

January 10, 2024

The Colorado River: Science, History, Literature, Policy

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Class meets 2:00PM – 4:00 PM, Jan. 25, Feb. 1, Feb. 8, Feb. 15, and Feb. 22.

Rubel Room at the University of Arizona's Poetry Center, 1508 E Helen St, Tucson, AZ

Syllabus and Reading List, as of January 9, 2024. Subject to change, especially Week 5 readings.

All readings or videos will be posted or linked.

Perhaps the best current and comprehensive review of conditions and issues (as of January 2023) is [The Babbitt Center's The Hardest-Working River in the West](#). This is a “story map” – so much more than a simple website. Read it/look at it. We'll cover all the topics in the story map (and more), though maybe not in the same order.

You are not required to purchase any book. If you really want **one** book, the classic is Marc Reisner's *Cadillac Desert* (1986). It is on the bookshelf of every water manager, water attorney, water scholar and water junkie in the western United States. It covers water in the western United States, not just the Colorado River. *Cadillac Desert* is thorough, well-written and out-of-date. Climate change, what climate change? One chapter is on your reading list, available via the course website.

Brave The Wild River (2023) tells the previously untold story of two women who mapped the botany of the Grand Canyon in 1938. Author Melissa Sevigny also provides commentary on the state of the Colorado River today. It's a charming and instructive tale. An excerpt is on your reading list, available via the course website.

A pair of novels will get some attention in the course: Hippie anarchists battle development in Ed Abbey's classic (1975) *The Monkey Wrench Gang* and Paolo Bacigalupi's dystopian *The Water Knife* imagines Phoenix after the Central Arizona Project runs dry. Excerpts of each are on your reading list and, available via the course website.

All water-wonks in the West take a regular look at [John Fleck's website](#) for updates, history, editorial comments and gossip about the Colorado and the Rio Grande.

A word about buying these and other books: For those in Tucson, try local first, used or new, at [Bookman's](#), [The Book Stop](#), [Mostly Books](#), [Antigone's](#) or any bookstore wherever you are. If that fails, or if you can't leave the house, there's always you-know-who for instantaneous satisfaction via your Kindle or next-day satisfaction via their delivery truck.

Week 1. January 25, 2024. How did we get here? Where does the water come from, where does it go? Groundwater basics. The legacy of geologic time. Rights and the River: U.S. western water law, Mexican water law, tribal rights, rights **of** the river. Supply and demand.

1. Sign up for Google News Alert “Colorado River”
<https://support.google.com/websearch/answer/4815696?hl=en>
2. Ten volunteers needed for Week 2: Five to read and discuss/report on [The Monkey Wrench Gang](#); Five needed to discuss and report on [The Water Knife](#).
3. Colorado River Basin Quick Reference Guide (posted)

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4. A balancing act. First section of “The Hardest-Working River in the West”. The Babbitt Center, 2023. <https://storymaps.arcgis.com/stories/2efeafc8613440dba5b56cb83cd790ba>
5. Lukas, J. and Payton, E., 2020. Chapter 2. Current understanding of Colorado River Basin climate and hydrology, Map and Executive Summary, in Colorado River Basin Climate and Hydrology. State of the Science. Western Water Assessment, Denver, CO. **Posted**
6. [What is groundwater?](#) Northern California Public Media. (9 minutes)
7. Fulton, R., 2019. Native American Water Rights. Waterkeeper Alliance. <https://waterkeeper.org/news/native-american-water-rights/> **Posted** and Joint Statement: U.S. Supreme Court decision leaves Navajo Nation still battling for water rights in Arizona v. Navajo Nation. National Congress of American Indians, June 22, 2023. <https://archive.ncai.org/news/articles/2023/06/22/joint-statement-u-s-supreme-court-decision-leaves-navajo-nation-still-battling-for-water-rights-in-arizona-v-navajo-nation> **Posted**
8. Benöhr, J. and Lynch, P.J., 2018. Should rivers have rights? A growing movement says it’s about time. <https://e360.yale.edu/features/should-rivers-have-rights-a-growing-movement-says-its-about-time> **Posted**
9. Optional – **Just For Fun**. How others see us: Australian Broadcasting Corporation 2022. The Vanishing River: USA’s Megadrought. <https://www.youtube.com/watch?v=ooGeK4hPONQ> (30 minutes)
10. Optional – **Just for Fun**. John Oliver’s rant on water in the West and the Colorado River in particular: <https://www.youtube.com/watch?v=jtxew5XUVbQ> (25 minutes)

