

Death of Anglesea River: "It's a mini-Coorong disaster", but might be man-made....

Three months has passed since the Anglesea River died, allegedly due to washout from acid sulphate peaty soils in Marshy Creek and Salt Creek upstream. This has been caused by a "natural event" according to the EPA (see refs).

All the information released by Victorian Government agencies seems reasonable and accurate, but it is probably only half the truth, rather than the whole truth:

What the EPA has specifically omitted to tell the public, but which their water experts are almost certainly aware of, is as follows:

* Sulphuric acid is battery acid, as used in car batteries;

* It is disingenuous of the EPA and Surfcoast Shire to place notices beside the river alerting the public to "low pH" which means nothing to 90% of the population, who normally have no recall of high school chemistry lessons. The notices could reasonably have said *"The river has become very sour like vinegar and killed all the fish. It might sting your eyes, and irritate your skin. If you get harmed by swimming in it, it's your responsibility."* Spin or clear speaking, it's your choice as the responsible public authority;

* There has been a drought for 14 years, and it is a scientific fact that exposure of naturally occurring "potentially acid sulphate soils" (PASS) to air causes a chemical reaction that makes battery acid. This is precisely the mechanism of the eco-disaster that was unfolding very slowly in the Coorong, before heavy rains brought increased fresh water to the lower reaches of the Murray River. Some acid areas there have been isolated from the main water course with a levee or bund system, presumably to contain the acid damage away from struggling aquatic ecosystems;

* The Alcoa power station uses huge amounts of cooling water. Where do they get it all from? The EPA fails to categorically state that the open cut mine drainage pumps and the power station cooling towers' thirst have not lowered the water table in acid sulphate soils near the Anglesea River and all its tributaries;

* Barwon Water mentions ground level gauges, but does not say if there is any porous pathway underground between the surface water table and the deep aquifer they are now so proudly exploiting. Please inform the public fully of the scientific understanding which presumably was known in great detail before the project became "bankable" to the financiers;

* A former CEO of Barwon Water was an ex-SECV executive. Has Barwon Water done anything since 1994 at Anglesea that helps the Alcoa open cut mine to lower the water table to relieve Alcoa of some of the cost and effort of keeping their deep open-cut mine from filling up with water? Have any of the open cut mine drainage, the power station water coolant usage, or the borefield basin's construction lowered the water table in any swampy, peaty or acid-sulphate soil areas? The Barwon Water website shows that the two organizations are working together on Earthwatch Fellowship. How about letting in independent environmental consultants to have an open book technical/scientific "earth watch" audit of all the activities of both organizations in the Anglesea River catchment? If they have nothing to hide, they should agree to an investigation. But instead it seems we just get greenwash with Earthwatch Fellowships... ~~and an ARSAG secretariat that some~~

~~people say cannot keep objective and unbiased minutes of community input at public meetings:- scandalous!+-~~

* Can Barwon Water and Alcoa categorically rule out for all time that deep drilling in this sensitive area is not a prelude to geo-sequestration of carbon dioxide emissions? Will they categorically state on the public record that geo-sequestration (“carbon capture and storage” or CCS) has never been discussed between them, either formally or informally?

* I have been visiting Anglesea since the 1960s, the same era when Alcoa was aluminizing the surf lifesaving club with boats and watchtowers. In my childhood the river was brown. Even before this latest series of fish kills in 2010 the river has gradually become clearer and bluer over the decades, following the construction and operation of the Anglesea power station and coal mine. Perhaps there was a big step-change in colour at the time of the 1985 Coogoorah Park land/waterscaping, or after the 2000 fish kill, and it has never really been restored to its former natural brown state. Locals who took regular photos can probably document the changes. The gradual disappearance of tannins in the water is highly suggestive that the former swamps and peats are no longer submerged. If the EPA and ~~EMCA~~ CCMA have some other explanation for the gradual decade-scale colour change, let's hear a scientifically valid explanation!

* After five decades of major and continuous industrial operations, it is now incumbent upon the industrialists to prove that their profit-driven activities have had no negative impact on local ground water levels. If they cannot or will not provide such proof, it is open for reasonable people to hold the view that the long-term colour changes in the river and 2010's unprecedented acid leaching events may well be caused by man-made interference in the local water tables. Similarly it is incumbent on Barwon Water to show to independent acid sulphate experts that their recent infrastructure works are not the source of the acid river kill of 2010. This applies especially in relation to the exposure of large areas of acid sulphate soils to oxygen during construction of the borefield holding basin, and associated roads, pipe trenches, etc.

* Alcoa must account for all its water usage, and provide historical data of local ground water levels before the ugly industrialization of a delicate pristine riparian/estuarine ecosystem. This has got absolutely *nothing* to do with EPA's reassurances that Alcoa's discharges have been within acceptable limits, it is a completely separate issue. (Attention Kate Turner, EPA). Alcoa could do everyone a big favour by distributing "*Anglesea Power Station Water Management Manual, 2005*" to all stakeholders. Hopefully it clearly spells out the source(s) and volumes of all the water they use. CSIRO research indicates that a 150 MW power station such as Anglesea needs 225 tonnes of water per hour evaporated for cooling. This is almost 2 giga-litres per year, almost one third of the borefield's stated production. Is Alcoa already tapping into the deep aquifer to obtain its 2 gigalitre/year cooling needs?

