of any reports please let me know and I will organise to post it out.

Regards

Tracey Slatter

Managing Director | Barwon Water

55-67 Ryrie Street (PO Box 659) Geelong VIC 3220

T (03) 5226 2544 | W www.barwonwater.vic.gov.au

It would appear there is no list of impacts or a list of things for remediation other than the Big Swamp Wetlands and Boundary Creek. Even the impact within the wetlands and the Boundary Creek Catchment still have not been listed.

Tracey Slatter states there is a small impact on the Gellibrand River but... no impact anywhere else.

The rest of the letter explains that a working group would be set up to oversee the remediation of the Big Swamp Wetlands and Boundary Creek. Further monitoring would be conducted at some other locations while others may be or are likely to be monitored and studied.

One of the problems the remediation working group has found with the remediation plan was a failure to have gathered sufficient data on the Big Swamp Wetlands to make any informed decisions. This was confirmed by the three experts called in to assist. Facilitation of successful remediation could not be based upon serious data gaps missing in relation to the Big Swamp Wetlands.

Request for Answers to Angus Ramsay.

Hello Angus, *Email Sent 11/02/2018 to AR of SRW.*

The Barwon Downs Borefield has been in operation for over three decades during which time a cone of depression has been created that continues to spread its area of influence. Leading up to the renewal of the extraction licence in 2019 Barwon Water appears to be planning no extraction or at least low extractions during a remediation period in the life of a renewed licence.

At this stage and even after numerous requests during the public consultative process a list of what has to be remediated has not been given.

Considering there have been so many extensive studies conducted over the years starting way back in the 1980s,

"...monitoring impact and changes with regular reports and upgrades." (Barwon Water to NREC, August 1988) and

"as indicated previously in evidence to the committee, the Board wishes to ensure that environmental needs are adequately recognised and safeguarded in any water resource development that it may seek to undertake." (BarwonWater to NREC hearing, 1989),

this remediation list should be easily compiled, if not already in existence.

My requests are:

1. Does Southern Rural Water have a list of the impacts caused by extraction at the Barwon Downs Borefield?
2. If SRW does have a list could you send me a copy, please?
3. Does SRW know of a Barwon Water list of impacts, and,
4. if so which things are to be remediated?

Kind regards,
Malcolm.

Sent from Yahoo Mail for iPad

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Reply from Angus.

Hi Malcolm,

I have passed this onto management for a response. You'll excuse me if I don't respond directly. (Not on a high enough pay grade to deal with this request with the application so close.)

Cheers

Angus *Email Reply. 13/02/2018*

Reply from Southern Rural Water.

Print window

https://mail.yahoo.com/d/folders/1/messages/19254

SRW

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Subject: Remediation of impacts Barwon Downs Borefield.

From: ChrisH@SRW.com.au

To: otwaywater@yahoo.com.au

Cc: TrevorM@SRW.com.au

Date: Wednesday, 14 March 2018, 7:58:33 am AEDT

Dear Malcolm,

Thank you for your email to Angus Ramsay on 11 February 2018 and also the discussions that we had recently at Colac.

We know that groundwater extraction impacts the groundwater levels in the aquifer and based on the recent technical work undertaken for Barwon Water we better understand the impacts on the baseflow in Boundary Creek and the Gellibrand River. The technical work indicates that groundwater extraction is the main cause of the reduction in base flow in Boundary Creek and the resulting lack of flow causes drying of the swamp and activation of acid sulphate soils.

We have had discussions with Barwon Water about the remediation plans being considered for Boundary Creek and the Big Swamp and this will continue. We will soon be meeting with DELWP and the CMA to discuss the renewal process, which will also include discussion on the remediation of the Big Swamp.

Assessment of the known and potential impacts of groundwater extraction from the Barwon Downs Borefield will be undertaken during the renewal application assessment process. In order to get all of the relevant issues on the table for consideration during the assessment process SRW will consult with the community and stakeholders. This consultation will commence in the near future. I appreciate that you highlighted a number of issues when we recently met with you and other members of LAWROC. There will be many more opportunities for discussion and if you would like to provide a written submission (and also the technical studies that you mentioned have been commissioned by LAWROC) it will certainly provide valuable input into the licence renewal assessment process.

Trevor Mc Devitt will be leading the renewal application process so please refer future questions to Trevor in the first instance. His details are below:

Trevor McDevitt

Manager Applications - Groundwater & Rivers | Southern Rural Water
Managing Water. Serving Communities

ph: 03 5564 1701 m: 0438 681 219 w: www.srw.com.au

1 of 3

3/14/2018, 2:30 PM

It took over two months for this reply to “filter” through and as with the Barwon Water reply the only things to be listed for remediation included the Big Swamp and Boundary Creek. As for a list of other impacts none was provided. It would appear from a Southern Rural Water perspective that no other impacts exist. However, an effort will be made some time in the future as part of the groundwater extraction licence renewal process.

“Assessment of the known and potential impacts of groundwater extraction from the Barwon Downs Borefield will be undertaken during the renewal application assessment process.”

This seems quite incredible considering:

1. Major groundwater extraction has been taking place for over 30 years.
2. Readily available data was clearly indicating major impacts over this same period.
3. Southern Rural Water is the overseer, “policeman” and regulator and still has little idea of what has been taking place.

And, to go on and state... ***“In order to get all of the relevant issues on the table for consideration during the assessment process SRW will consult with the community and stakeholders.”***

Considering all of the community outrage at the manner in which the management of the Barwon Downs Groundwater extractions have been managed, and as the regulator of this situation, Southern Rural Water should be right across all aspects of this extraction licence. This should include familiarity with a list of impacts created.

It is also incredible to think that the work of a consultative Barwon Downs Groundwater **Community** Reference Group, that has been meeting on a regular basis for five years, will be repeated with another round of community consultation.

Maybe Southern Rural Water is not aware of what is taking place and the impacts resulting from the mining of groundwater at the Barwon Downs Borefield, but there can be no doubt that members of the local community do, and have done so for some considerable time. It seems incredible that the amount of correspondence sent to and meetings with officials of Southern Rural Water, could have such little influence. If it had been fulfilling its statutory responsibilities, Southern Rural Water would have been able to prevent the unsustainable and resulting disastrous impacts from groundwater extraction at the Barwon Downs Borefield.

Request for Answers to the Water Minister.

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Hello Minister,

The Barwon Downs Borefield has been in operation for over three decades during which time a cone of depression has been created that continues to spread its area of influence. Leading up to the renewal of the extraction licence in 2019 Barwon Water appears to be planning no extraction or at least low extractions during a remediation period. At this stage and even after numerous requests during the public consultative process a list of what has to be remediated has not been given.

Considering there have been so many extensive studies conducted over the years starting way back in the 1980s,

"...monitoring impact and changes with regular reports and upgrades." (Barwon Water to NREC, August 1988) and

"as indicated previously in evidence to the committee, the Board wishes to ensure that environmental needs are adequately recognised and safeguarded in any water resource development that it may seek to undertake." (BarwonWater to NREC hearing, 1989),

this remediation list should be easily compiled, if not already in existence.

My requests are:

1. Do you have a list of the impacts caused by extraction at the Barwon Downs Borefield?
2. If you do have a list could you send me a copy, please?
3. Do you know of a Barwon Water list of impacts , and,
4. if so which things are to be remediated?

Kind regards,
Malcolm.

Sent from Yahoo Mail for iPad

Emailed 11/02/2018

Reply from the Minister.



Department of Environment, Land, Water and Planning

PO Box 500, East Melbourne,
Victoria 8002 Australia
delwp.vic.gov.au

Mr Malcolm Gardiner
otwaywater@yahoo.com.au

Ref MIN040274



Dear Mr Gardiner

BARWON DOWNS BOREFIELD

Thank you for your email of 11 February 2018 to the Hon Lisa Neville MP, Minister for Water about the Barwon Downs Borefield. As this matter is in my area of responsibility, the Minister has asked that I respond on her behalf.

The Yeodene Swamp Study was released by Barwon Water in 2017. Within section 5 of the study remediation plans are described. The Yeodene Swamp Study can be accessed at the following website: <https://www.yoursay.barwonwater.vic.gov.au/barwon-downs-borefield-licence-renewal>.

