

Director
Referrals Section (EPBC Act)
Approvals and Wildlife Division
Department of the Environment and Heritage
GPO Box 787 CANBERRA ACT 2601
epbc.referrals@environment.gov.au

RE: Referral 2009/4833

April 22, 2009

Dear Director,

I refer to the referral of Peter Croft, Director, Coorong, Lower Lakes and Murray Mouth Project, South Australian Department for Environment and Heritage to the Minister under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) titled: Emergency response for the crisis management of Acid Sulfate Soils in the Goolwa Channel, Finniss River and Currency Creek, South Australia

- A. This referral is based on unproven modelling of acidification processes which are still being investigated.
- B. The link between acidification of the water body and the presence of acid sulphate soils has not been proven.
- C. Alternative means of treating acidic soils and acidification of the water body have not been presented.
- D. The option to encourage the flow of fresh water down the Murray Darling River system to fill the Lakes and feed into the Coorong and out to sea has not been considered.
- E. There are serious omissions in the plans for the action especially contingencies for pumping and filling the pool.
- F. Removal of the structures has ambiguous triggers and plans.
- G. Public consultation has been misrepresented, with the aim of the project changing since the consultation occurred.

As permitted under the EPBC Act and given the significant impacts on the matters of National Environmental Significance identified in Referral 2009/4833, I request that the Minister reject the proposal to construct the regulators and weirs in the Goolwa Channel, River Finniss and Currency Creek.

If the Minister does not decide this at this point then I submit that this action should be declared a controlled action for the purposes of the EPBC Act. The controlling provisions for this action should be:

- a) subsections 16 and 17B on the grounds that the action is a matter of National Environmental Significance and is likely to have a significant impact on the Ecological Character of the declared Coorong, Lake Alexandrina and Lake Albert Wetland.

b) subsections 18 and 18A on the grounds that the action is a matter of National Environmental Significance and is likely to have a significant impact on the Listed Threatened Species and Ecological Communities

c) subsections 20 and 20A on the grounds that the action is a matter of National Environmental Significance and is likely to have a significant impact on the Listed Migratory Species under the JAMBA and CAMBA treaties.

John Yelland

Point Sturt via Milang SA

PO box 73, Milang 5256

(08) 8537 0257

Discussion:

A. & B. The suggested adverse effects of acid soil exposure are not proven.

In section 1.1 this proposed action is described as:

“...an emergency first response to mitigate the multiple adverse impacts of Acid Sulfate Soil sediment exposure in the Goolwa Channel and its tributaries (Finniss River and Currency Creek)...”

This is based on the premise that there is a major threat of acidification in the Lower Lakes and that these areas are in danger. This is referred to on page 14:

“Studies by the CSIRO (presentation by Dr. Fitzpatrick 2009) show that 2,000 hectares of sulfuric material has already been exposed in the Lower Lakes region. This equates to a potential of approximately 480,000 tonnes of sulfuric acid already formed. With a further reduction in lake levels by one metre, approximately 33,000 additional hectares of sulfuric materials will be exposed potentially producing a further 8,000,000 tonnes of sulphuric acid.”

However, the presentation by Dr. Fitzpatrick is not listed in the references on page 70.

Dr Fitzpatrick’s Preliminary report (CSIRO has this prediction but no figures:

“Based on the amount of acidic hydroxysulfate minerals, it is likely that large quantities of sulfuric acid will be produced in the subaqueous ASS to a depth of > 50 cm if the river levels continue to drop and the adjacent wet soils are allowed to dry”. *page 15*

This prediction is for the whole Lakes area, some 760 sq km (760,000 ha). The supposed acidified area is therefore under 5% of the Lakes area.

Dr Fitzpatrick’s Preliminary report concludes that:

“We recommend that the detailed monitoring program be conducted along at least three transects in both Currency Creek and Finnis River catchments and along at least one transect in the Tookayerta Creek/Black Swamp catchment. However, we recommend that the rapid monitoring be conducted along all 12 transects, which includes all current 39 soil profile sample sites.” *page 20*

Such a detailed survey has not been observed to be taking place.

The final report has not yet been presented (April 2009).

Recent measurements by supervised community groups and other professional bodies using accurate methods indicate conditions quite different from the proponent’s assertion. The acidic soils are not as wide-spread as suggested in this referral nor as acidic as the worst case measurements reported by Dr. Fitzpatrick.

It appears that acidification is nothing like as serious as presented by the proponent

The preliminary report must not be used to justify the project.

The recommended monitoring and testing must take place.

Dr. Fitzpatrick’s final report, with complete analysis of the collected samples, must be presented and further independent sampling and analysis must take place before a decision can be made on the extent of potential acid problems in the Finnis and Currency Creek.

C. Other options have not been presented.

(Section 1.9: there is a “NO” answer to Alternatives)

The Management Options report by Earth Systems, Dr. Jeff Taylor, recently released by DEH, offers a range of satisfactory options for dealing with possible acidic sites or acidification of the water in the lower lakes, without constructing weirs. This report is NOT cited as a reference in the referral, even though it was written for PIRSA and DEH and dated December 2008.

