



Colorado River in Crisis ... *Can it Happen to our Missouri River?*



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By now most of us have noted the critical condition of the water supplies for our neighbors of the southwest part of our country.

Those states are in the middle of a long ongoing drought and lack of water, significantly affecting and threatening their water supplies ---- water for consumption, water for irrigation, water for recreation, and water for power supply.

Could this situation ever occur on our Missouri River system? Regardless if we are upper basin or lower basin users, we all recognize that this is a resource that at least has allowed us to avoid, thus far, any threat of no water being available for all of our needs. We have said, amongst ourselves, that we believe the Missouri River may be a drought proof river system.

Unfortunately, that appears to be what the Colorado Basin states also thought about their own Colorado river. Those states based their river management plans on the belief and reliance of ongoing and consistent mountain snow from Wyoming, Colorado, and Utah. They allocated that water and pursued and created projects, developments, and farming operations based on that belief. The basin states of the Colorado River 'compacted' and allocated that water in the 1922 Colorado River Compact. Now, nearly 100 years later from that compact, the available Colorado river water simply cannot satisfy the agreements as made. It's neighbor vs. neighbor, states vs. states, and upper basin vs. lower basin. It's municipal needs vs. agriculture needs vs. industrial needs. It's recreation vs. power generation. And the federal government is threatening federal intervention to resolve the issue.

Their multiyear long drought is said to be the worst such drought in that region in over 1,200 years. That drought, although certainly tied to lower than anticipated inflow into that system, is also exacerbated by higher temperatures (resulting in significantly higher evaporation rates than in the past), a trend of less snow pack in the mountains, and an extremely high consumptive usage of that river system. Article after article appear of the negative impacts this issue has for the economy, livelihoods, environment, and quality of life for all those states in the Colorado Basin.

Colorado River water supply for household, commercial, and industrial use (now serving over 40 million users) is in question. Water for irrigation, generating over \$8 billion of crops annually, and on over 3.2 million acres of land, is in question. Power generation is endangered as operating pools of the various mainstem dams of the Colorado are approaching the dead pool range, after which no power becomes generated.



Secondary, less noticeable adverse impacts of any drought include drier soil (and less recharge to the area aquifers), widespread tree death, and more severe wildfires.

Most of us will recall that in the early 2000's, our Upper Missouri River area was in the midst of our own mega drought, also the worst in the last 1,200 years (similar to the Colorado River drought). That drought is commonly referred to as the 'Turn of the Century' drought.

Most of us have family and friends who can also still recall the impacts of that Dust Bowl drought of the 1930's and into the 1940's. In that Dust Bowl period almost every creek and stream in the North Dakota, and likely the entire Great Plains ran at record lows or dry. The Red River was so dry that pictures exist of folks walking across that river and not getting their shoes wet.

But not the mighty Missouri River. In our Turn of the Century Drought (similar to the Dust Bowl drought), the river still ran past Bismarck in a range of near half the normal flow. Even at such reduced flows, and correspondingly reduced reservoir levels, we still had the ability to adapt and access the system for our needs.

What gave us some relief in our drought period was that the mountain snow runoff was still sufficient to allow the Corps to operate the dams with a good (although reduced) river flow. We took comfort then and we take comfort now, that if our rainfall on the plains fell short, we could then still

rely, year to year, on the runoff from mountain snowfall out of Montana and Wyoming.

The culprit for our drought was the same as now plagues, in part, the Colorado River system: a warmer trend of temperatures. "Snowpack in the Rocky Mountains is very sensitive to warming temperatures. Snow provides the water for the stream flow to the Upper Missouri, and we've designed our agriculture and infrastructure around (that) expectation", according to Ericka Wise, associate professor at the University of North Carolina. She continues "what we're really worried about is a future of snow droughts".

We tend to take some solace with our faith in our Missouri River. After all it carries significantly more flow than the Colorado, has far less consumptive use, and just as importantly has significantly less evaporation than the Colorado system.

But is that solace warranted? Is the Missouri river system really a drought-proof system? Our faith and belief that we have a reliable water source may be tested as temperatures continue to rise, as snow pack may decrease, and as basin-wide consumptive use of our river undoubtedly continues to increase.

Just as the Colorado basin states are seeing, it likely will all come down to the year to year snowpack of the Rockies to answer those questions.



Dried-out region of Lake Powell in Glen Canyon National Recreation Area, Utah.