Southern Rural Water (SRW) is the responsible authority for assessing Barwon Water's licence renewal application. SRW will consult with the wider community as part of the process for considering an application by Barwon Water to renew its groundwater licence. SRW are still finalising the licence renewal consultation and engagement plan, and aim to establish a Community and Stakeholder Reference Group with broad community representation.

Barwon Water are currently establishing a Boundary Creek remediation working group. The working group will be integral to the development of Barwon Water's remediation plan for Boundary Creek and Big Swamp. Barwon Water hopes for this process to run from March to September 2018. I encourage you to use the opportunity afforded by Barwon Water and request membership of the Boundary Creek remediation working group.

If you would like more information about this matter, or would like to gain membership to the Boundary Creek remediation working group, please call Joanna Lee, Senior Engineer, Water Resources Planning on (03) 5226 2471 or email joanna.lee@barwonwater.vic.gov.au.

Thank you for raising this matter with the Minister.

Yours sincerely

Grace Mitchell
Acting Executive Director, Water Resource Strategy

27/2/18

Contained in Email 27/02/2018

Any personal information about you or a third party in your correspondence will be protected under the provisions of the Privacy and Data Protection Act 2014. It will only be used or disclosed to appropriate Ministerial, Statutory Authority, or departmental staff in regard to the purpose for which it was provided, unless required or authorized by law. Enquiries about access to information about you held by the Department should be directed to foi.unit@delwp.vic.gov.au or FOI Unit, Department of Environment, Land, Water and Planning, PO Box 500, East Melbourne, Victoria 8002.



The Minister's representative could not list the impacts nor those things to be remediated but did refer to a Barwon Water report and where this report could be sourced. Unfortunately, as requested a comprehensive list does not exist.

The Minister's letter made it quite clear that the responsibility to adequately deal with past, present and future groundwater licence issues rests with Southern Rural Water. As part of SRW's actions this authority will be setting up a Community and Stakeholders Reference Group some time in the future. Another Community Reference Group!!!

Also, the Minister's reply includes, "*Barwon Water are currently establishing a Boundary Creek remediation working group.*"

This Group was formed and a task recommended by the Group was the establishment of a comprehensive set of analytical data regarding the various characteristics of the wetlands. Things such as depth of the peats; chemical composition; cross sectional profiles and connectivity to the Lower Tertiary Aquifers.

As reflected in the three email replies above, as far as the authorities are concerned, every angle is covered.

However, the same is not being said by landholders and those communities being impacted. There is the fear that the 2019 groundwater extraction licence is going to wash over local community concerns just as they did back when the 2004 licence was renewed – community concerns only different to the ones in the early 2000s by magnitude and number. Past assurances protecting landholder rights and environmentally responsible management in the most part have never come to pass. In contrast, impact predictions, fears and concerns have been realised.

Workshop 3 Remediation of Boundary Creek and The Big Swamp Wetlands.

At the conclusion of Workshop 2, participants were asked to bring along to the next workshop recommendations stating where people wanted to go from there. Charley Kohout made available his recommendations in handout form, "Helpful Observations and Recommendations – Workshop 3, 22 August 2018." (See Otway Water Book 42B for a copy of this document). Charley's emphasis being that any "plan" had to be based on accepted scientific and technically sound procedures and as a consequence a restart was required.

My recommendations echoed this requirement that a fresh start (see Otway Water Book 42B) was required and that the leading personnel be the three new "experts" working in conjunction with Jacobs and Prof Webb. The reason behind this thinking being...

- a. Charley's reasoning was sound and could be supported with numerous examples of failure to follow basic procedure in the past, and

- b. the three new consultants/experts were able to bring their considerable experience to the remediation, setting a clear direction of how a fresh start was required and how it could be achieved.

Near the end of this Workshop Session 3 after stating other impacts should be documented in any new plan even if these additional impacts were not acted upon, I was asked to broaden the list. I could not think of all impacts at the time but volunteered to pass these on at a later date. The following pages (18-21) were sent down to Barwon Water by email on the 24th of August 2018, two days later.

Known Impacts from Groundwater Mining.

1. Big Swamp devastation.
 - 1.1.1. Perennial wetlands dried out.
 - 1.1.2. Previous fire proof area turned into a permanent fire hazard.
 - 1.1.3. Release of carbon and other gases to the atmosphere.
 - 1.1.4. Creation of one of the highest Inland Freshwater Actual Acid Sulfate Soil sites in Australia.
 - 1.1.5. Pollution and contamination of aquifers.
 - 1.1.6. Vegetation shift to species tolerant to much drier conditions.
 - 1.1.7. Acid water and heavy metal releases into the Barwon River Catchment.
 - 1.1.8. 30 KM fish kill down the Barwon River.
 - 1.1.9. Stygofauna compromised.
 - 1.1.10. Soil composition drastically changed.
2. Soaks, springs and creek drying up.
3. Farmland viability threatened.
 - 3.1.1 Actual Acid Sulfate Soils resulting in unproductive soils.
 - 3.1.2 Stock and Domestic water rights lost through water contamination and cessation of creek flows.
 - 3.1.3 Infrastructure degraded.
 - 3.1.4 Spring fed dams compromised.
 - 3.1.5 Summer grassland pick on river flats decreased.
 - 3.1.6 Fire retardation ability of these same flats lessened.
4. Boundary Creek Catchment.
 - 4.1.1 Constant flow from Artificial Supplementary Flows in the upper reaches of Boundary Creek have created a different creek and riparian vegetation ecosystem.
 - 4.1.2 The lower reach of Boundary Creek has large periods of no flow.
 - 4.1.3 Loss of platypus, fish, yabbies and other freshwater species.

4.1.4 Riparian and Groundwater Dependent Ecosystems within the Boundary Catchment have been dried out, devastated or compromised.

5. Dubious reports have been produced that are being used as reference and or basis for present and future water resource management decisions.
6. The Lower Tertiary Aquifers are being mined.
7. The extremities and area of impact are continuing to expand.
8. A cone of depression has been created under Kwararren.
9. Groundwater flow paths have been seriously altered.
10. Baseflows in waterways of the upper Gellibrand River Catchment have lessened.
11. Deterioration of trust and faith by local communities in Barwon Water's motives, actions and ability to environmentally and agriculturally manage water resources in the area (see Page 18 for an example of local community disdain).

Unknowns that could be impacting the region.

1. Salinity movement within the earth structures under changing hydrogeological conditions.
2. Downward vertical leakage and movement of groundwater.
3. Source of the recharge waters achieving an 80% recovery near the borefield as described by Jacobs.
4. The time needed for aquifer recovery.
5. The impacts that will continue to manifest during any recovery period.
6. The cost of remediation, recovery and or future groundwater extraction.
7. Reduction in surface and aquifer inflows/outflows to and from Lake Colac.

(There was no indication in the Workshop Session Three minutes that a discussion regarding this broader list of impacts had been asked for, see Workshop Session 3 minutes pages 22-26).

(At the conclusion of Workshop Session 3 a discussion with Barwon Water staff regarding the deterioration of trust and faith, the following issue was sighted – Local Community Disdain – see below. As a result the following 3 pages were included in the same email as the list of Known Impacts From Groundwater Mining – see above.)

Local Community Disdain.


There are numerous examples of why local community members impacted from groundwater extraction influences find it most difficult to accept that a fair and balanced progress can be made based on trust, accuracy and co-operation. The following mis-information is one example.

On the 16th July The Chairs of Barwon Water, Southern Rural Water and the Corangamite Catchment Management Authority met with the President of the LAWROC Landcare Group and two members of LAWROC. This meeting was requested by Jo Plummer the Chair of Barwon Water. A very positive and welcomed move.

In the follow up to this meeting and in the covering letter, dated 9 August 2018, Jo spoke about “*rebuilding trust*”

“*Barwon Water’s ongoing commitment to building a positive and collaborative relationship with LAWROC and the local community in the years ahead*” etc.

However, in the very first reply to questions asked at this meeting the whole fabric for any movement forward takes several gigantic blows.



Response to questions

1. Location of vegetation surveys

Can these be taken from the same place as has previously been taken to ensure consistency and historical context?

Response provided by Barwon Water

Adding extra locations for vegetation surveys, and consideration of historical sites, can be something the community working group (to be established by Barwon Water in the proposed new licence period) provides advice on.

