

Overall Comments

This paper is generally well-organized and well written, despite a smattering of grammatical errors that should be corrected fairly easily in the revision process. The authors have undertaken to explain a loss of water in storage by considering five hypotheses, then assessing which of them could be responsible for what has been observed in recent decades. The authors then conclude that anthropogenic sources (primarily groundwater extraction and eucalyptus planting) are the primary drivers thereof. The analysis is sufficiently convincing and the insights are worthwhile. Moreover, the case for sociohydrology is well-made in light of what actually seems to be driving the loss of reservoir inflows. However, this paper is simply too long. It is commendable the quantity of work that the authors have undertaken, but it does strain a reader to consume the quantity of verbiage presented. This paper is a statement that groundwater extraction and eucalyptus plantations are better explanations for the loss of inflows into the TG Halli reservoir than the million-pond hypothesis or changes in climate. Simply, there is no reason that point should demand ~30 pages of prose.

Abstract

Generally very well-done. The objective is clear, the hypotheses are enumerated, and some indication of what was found is offered.

Page 26, Line 15: "...*the* TG Halli reservoir."

Introduction

The introduction, though well-written and satisfactorily-organized, reads as a bit on the long side. Do be judicious in removing redundant verbiage and unnecessary verbosity.

Page 27, Lines 18- 25. This is too long to be divided only by commas and colons. Consider listing the three issues, then beginning a new sentence. I.e. "... (iii) inadequate original scientific research. As a result, water management and policy decisions are...."

Page 28, 1st Paragraph. The authors are making a fair point regarding the flaws of assuming stationarity, but seem to be painting the literature as having uniformly ignored non-stationary hydrologic systems. Recent work has discussed changing hydroclimatic regimes in the US and elsewhere. Acknowledging these efforts would be appropriate. That said, the point stands – too many hydrologic models make a dangerous assumption for a dynamic, anthropogenically, influenced world.

Page 28, Line 25. Not sure if this sentence was meant to end "...on watershed hydrology" (no 'the') or "...on the watershed's hydrology."

Page 29, Line 15. A space is needed in 'basinsundergoing.'

Page 30, Lines 5-10. All models necessarily exclude (inadvertently or intentionally) certain hydrologic features. An acknowledgement of this inherent limitation of all modeling (not merely those cited) would seem appropriate.

Page 30, Line 21. “gauged” is misspelled.

Page 30, Line 24. The oxford comma is needed after “...basins of interest”

Page 31, Lines 16-19. Again, I would add the missing oxford comma.

The Problem

The authors do a strong job conveying the issues, multiple perceptions and stakeholders, the limited available information, and the five hypothesized causes of the drying observed. Once again, too many words are probably stated. Simple descriptions of the five hypotheses should suffice. The background information is simply too long. As a reader, I’m 10+ pages into the paper before I start reading about what analysis has actually been *done*.

Page 32, Line 11. “...*the* TG Halli...”

Page 33, Line 1. See above.

Page 33, Line 12. See above (there may be other small omissions of definite articles that I was unable to catch).

Page 33, Line 17. “...*the* livelihoods...”

Page 33, Line 22. “...we rely *upon* meetings with *government* officials...”

Page 33, Line 25. “...*the* TG Halli catchment...”

Page 33, Line 27. See above.

Page 34, Line 1. See above.

Page 34, Line 3. See above (further missing definite articles will not be pointed out, just please clean up these issues in the revised manuscript)

Page 34, Line 12. Missing oxford comma. Lists of three should be “a, b, and c.”

Page 34, Lines 12 and 24. “check dam” should either be hyphenated in both cases, or neither.

Page 38, Line 6. “rain-fed.”

Page 38, Line 19. “...a once-connected, flowing river has *been*...”

Methods

Page 40, Line 8. "...and *a* survey of..."

Page 40, Line 27. Add the appropriate oxford comma.

Page 43, Lines 17-23. This paper is, fundamentally, a search for various causes of non-stationarity. Choosing a method that is, fundamentally, an assumption of stationarity is problematic. The authors rightly note that this will probably cause an over-estimation of potential evaporation. A bit more discussion of how this will influence the work's conclusions would be appropriate here.

Page 45, Line 9. "To do this, the lower envelope..."

Results

It is worth noting here that, by the time a reader is presented with results of any analysis done, they have already read 22 pages (in the HESS-D format). Consider simplifying the structure of the five hypotheses to:

1. A quick bullet-point of the hypothesis
2. A quick description of the data used to assess it
3. A brief description of the analytical technique chosen

The results should do the rest. Otherwise, a strong paper becomes too cumbersome to endure.

Page 49, Line 8. It might be appropriate to restate the stationarity assumptions regarding the calculation of PET, with respect to the trend it does not show.

Page 50, Line 8. A period is missing after 'zone.'

Page 50, Lines 9-16. On one hand, the authors argue that since 1992, there has not been a month in which baseflow into the reservoir occurred. On the other hand, the caption of Figure 2 suggests the bars are counting months in which 100% of flow was derived from baseflow (a much higher standard than "a month in which baseflow occurred." Please clarify.

Page 50, Line 22. Please correct the misspelling of "plantations."

Discussion

Page 51, Line 25. Two commas should flank the word 'however.'

Page 53, lines 4-6. If the agencies have not made any "concerted *and* substantive" efforts, does that imply that they have made concerted *or* substantive efforts? Nit-picky, I admit, but probably worth a minor correction.

Conclusions

Page 53, Line 15. I believe this should read “human feedback.”

Page 54, Line 4. Again, “human feedback.”

Page 54, Line 5. Note sure the comma between “catchment” and “often” is needed.

Figures

Figure 2. Consider adding some vertical lines at the boundaries of each decade for easier viewing.

Figure 2A. Rather than report the mean (which seems to be influenced by a couple years of extremely high flows), why not report the median, which better reflects the water to which stakeholders might expect to have access in a ‘typical’ year?