What’s the problem with the Barmah Choke?

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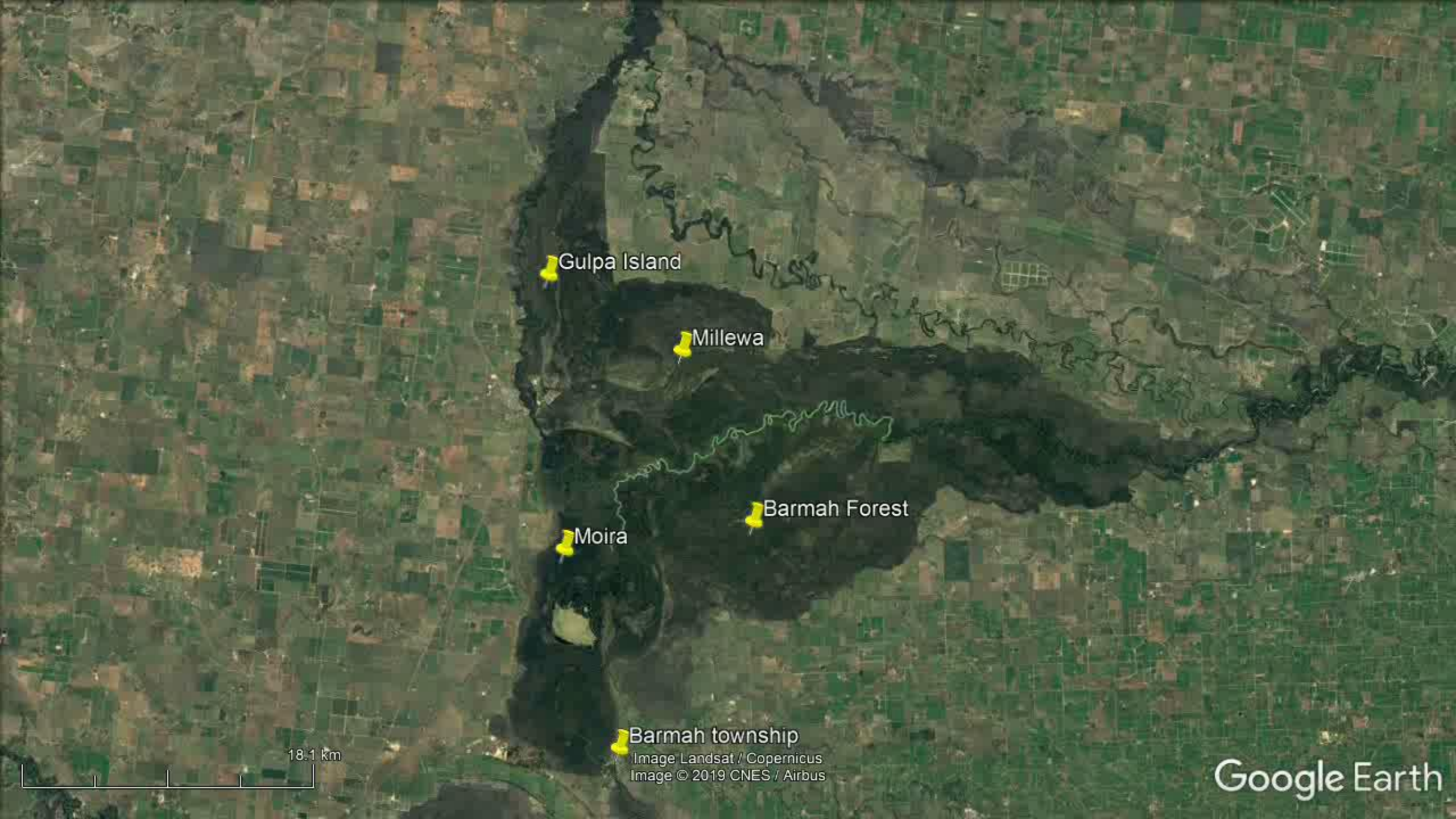
What is the Barmah Choke?

