

## ***Interactive comment on “Practitioners’ viewpoints on citizen science in water management: a case study in Dutch regional water resource management” by Ellen Minkman et al.***

### **Anonymous Referee #2**

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This manuscript provides interesting insight into opinions of Dutch water management professionals about the use of citizen science as a tool that water management authorities might support. The method provided to assess collective opinions seems realistic to transfer across locations. In this case, three generalized viewpoints about citizen science that exist across 8 of the 24 water management authorities were identified. However, based upon the extreme difference in explained variance of Viewpoint A (53%) and those of Viewpoints B and C (8% and 6%), one might alternatively conclude that there is primarily only one viewpoint of participants in this study, not three. Additional explanation to support inclusion of three viewpoints would be valuable, as the difference between 6% and 1% is much less than 53% and 8%, while, instead, the

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difference between 6% and 1% is currently said to demonstrate “a clear cut off after the third factor.”

More specific comments follow. A number of these comments relate to words or phrases used that need further explanation, seem inappropriate, or are misleading:

\*P. 2 line 18 – “lingering?” What is meant by this? \*P. 2 line 31 – In reference to “(on-line) citizen science,” do the authors mean studies have been carried out on projects through which people participate online? Clarify. \*P. 3 second paragraph: Further clarification is needed about how “knowledge generation” differs from “raising awareness” and “public education.” All are knowledge generation, are they not? \*P. 3 lines 13-14 – A reference(s) is needed to support that citizen science may be used to add or test new monitoring methods. \*P. 3 line 16 – What type of literature often mentions public education as an important purpose of citizen science? References needed. \*P. 3 line 21 – What is meant by “early stages” of citizen science? \*P. 4 lines 9 and 10 – “and policy development” is included twice. Should it be included as its own purpose or is it meant to be included in connection with the other categories? \*P. 4 line 14 – “This view is too limited.” A reference(s) is needed. (Who says the view is too limited?) \*P. 4 line 19 – Is research limited to scientists about motivations? Suggest rewording. \*P. 4 line 27 – Continued attention by whom is needed? \*P. 5 line 1 – What aspects of water authorities’ work would benefit from citizen scientist participation? \*P. 5 line 25 and P. 6 line 5 – It is unlikely that the authors could collect “all possible” opinions on the topic of citizen science. Consider softening the language about this aspect of the research. \*P. 6 line 11 – In regard to the phrase “too broad,” does this mean beyond the scope of the study? Further explanation or rewording recommended. \*P. 6 line 12 – What were the other students’ majors? Were they natural resources-related, or STEM fields, or something not at all related to water resources? Provide general information to help the reader understand the level of knowledge they might have about the statements being reviewed. \*P. 16, line 6 – What is considered middle aged? Consider adding a table that describes key (i.e., those that were assessed in analyses) demographics/characteristics

of participants whose viewpoints were assessed. \*P. 18 Section 4.1 – This seems to be a continued presentation of results, not discussion. Recommend separating out results from this section and deepening the discussion. As a result, the authors will likely need to make the results section more brief; consider including phrases currently included in the results in a table or tables to shorten the text of this section of the manuscript. \*Table 3 – Recommend including a more detailed table title. For instance, is this table meant to show the level of support for each of the three viewpoints or something else? Also, consider moving “Theme 1:” and “Theme 2:” from the table description to within the table to the left of “Perception of citizen. . .” and “Acceptance of citizen. . .” respectively, for clarification. \*Table 4 – What are “applicable purposes?” Further explanation in table description would be useful. \*P. 19, line 15 – As related to “the legal obligations a water authority has regarding water quality monitoring,” in regards to what? Results to action? \*P. 20 line 4 – “intentions of the participants,” do the authors mean this as related to the role(s) a citizen could or should play in citizen science? \*P. 20 line 4 – Is the phrase “the way they trust” meant to indicate the level of trust of citizens by the water authorities? Rephrase for better clarity. \*P. 20 line 14 – “collide” seems an inappropriate word here. Do the authors mean this “disagrees” with Viewpoint C? \*P. 20 lines 18-19 – Was researcher bias reduced by collecting statements from various sources or by some other means? Further explanation of how researcher bias was reduced would be useful to readers. \*P. 21 line 1 – “enhancing the scope” seems an inappropriate phrase. Do the authors mean the viewpoints were broadened? \*P. 21 lines 3 and 4 – Awkward. Suggest rewording. \*P. 21 line 17 – Unsure what is meant by “on measures.” What measures? \*P. 21 line 22 – Time limitations of interviews or some other type of time limitation? \*Discussion/Conclusion – Consider including discussion of the larger representation of Viewpoint A among participants as compared to Viewpoints B and C, (that is, as Viewpoints B and C explained much less of the variance in the model as compared to Viewpoint A). \*P. 22 line 29 – “Transformation of governance structures” seems broader than the subject matter of the manuscript. \*P. 22 lines 29 and 30 – The authors should mention that this statement applies to citizen science projects in NL,

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not more broadly. \*In general, the manuscript would benefit from a careful review of sentences, words, punctuation and grammar. Errors were made in a number of locations – this includes, but is not limited to the following: p. 4 line 11 by “wide” do the authors mean they are using the term in a broad sense?; p. 4 line 20 “compatible” should be “comparable;” check for and modify run-on sentences (e.g., p. 6 line 14); p. 6 line 22 commas are needed; data should be plural throughout the manuscript; check plural possessive apostrophes throughout (e.g., citizens’ not citizen’s); p. 18 line 24 – Commas should be added to identify to readers if the image of the water authority and organizational capacity go together, or if organizational capacity and lack of internal support go together; p. 21 lines 3 and 4 should be reworded; remove “especially” and “particularly” from start of sentences; the use of “we” seems appropriate for the manuscript. Use consistently throughout (rather than using third person “the authors” in some paragraphs); p. 21 lines 26-28 – Simplify this sentence.

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