Week 2. February 1. Encounters: Indigenous peoples, Spanish expeditions, American expeditions (Ives, Powell, Nevills), the river-runners, Ed Abbey and the Monkey Wrench Gang, dystopian visions.

1. The Voices of Grand Canyon. Jim Enote (Zuni), Nikki Cooley (Navajo), Leigh Kuwanwisiwma (Hopi), Coleen Kaska, (Havasupai), and Loretta Jackson-Kelly (Hualapai) share what the Grand Canyon means to them and what they know in their hearts to be true. <https://storymaps.arcgis.com/stories/b22a6a09bb2344ff845d9efd3e4152f7>
2. p. 4-37 *from*: Ives, J.C., 1861. Report upon the Colorado River of the West, Explored in 1857 and 1858 by Lieutenant Joseph C. Ives, Corps of Topographical Engineers, Under the Direction of the Office of Explorations and Surveys, A. A. Humphreys, Captain Topographical Engineers, in Charge. Washington, D. C.: Government Printing Office.
3. p. 83-109 (Chapter 7) *from*: Powell. J.W. 1895. The Exploration of the Colorado River and its Canyons. Dover and many publishers since.
4. pp. 117-134, Chapter 7 “Hell yes! What River?” *From*: Sevigny, M., 2023. Brave the Wild River, W.W. Norton.
5. p. 1-7 *from*: Abbey, E., 1975. The Monkey Wrench Gang. Lippincott.
6. p. 20-47 *from*: Bacigalupi, P. 2015. The Water Knife. Orbit.
7. Optional - **Just For Fun**: *The Winning of Barbara Worth* (1926). While building an irrigation system for California’s Imperial Valley, an engineer vies with a local cowboy for the affections of a rancher's daughter. Gary Cooper’s first major role. Silent film that also depicts the Colorado River’s flooding and the creation of the Salton Sea in 1905. Special effects! (90 minutes) <https://www.dailymotion.com/video/x245vt4>

Week 3. February 8. Dam the consequences: The Colorado River Compact and the Law of the River, the dam-building era, allocations, Arizona v. California, the Central Arizona Project, cities and farms, Arizona groundwater.

1. Chapter 4 (p. 120-144) from Reisner, M., 1986. *An American Nile* (1), in *Cadillac Desert*, Viking. - **OR** – Public Broadcasting System, 1997. Cadillac Desert. Program 2. An American Nile (55 minutes) <https://www.youtube.com/watch?v=ENDBXOTLb-k>
2. The Law of the River. <https://www.usbr.gov/lc/region/g1000/lawofrvr.html> (one page summary, with links) **Posted**
3. Central Arizona Project Story Map. <https://storymaps.arcgis.com/stories/b7b28dd4c36a413e8d533ba540f998cb>
4. AG: Water deal sets dangerous precedent. East Valley Tribune, Oct. 9, 2023. https://www.eastvalleytribune.com/ag-water-deal-sets-dangerous-precedent/article_c2799602-17c9-584b-827e-eb5aa27ab7f1.html **Posted**
5. How a Saudi firm tapped a gusher of water in drought-stricken Arizona. The Washington Post, July 16, 2023. <https://www.washingtonpost.com/politics/2023/07/16/fondomonte-arizona-drought-saudi-farm-water/> **Posted** and Arizona moves to end Saudi farm’s controversial groundwater deals to grow, export alfalfa. Arizona Republic. Oct 2, 2023. <https://www.azcentral.com/story/news/local/arizona-investigations/2023/10/02/arizona-to-end-saudi-firm-fondomonte-groundwater-deal/71038768007/> **Posted**
6. Arizona will halt new home approvals in parts of metro Phoenix as water supplies tighten. Arizona Republic, June 1, 2023. <https://www.azcentral.com/story/news/local/arizona-environment/2023/06/01/new-arizona-groundwater-model-shows-shortfall-state-will-halt-growth/70279189007/> **Posted**