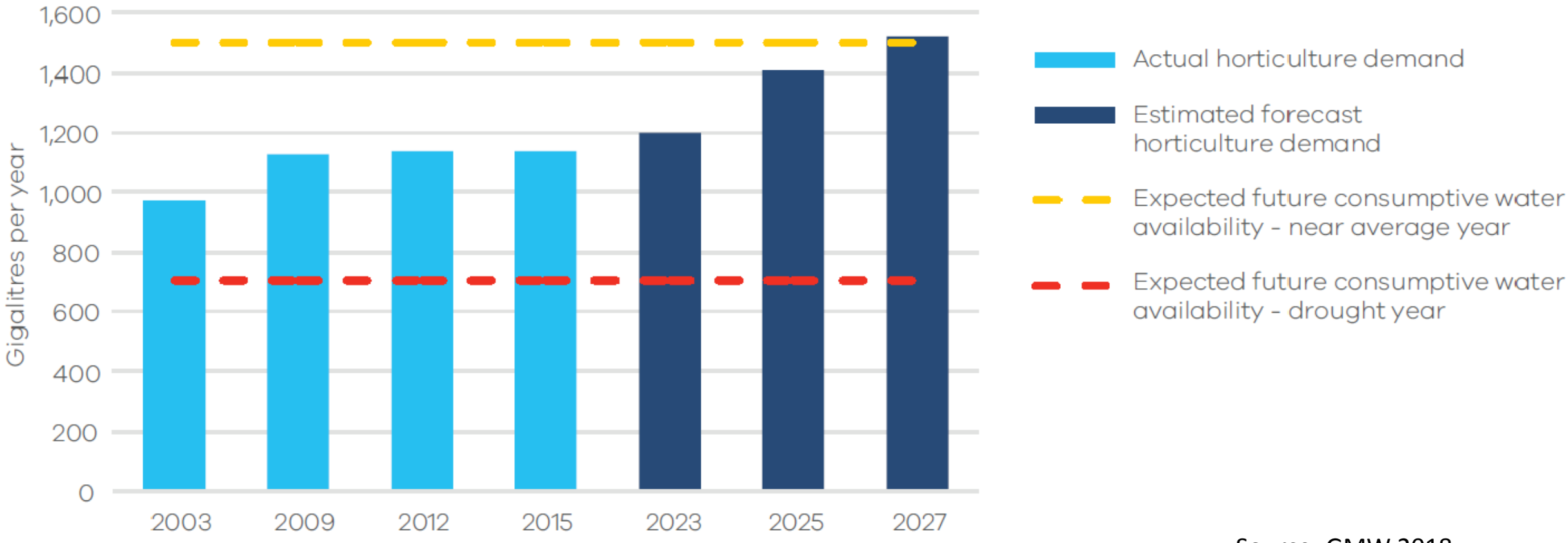
- The reach of the Murray River that was formed because of a significant geological uplift that occurred over 10,000 years ago.
- The Choke is the new course of the Murray River which formed after the Murray River was basically dammed after the uplift, which helped form the largest River Red Gum forest in the world – Barmah-Millewa
- The characteristics of the choke are:

1. It's a perched stream flowing through one of the lowest parts of the floodplain making it subject to over bank break outs
2. Its relative narrowness leads to generally higher velocities of water in the channel
3. This leads to more pressure on the banks (natural river levee) due to higher and faster flows


Gulpa Island
Millewa
Barmah Forest
Moira
Barmah township
18.1 km
Image Landsat / Copernicus
Image © 2019 CNES / Airbus
Google Earth

The Barmah Choke is in a diabolic situation because -

- Increases in water demand downstream of the choke are occurring at the same time there is less/no contribution from the Darling River i.e. the Northern Basin or the Murrumbidgee River
- This leads to more or less bank full flows for extended periods (*e.g. 2015-16 500+ days when Menindee Lakes were dry*) and hence not allowing stabilizing vegetation to buffer banks and the soil to waterlog and slump undercutting large trees
- There is a trend of the choke to widen through bank erosion and become shallower as large loads of soil is deposited leading to lower volumes that can flow through than previously



Source: GMW 2018

A potential worse case scenario: Murray River changes course

- The natural river levee fails during a large flood and the river forces a new course through the surrounding low lying Barmah or Millewa Forest, leading to:

1. Loss of internationally recognized RAMSAR wetlands
2. Bypassing river regulation infrastructure
3. Damage to roads, bridges, pumps etc.
4. Damage to private property

= Huge environmental , social and economic damage

What can be done?

- Stabilize the banks –

1. Rock and/or log armour the weakest points, typically on the outside banks
2. Manipulate the flows more to lower water levels and promote river banks stabilization, although this is likely to depend on the flows from via the Darling River and to a lesser extent the Murrumbidgee River contributing to downstream demand
3. Research and investigate various river and bank management options

Systemic problems

- Governments carefully consider resource allocation within limited and constrained Murray River – Note this is not a market concern!

- Provide guidance to state and federal government on what community expectations are to solving this diabolic situation. For example - Agreed statement from all community representatives of the NSW Murray Lower Darling Stakeholder Advisory Panel from irrigation, landholder, business, environmental and indigenous interests:

“Community representatives of the Murray-Lower Darling SAP submit to the NSW Government and Murray-Darling Basin Authority, that the NSW Water Sharing Plans and Resource Management Plans for the Barwon-Darling, Murray-Lower Darling and Northern Basin Rivers must include minimum river flow and storage levels that will protect the health of the Barwon-Darling and Lower Darling River from the Queensland border to the Murray River.

Minimum flows at sites along the Barwon-Darling and Lower Darling River, in particular at Wilcannia, and water storage volumes in the Menindee Lakes must be reached before extraction of water for irrigation is allowed. This will help to ensure that the environmental needs of native fish, town water supply and the domestic and stock watering needs of riparian landowners, along the length of the river are provided for, as a priority, during extended dry periods.”