1. The existing sites were established in 2014 following engagement with the Barwon Downs Community Reference Group.

Historical data, including old reports, sites and past surveys were considered by Jacobs and helped inform the selection of the new vegetation sites. ² Three old sites were kept and eight ³ replaced as part of this process. They were replaced because they were not located near monitoring bores and were not able to be used to determine the link between vegetation dependency and groundwater levels.

2. Coordination of water sampling and testing

We discussed LAWROC working in partnership with Barwon Water to enable coordination of testing which would result in greater trust, productive discussion on the result rather than the validity of the process and savings for LAWROC to invest in more value adding activities.

Response provided by Barwon Water

Barwon Water welcomes the opportunity to work in partnership with LAWROC and other stakeholders to agree on the scope of future water sampling and testing with the intent of working from the same data set.

Our proposed licence application commits us to “building knowledge and trust in the science with the community” by establishing a citizen science program to build a common database of shared information.

Barwon Region Water Corporation
 55 – 67 Ryrie Street, PO Box 659, Geelong, Victoria, 3220
 T: 1300 656 007 E: info@barwonwater.vic.gov.au
www.barwonwater.vic.gov.au

Enabling regional prosperity

1, 2, 3

The Blows

1. The Barwon Water Groundwater Community Reference Group (CRG) met for the first time in October 2013. Late in 2013 a discussion regarding the Supplementary Flows released into a tributary of Boundary Creek was dealt with. It was proposed that these flows be turned off, no longer buffering any impact from groundwater extraction impacts that may be occurring in the area. The idea being that a true indication of groundwater extraction impact would be realised. The reply given was that this was not possible as no change to the 2004 licence conditions could be made until June 2019 when the licence was up for renewal. The CRG accepted this ruling and moved on. However, in 2015 Barwon Water tabled a vegetation survey report of 14 sites on which a new baseline of data was to be used determining the amount of groundwater impact in the area. Two decades of vegetation monitoring wiped out in one single blow. The most alarming aspect of this being that Barwon Water had been in negotiations with Southern Rural Water since 2012 to change the 2004 licence conditions allowing the original eight 2004 vegetation sites to be changed. To state there had been engagement with the Community Reference Group regarding these changes is drawing an extremely long bow and giving a totally wrong impression of the way things had developed with this licence condition change. There had been no community consultation at any level regarding the 2004 licence vegetation survey site changes and the first the CRG knew of these changes was after the 2014 survey had been completed and tabled in 2015.
2. The first attempt at surveying vegetation sites that could be impacted from groundwater extraction, was carried out in 1986. Vegetation surveys have always been part of the lead up to any groundwater extraction requests by Barwon Water.

Year	No of sites	Lead up to extraction	2004 Licence Condition	2004 Licence Change	Community Consultation
1986	general	yes			yes
1992	82	yes			no
2002	24	yes			no
2008	8		yes		no
2014	14	yes		yes	no
2016	14	yes		yes	no

The 1992 survey was geared to finding Groundwater Dependent Ecosystems that have a connection to extractions from the Barwon Downs Borefield.

The 2002 survey was to re-examine those sites from the 1992 survey deemed to be most likely connected to the Lower Tertiary Aquifers. Page | 21

18 months after the 2014 vegetation survey another visit to the 14 sites in 2016 concluded “*There is no evidence that groundwater extraction from the Barwon Downs borefield has had a negative impact on vegetation activity or condition.*”

Data from pre 2014 vegetation surveys seriously questions the relevance of this statement.

Returning to Jo Plummer’s statement that the fourteen 2014 vegetation sites included 3 old locations while 8 were replaced, is difficult to follow. If the 2004 licence is the reference point for these changes then no sense can be made of Jo’s statement regarding the changed sites.

3. Justification for moving vegetation sites so they could be closer to monitoring bores does not stand up to scrutiny either. The **new** Big Swamp Wetlands vegetation site has been located over half a kilometre from the monitoring bores. This is just one of the glaring inconsistencies with Jo’s statement regarding sites change justification.

(It has been 35 days since this email was sent and there has been no response.)

Workshop 3 Notes arrived by email 31 August 2018.

The following five pages were emailed out to the Remediation Working Group members.

These are the Workshop 3 notes.
Cheers,
Malcolm.

Sent from Yahoo Mail for iPad

Begin forwarded message:

On Friday, August 31, 2018, 16:52, Jo Lee <Joanna.Lee@barwonwater.vic.gov.au> wrote:

Hello working group members,

Thank you for your time and participation in the third workshop held last Wednesday evening.

It was a good opportunity to reflect on the expert presentations from workshop 2 and get an appreciation for everyone's thoughts about the issues associated with remediation. It certainly reinforced that this is a complicated system.

I have attached the success measures which were identified and were broadly themed into the following:

- No further downstream impacts to the Barwon River.
- That landholders can access good quality and quantity of water for stock.
- That Big Swamp is a valuable environmental asset.

It was a constructive conversation – especially for the experts to hear what success measures were important to you to help direct the scope of the field program.

The next steps that were agreed to are:

- To scope a field program based on these success measures in collaboration with the nominated experts (Prof Richard Bush, Dr Darren Baldwin, Dr Vanessa Wong and Dr John Webb) and Jacobs.
- Inform the remediation group about the scope of the field program likely to be in Oct/Nov.
- Implement the field program which is likely to take 6-8 months.
- *The nominated experts to reassess the remediation options in light of the results of the field program – particularly to confirm the viability of the inundation option and a closed swamp system and put forward what they think are achievable targets to determine success.*
- Consult back with the remediation group about success targets and preferred remediation option.

Thanks again for your understanding in the need to extend the scope of the remediation plan and for your continuing commitment to being on this journey with us.

If you have any questions in the meantime, please get in touch.

Have a good weekend,

Jo

Joanna Lee

Coordinator Water Resource Planning

Barwon Water

T: [03 5226 2471](tel:0352262471) | M: [0407 647 168](tel:0407647168)

55-67 Pyrie Street, Geelong, VIC 3220

www.barwonwater.vic.gov.au

Enabling regional prosperity through high quality, affordable and secure water services.



Notes from workshop 3.pdf

The three pages in this attachment are printed below.

Notes from workshop 3

Recap of workshop 2

- Thanks to experts and BW – good info and questions – good to have it reviewed – gained confidence
- Appreciate the efforts to bring experts in – builds trust
- Question: what involvement will the experts have in future? Jacobs / combined?
Recommendation: process of growth including experts (transition to wider experts)
- When experts were included it broadened the content
- Recommendation: to review the context (broaden the context)
- Avoided a train wreck by including the experts
- Site visit was really important – helped with expert information and greater understanding
- Acknowledge the adaptive process – shifted the thinking, positive step
- Rehabilitation – to what time? 1980s?
- High vs. low goals
- Reality vs. high goals – experts
- 10% Australian wetlands / peat bogs left – this is highly important
- Little work of BW's had previously been validated (Charley's observation)

Experts - success measures

Richard's success measures

- Water quality criteria for metals, nutrients and organics is met (ANZECC guidelines)
- Acidification events in Boundary Creek returned to a frequency / intensity of the mid 1990s
- Eliminate the scalded areas in swamp
- Return the natural wetting and drying cycles
- Restore Big Swamp soils to pH equal to or greater than 6.5

Jacobs key objectives

- Improve surface water quality in reach 3 of Boundary Creek
- Maintain minimum flow in reach 3 of Boundary Creek
- Improve groundwater quality in shallow alluvial aquifer beneath Yeodene Swamp
- Reduce soil acidity so it does not pose a significant risk of harm to aquatic and terrestrial ecosystems
- Reduce fire risk in Yeodene Swamp

Darren's success measures (workshop 2)

- Acid producing is less than acid buffering
- pH water leaving Boundary Creek is above 6
- Maintain flow in reach three of Boundary Creek

Remediation working group - success measures

- Dam operated transparently
- Gaining flows in upper Boundary Creek (ML/day)
- Reduce impact to stock and domestic water
- Increase trust in Barwon Water

Big Swamp

- Reduce fire risk
 - Risk to people
 - Changing peat
- Preventing further oxidation of the pyrite (stop more acid forming)
- Increase water quality against standards (at least meet these regarding EPA and ecological monitoring)
- ML/day difference between top end and bottom end
- Other biological systems to support the remediation
- Rehabilitation to 1982
 - Flora observed in Boundary Creek and Big Swamp
 - Vegetation different
 - Vegetation – nature at its best
 - Vegetation survey 1980s
- Peat is restored to its function
 - To be a sponge to provide fresh water
 - Hydrological processes
 - Carbon sequestration
 - Ecological refuge
 - Freshwater system

Downstream

- Barwon River
 - Biotic (fish, amphibians and mammals) community structure upstream and downstream of Boundary Creek
- Barwon River
 - Metals
 - Sediments quality
- Boundary Creek protection
 - pH
- Barwon River
 - Understanding and protecting pH
- Flow (ML/day)

Data gaps

- *Could this happen elsewhere? What monitoring is happening elsewhere?*
- Surface topography – LIDAR
- Sampling 2 per hectare minimum 4
9 hectares = 18 cored samples
Need to go at 0.5m intervals at depths of 4 to 5 m
- What will happen when water is released? Hydrogeology
- Layers of soil / peat
- How much acid sulphate is there? Iron minerality
- Bio-available carbon – how much is there? How reactive?
- Is there a connection between the swamp and the lower tertiary aquifer
- Revegetation of the peat – is this possible?
- Is it irreversible?
What data tells us this?
How quickly will it be restored?
- Vegetation of swamp in past – what was it?
- Connection to groundwater system – does it sit above the aquitard?