Week 4. February 15. Reclaiming the River: Adjudication and quantification of Native American water rights, David Brower’s revenge, endangered species, protecting the Grand Canyon, restoration beyond the border, Glen Canyon Dam and Lake Powell

1. Smith, A.V., Olalde, M. and Farooq., 2023. How Arizona squeezes tribes for water. High Country News, June 14, 2023. <https://www.hcn.org/issues/55.7/indigenous-affairs-colorado-river-how-arizona-stands-between-tribes-and-their-water-squeezed>. **Posted**
2. p. 158-190 from: McPhee, J., 1971. *Encounters with the Archdruid*. Farrar, Straus and Giroux.
3. Glen Canyon Institute, 2018. Fill Mead First. <https://www.glencanyon.org/fill-mead-first/>. **Posted**
4. Goldfarb, B., 2023. Staving off a bass invasion. High Country News, Oct. 2, 2023. <https://www.hcn.org/issues/55.10/fish-staving-off-a-bass-invasion> **Posted**
5. Pitt, J., Kandy, E., Schlatter, K., Hinojosa-Huerta, O., Flessa, K., Shafroth, P.B., Ramirez-Hernandez, J., Nagler, P., and Glenn, E.P., 2017. It takes more than water: Restoring the Colorado River delta. *Ecological Engineering* 106B: 629-632.

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Week 5. February 22. Where do we go from here?: Demand exceeds supply, climate change and aridification, prospects for augmentation, prospects for demand management, water-marketing, 2026 interim guidelines- who is at the table? Arizona groundwater reform?

1. p. SR-36, Fig 12, in: U.S. Bureau of Reclamation, 2012. Colorado River Basin Water Supply and Demand Study. Study Report. The graph is **posted**. The source chapter (not required reading) is https://usbr.gov/lc/region/programs/crbstudy/finalreport/Study%20Report/StudyReport_FINAL_Dec2012.pdf
2. Colorado River Research Group, 2018. When is a drought not a drought? https://www.usu.edu/colorado-river-research-group/files/crrg_aridity_report.pdf **Posted**
3. Fleck, J. and Udall, B., 2021. Managing Colorado River risk. Science 372: 885. <https://www.science.org/doi/10.1126/science.abj5498>.
4. McCool, D., 2021. As climate change parches the Southwest, here's a better way to share water from the shrinking Colorado River. The Conversation. <https://theconversation.com/as-climate-change-parches-the-southwest-heres-a-better-way-to-share-water-from-the-shrinking-colorado-river-168723>. **Posted**
5. Chapter 2 "Gulp!", pp. 12-29, in Annin, P., 2023. Purified. Island Press.
6. Monroe, R., 2023. How Native Americans will shape the future of water in the West. The New Yorker, January 27, 2023 <https://www.newyorker.com/news/letter-from-the-southwest/how-native-americans-will-shape-the-future-of-water-in-the-west> **Posted**
7. Governor's water council submits management proposals, already faces lawmaker opposition. Arizona Republic, December 1, 2023. <https://www.azcentral.com/story/news/local/arizona-environment/2023/11/29/proposals-to-plug-leaks-in-arizona-water-management-head-to-governor/71745167007/> **Posted**
8. Optional- **Just for "fun"**: Arizona Water Policy Council recommendations, Nov. 29, 2023. https://azgovernor.gov/sites/default/files/Optional_11.29.23_gwp.pdf