


From: Steve Nelson oxygen.isotope@gmail.com 
Subject: groundwater inflow
Date: November 29, 2025 at 1:10 PM
To: Norm Jones njones@byu.edu

SN

Hi Norm,

The attached references are at odds with one another. The Zanzazzi report is a little bit strange and has groundwater inflows into Utah Lake that are too large??? They estimate it is 70% of total inflows. I will need to read the paper in detail.

The PSOMAS report I think is pretty good. They attribute 165,000 af/y to groundwater. Converting to metric units:

- GW inflow is $2e8$ m³/yr
- Lake surface area is $3.8e8$ m²
- $2e8$ m³/yr divided by 3.8 m² = 0.53 m/yr input from below

Not being a hydrogeologist, I think 0.53 is the average Darcy velocity? And assuming porosity is 0.5 , the seepage velocity is about 1 m/yr? This is about $100x$ faster than my fitting of the Cl- profile in just one core.

Subaqueous springs in Utah Lake are well documented, especially in the Bird Island/Lincoln Point area. So, maybe such features accommodate a large fraction of groundwater inflow into the lake and seepage is slower in other areas.

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PSOMAS 2007.pdf

1.6 MB



Zanzazzi et al. 2020.pdf

7 MB

