

Interactive comment on “Deepwater Horizon oil spill impacts on Alabama beaches” by J. S. Hayworth et al.

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GENERAL COMMENTS

This opinion paper offers reasonable detail and insightful comments on the Deepwater Horizon Incident. The authors commented on official government statements, BP statements, and their own observations and opinions. The main goal of this paper is to identify “what is known and known to be unknown with regard to the current state of Alabama’s beaches in the aftermath of the Deepwater Horizon disaster.” Although the authors provided a certain level of details, I find that what is described as known

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and unknown is still too general and largely qualitative. I argue that the biggest known unknown is the amounts that were washed onto the beaches and the amounts that were removed. In other words, I believe one of the most significant unknowns is the oil contamination budget. While the amounts of oil washed onto the beaches may be difficult to quantify, the amounts that were “removed” should be documented by the cleanup efforts. Little information is provided by the authors on the quantification of the removed amounts of oil contaminants. I challenge the authors to find more information on the amounts of removed oil.

Author response. We appreciate the comments and suggestions provided by the referee and agree that a significant unknown is the oil contamination budget. It is very true that the amount of oil which impacted (and continues to impact) Alabama’s beaches is difficult to estimate. We have been seeking “official” information on the amount of oil removed from these beaches since before this paper was conceptualized; however, this information has been very difficult to acquire. We have anecdotal information on the amount of oil removed from the beaches, provided primarily by beach cleanup crews. We understand and agree with the reviewer’s main point, and included a discussion in our revised manuscript (page 6) to expand on the oil contamination budget issues.

SPECIFIC COMMENTS

(1) Page 6726 lines 15 to 20: “94 sediment samples were collected. . . .” Figure 1 and later discussion indicated 20 samples. It is not clear whether 94 or 20 samples were collected from the study area. Regardless, this cannot be considered as a “large database of observational, semi-quantitative, and . . .”

Author response. On page 6726, beginning on line 15, we note that the first OSAT report was built on a large database (which includes aqueous and sediment samples from many sampling locations). Our point is that within this large database, there are 94 sediment samples from our area of interest, and of these only 20 locations had positive, unqualified PAH detections. We agree that the available beach data is a small

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dataset. Our intent in that section of the paper was to point out that although the total dataset is quite large, the portion related to Alabama beaches was very small. We have revised the manuscript to make this point more clear.

(2) Page 6743, Figure 5: I cannot understand this figure. Page 6728 and on, reference of figures: I think the figure numbers are wrong. For example, reference of "Fig. 6" should be "Fig. 7" and so on.

Author response. Figure 4 was (inadvertently) not referenced in the paper. From Figure 5 onward, all figure references in the manuscript are incorrect shifted by one. We apologize for this confusion and have corrected it in the revised manuscript. (3) Page 6733 line 15: "... are naturally low in organic content." It is not clear what is meant by this and what is the "low" referred to.

Author response. Alabama's beaches naturally have very little organic carbon. We have revised the manuscript to include the word "carbon"

(4) Page 6745 Fig. 7: the statement "...the thickness approximately 30 cm" is misleading. The photo shows a pile of oil remnants. The pile seems to be 30 cm high. This should not be explained as a 30-cm thick submerged mat material.

Author response. Our observations of recovered tar mats, and also information provided to our research team by crews involved in tar mat removal clearly indicate the thickness of many tar mats are in the range noted in the paper. However, we agree that the image we included in this figure does not clearly show this. Thus, we removed the statement ("Note thickness approximately 30 cm.")

Please also note the supplement to this comment:

<http://www.hydrol-earth-syst-sci-discuss.net/8/C4633/2011/hessd-8-C4633-2011-supplement.pdf>

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