Next steps

1. Success objectives / data gaps sent to working group
2. Experts list of all data required to do this job
3. Prioritised list of what needs to be done in what order (timelines)
4. Agreed approach by all experts on field sampling program including statement of assumptions and limitations
5. Working group to meet to be informed of field sampling program
6. Implementation of field sampling program
7. Immediate actions regarding pH Boundary Creek

There are a few omissions from these notes that are worthy of note.

1. The reports prepared by SKM/Jacobs leading up to the licence renewal and the remediation of Boundary Creek and the Big Swamp have not been validated or peer reviewed.

2. In the notes headed “Next Steps” one of the steps was that the “experts’ would include as part of their working document a broader context and statement of assumptions.
3. Although outside the brief of this working group other impacts within the area of drawdown influence would be outlined.
4. This working document would be based along sound scientific and technical principles overcoming any shortcomings as outlined in Charley’s handout (see page 16).

It would also be desirable to include a map that clearly shows the area of impact from the borefield drawdown.

Charley Kohout also found omissions in the Workshop Session 3 minutes and sent off an email including his remarks (see Appendix Three, pages 39- 42). There has been no response to Charley’s email as at the end of September.

A Letter of Promises Sent to a LAWROC Landcare Member

The press release made by Water Minister Lisa Neville on the 9th of August 2018 ***was most welcome*** when she stated...

“I will ensure the health of our local waterways is prioritised, and that locals are kept well informed on the development of the remediation plan.”

And, *“I’ve placed strict requirements on Barwon Water’s licence renewal process and I expect them to be complied with.”* (see Appendix One, page 34)

The community looks forward to being “ ...kept well informed...” but would prefer to be actively involved in the planning, development and implementation of Southern Rural Water’s remediation plan directives and the review of the licence application.

Water Minister Lisa Neville’s 3 September 2018 Letter.

Nearly a month later the Minister sent this promising letter (pages 28 and 29) to Mr Keith Armistead a member of the LAWROC Landcare Group, reiterating her earlier comments and in many respects making her expectations much clearer.



Hon Lisa Neville MP

Minister for Police
Minister for Water

8 Nicholson Street
East Melbourne, Victoria 3002
Telephone: 03 9637 9654
DX210098

Mr Keith H. Armistead
57 Harris Road
ELLIMINYT VIC 3250

Ref: CC0103799



Dear Mr Armistead

GROUNDWATER EXTRACTION AT THE BARWON DOWNS BOREFIELD

Thank you for your correspondence about groundwater extraction at the Barwon Downs borefield in the Gerangamete Groundwater Management Area (GMA).

Clearly the impacts of groundwater extraction, as documented in Barwon Water's Yoedene Swamp study, are a significant concern for you and many other members of the community. It is a concern that I share.

Barwon Water has been working with the community through its Boundary Creek and Big Swamp Remediation Working Group to address these issues. I understand that it is Barwon Water's intention to fully remediate Boundary Creek, Big Swamp and the surrounding environment. I also understand that Barwon Water intends to submit an application to Southern Rural Water to renew the groundwater licence.

Given the significant concerns, I have intervened to ensure there is a legally enforceable remediation plan to improve and protect the health of key waterways in the Otways. Specifically, I have asked Southern Rural Water as my delegate to immediately issue a notice under section 78 of the *Water Act 1989* requiring Barwon Water to discontinue extraction, other than for maintenance and emergency response, and to prepare a plan for the remediation of Boundary Creek, Big Swamp and surrounding environment impacted by groundwater pumping at Barwon Downs. There will be no further extraction while assessment is being completed and until all remediation work dictated under the remediation plan has been completed.

Southern Rural Water's notice will require Barwon Water to describe the environmental outcomes for the waterways to be achieved by the remediation plan and set out clear triggers that would lead to the notice being lifted. Southern Rural Water will subject this plan to an independent technical review to ensure it adequately addresses the complex processes occurring in the catchment.

In respect to an application to renew the groundwater licence, I have requested that Southern Rural Water's process for assessing the application will include a community reference group to advise and assist with community consultation. I have also requested that, in addition to the normal assessment process, it establishes an independent technical review panel to assess Barwon Water's groundwater extraction licence renewal application.



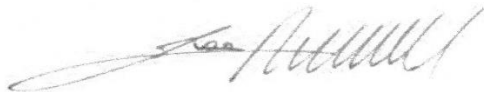
Barwon Water will not extract groundwater, other than for maintenance and emergency response purposes, while the application to renew the groundwater licence is assessed and until all remediation work dictated under the remediation plan has been completed.

I have also asked Southern Rural Water to work with the Department of Environment, Land, Water and Planning to provide advice on the need to change the permissible consumptive volume for the Gerangamete GMA, consistent with technical information gathered and the conclusions drawn through the assessment of Barwon Water's licence application.

If you have queries regarding the licence renewal, please contact Patrick O'Halloran, Manager Licensing Groundwater and Unregulated Systems at Department of Environment, Land, Water and Planning, via telephone on (03) 9637 8068, or email at patrick.ohalloran@delwp.vic.gov.au

Thank you again for your letter.

Yours sincerely



Hon Lisa Neville MP
Minister for Water

03/09/2018

CC0103799

Page 2



On the 17th of September an email was sent to Patrick O'Halloran (see Appendix Four, page 44). No reply received regarding this email by the end of September.)

Success or Failure Depends on Community Involvement.

The question still remains do any of the people charged with carrying out the Minister's wishes and directives understand or know what the concerns with the unsustainable extraction of groundwater from the Barwon Downs Borefield are? Unfortunately, "**Given the significant concerns,...**" none of the authorities involved in the remediation and or licence renewal process have itemised these concerns.

Further it has not been made clear which key waterways are to be protected and how their health will be improved. Minister Neville states...*“Given the significant concerns, I have intervened to ensure there is a legally enforceable remediation plan to improve and protect health of key waterways in the Otways.”* With this in mind it is paramount that local community input is listened to ensuring that these significant concerns and key waterway protections are clearly defined and implemented.

Minister’s Directives.

The Minister’s pro-action...

- a. to discontinue extraction except for maintenance and emergency contingencies,
- b. to have a remediation plan for Boundary Creek prepared, and
- c. to include in the plan remediation for the surrounding environment impacted by groundwater pumping at the Barwon Downs Borefield,

is most welcome and provides a solid foundation on which to build.

And, to state that there will be no further extractions...

- a. while assessment is being completed, and
- b. until **ALL** remediation work dictated under the remediation plan has been completed,

shows an extremely clear and strong commitment that any future extraction will only take place after a thorough examination of what can be regarded as a sustainable level.

Miserable Track Record

This task of conducting a thorough examination and protection of key waterways has been given to Southern Rural Water (SRW) and the Department of Environment, Land, Water and Planning (DELWP) - but their track record at implementing earlier Ministers’ directives has been miserable and is of some considerable concern.

