Is it time to start thinking about the worst-case scenario on Lake Mead?

Opinion: Are we thinking radically enough about what Lake Mead and the larger Colorado River basin are up against?

It seemed like Colorado River basin states were ahead of the curve in 2007 when we enacted a 20-year set of guidelines that spelled out what would happen if Lake Mead were to ever fall into a shortage.

But a decade later, as water levels at the lake plummeted, it was clear that we hadn't planned nearly enough for shortage. A "stress test" that better accounted for more recent drought conditions revealed that if we didn't do more to prop up water levels, there was an unacceptably high chance of the lake tanking within a few years.

That hydrology helped solidify support for even more stringent cuts in the Drought Contingency Plan that overlaid the 2007 guidelines.

But now, just two years in, we're facing roughly the same chances of falling back into danger territory again. And the prospect of meeting once again to hammer out even more painful cuts before the guidelines expire in 2026.

That doesn't mean the extra work we've done – or the science that helped drive it – was a failure. Both have saved Lake Mead from a far worse fate than if we had stuck with what we knew in 2007.

But if assumptions can be rendered moot in ever shorter amounts of time, are we thinking radically enough about what the lake and the larger river basin are up against?

The Colorado is growing drier, but also more volatile

That's a key question for states leading up to 2026, as we negotiate the next 20 years of guidelines for the river. And a challenge for Arizona as it creates models to help assess the potential impacts of ideas that arise in those negotiations.

Some have said that we should be even more aggressive in modeling potential futures to match the range of possibilities we could face.

It remains an open question whether we are at the beginning of a mega drought or some other dry pattern we've seen before, or if climate change is moving us into uncharted territory that would require even more wild assumptions than what past data might reveal.

The last 12 months have been the driest on record for Arizona. Scientists are still scratching their heads about how the latest heat wave – which started earlier and lasted longer than usual – fits in.

But even if we could settle that debate, it doesn't necessarily mean that every year will be more of the same. Research suggests that while the basin is getting hotter and drier overall, many parts within it – including Arizona's Verde and Salt watersheds – are growing more volatile. Runoff in any given year could be a case of feast or famine.

How do we sustain a system that was built to be steady as she goes when the outcomes could vary so widely from year to year?

Model the worst case, at least to inform the debate

Some say the answer lies in the worst-case scenario. Instead of just looking at what's most likely to happen, they argue that we should also model for at least one "black swan" scenario.

Borrowing a term from the financial industry, "black swan events" aren't likely to happen in any given year but could have disruptive or even catastrophic consequences if they do.

It makes sense. If we're already modeling a range of futures, we should incorporate at least one that may seem outlandish now.

That doesn't necessarily mean we have to act on what it says.

But it's worthwhile to know how fallowed farmland, additional cuts in the lower basin, a cap on growth in the upper basin or any other ideas to solve the Colorado's fundamental supply-and-demand problems might play out in a "black swan"

setting, and compare that to the futures that we think are most probable today.

Why?

Because while most water planners have bought into the notion that climate change is increasing the risk of catastrophe, I'm not so sure that our elected leaders – much less the wider public – have.

We don't have to be alarmist. But we do need to know and very publicly discuss what might happen should things go south in a hurry. Because in this hotter, drier, more volatile future, they certainly can.

Such an analysis could help reveal weaknesses in the system. Not to mention that, especially with water, the last thing we want to hear is "jeez, I didn't see *that* coming."

Reach Allhands at joanna.allhands@arizonarepublic.com. On Twitter: @joannaallhands.

If you love this content (or love to hate it – hey, I won't judge), why not subscribe to get more?