SEWPaC: Faxed 22/2/11

→ Con Voutas

Government of South Australia
Department of Environment and Natural Resources

Ref: LL/11/0095

14 February 2011 21/2

Barbara Jones
Assistant Secretary
Environment Assessment Branch
Department of Sustainability, Environment, Water, Population and Communities
GPO BOX 787
CANBERRA ACT 2601

Coorong, Lower Lakes and Murray Mouth Program

Ground Floor
Chesser Street
ADELAIDE SA 5000

GPO Box 1047
ADELAIDE SA 5001

Ph: (08) 8204 9069
Fax: (08) 8226 6140
www.environment.sa.gov.au

Attention: Mr Con Voutas / Ms Katrina Daniels

Dear Ms Jones Barbara,

Update regarding Lake Albert Management – Bund removal - Non-referral letter

In September 2010, the South Australian Department of Environment and Natural Resources (DENR) forwarded correspondence regarding proposals for Lake Albert management in 2010/2011 to the former Department of the Environment, Water, Heritage and the Arts. It discussed breaching of the Narrung Bund, establishment of the Meningie Lakefront Habitat Restoration Project and limestone dosing. Receipt of the correspondence was acknowledged on 10 September 2010. Establishment of the Meningie Lakefront Habitat Restoration Project is proceeding. Limestone dosing has not been required in Lake Albert for acidification treatment during the 2010/11 year to date. Water quality monitoring is continuing and limestone treatment plans remain in place to respond to any risks of acidification as may be required.

The Narrung Bund was engineered as a temporary structure to avert acidification in Lake Albert by maintaining water levels above critical levels during a time of low River Murray inflows. It originally comprised around 43,000m^3 of homogenous sand fill sourced from local sites and was around 280m in length and 180m in width. In mid-September 2010, with rapidly improved water availability and higher water levels being experienced in Lake Alexandrina, the Bund was breached by excavating a section of approximately 100m in length of variable depth from the structure to allow improved water levels and salinity reductions in Lake Albert.

With the Murray-Darling Basin having now experienced its wettest year on record and the latest MDBA predictions indicating that water levels in the Lake Alexandrina will remain above 0.0m until at least the next water year, the SA Government is now planning to fully remove the Narrung Bund (in addition to the other 2010/2011 management actions outlined in previous correspondence).

After consideration of a range of methods for removal, it is intended that the Bund will be fully removed through the removal of the sand materials used to construct the Bund and placement of the mudwaves arising from the Bund back into the dredged void.

The process for removal of the Bund will involve the following stages:

1. *Removal of the sheet piles in the Bund*
   This stage should take around 2 weeks to complete.

2. *Excavate imported materials*
   This stage should take around 6-8 weeks to complete. Excavated sand will be tested and treated in accordance with South Australian Environment Protection Authority fill requirements and deposited at a local land holder's station (by agreement). The disposal site is a salt scalded area on a pastoral station that does not give rise to native vegetation concerns.

3. *Dredging in channel*
   Dredging would take place once excavation has been completed and sediments remaining underwater have settled. Follow up bathymetric surveys of the Narrung Narrows will determine the extent of any future dredging work required to return the site to pre-construction conditions in a timely manner.

Subject to funding and approvals, removal of the sheet piles could commence as soon as late February 2011.

A self-assessment by the SA Government, outlined in Attachment A, has found that the removal of the Narrung Bund is unlikely to result in any significant negative impacts upon matters of NES.

Yours sincerely

Clare Kiesewetter
DIRECTOR
COORONG, LOWER LAKES AND MURRAY MOUTH PROGRAM
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

Attachment A

Self-assessment of impacts upon Matters of National Environmental Significance (using primary determinants of ecological character in the Ramsar site)

PRIMARY DETERMINANT OF ECOLOGICAL CHARACTER	IMPACT OF REMOVAL OF THE NARRUNG BUND
SALINITY	Prior to drought conditions, salinity was, on average, less than 700 EC in Lake Alexandrina (at Milang) and less than 1 600 EC in Lake Albert (at Meningie). Salinity in Lake Alexandrina has now decreased to pre-drought conditions, with the measurements on 3 February 2011 ranging between 300-600 EC. By late summer 2009, salinity in Lake Albert approached 20 000 EC. Since the breach, salinity has reduced but remains variable around 6 000-7000 EC, with Meningie recording nearly 7 600 EC on 3 February. [NB seawater has a salinity in the order of 60 000 EC.] Figure 1 below provides a map of the locations mentioned here. Removal of the bund will more fully reconnect Lake Albert to Lake Alexandrina via the Narrung Narrows and thus provide for improved salinity exchange relative to the breached bund remaining in place. The removal of the remaining bund will maximise water quality improvement within the pre-existing constraints on water exchange naturally imposed by constrictions in the Narrung Narrows. It is expected that it will still take some time for salinity levels to fully reduce to historical levels. Given the scale of Lake Alexandrina relative to Lake Albert, salinity entering from Lake Albert can be expected to have very little impact on Lake Alexandrina. High flows currently passing through the lakes will dilute salinity, aid in the discharge of the salt from Lake Albert using managed variable lake levels, and support the release of salinity from both lakes through barrage releases. **A positive impact is expected.**

TURBIDITY AND SEDIMENTATION	Lake Albert historically experiences higher sedimentation rates and turbidity than other areas of the Lower Lakes. Temporary and localised increases in turbidity and sedimentation may be experienced during the removal process; however these are not expected to be significant and will also be managed in accordance with South Australian EPA requirements. **No significant negative impact is expected.**
KEYSTONE AQUATIC PLANT SPECIES	Keystone aquatic plant species in the Narrung Narrows and fringing areas of the lake, particularly reedbeds of *Typha domingensis* and *Phragmites australis*, may be temporarily impacted by potential temporary increased turbidity and sedimentation, although Lake Albert sedimentation rates in the lake are historically higher than in other areas of the Ramsar site. However, overall, these species will benefit from decreased salinity levels below 5 000 EC. **A positive impact is expected.**
WATER LEVELS	Water levels between Lake Alexandrina and Lake Albert equalised in October 2010 following the breach of the Narrung Bund. Full removal of the bund will retain equal levels. **No impact is expected.**
HABITAT CONNECTIVITY	Full removal will further improve hydrological connectivity between Lakes Alexandrina and Albert, supporting fish movements and seed dispersal. **A positive impact is expected.**
WATER REGIME, PARTICULARLY FLOW PATTERNS	Removal of the bund will fully reconnect Lakes Alexandrina and Albert and as such will reinstate the historical flow regime. Full reconnection of both waterbodies will improve flows between the lakes, including the effects of wind seiche - an important driver of ecological character. **A positive impact is expected.**

Figure 1: Location Map with ambient water quality monitoring sites