“The addition of substantial quantities of limestone to the Lower Murray Lakes for the purposes of neutralising AMD from Acid Sulfate Soils is a feasible option, from both a technical and economic perspective.”

“The mass of sulfuric acid likely to be generated in response to dewatering of the sediments around the shoreline of the Lower Murray Lakes has yet to be accurately quantified.” *Both page 34, Stage 1 Preliminary Assessment of Treatment Options*

It is obvious that a great deal more monitoring and measuring must take place before the construction of weirs and regulators takes place.

D. Fresh Water

It is SA Government policy to encourage the flow of fresh water in the Murray River, into the Lakes and out to sea through the Mouth. This policy is not mentioned in the referral.

E. Plans are incomplete:

The referral contains many references to the operation of the Goolwa pool. However there are a number of possibilities for which there are no plans forwarded:

1. Filling the Goolwa pool: The Goolwa channel east of Clayton Bay is expected to dry up and disconnect from Lake Alexandrina. (pages 7, 8, 13, 15, 31, 40, 43, 46, 47) The plan calls to the pumping of water (27.5 Gl) from this channel into the new pool west of the regulator at Clayton. It seems obvious that the pumping needs to be completed before the disconnection happens. However there is no contingency plan for this event. If the structures have been completed, and there is no chance of pumping, surely the conditions are equal to not having built them at all.

2. Filling the river pools: The pools upstream of the Finnis and Currency Creek “regulators” are expected to fill with river flow presumably before the water pumped from the Lake has reached them.

“The construction of low-level regulators (0.0m AHD) across the mouths of the Finnis River and Currency Creek will be completed first, and will capture the first autumnal flushes to flow down the tributaries. The objective of the regulators is twofold; they will permit saturation of sediments to minimise sulfide oxidation as early as possible and also allow the early season flows, which will mobilise acid and heavy metals, to be held back allowing in-situ bioremediation to proceed.”
(page 18)

“The low-level regulators are expected to be flooded when the Clayton flow regulator is completed and pumping from Lake Alexandrina takes place.” (*ibid.*)

“The pools created behind the temporary low-level regulators in the Finnis River and Currency Creek are designed to capture flows at the commencement of the 2009/10 flow season long enough (2 to 4 weeks) to enable natural bio-remediation of acid and other toxins prior to spilling into the Goolwa Channel. These pools will commence filling at the onset of winter inflows from the Eastern Mount Lofty Ranges.” (page 8)

There is no mention of a contingency plan to allow for the reverse happening: that there is no Finnis River and Currency Creek flow and the pumped water from Lake Alexandrina is needed to fill the river pools. This must surely require a greater volume of

water ie more pumping time and will fill the river flats with saline water from the Goolwa channel (see also 3 below). This could become a disaster for the existing stressed freshwater fringing vegetation in the river valleys and particularly in the Black Swamp reed beds.

“Over 50% of native plant species within the Swamps of the Fleurieu Peninsula are listed as threatened species, on a state or regional level (Phillips and Muller, 2006). These swamps provide an important habitat for EPBC listed species, namely the nationally endangered Mount Lofty Ranges Southern Emu-wren.” *(page 37)*

It must also be considered that the catchments of these rivers are dry, following a long and hot summer. The first rains, if they are at the right time, will probably not generate significant flows into the lower reaches, since the water will soak into the dry ground and not run off into the river and also fill the ever-increasing multitude of un-regulated farm dams. (see also 5 below) Last year, the Currency Creek, with a small catchment, did not run until the second month of rains.

3. Water Quality: There is no plan presented for the management of water quality in the Goolwa pool.

At the meeting of the SA Government, Public Works Committee, Goolwa channel water level management meeting on 18 March 2009, in a response by Mr. Beal to a question from Mr Pengilly about fish in the Goolwa channel, he says:

“Initially, there will be quite high salinities in that pool. It will be probably in the order of 10,000 EC, once it is all mixed, in the first year. It will improve in subsequent years, but the Goolwa Channel is already highly salinised, and the sediments in the two tributaries are highly salinised and the water we are pumping from Lake Alexandrina initially is highly salinised.”

“If there are very good inflows from the tributaries, we will get an enormous amount of dilution, and that will then flow into Lake Alexandrina. However, we are expecting reasonably high salinities in the first year of the order of 8,000 to 10,000 EC.”

(ref: SA Hansard, Q50, page 9)

There will be pressure to release some water to the Coorong via Goolwa Barrage as soon as the level gets above 0.3 m (tidal height at the Barrages and also the expected pumped height). There will also be pressure for the Goolwa Barrage to be operated to allow some fresh water into the Coorong and for the Lock to operate to allow boat access.

However the statement that:

“Water would only be discharged through the Goolwa barrage into the Coorong if the natural inflows to the pool created by the regulator at Clayton exceeded the capacity of the siphons to divert water back into Lake Alexandrina. It is estimated that this will only occur in a flood event of magnitude 1 in 50 years or greater.”

page 33

precludes the operation of the Goolwa barrages to control water quality or provide water to the Coorong! The same paragraph continues:

“Discharge of higher quality water freshwater, less saline is expected to make a large improvement on ecological character of the Coorong.”

