

Interactive comment on “When is water withdrawal data enough?” by Benjamin L. Ruddell

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My main takeaway from both reviewers' comments is that I failed as an author to communicate the topic and expectations properly for this opinion, and I may have misled the reader as a result. The failure began right at the title, “When is water withdrawal data enough?”, which was simple, short, and rhetorically evocative. I meant it rhetorically, but it was taken topically and literally, and this left the reader with the initial impression that this was an analysis of where exactly hydrologists and water resource engineers can use water withdrawal data. That was not my main point. This article is written primarily to the *non* hydrologist or water resource engineer who is working on systems involving water use at census and macro scales. Accordingly, I propose this revised title, which is much longer and literal, but hopefully more adequately precise for this audience:

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“How should a future water census address consumptive use? (and where can we substitute withdrawal data while we’re waiting?)

The opinion makes two points, which I repeat here for emphasis:

1. The way we’re measuring consumptive use in the water census context is poorly understood and therefore prone to abuse, and needs to be improved in the future using a more detailed water census data model.
2. Since we don’t have that data today, we should sometimes be using census water withdrawal data in place of consumption data in several specific instances where this is a valid substitution. . . and this choice should be accepted by hydrologists as long as it is properly qualified. This is because the withdrawal data is of higher quality and is less misleading, as compared with presently available consumption data at census scales.

Please forgive my refusal to become highly specific about scales of space and time, and my determination to stick with approximate phrases like “census”, “meso”, and “macro” to define scale. These scales are coarser than point scales, and are the scales at which a census operates in order to preserve anonymity and privacy using statistical aggregation. These are the scales at which it is feasible and lawful for a national government to collect comprehensive and uniform data. Owing partly to space constraints, but more importantly to the nature of an opinion piece, I do not wish to provide a detailed or quantitative analysis of scale.

It is however important for the Simple Net Consumptive Use (SNCU) accounting that I precisely employ the “point” scale of space, and I have done so a revised and hopefully more precise Section 2. In response to your comments and questions on Section 2, I have added an additional figure and an enumerated list to clarify what I mean by the SNCU assumptions. I hope that it is now clear, because I am convinced that this simplification is at the heart of both the capability and disability of our census scale

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