* Borefield Disturbance: Barwon Water admits to disturbing significant areas of topsoil, and has acknowledged a need for site remediation. About 25 years ago the peaty riverine areas were disturbed for the creation of Coogoorah Park's canals. It was obvious in the 1990s from the look and stench from the water in Coogoorah Park's water channels, that acid sulphate soils had been disturbed. The state of the Coogoorah Park canals or man-made billabongs just prior to the 2010 fish kills is unknown to me. Suffice to say there is a history of nasty smells when soil is disturbed in this watershed. A much larger area has been disturbed for the construction of the Anglesea borefield

1 CORRECTION and APOLOGY; “~~strikethrough~~” indicates that I was mistaken in my original email, and misunderstood something I had been told about delayed or inaccurate minutes of a meeting, but it was not a meeting at which ARSAG was responsible for keeping the minutes.

basin. How is it possible to disturb this much soil without exposing it to oxygen? Even if it was briefly exposed, then acid has formed. What if anything has been done to isolate all this acid from the river, and to isolate it from continued oxygen exposure, particularly during the very heavy downpours of rain that have occurred several times during 2010?

* Alcoa stockholders, board of management and executive have allowed CO₂ to be pumped into the skies of Anglesea for over forty years. At 150 tonnes per hour, that is a lot of CO₂. About 60 million tonnes. To the extent that these emissions contribute to climate change, they are - according to many climate scientists - partly responsible for the weather extremes such as the 14-year drought and the recent intense cloudburst rain events. So even at that macro level, Australian jurisdictions allowing such filthy industries to continue their reckless greenhouse emissions for short term profit of the privateers, shows just how much our governments really care about the welfare of the natural world, upon which all people (and Garry Kerr's fish) ultimately depend. Perhaps it would be preferable under these circumstances if Alcoa, its filthy emissions and its massive water demands were to simply go away and never come back. (new footnote)²

How many tonnes of ground limestone, or limestone chips in special cages would be required to neutralize the river downstream of Coogoorah Park, so that the system can begin to recover quicker? The plant life and micro-fauna has to be re-established or re-introduced before fish can be restocked. All the upstream tributaries should have their water levels in the peaty/swampy/acid-soil areas returned to pre-1960, pre-Alcoa levels, and any further disturbance to the wetlands and water table should be banned in perpetuity. Just do it!

In the short term, if there is *any* risk that opening the mouth of the river will lower water levels in Coogoorah Park, Salt and Marshy Creeks, then it should not be done, because the drainage will only expose more peat, melaleuca swamp and/or acid sulphate soils to oxygen in the air, and risk another dose of sulphuric acid into the damaged lower reaches of the river.

If independent estuary experts advise that the Coogoorah Park "water feature" canal system is a significant contributor to toxic acid leaching events, then it should be filled in, and restored to its former melaleuca swamp/marshland status. There is research evidence that acid leaching can continue for 100 years in similarly disrupted Australian coastal systems. Whose bright idea was it in the first place? It is not clear how dredging the area was in any way necessitated by the Ash Wednesday fire damage. Does anyone have a truly ecological and scientific rationale for what was done in 1985?

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~~P.S. can someone please forward this email to Frank Flynn, physiotherapist (as seen on TV)? I apologise for the length of this email, it probably deserves to be turned into a PDF discussion paper format (soon). Feedback welcome, please forward to interested parties.~~

² The Australia Institute did a detailed economic study of subsidies and market distortions in Australia's foreign-owned aluminium industry, concluding that there was no net economic benefit for the Australian economy: https://www.tai.org.au/file.php?file=web_papers/WP21.pdf

Refs:

http://en.wikipedia.org/wiki/Acid_sulfate_soil

<http://www.skepticalaquarist.com/docs/water/humic.shtml>

<http://www.ret.gov.au/energy/Documents/sustainability%20and%20climate%20change/Water%20and%20the%20Electricity%20Generation%20Industry%20Report.pdf> shows the massive water requirements of fossil-fuelled power generation

<http://www.youtube.com/watch?v=dP62omM-XAA> (ABC TV news bulletin, early November 2010)

<http://epanote2.epa.vic.gov.au/EPA/media.nsf/ad5006bdf5dcd5c84a256695000c4619/7a98a3ddc4f48643ca25779f000fe7d6?OpenDocument> EPA media release September 2010

<http://www.ccma.vic.gov.au/news/documents/38fishdeathsagencyresponse101105.doc> - CCMA response to fish kill, November 2010

<http://epanote2.epa.vic.gov.au/EPA/media.nsf/ad5006bdf5dcd5c84a256695000c4619/f125917bd5a063e7ca2577ec00086cd2?OpenDocument> EPA media release December 2010