

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

**B. Chris Brewster et al.**

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Received and published: 26 October 2018

Referee Comment #1: The topic is suitable for the journal since it addresses an issue which could be of interest to the scientific community, as well as the society. The document is written in clear and fluent English, it complies with international standards and has an adequate length. The article provides statistical estimations on the specific topic of number of rip current rescues and fatal drowning in the United States that are not found worldwide.

Authors' Response: We thank the reviewer for these observations.

Referee Comment #2: The title could mislead the readers, since the article is mainly focused on statistical estimations and not on physical processes. It would be recom-

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mended to modify the title. An example could be: “Estimations of rip current rescues and drowning in the United States”

Authors’ Response: We thank the reviewer for this suggestion and have made this change, which is indeed a more suitable title.

Referee Comment #3: The outline of the paper could be the following: 1. Introduction, 2. Aim of this study, 3. The United States Lifesaving Association (USLA) Dataset, 4. Methodology, 5. Results and discussions, 6. Recommendations.

Authors’ Response: We thank the reviewer for this suggestion and have made this change, which we feel has improved the paper. Because there are conclusions, as well as recommendations, in the final section, we have entitled this, “Conclusions and recommendations.”

Referee Comment #4: “Aim of this study” should appear in some place, very clearly. It is recommended to be shown at the end of the introduction, in page 5 and after line 150. The following could be said: “The primary aim of this study is, therefore, to accurately evaluate and report the percentage of rescues from rip currents by lifeguards reporting to the USLA. An additional aim would be to determine why researchers have come to vastly different conclusions as to what the USLA data shows and comment on the USLA estimate that rip current related drowning fatalities in the U.S exceed 100 per year”.

Authors’ Response: We thank the reviewer for this suggestion. In accordance with Referee Comment #3 we have inserted the section title, “Aim of this study,” at line 148 and have modified the sentence in question in accordance with the reviewer’s suggestion, which we fully agree with.

Referee Comment #5: In page 3, line 86, the following sentence should be changed “but also makes it impossible to provide even a gross estimate of the occurrence and location of rip currents on United States beaches at any given time” by “but also make

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it difficult and laborious to provide a gross estimate of the occurrence and location of rip currents on United States beaches at any given time”.

Authors' Response: We thank the reviewer for this suggestion and have made this change, which is most appropriate.

Referee Comment #6: “Recommendations” should include a proposal for an improvement in The United States Lifesaving Association (USLA) Dataset, which is provided by the surf beach lifeguards. It is recommended, among other things, to include visual or measured ocean conditions (time, wind speed, wave height and period, tidal range, surf zone wide, sketch of rip currents, among the most important parameters) and main general beach characteristics (length, beach profile, average sediment size, beach photographs) as an annex.

Authors' Response: We thank the reviewer for this suggestion and it is a good recommendation. Indeed, some of this information is presently recorded. However, it is well established in the literature that data gathering by lifeguards is difficult and the challenge of balancing public safety duties with data gathering duties is something we must consider. With great appreciation we have added the following section to the paper:

“Considering the number of U.S. lifeguard agencies that fail to report a primary cause of rescue, it is recommended that the United States Lifesaving Association communicate with these lifeguard agencies to endeavor to increase the level of reporting of surf related rescues by primary cause. It would also be desirable for a range of consistent and comprehensive data, involving both physical environmental and beach conditions as well as demographic beachgoer characteristics, to be reported by lifeguards. However, it is well established that data collection for beach lifeguards is difficult (Williamson et al., 2006; Harada et al., 2011; Morgan et al, 2013) for a variety of logistical and personal factors, and the fundamental challenge in balancing the tasks of providing water safety vigilance, rescue capability, and data collection, the former of which should not be compromised.

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Nevertheless, it is vital to continue to work towards developing increasingly accurate estimates of both rip current related rescues and drowning deaths so that local governments, public policymakers, tourism authorities, public health professionals, and funders of mitigation measures understand that rip currents are by far the greatest health hazard related to those entering the water at surf beaches. Through this awareness, appropriate resources such as the provision of additional lifeguard services and development of public education programs can be justified and implemented to assist in drowning prevention.”

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Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2018-143>, 2018.

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