

## Produced Water Roundup

Welcome to the Produced Water Roundup, a proposed quarterly update from the Ground Water Research and Education Foundation and the Ground Water Protection Council Produced Water Taskforce.

The recently published studies represent work started in 2020 to the present. They include ongoing produced water research, treatment, regulatory, and data collection across multiple universities. This clearinghouse effort is intended to share information about ongoing research and foster collaboration between researchers, regulatory agencies, industry, and other stakeholders.

So, **Kick Up Your Heels** and enjoy the Quarterly Roundup!

1. Jiang, W., Pokharel, B., Lin, L., Cao, H., Carroll, K.C., Zhang, Y., Galdeano, C., Musale, D.A., Ghurye, G.L., Xu, P. (2021)., "Analysis and Prediction of Produced Water Quantity and Quality in the Permian Basin using Machine Learning Techniques. *Science of the Total Environment*. 141693 (<https://pubmed.ncbi.nlm.nih.gov/34467907/>)."
2. Jiang, W., Lin, L., Xu, X., Cheng, X., Zhang, Y., Hall, R., Xu, P. (2021)., "A Critical Review of Analytical Methods for Comprehensive Characterization of Produced Water. *Water*, 2021, 13(2), 183; (<https://doi.org/10.3390/w13020183>)."
3. Chen, L., Xu, P., Kota, K., Kuravi, S., Wang, H. (2021)., "Solar distillation of highly saline produced water using low-cost and high-performance carbon black and airlaid paper-based evaporator (CAPER). *Chemosphere*, 269, 129372; (<https://doi.org/10.1016/j.chemosphere.2020.129372>)."
4. Hu, L., Wang, H., Xu, P. and Zhang, Y. (2021)., "Biominalization of hypersaline produced water using microbially induced calcite precipitation. *Water Research*, 190, 116753; (<https://doi.org/10.1016/j.watres.2020.116753>)."
5. Nicholas, E.R., Cath, T.Y. (2021)., "Evaluation of sequencing batch bioreactor followed by media filtration for organic carbon and nitrogen removal in produced water, *Journal of Water Process Engineering*, 40 101863."
6. DiGiulio, D.C., Rossi, R.J., Jaeger, J.M., Shonkoff, S.B.C. and Ryan, J.N. (2021)., "Vulnerability of groundwater resources underlying unlined produced water ponds in the Tulare Basin of the San Joaquin Valley, California. *Environmental Science & Technology*; (<https://pubmed.ncbi.nlm.nih.gov/34651501/>)."

