

“Rip current rescues and drowning in the United States”

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In this paper, estimations of rip current rescues and drowning occurring along surf beaches in the United States have been presented. The rescue data reported to the United States Lifesaving Association (USLA) by surf beach lifeguards, during the period of 1977 to 2016, is the main data used to estimate rip current related rescues in the United States. An important effort has been made in this study to deepen on limitations and value of the USLA dataset in order to eliminate factors that artificially under-represent the impact of rip currents on rescues and fatal drownings. Results show that rip currents are the primary cause of 81.9% of rescues on surf beaches, with regional variation from 75.3% (East Coast) to 84.7% (West Coast). An annual figure of over 100 fatal drownings per year seems to be reasonable.

General comments

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.

Detailed comments

This reviewer believes that a major revision would further increase its overall significance, as indicated below:

- The title could mislead the readers, since the article is mainly focused on statistical estimations and not on physical processes. It would be recommended to modify the title. An example could be: “Estimations of rip current rescues and drowning in the United States”
- 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.
- Point 2: “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”.
- 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 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”.
- Finally, point 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 recommend, 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.

- This manuscript is of broad interest, but this reviewer considers that this article needs some minor modifications in order to be published.