Considering back in 1995 after extensive study,

- a. a comprehensive DELWP study determined 1,500 ML/year was regarded as sustainable level of groundwater extraction, and

b. 4,000 ML/year was set as a Permissible **Annual** Volume, Southern Rural Water was quite happy to allow Barwon Water to continue to exercise a 12,600 ML/year extraction licence. This was bad enough and should have sent shock waves through the State Government head office but worse was to follow. Local community concerns were completely squashed in the licence renewal process in the early 2000s, and in 2004 a 20,000 ML/year groundwater extraction licence was granted by Southern Rural Water to Barwon Water. All predictions; extensive studies and findings going back decades; communities concerns and data indicating things were going terribly wrong, were ignored. DELWP “stood by” and allowed this to happen.

The question paramount in many people’s mind is will this promised, thorough and independent examination that will be led by SRW and DELWP be done any better?

To emphasise these doubts, in 2008 Southern Rural Water promised in writing, that it would ensure that the 2008 vegetation survey study that formed part of the 2004 licence extraction conditions, would include an examination of the Big Swamp Wetlands. Yes, it can be argued that the swamp was examined, but the examination was not included in the final report nor has any documentation detailing this visit to the Big Swamp Wetlands ever seen the light of day.

“The significant problems we face today, cannot be solved at the same level of thinking that created the problems.” (Einstein)

Doomed to Failure?

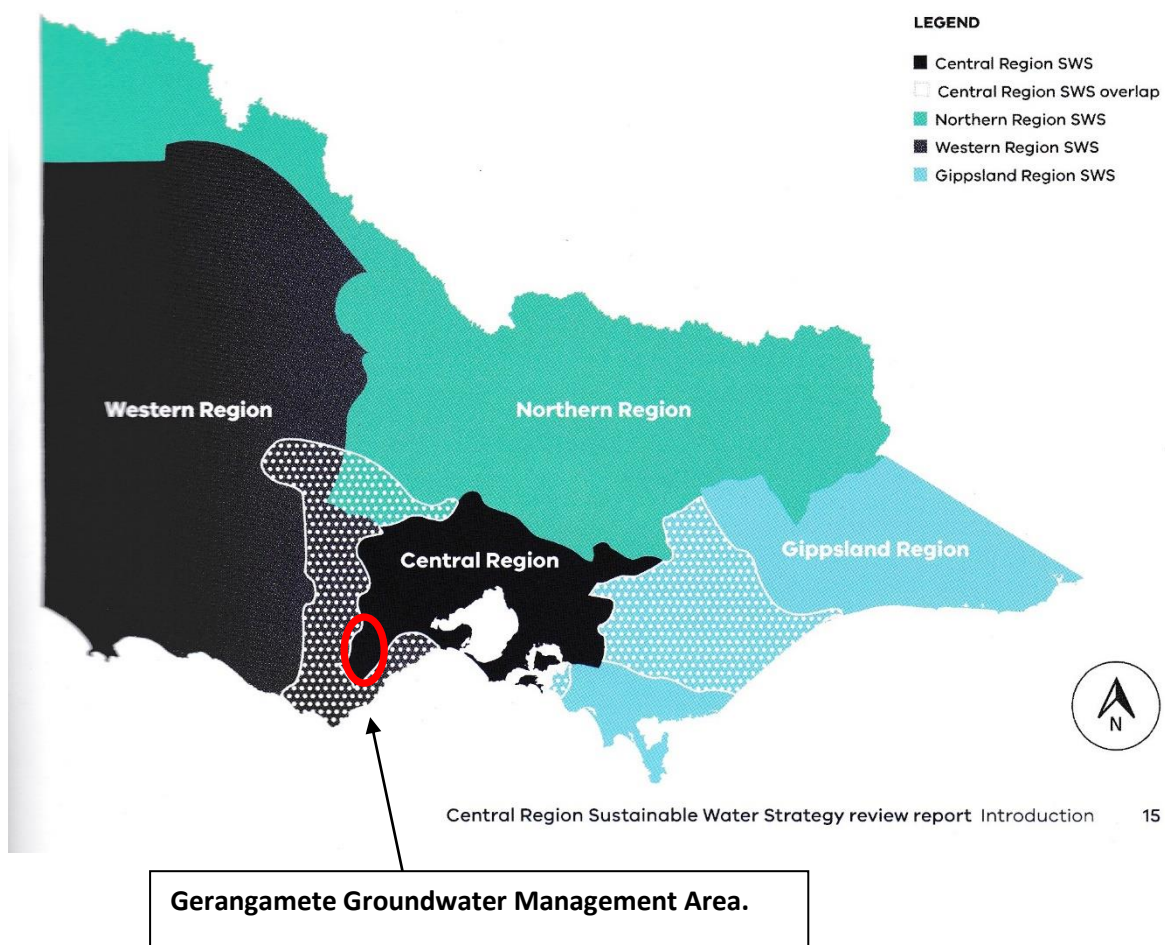
Unless the local community has a significant involvement in the implementation of the Minister’s wishes the whole process will be regarded with considerable scepticism and be doomed to failure.

The Central Region Water Strategy Review.

A word of caution has to be expressed regarding the revision of the Central Region Water Strategy presently being conducted. The

present Central Region Water Strategy makes very scant reference to the Gerangamete Groundwater Management Area where all of the “*...significant concerns...*”, are centred. Unfortunately, the Gerangamete Groundwater Management Area in the far west of the Central Region Water Strategy once again appears to be of little significance. The review continues to have a very skewed bias away from the Gerangamete Groundwater Management Area and consequently if left unchallenged will once again set out strategy directions that drive the continued unsustainable extraction of water from the Otway Ranges deep water aquifers. Appendix Two (see pages 35-38) contains LAWROC Landcare’s response to the review and goes some way at attempting to right this imbalance. (see Appendix Six page 47 for the Surf Coast Shire’s response)

Figure 1: Sustainable water strategy regions



CONCLUSION

From the earliest days of groundwater extraction at the Barwon Downs Borefield very little attention has been given to the identification and compiling a list of impacts based on predicted risks, dangers and community knowledge. Overseas water management dating back decades and resulting in the creation of desert type conditions, should have been taken into account and measures put in place to avoid any chance of the same thing happening in the Barwon River Catchment.

Not only have the authorities driving the exploitation of our water resources failed to take note of history, there would appear to be a recent and serious collective case of “ostrich” type behaviour. Not being able to list any more than two impacts or provide a realistic list of things to be remediated, let alone knowing anymore than a scant amount about **what is** being remediated, is paramount to burying one’s head in the sand. However, it must also be said that many efforts have been made to turn things around since the recently appointed Barwon Water management, led by Tracey Slatter. However, past management decisions have created a legacy that is extremely hard to come to terms with and even harder to fix.

Lisa Neville the Water Minister and Tracey Slatter the Barwon Water Manager, have taken positive and proactive steps to this end. Ensuring that community input is much more than tokenism is a welcome addition. The importance of community involvement cannot be over emphasised and if the Minister and Barwon Water Manager are to be believed, this involvement will set the direction for future resource water management practices in the Otway Ranges. However, a critical component of a successful implementation of policy and Water Minister directives will hinge on the degree of community involvement and resulting social licence given to actions from this point in time.

Appendix One.

Media Release

The Hon Lisa Neville MP
Minister for Police
Minister for Water



Thursday, 9 August, 2018

REMEDIATION PLAN FOR OTWAY WATERWAYS

The Andrews Labor Government is protecting the health of Otway waterways by ensuring Barwon Water repair the environmental impacts of past groundwater extraction in the region.

Minister for Water Lisa Neville has intervened through Southern Rural Water (SRW) to request a legally enforceable remediation plan, under Section 78 of the Water Act, to improve and protect the health of key waterways in the Otways.

Ms Neville said she was also requesting extra work to determine whether any further extraction is sustainable. This is in addition to the normal assessment process.

The announcement – which affects waterways such as the Big Swamp, Boundary Creek and Barwon River (between Boundary Creek and Winchelsea) and important groundwater reserves – includes the following directions to SRW:

- That Barwon Water prepare a thorough remediation plan, given findings that past groundwater extraction have affected pH conditions in Boundary Creek
- That in addition to the normal assessment process, SRW establish an independent technical review panel to assess Barwon Water's groundwater extraction license renewal application
- That SRW work with DELWP to determine whether a change to the overall permissible consumptive volume for the Gerangamete Groundwater Management Area should be reduced
- That Barwon Water discontinue any extraction activities, other than for maintenance and emergency response purposes, while the assessment is being completed and until all remediation work dictated under the remediation plan has been completed.

