Line 42-43: ..., in reaches with strong local controls ...and in reaches with large environmental heterogeneity ...

• Unnecessary to include the "in" in each element of the list

Line 45: "Hence, while air temperature has clear utility for understanding stream temperature, ..."

• The entire paragraph up until this point was spent convincing the reader that air temperature was a poor surrogate for stream temperature, however, in this sentence they are saying air temperature it has clear utility for understanding stream temperature. I think the author's point about air temperature having clear utility should be clarified because it does not make sense given what was explained in the previous sentences of this paragraph.

Line 51: "As streams increase in size, their surface area increases..."

• Referring the stream size is ambiguous here because I am left to wonder if you are referring the stream order or to the stream's width or volume. I believe it is only necessary to talk about the stream's surface area in this sentence.

Line 69: "...countries lack such the ..."

Line 72-78: "...our objectives are -> were twofold ..."; capture -> captured; define -> defined; term -> termed; estimate -> estimated; test -> tested

• Verbs should be past tense

Line 75: extremes -> maximums

 As suggested in my last review "stream temperature extremes" should be "stream temperature maximums" because this paper is only talking about annual *maximum* temperatures and not minimums. I noticed the terminology had been changed from "temperature extreme" to "temperature maximum" in other areas of the paper, I assume it was just overlooked here.

Line 91: times -> time

Line 186: climate -> climactic, hydrology -> hydrological

• Use the adjective version of the words because they are describing categories

Line 380: demonstrate -> demonstrated

Line 387-388: alleviate -> alleviated; demonstrate -> demonstrated

Line 449-451: I don't see how the second sentence (starting w/ "The importance of") is different from the first. In both sentences the authors are saying that the relevance of mean summer air temperature is consistent with other studies. The Moore cites could be added to the first and the second sentence deleted.

Lines 455-456 & 458: "water travel times" & "residence time"

• Terminology changed from "travel time" to "residence time". I would suggest choosing one and using the one term in both places for clarity.