

**Supporting Information for:**

**Lithium recovery from U.S. oil and gas produced waters: resource  
quality and siting considerations**

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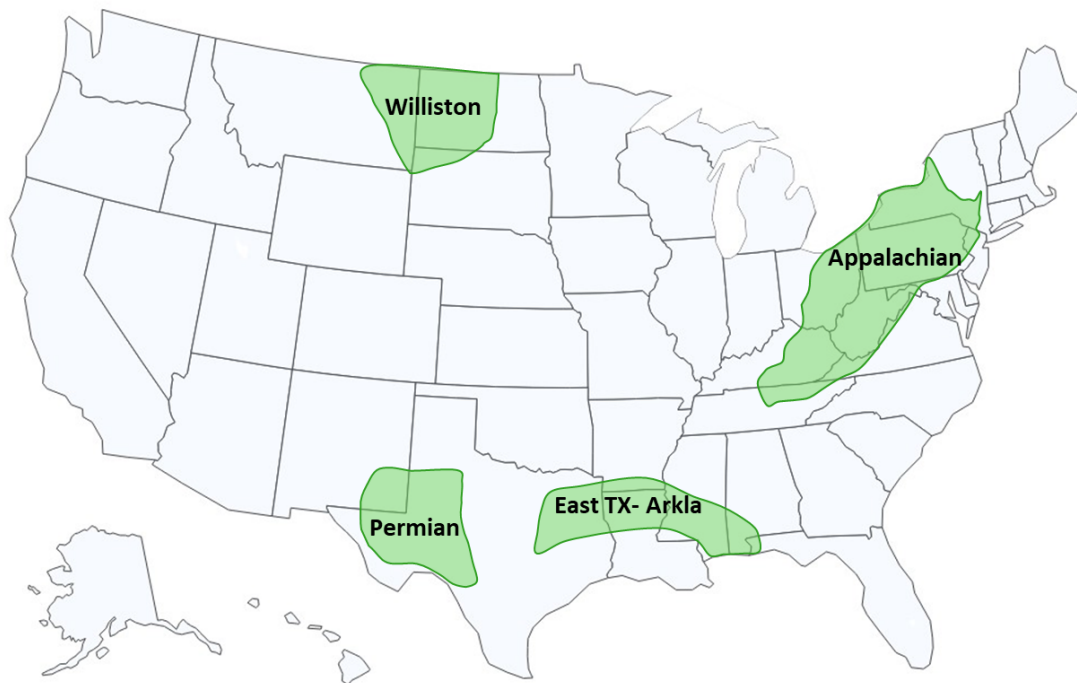
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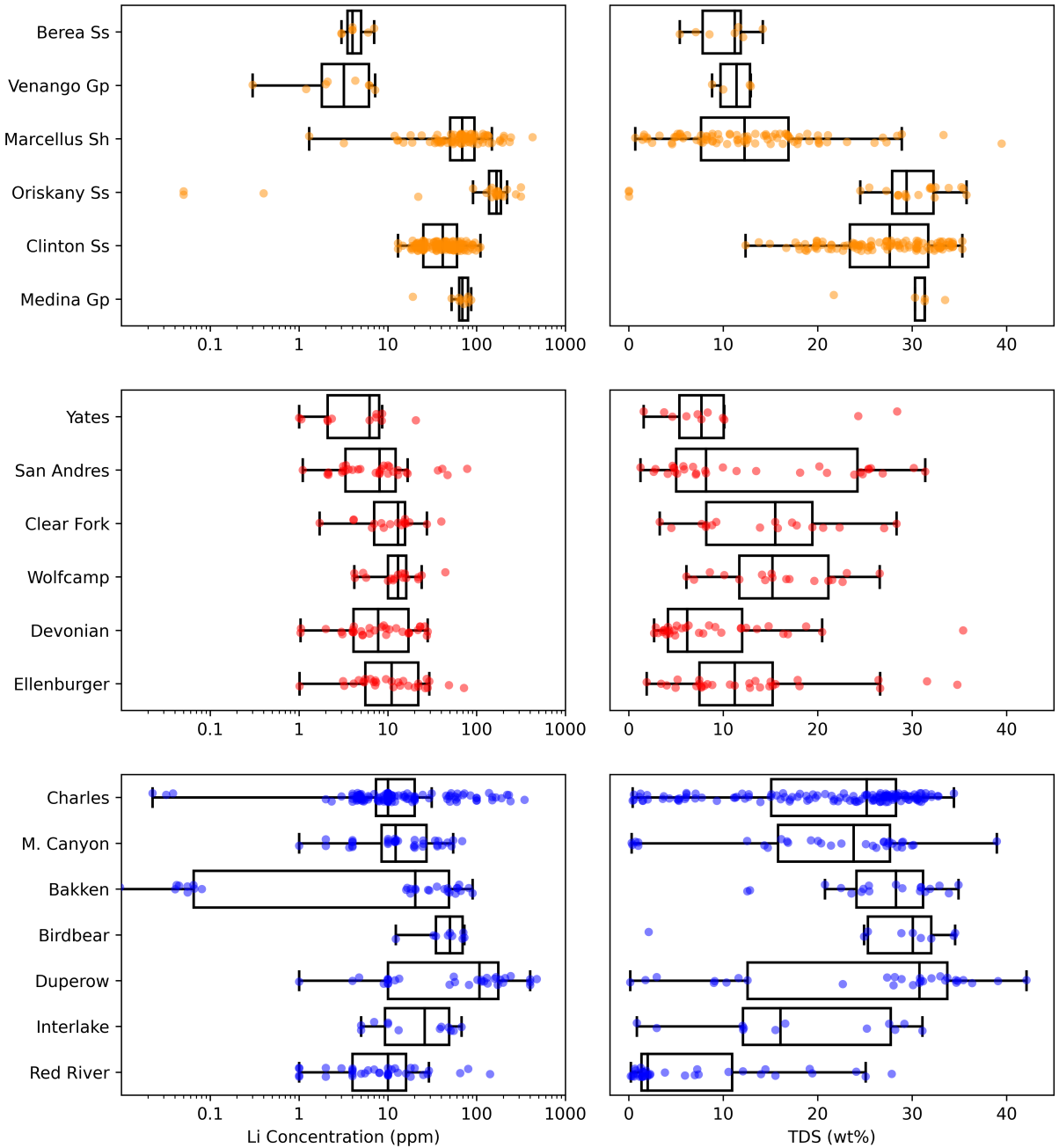
Number of Tables: 1

