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Hydrology and Earth System Sciences Discussions

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

Anonymous Referee #2

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This manuscript presents a review of the impact of the BP oil spill on the beaches of Alabama focusing on the knowledge gaps and the requirements for better evaluating the impact of oil spills on beaches and improving immediate and long-term monitoring and response actions. I enjoyed reading this discussion manuscript and it would be a valuable contribution for both the scientific and general communities. The ideas, concepts and results are clearly described and presented and the manuscript well structured.

General comments for improving the manuscript/discussion are: âĂć Include additional information on preventative and remediation actions and techniques applied to limit contamination of the beach system (both on Alabama beaches and for previous

spills) and the effectiveness of these strategies. What is the recommended state-of-the-art for responding to oil spills on beaches? Was this applied on the beaches of Alabama? âĂć Include information on the weather and average oceanic forcing conditions (tides, waves) for Alabama coastline âĂć Can the reported PAH concentrations be compared with EPA standards for aquatic health/human health? This would put into perspective the magnitude of the contamination. âĂć Additional discussion on how the preventative/remediation efforts and level of contamination on Alabama beaches compare with other shorelines impacted by BP oil spill would be beneficial. âĂć What were the lessons learnt with respect to protecting/remediating beaches from previous oil spills such as Exxon Valdez and where these taken into account for the BP oil spill?

Specific comments include: âĂć P. 6727, Line 1: It is stated that the reported total PAH concentration at location 18 is two orders of magnitude greater than at other locations and therefore this concentration is not shown in the figure. It would be good however to mention in the text what the value is. âĂć P. 6733, Lines 20-25: I agree that increase in organic carbon in beach sediment will impact fate of other antropogenic contaminants, but for some cases, if a compound degraded under reducing conditions, the increase in organic C may actually reduce concentrations of the contaminant. It is misleading only mention the potential increase in contaminant concentrations due to higher organic C. âĂć P. 6733, Lines 11-13: Have these long-term studies been carried out for previous oil spill locations? âĂć Fig. 6 caption: typo. Should refer to Fig. 5. âĂć Fig. 5: Is it possible to use a dotted line to denote average location of the shoreline in this figure (and what is the average horizontal tidal excursion)? It difficult to understand where the samples where collected relative to the mean shoreline/intertidal zone.

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