While groundwater extraction to supplement supply hasn't been undertaken in the borefield in two years, the environmental impact from past extraction means there needs to be a change in approach.

In addition, SRW will create a community reference group to provide input into the groundwater license renewal assessment process and a forum for issues to be raised in a formal manner.

People who wish to register interest to take part in the community reference group can contact Southern Rural Water on 1300 139 510.

The Labor Government has already invested in large-scale infrastructure projects such as the desalination plant, the Melbourne-Geelong pipeline and Anglesea borefield – which now means Geelong's water supply is future-proofed, more secure than ever before and less reliant on groundwater.

Quotes attributable to Minister for Water Lisa Neville

"Maintaining the health of these vital waterways is vital for both the Geelong community and local environment."

"I've placed strict requirements on Barwon Water's licence renewal process and I expect them to be complied with."

"I will ensure the health of our local waterways is prioritised, and that locals are kept well-informed on the development of the remediation plan."

Media contact: Elisa Fernandes 0438 021 203 | elisa.fernandes@minstaff.vic.gov.au

Appendix Two.

27 Aug 2018

RESPONSE TO CENTRAL REGION SUSTAINABLE WATER STRATEGY REVIEW JUNE 2018

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This response has been prepared on behalf of the Land and Water Resources Otway Catchment Landcare group (**LAWROC**). With respect to the Central Region, LAWROC's interests are the waterways in the Otway region including the Barwon River and creeks flowing into the Barwon River and the Gerangamete Groundwater Management area.

GENERAL COMMENTS:

The document provides a rosy picture and claims achievements where in some cases the opposite is true. Case studies are all positive, and disappointingly little comment is given to failures, non-achievements and partial achievements. We contend that there are multiple failures in delivering the strategy projects and services in the Otway region and poor management of aquifers and rivers controlled by the responsible water authorities (SRW, CCMA and Barwon Water).

REVIEW OF CRSWS ACTIONS:

Action 2.2 Establish the environmental water reserve for each river in the Central Region.

Periods of no water flow in the Barwon River have continued to increase over the past years with over 90 days of no flows recorded during the summer of 2017-18. If an environmental water reserve has been established for the Barwon River it is clearly far too low. An increase in environmental flows in the Barwon River needs to be given a high priority in the CRSWS.

Action 2.4 Issue new entitlements or licences to extract additional water from rivers only if rivers health is acceptable.

While PCV's may have been established the scientific evidence to support the volume limits appears to be inadequate. The Gerangamete aquifer has a PCV of 20,000 ML/yr yet extractions of groundwater at rates well below the PCV have caused significant environmental damage to wetlands and creeks in the management area and a significant reduction in aquifer volume.

Likewise, the PCV for the Barwon River has not protected the health of the river. According to the Index of Stream Condition 60% of the length of the Barwon River is in poor or very poor condition.

There also needs to be provisions for suspending or cancelling existing licenses in response to any decline in river health.

Action 2.12 Establish environmental water reserves (EWRs) for all areas where groundwater is found in reasonable quality and quantity.

This action has clearly NOT been achieved with respect to the Gerangamete Groundwater Management area. Until very recently there has been complete disregard by Barwon Water, Southern Rural Water, the Corangamite Catchment Management Authority, the EPA and the Minister for Water of the adverse environmental impacts groundwater extraction was causing.

After years of the local community expressing their concerns about environmental damage at the Big Swamp wetlands and Boundary Creek these authorities have only recently and begrudgingly acknowledged that excessive groundwater extraction was the cause of the damage.

The CRSWS has to address this problem and ensure future extraction is sustainable as per the Australian National definition of sustainable.

Action 2.13 Establish permissible consumptive volumes for each groundwater management area.

PCVs may have been established but the basis for setting the limits is lacking sound scientific data. Much greater effort must be made into understanding and monitoring groundwater systems. It is apparent that for some areas the only acceptable extractable volume is a Permissible Annual Volume.

Action 2.14 Annual compliance reporting of the use and recharge of aquifers.

If this action was achieved with respect to the Gerangamete aquifer, there has been a subsequent failure to act upon the information reported. The rate of water extraction has significantly exceeded the rate of recharge of the aquifer. The level of the aquifer has been dramatically lowered with experts estimating that it would take up to 70 years of no pumping for the aquifer to naturally recharge to pre-pumping levels.

Action 2.15 Approach to sustainably manage aquifers.

This action has not been achieved with respect to the Gerangamete Groundwater Management Area. Water extraction from this aquifer has vastly exceeded a sustainable rate and significant damage has occurred to groundwater dependent ecosystems.

Action 2.16 Identify and develop underutilised groundwater resources and explore aquifer recharge opportunities

This action has not been achieved with respect to the Gerangamete aquifer. No consideration or consultation has been forthcoming from Barwon Water regarding artificially recharging the aquifer to reverse the catastrophic effects of unsustainable extraction on the Otway region.

Action 2.17 Issue new groundwater entitlements or licences if long-term sustainability of aquifers and groundwater-dependent ecosystems are protected

Given the disastrous experience with the Gerangamete aquifer, a much greater understanding of GDEs needs to be developed before any new licences are issued. In addition more robust monitoring of GDEs associated with existing groundwater licences needs to be implemented.

The situation with the Gerangamete aquifer should be used to provide a good learning experience for Central Region Water authorities on how excessive water extraction can damage GDEs and on what needs to be done to remediate the damaged environment.

Action 3.19 Continue to research and explore aquifer storage and recovery opportunities

A managed aquifer recharge program hasn't been adequately researched and explored in the case of the Gerangamete aquifer (refer also to Action 2.16).

Action 4.11 Line the Wurdee Boluc Inlet Channel and Ballan Channel

Large sections of the channel transporting water from the Gerangamete aquifer to Geelong's water supply system remain as open earthen channels. A fully enclosed pipeline is required to reduce losses and reduce demand on the Gerangamete aquifer. No further pumping from the aquifer should be allowed until this is achieved. Reference should be made also to Action 3.1 as this situation is also a failure in 'Securing Water Supplies'.

Action 4.13 Conduct an initial trial of aquifer storage and recovery

A trial may have been conducted for the Jan Juc GMA however there has been no trial to date for the Gerangamete aquifer. This Action can hardly be categorised as an achievement.

Action 4.14 Feasibility study of groundwater resource at Newlingbrook aquifer and possible Melbourne–Geelong connection

It is our understanding that this was in fact the Gellibrand Groundwater Management area and the project was terminated when studies indicated that the surface and groundwater resources were fully allocated and any further pumping would dry out the Gellibrand River and leave neighbouring towns without any water during drought.

Action 4.17 Increase environmental flows in the Barwon River by 4,700 ML by 2015

Given the extended periods of no water flow in the Barwon River the increase in environmental flows has been insufficient to support river health. In addition the environmental releases have not been in parts of the Barwon River that need it the most.

Action 5.3 Catchment management authorities will manage the environmental water reserve to optimise environmental outcomes and provide for healthy rivers

The Corangamite Catchment Management Authority has failed to establish adequate environmental water reserves for the Barwon River and Boundary Creek and failed to act on the negative impact groundwater extraction from the Gerangamete aquifer was having on surface water flows.

Action 5.5 Continue to monitor and improve understanding of river health

There has been insufficient monitoring of flows, water quality and aquatic life in the Barwon River catchment and not enough effort towards improving river health. The rivers and creeks in the area remain in poor to very poor condition.

Action 5.6 Continue to monitor groundwater and examine opportunities to expand coverage to include groundwater-dependent ecosystems and rivers/wetlands

This has been a complete failure with respect to the Gerangamete Groundwater Management area as evidenced by the significant damage to groundwater dependent ecosystems and depletion of aquifer volumes.

Action 5.7 Continue to implement and improve existing water accounting system

To obtain an accurate and meaningful Water Account Balance of water drawn from rivers, creeks and bores the stock and domestic use needs to be included in the accounts.

Action 5.14 Review and enhance the methodology behind environmental flow studies

Page | 38

Having developed the FLOWS methodology the application of the methodology needs to be carefully monitored and appropriate responses to the study results implemented.