The following column entry:

“A positive impact on the ecological character (*of the Coorong*) is expected.”

suggests that there is a 1 in 50 year flood expected quite soon!

Since the water coming into the Goolwa pool from the EMLR catchment only goes to Lake Alexandrina via the Clayton weir siphons when it is high (0.7 m = normal pool level) and does not go to the Coorong unless there is a 1 in 50 year flood, then the water in the Goolwa pool will mostly be static, evaporating and concentrating salt.

It cannot be seen how

“The project will not result in an increase in salinity in the Goolwa Channel. The proposed action is attempting to improve the water condition in the Goolwa Channel.” (*Page 32*)

4. Flow from the tributaries: There is expectation that the new Goolwa pool will be topped up by the Finniss and Currency Creek flows:

“The pool would be raised to plus 0.7m AHD by partial retention of tributary flows.”

“In subsequent years the pool level will rise to plus 0.7m AHD at the end of the tributary flow season, and then fall to approximately 0.0m AHD over summer and spring due to evaporation and seepage prior to the commencement of the next tributary flow season.” (*both page 7*)

This supposes that the Water Allocation Plan for the Eastern Mount Lofty Ranges has been finished and therefore there is some future guarantee of environmental water. This plan has been in process for at least 6 years and shows no sign of completion. There might not be any tributary flows to fill the pool.

There is a suggestion on page 17 that “surplus off-peak capacity in the proposed irrigation pipeline between Jervois and Currency Creek.” However its operation in the EPBC referral of 18 February 2009 (2009/4743) states:

“The pipeline will deliver irrigation water to communities and industries in the region that are currently reliant on the Lower Lakes for their water supplies.” (*page 6*)

Given the possibility of new, unexpected users of this pipeline (see 5 below), it seems that it might not be adequate to also substitute for tributary flows.

5. Extractions: It is expected (page 19) that irrigation licensees on the Finniss River and Currency Creek will be prevented from pumping from the new Goolwa pool.

“With an increase in pool water level and quality, the South Australian Government will restrict irrigation from Currency Creek through the Natural Resources Management Act 2004 (NRM Act).” *page 19*

“Similarly, the South Australian Government will restrict irrigation from Goolwa Channel and Finniss River through the Natural Resources Management Act 2004 (NRM Act), preventing surface water extraction by licensed irrigators. These restrictions would remain in place while the structures remain.” *page 20*

It is not clear when this will happen. Are these users all expected to join the pipeline from Jervois? Was that designed to provide sufficient water to these new users? When will this pipeline come on line? There is no mention of stock and domestic users along the Currency Creek or Finniss or along Hindmarsh Island or along the shore at Goolwa or at Clayton, most of whom are unmetered and who are not likely or unable to connect to any pipeline due to cost or distance.

F. Removal.

“The trigger for decommissioning and removal of these three structures will be undertaken on an adaptive basis.” (page 10)

There is no indication of who makes this decision. On what data is the “adaptive trigger” determined?

“The basic trigger for removal will be a return to conditions in the Lower Lakes where the projected water level will not fall below plus 0.0m AHD in the ensuing two years. Effectively this will mean that prior to removal, the lake water level will have to recover or be projected to recover to normal full supply level (plus 0.75m AHD).” (page 10)

There are two triggers here, 0.0m and 0.7m. It is observed that in years when the Lakes reached 0.75m and there was low inflow from the Murray, the level did not drop to 0.0m in that year. At this level, Lake Albert will also be connected to Alexandrina, providing additional storage to maintain level. Of course, the Clayton regulator will prevent the Finniss and Currency Creek from meaningfully supporting this Lake level.

There needs to be a better more concise removal process. The remote possibility that the level of the Lakes will be supported by sea water is not mentioned here.

G. Public consultation has been misrepresented:

The proposed works were presented to the public at workshops in Goolwa and Clayton in January 2009. The advertising flyer states:

“The workshops will focus on possible options for protecting the freshwater wetlands in and around the Goolwa Channel, Currency Creek

and Finniss River. The workshops will provide the latest information on:

- key threats to these wetland environments from acid sulfate soils, rising salinity and falling water levels; and
- a range of possible options to address these threats.”

Public Notice for Workshops on 15 Jan 08-Final.pdf (sic)

The reported public responses in the referral, Appendix K, relates to these workshop, and the comments in the appendix are about the presented data at that time.

However, the referral is titled: **Emergency response for the crisis management of Acid Sulfate Soils in the Goolwa Channel, Finniss River and Currency Creek, South Australia**

There is no mention of “protecting the freshwater wetlands”. Wetlands are not mentioned until page 8 of the referral.

The Public consultation in Appendix K is therefore not valid, since the aim of the works has been changed to acidification protection, not wetland protection.

It is also noted that the EPBC website describes the project as

“... the proposed blocking banks in the Goolwa Channel and tributaries, SA”

<http://www.environment.gov.au/epbc/notices/assessments/lower-lakes.html>