Formation	Annual Water Production (bbls/yr)	Mean Lithium Concentration (ppm)	Total annual Lithium Resources (tons/yr)	References
Marcellus	69,832,335	84.0	932	[1], [2]
Wolfcamp	235,714,544	14.4	540	[2], [3]
Bakken	104,383,524	27.3	452	[2], [4]
Smackover	5,813,700	196.6	182	[2], [5]
Salton Sea	622,641,509	265.0	19,000	[6]

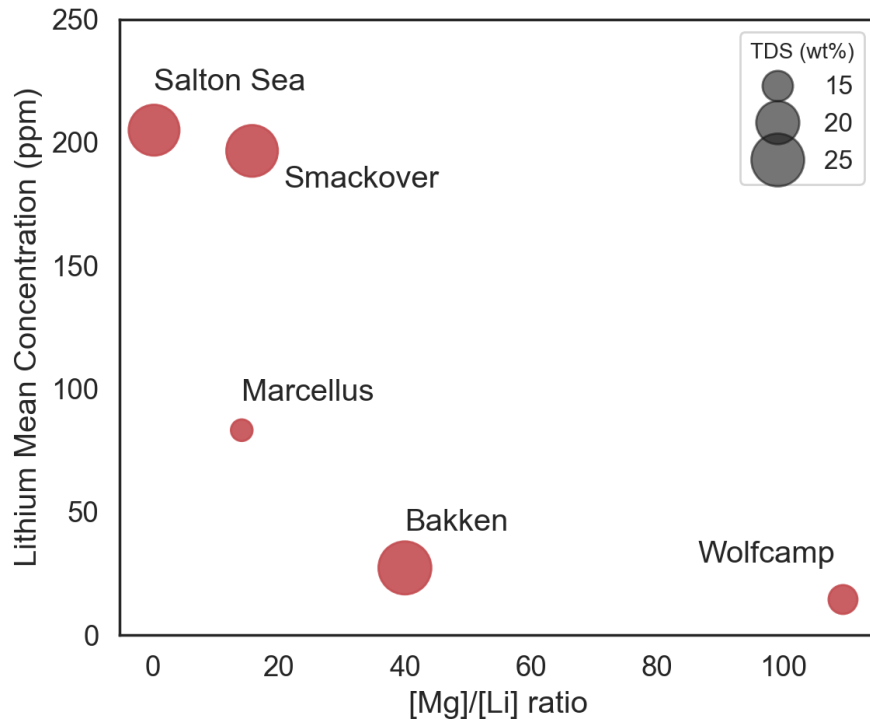
**Table S1- Annual water Production, average lithium content, and estimated lithium resources for key formations of interest.**



**Figure S1- U.S. Map with key O&G basins of interest highlighted.**



**Figure S2- Average lithium concentration vs Mg/Li ratio for key O&G plays. The formation bubble size corresponds to the TDS values obtained from the USGS database.**



**Figure S3- Lithium concentration and TDS for key formations in the (A) Appalachian Basin, (B) Permian basin, and (C) Williston basin.**

## References

- [1] Pennsylvania Department of Environmental Protection. *Oil and Gas Production Report*. 2019. <https://greenport.pa.gov/ReportExtracts/OG/OilGasWellProdReport>
- [2] United States Environmental Protection Agency. *Technical Development Document for the Effluent Limitations Guidelines and Standards for the Oil and Gas Extraction Point Source Category*; 2016.
- [3] U.S. Energy Information Administration. *The Wolfcamp play has been key to Permian Basin oil and natural gas production growth*. 2018. <https://www.eia.gov/todayinenergy/detail.php?id=37532>.
- [4] North Dakota Mineral Resources. *Historical monthly Bakken oil production statistics*. 2019. <https://www.dmr.nd.gov/oilgas/stats/statisticsvw.asp>
- [5] Arkansas Oil and Gas Commission. *Smackover Monthly and Annual Production Graphs*. 2019. <https://www.aogc.state.ar.us/data/monthly.aspx>
- [6] Stringfellow, W. T.; Dobson, P. F. Technology for the Recovery of Lithium from Geothermal Brines. *Energies* 2021, Vol. 14, Page 6805 **2021**, 14 (20), 6805.