7. Audrey M Stallworth, Eric H Chase, Bonnie McDevitt, Katherine K Marak, Miriam Arak Freedman, Robin Taylor Wilson, William D Burgos, Nathaniel R Warner. (2021)., *"Efficacy of oil and gas produced water as a dust suppressant;* (<https://www.sciencedirect.com/science/article/abs/pii/S004896972104420X?via%3Dihub>)."
8. Bonnie McDevitt, Thomas J Geeza, David P Gillikin, Nathaniel R Warner. (2021)., *"Freshwater Mussel Soft Tissue Incorporates Strontium Isotopic Signatures of Oil and Gas Produced Water;* (<https://pubs.acs.org/doi/abs/10.1021/acsestwater.1c00135>)."
9. Bonnie McDevitt, Molly C McLaughlin, Jens Blotevogel, Thomas Borch, Nathaniel R Warner. (2021)., *"Oil & gas produced water retention ponds as potential passive treatment for radium removal and beneficial reuse;* (<https://pubs.rsc.org/en/content/articlelanding/2021/em/d0em00413h/unauth>)."
10. Sydney L Vinge, James S Rosenblum, Yarrow S Linden, Adrian Saenz, Natalie M Hull, Karl G Linden. (2021)., *"Assessment of UV Disinfection and Advanced Oxidation Processes for Treatment and Reuse of Hydraulic Fracturing Produced Water;* (<https://pubs.acs.org/doi/abs/10.1021/acsestengg.0c00170>)."
11. S. Acharya, B van Houghton, J Rosenblum, T Cath, R Chakraborty, SG Tringe. (2020)., *"Adaptability of microbial community in a membrane bioreactor treating produced water to varying salinities;* (<https://ui.adsabs.harvard.edu/abs/2020AGUFMH062.0001A/abstract>)."
12. Molly C McLaughlin, Thomas Borch, Bonnie McDevitt, Nathaniel R Warner, Jens Blotevogel. (2020)., *"Water quality assessment downstream of oil and gas produced water discharges intended for beneficial reuse in arid regions;* (<https://www.sciencedirect.com/science/article/abs/pii/S0048969720301170>)."
13. NR Warner, Bonnie McDevitt, Molly C McLaughlin, David S Vinson, Thomas J Geeza, Jens Blotevogel, Thomas Borch, Nathaniel R Warner. (2020)., *"Isotopic and element ratios fingerprint salinization impact from beneficial use of oil and gas produced water in the Western US;* (<https://pubaq.nal.usda.gov/catalog/6834945>)."
14. TL Tasker, NR Warner, WD Burgos. (2020)., *"Geochemical and isotope analysis of produced water from the Utica/Point Pleasant Shale, Appalachian Basin;* (<https://pubs.rsc.org/en/content/articlelanding/2020/em/d0em00066c/unauth>)."
15. Moses A Ajemigbitse, Fred S Cannon, Nathaniel R Warner. (2020)., *"A rapid method to determine 226Ra concentrations in Marcellus Shale produced waters using liquid scintillation counting;* (<https://www.sciencedirect.com/science/article/abs/pii/S0265931X20300710>)."
16. Lu Lin, Wenbing Jiang, Lin Chen, Pei Xu and Huiyao Wang (2020)., *"Treatment of Produced Water with Photocatalysis: Recent Advances, Affecting Factors and Future Research Prospects. Catalysts, 10(8), 924.;* (<https://doi.org/10.3390/catal10080924>)."
17. Alfredo Zendejas Rodriguez, Huiyao Wang, Lei Hu, Yanyan Zhang, and Pei Xu. (2020)., *"Treatment of Produced Water in the Permian Basin for Hydraulic Fracturing: Comparison of Different Coagulation Processes and Innovative Filter Media. Water, 12(3), 770.;* (<https://doi.org/10.3390/w12030770>)."

18. Scanlon, B.R., Reedy, R.C., Xu, P., Engle, M., Nicot, J.P., Yang, Q., and Ikonnikova, S. (2020)., “*Datasets associated with investigating the potential for beneficial reuse of produced water from oil and gas extraction outside of the energy sector. Data in Brief, 105406; (<https://pubmed.ncbi.nlm.nih.gov/32215309/>).*”
19. Scanlon, B.R., Reedy, R.C., Xu, P., Engle, M., Nicot, J.P., Yang, Q., and Ikonnikova, S. (2020)., “*Can we Beneficially Reuse Produced Water from Oil and Gas Extraction in the U.S.? Science of the Total Environment, 717, 137085.; (<https://www.sciencedirect.com/science/article/pii/S0048969720305957>).*”
20. Hu, L., Yu, J., Luo, H., Wang, H., Xu, P., Zhang, Y. (2020)., “*Simultaneous Recovery of Ammonium, Potassium and Magnesium from Produced Water by Struvite Precipitation. Chemical Engineering Journal, 382, 123001.; (<https://www.sciencedirect.com/science/article/abs/pii/S1385894719324118>).*”
21. Almaraz, N., Regnery, J., Vanzin, G.F., Riley, S.M., Ahoor, D.C., Cath, T.Y. (2020)., “*Emergence and fate of volatile iodinated organic compounds during biological treatment of oil and gas produced water, [Science of the Total Environment](#), 699 134202.*”

**Additional information for your leisure:**

<https://nmpwrc.nmsu.edu/research/>