CONSIDERATIONS FOR THE FUTURE STRATEGY

- A number of initiatives including scientific studies and infrastructure improvements have been successfully implemented in some river systems but not all. We would like to see these initiatives applied to the Barwon River system.
- Thorough and robust risk assessments should be developed and implemented with respect to any current and new groundwater licences. These should include assessments of:
 - potential acid sulphate soils in the groundwater management area (eg. the Gellibrand Groundwater Management area with over 1000 hectares of potential acid sulphate soils is starting to be impacted)
 - the impact on groundwater dependent ecosystems
 - potential increased risk of fire due to drying out of land in the area
 - impact on farm businesses dependent on water flows
 - impact on environmental flows
- Additional effort should be made toward developing a much better understanding of aquifer properties and dynamics including the interconnections between aquifers and between aquifers and surface water.
- Improve monitoring of aquatic life in wetlands, rivers and creeks in particular for species vulnerable to reduced or irregular water flows.
- Develop strategies to proactively offset the inevitable negative impact of climate change on water flows and aquifer recharge.
- Improve the regulatory framework to allow clear and authoritative responses to any breaches of environmental regulations and standards.
- Strengthen the authority and “will to act” of water authorities responsible for oversight of the sustainable use of the State’s water assets (eg Southern Rural Water and CCMA).
- Improve transparency and accountability of water authorities and create effective avenues for concerned communities to have their issues addressed.

- Develop adaptive management policies and procedures to allow for immediate action to problems as they occur.
- Highlight past failures in water management strategy to ensure lessons are learned. Past management of the Gerangamete Groundwater Management area would form an excellent case study to highlight the environmental impacts of over pumping from an aquifer as well as highlighting how the issue was mismanaged for decades.

Gordon Hans & Martin Calvert
(LAWROC Landcare Sub-committee Co-ordinators – Central Region Sustainable Water Strategy Review)

Appendix Three

*

Email to JoLee (Barwon Water 16/09/2018)

Charley Workshop 3 Notes.

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I request that the following be sent to workshop participants via email:

1. These notes.

2. Nicole's unedited notes.

3. "Requirements After Workshop Two in July 2018"

Document attached to this email.

4. "ASSUMPTIONS"

"Assumptions for the Remediation of Boundary Creek"

Document attached to this email.

I also request that the first agenda item for workshop four be to clearly state objectives and requirements that were identified by Nicole and others at workshop three.

My observations which differ Barwon Water notes are:

1. Several community members were impressed by scientists statements that a unique wetland has been severely damaged. It was proposed that the project objective needs to be rehabilitation rather than remediation.

2. There were no objections to this proposal.

3. It was agreed after some discussion that high expectations are appropriate initially.

4. It was agreed that the five scientists (and others when needed) use their extensive experience to report on:

4a what is achievable.

4b how to achieve what can be done.

4c the five scientists agreed to include contingency plans for unexpected events.

5. It was stated that validation of Barwon Water and Jacobs work was inadequate in pH data supplied recently and in Jacobs reports.

6. Barwon Water stated and Jacobs agreed that no validation or peer review of Jacobs work has been done.

7. Lack of trust of Barwon Water and Jacobs by community members was clearly observed and stated by Nicole.

8. Scientists agreed that success in this project fundamentally depends on sufficient recovery of groundwater systems.

9. Consequently it was agreed that

a. broader impacts of groundwater extractions in the region are critical to the success of this project and are to be defined by the five scientists.

b. an appropriate broader context than was set by Barwon Water is to be defined by the five scientists.

c. assumptions and limitations indirectly imposed by Barwon Water would have had catastrophic consequences. As is normal practice in scientific work assumptions and limitations are to be defined by highly

qualified scientists.

d. data gaps work done by Jacobs is missing very large amounts of data. Data gaps work will be extensive and will continue for many months.

10. Other observations were made that reflect on the general nature of the problems being faced.

a. Barwon Water stated that it will use national standards when using the term sustainable groundwater pumping

b. A broad agreement that to plan works is dangerous until

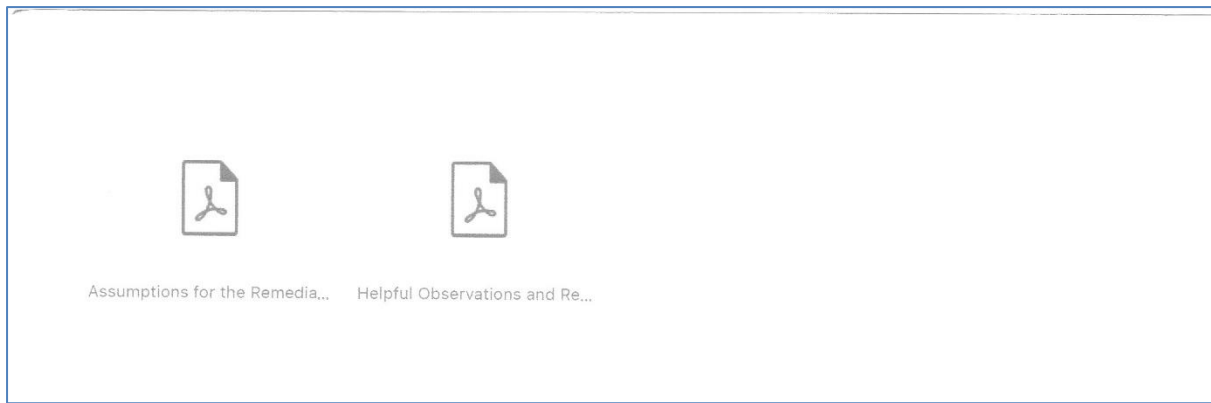
- . data requirements are known
- . risks are specified for options
- . more detailed objectives have been identified

c. We need to see included in project work

- . objectives that were stated
- . validation of data
- . state and federal guidelines

d. Community members are pleased that

- . people with valid criticisms of Barwon Water are included in the project
- . high quality scientists are now included in the project
- . to lock in the benefits of the process being followed by Barwon Water *open consultation* with community members with advanced skills is mandatory.



These attachments were included in the email. The Assumptions attachment included a detailed assessment of Jacobs scientific and technical procedures.

Appendix Four

Email 17/09/2018

Hello Patrick,

Following up on Minister for Water's letter Ref.C0103799 and her press release, 9 August 2018, I have a few comments to make.

Firstly it is excellent to see that the Minister has set out clear directives instructing SRW and DELWP that the unsustainable groundwater extraction from the Barwon Downs Borefield has to be stopped and things put right.

2. However, unless the community is given a significant role to play in both the technical and community consultancy review process there will be little confidence given to the process.

3. The authorities Lisa has given this responsibility to are the very ones that have been the ones overseeing the past 30 years of mis management. The community will only provide social licence to this process if it is intricately involved.

4. Considering LAWROC Landcare Group had no luck finding independent and or "experts" within the state of Victoria to assist and conduct Studis and works for it in the early 2000s, it would appear that SRW will have the same problem finding experts willing to take the job of reviewing work.

One of the reason experts declined to help was that funding and livelihood depended on the very source that the LAWROC studies would have been questioning.

5. Little notice appears to have been taken of the work and recommendations from 5 years the Barwon Water Groundwater Community Reference Group has conducted.

6. Earlier this year Lisa Neville assure the LAWROC Landcare Group that SRW would keep it informed. Not a peep has been heard. Any correspondence from SRW has been in response to Requests. Not an encouraging start to community involvement.

7. Why is it that the notice given to Barwon Water under Sction 78 cannot be made available?

I would like to reiterate that if the Minister's directives are carried out AND the local community has meaningful consultation then nothing but socially accepted outcomes can be expected.

A reply to this letter would be appreciated.

Yours sincerely,

Malcolm.

Sent from Yahoo Mail for iPad

Appendix Five – another piece of intrigue.

NEIL L. LONGMORE

Planning Lawyer

LLB (Beakin) LL.M (Melb.) Grad Cert Urban & Regional Planning (UNE)

7

28 September 2018
The Honourable Lisa Neville
Water Minister
Level 17, 8 Nicholson Street
EAST MELBOURNE VIC 3000

Dear Minister,

Impracticality of Section 78 *Water Act* 1989 Order to Ameliorate Damage Caused by Over-extraction from Barwon Downs Bore Field

We wrote to you on 26 July 2018 on behalf of the Land and Water Resources Otway Catchment Landcare Group ("LAWROC") recommending that you and the Minister for the Environment declare the wider drawdown area of the Barwon Downs bore field as a Special Area under section 27 of the *Catchment and Land Protection Act* 1994 ("the *CALP Act*"). Several months later, we are yet to receive a reply from you.

