Natural Hazards and Earth System Sciences Discussions

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Reply on RC1

Lea Uebelhoer et al.

Author comment on "Characteristics and beach safety knowledge of beachgoers on unpatrolled surf beaches in Australia" by Lea Uebelhoer et al., Nat. Hazards Earth Syst. Sci. Discuss., https://doi.org/10.5194/nhess-2021-318-AC1, 2022

We thank the Editor for allowing this paper to be submitted to NHESS for Review and we thank RC1 for their positive and constructive comments on our manuscript. We have addressed all of the comments made by RC1 below.

Please note that reviewers comments are in **bold**. These are followed by OUR REPLY All Line numbers in OUR REPLY refer to the revised version of the manuscript which has not yet been submitted to NHESS as per instructions.

Reviewer to Reviewer #1 Comments:

This study provides an important evaluation of beach safety issues at unpatrolled beaches, which are commonly overlooked in Australia and other locations around the world. Because beach safety and the presence of lifeguards is not an important determinant on what beaches people visit, there is a need to develop beach safety knowledge and strategies at these sites. The paper is well-written and I only have a small number of suggested edits:

OUR REPLY:

We thank the reviewer for their positive comments about the study.

*** It would be interesting to do a more thorough comparison of beach user responses from unpatrolled beaches (this study) to the responses from studies on patrolled beaches. Is there greater or lesser knowledge? The other studies are cited, but it would be interesting to compare the populations.**

OUR REPLY:

This is a very good point and we have added comparisons in the Discussion in several places

L362-363: 'Similar to the general Australian population (SLSA, 2021), 96% of respondents knew the meaning of the red and yellow flags on Australian beaches.'

L375-L386: 'These studies were all conducted on beaches with lifeguards, with the exception of Sherker et al. (2010), who did not discriminate results from respondents on

patrolled and unpatrolled beaches. While direct comparisons of results of these previous studies are complicated due to survey bias, the different methods of lifeguarding and flag usage in other countries, varying beachgoer demographics and cultural factors, variable physical environmental conditions, as well as differences in the nature of the survey questions themselves, many similarities exist with the findings of this study. Sherker et al. (2010) found that 93% of Australian beachgoers, particularly males, felt that they could spot a rip current, but less than two-thirds actually could when shown photographs. Williamson et al. (2012) found that less than half of surveyed Australian beachgoers made the correct decision of where to swim when shown a photograph of a rip current. Of note, in a recent survey of beach safety knowledge of an Australian multi-cultural community, Woods et al. (2022) found that 83% of surveyed respondents had heard of the red and yellow flags, but only 29% said that they always swim between them, compared to 56% of the general Australian population (SLSA, 2021), and approximately half had either never heard of a rip current, or had, but did not know what they were.'

L388-398: 'In the United States, surveys of beachgoers at Pensacola Beach, Florida (Caldwell et al., 2013) found that 57% believed they could spot a rip current while only 15% actually could and at Miami Beach, only 31% felt they could identify a rip current (Fallon et al.,2018). The images shown in Photo 2 and Photo 5 in Figure 6 were also used by Pitman et al. (2021) in a study of New Zealand beachgoers. In their study, 31% of beachgoers were able to identify a rip current in both photographs and 26% could identify a rip current in only one photograph. In comparison, 41% and 39.2% of beachgoers in this study correctly identified the rip current in Photo 2 and Photo 5 respectively (Table 3). The images shown in Photos 4 and 6 in Figure 6 have also been used to assess rip current identification of the Australian public in an ongoing national representative online survey by Surf Life Saving Australia (Lawes et al., 2021). According to unpublished SLSA data (J. Lawes, pers comm 27/1/2022) 56% and 35% of surveyed Australians between 2016 and 2020 correctly identified the rip current in Photos 4 and 6 respectively (Figure 6). These values are lower than those reported in this study with 71% and 40.3% of respondents correctly identifying the rip currents in those pictures (Table 3). However, not all of the surveyed Australians by SLSA were beachgoers.'

***How do the photographs used in Figure 5 compare to the beaches in which the study was completed, and how did the conditions in the photographs compare to the conditions on the days in which the surveys were conducted? Again how does this compare to previous studies of ability to spot rip currents?**

OUR REPLY:

This is another important point. We have addressed this comment in several locations

L305: 'We have added text to the caption for Figure 5 (old Figure 4) noting that the image of Merry Beach was not taken during the survey data collection period.'

We have also created a new Supplement document (Supplement 1) that contains a Figure showing photographs taken at each beach during the survey period. These images capture the conditions at the time of the study. We refer to this Supplement in multiple locations in Section 2.1 and also address it with the following additional text:

L326-329 - It should be noted that none of the images in Figure 6 were of beaches involved in the survey. However, they represented rip currents present on NSW beaches that had similar morphological beach types and beach hazard ratings to those in the study and presented a range of surf conditions that were representative of conditions observed during the surveys (Supplement 1).

*** A copy of the survey instrument is needed as an appendix or supplementary section.**

OUR REPLY:

A copy of the survey was indeed submitted as a supplement file during the original submission process. With the addition of a new Supplement 1 in response to the reviewers comment above, the survey is now Supplement 2.

Please also note the supplement to this comment:
https://nhess.copernicus.org/preprints/nhess-2021-318/nhess-2021-318-AC1-supplement.pdf