Smallmouth bass biological recommendation

Please review the following questions and provide responses to Matt by Thursday 12pm AZ time. The focus is the biological and environmental conditions. Please rate questions 1 and 2 on a scale of 1 (no risk) to 10 (certain to happen).

1) What is the risk of bass spawning in the upper stretch of the river if we off ramp bass flows before dam release temperature fall below 15.5C? This may result in an unknown period with temps in the Ferry exceeding 16C. For example, in 2023 the Ferry did not fall below 15.5C until Nov 20. *Rating 4. Although literature suggests SMB can spawn any time temps are suitable, and is not directly related to photoperiod it didn't seem to be a common occurrence. Literature also suggests temperature is the most important factor in SMB spawning. In 2024, and any SMB adults present have been hovering on the edge of suitable temps all summer, so this might be the final catalyst for spawning, since they are probably holding eggs or developing new ones. Also however, there aren't many adult fish in the system so far, which is a good thing, and also means they may not find each other (Allee effect).*
2) Given the conditions in question 2, what is the risk of offspring surviving into spring 2025? *Rating 6. Although temps will go below 13, and maybe even below 10 over the winter, it's not as cold, for as long, as areas in upper basin that can suffer winter mortality.*

3) In your expert opinion, how many days in the fall would the river need to be above 15.5C for a spawn to succeed*? By succeed, I assume you only mean they succeed in nesting and having fertilized eggs hatch, but not considering recruiting to age 1. I don't know. Two weeks maybe. Maybe less, since they are probably already holding eggs or developing new eggs just waiting for conditions to be right.*
4) If fish do recruit into 2025, will we be able to identify post-flow spawned fish as having spawned after flows stopped? *I think it would be easier to identify if they spawned immediately afterwards, by careful monitoring - looking closely at likely spots and ASBs. But earliest sampling next year, pre spring HFE may also be helpful, if small fish are caught. But after a spring HFE I don't think we'd be able to tell if they were late fall spawned in LF or early spawned fish entrained during HFE.*
5) What action does the ~~panel~~ rater recommend until we see temps come out of the dam at 15.5C? *To be conservative with not confounding the experiment, I think we should continue bypass, but minimize until release temps are below 15.5*
6) Please list any additional questions, comments and concerns.
    a. *Would it be helpful to target RM15 instead of RM 0?*
    b. *What would that do to temps at RM 0 Lees Ferry.*
    c. *Retain idea of 'tapering off' bypass regardless of how long we extend*
    d. *If off ramp occurs sooner and temperature do go above 16 at LF, implement additional monitoring – to be discussed further*