You have, however, apparently issued an Order to your delegate Southern Rural Water under section 78 of the *Water Act* 1989 requiring Barwon Water to undertake remediation of some of the damage caused by 30 years unsustainable extraction from the Barwon Downs bore field. As far as we know, the text of your Order has not been made public, therefore it is difficult to know whether it is something to welcome or not, although the secretive nature of the process is concerning.

We have had three telephone discussions with Grace Mitchell from your department in which we have emphasised that the community will not accept token efforts at remediation in just a small portion of the 200 square kilometre drawdown area. What the community requires is careful mapping of the complete drawdown area with thorough identification of all Potential Acid Sulphate Soil and Actual Acid Sulphate Soil sites.

What your department does not seem to appreciate is how widespread these soils are in the drawdown area and how 30 years of over-extraction is exposing more and more of these soils to oxidation processes. You have done no work at all on properly identifying the problem. A s.78 Order applying to the Big Swamp will do nothing to address the extensive scope of the drawdown that is spreading out from the bore field in an ever-widening circle.

Once the drawdown area itself and those sites within the drawdown area have been clearly identified, then a declaration is required of a Special Area under section 27 of the *CALP Act* that includes all sites requiring long-term management by the Corangamite Catchment Management Authority which is the only organisation with the expertise and credibility to manage the problem. Southern Rural Water and Barwon Water are both water extraction authorities with no experience or expertise in solving environmental problems of this magnitude. They both have poor environmental reputations, with no credibility in the community that they have the intention or capability to solve the problems they have caused. A trusted independent third party is needed.

What the *CALP Act* process will allow that the s.78 *Water Act* process does not is the imposition of Land Use Conditions on (a) the bores operated by Barwon Water and (b) the sites where acid sulphate soils exist, to enable a charge to be levied against the Barwon Water bores for the carrying out of capital works on the acid sulphate soil sites exposed to oxidation. There is no mechanism in the *Water Act* to do this.

Grace Mitchell confirmed to us that Barwon Water still sees the bore field as an asset, which explains its perverse intention to proceed with licence renewal while promising piecemeal and inadequate remediation.

The bore field can only be seen as an asset while you and your department remain in denial concerning the substantial financial liabilities involved in remediating the entire drawdown area.

Choosing denial over recognition at this stage would be a failure of public administration that only delays addressing the real issue and causes long-term harm to the reputations of the public officials involved.

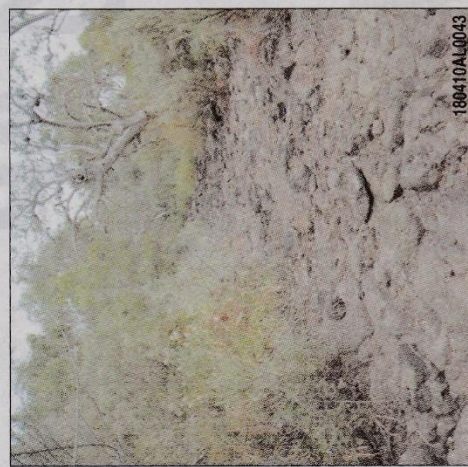
We once again urge you to consult with your colleague the Minister for the Environment to begin the process of making a declaration of a Special Area Plan under section 27 of the *CALP Act*.

Yours faithfully,

Neil Longmore

(Also see Appendix Seven pages 48-49.)

Council details water concerns



ENVIRONMENT: Surf Coast Shire Council has made a submission to a water strategy review, addressing the Barwon River's needs, pictured earlier this year when water stopped flowing.

A council submission to a State Government water strategy review highlights the Barwon River's environmental needs and suggests greater community involvement in water management.

Surf Coast Shire Council resolved at its September meeting to receive and note the submission, which acknowledged strategy achievements and outlined ongoing concerns.

The government released its Central Region Sustainable Water Strategy with a 50-year outlook in 2006 and updated it in 2007, with a review required at least every 10 years.

The council's submission welcomes increased environmental flows to the Barwon River and transfer of part of Barwon Water's West Barwon Reservoir entitlements, but states concern that allocations might not be sufficient to meet the environmental needs of the river.

"Inadequate environmental flows for

the Barwon River remain a significant concern for the Winchelsea community," the submission says.

"Council believes that this issue needs to be addressed in partnership with the community, together with consideration of any potential future trade-offs."

The submission supports strategy achievements and commitments in use of recycled water, and emphasises that development of recycled water infrastructure and use of recycled water are strategic objectives in the Surf Coast's council plan for 2017-21, its draft hinterland strategy and the G21 region agribusiness plan.

"In addition to supporting the development of wastewater and recycled water infrastructure, council will be working in partnership with Barwon Water to explore potential use of recycled water to support agricultural and agri-tourism development in the hinterland, particularly in the vicinity of Black Rock and Winchelsea water reclamation plants."

the submission says.

The council submission supports consideration of greater community involvement, and use of local knowledge, in water management.

"The high level of community interest in the health of waterways in the shire, including the Barwon and Anglesea rivers, demonstrates local communities want greater, ongoing involvement in water management," it says.

Surf Coast mayor David Bell said the council welcomed the opportunity to contribute to the important strategy review.

"Securing of regional water supply is essential for helping our community and environment to thrive," Cr Bell said.

"It is critically important that we reflect the views of our communities, particularly when significant concerns exist."

The Department of Environment, Land, Water and Planning review of the water strategy is due for completion at the end of this year.

Appendix Seven

Email to Minister Lily D'Ambrosio 24/09/2018 & 23 others. (Step 6/7)

Hello Minister for the Environment,

The drawdown from the Barwon Downs Borefield has an ever expanding area of influence with devastating impacts taking place within the region of the Otway Ranges. Neil Longmore a lawyer acting on behalf of the LAWROC Landcare Group, has been pursuing the declaring of a Special Area Plan under section 27 of the Catchment and Land Protection Act 1994 ("the CALP Act"). This action has been necessary as there is no provision under the Water Act 1989 that requires a licensee to carry out remediation capital works on land tenures owned by a third party not under legal control of the licensee. This excludes hundreds of people being impacted from the Borefield extractions.

There are three problems with what is taking place...

1. The impacts other than the ones along Boundary Creek and the Big Swamp are not being listed or recognised, and
2. it would appear that no one is responsible for these other impacts, most certainly not under the Water Act provisions. And, no one is prepared to do anything about this situation. All efforts so far regarding the CALP Act, starting in February 2018, have not been finalised at a Ministerial level.
3. A large number of people continue to be disenchanted with Government efforts to resolve their water issue problems.

Minister for Water, Lisa Neville, suggested on the 20 February 2018 to follow these issues up with Patrick O'Halloran. Neil spoke to Patrick and was referred to the Corangamite Catchment Authority. A letter was sent to Graham Phelps (CEO of the CCMA) on 2 March 2018.

LAWROC Landcare Group members met with the CCMA on 16 March 2018.

Mr. Phelps took some time to respond, writing that in his authority's opinion there was no need to set up a Special Area Plan, believing that Barwon Water and Southern Rural Water are following an appropriate process under the Water Act.

This is totally unacceptable to those landholders being impacted from Barwon Water's groundwater extraction. Impacts have not been listed, taken into consideration or covered under the Water Act.

Also...

1. The "track" record of Barwon Water and Southern Rural Water to plan, implement, review and manage the water resources in the Barwon River and Gellibrand Catchments is deplorable.
2. The CALP Act appears to fall under your jurisdiction, as does this problem.
3. The notification under Section 78 of the Water Act given to Barwon Water by Southern Rural Water has not been made accessible. Most disappointing and consequently viewed with suspicion.
4. A final word from Minister Neville on the CALP query still has not been given. Minister Neville was urged to consult with you on 1 August 2018 - by 24 September 2018 still no reply.
5. Is it good enough that The CCMA reply can dismiss the issuing of a Special Area Plan when the Water Act does not cover the issue and the present remediation plan completely

ignores any groundwater extraction impacts outside of the Boundary Creek and the Big Swamp area?

6. Extensive efforts with Government authorities to obtain a list of impacts within the area of drawdown influence has been fruitless - no official list exists.

Considering that efforts to obtain a clear and definitive answer to the declaration of a Special Area Plan under Section 27 of the CALP Act have been going on since February 2018, it would be appreciated if a speedy answer could be given to this email.

Kind regards,
Malcolm.