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Interactive comment on "Rip current rescues and drowning in the United States" *by* B. Chris Brewster et al.

Anonymous Referee #1

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Overall, this update to use of USLA statistics is extremely valuable to the rip current research community. Most statistics being used to date are either a decade old or failed to specifically elaborate on methods employed to arrive at reported stats.

The abstract would be served by including more robust details from the body of the submission regarding how the data was treated.

The mention in methodology of why the Great Lakes remained in the dataset is undermined by the first portion of results in discussion where it's revealed the Great Lakes were ultimately removed anyway due to lack of primary cause reports. This should be included in the methodology section. Something like "while the Great Lakes are subject to physical forces resulting in rip currents; the Great Lakes reports contained no primary cause of drownings. As such, while they were initially defined as one of our 5

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research regions, the Great Lakes data was unable to be included".

Section 4.1, underestimating is one word, no hyphen

Section 4.2 Steve Pfaff at the Wilmington, NC office of the NWS may actually be driving the reports you mention on line 370. He started just such a database from his forecasting region compiling medical examiner notes, news stories and speaking with lifeguards to more definitively track the causes of reported drowning deaths. He's been doing this for a while. At the very least, he may know what it is being reported by NWS.

My concern with the paper revolves around potentially unfounded assertions regarding extrapolated "real" number of fatalities presented in a quantitative manner. I don't have issue with the data as presented, but the way it's being expanded is not supported. Mentions either need to be removed or covered in a more detail. For instance, line 374-376 states "The data includes an annual average number of rip current related drowning fatalities between 2013-2017 of 62 fatalities per year. This would again suggest that the actual number is closer to the USLA estimate [of 100 instead of 35]. This paper concluded a measurable 62 annual fatalities; that's 38 from the USLA estimate of 100 and only 27 fatalities away from the Gensini and Ashley 2010 total of 35. You've made the case for fatalities from the USLA dataset to likely be underestimates, but it would have to be an underestimate by nearly 20% to make the assertion that "...suggest that the actual number is closer to the USLA..." true. Further, you state in section 4.2 line 358 through 361 that the most recent fatality stats available are less than 100 (though from 128 agencies of the 150 mentioned in the introduction). On line 405-408 of the Conclusion the authors do this one last time "...an annual figure of over 100 is not unreasonable...". You're extrapolating 62 to be close to 100, and then conclude it's likely even higher than that. What the authors could do for this discussion is compare the average number of fatalities in 2016 per reporting agency (128) and use the total number of USLA certified agencies to put some actual numbers to these estimates. This should lead you to a higher number that could be used in support of the assertion in conclusion in line 407 that "...annual figure of over 100 is not unreasonable...". Cur-

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rently, you have no real evidence for this. However, 99 drownings from 128 agencies is .77 fatalities per reporting agency. That multiplied by 150 agencies is an estimate of 116 fatalities; if the rescue data is a proxy for likely fatalities (81.9%). 81.9% of 116 is 95; and then your case for 95 being an underestimate could make sense. THIS IS STILL A STRETCH, but at least it's based on presented data instead of what seems emotional extrapolation. Specifically, the entire point of this paper is to call-out potential errors in formerly reported numbers, so grand statements largely unsupported by presented evidence seems counter to the overall theme.

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