

Peer Review Summary Document

(9/17/13)

Peer Review Plan

<https://www.usgs.gov/atom/73864>. [17.8 KB PDF].

Title and Authorship of Information Product Disseminated

Assessing Mobility and Redistribution Patterns of Sand and Oil Agglomerates in the Surf Zone by P.S. Dalyander, J.W. Long, N.G. Plant, and D.M. Thompson.

Peer Reviewers Expertise and Credentials

Reviewer #1 received PhD and MS degrees in Oceanography from Oregon State University and a BA in Geology and Economics from Williams College. The reviewer has over 30 years experience in beach and nearshore processes, including the observational study of combined wave-current bottom boundary layers and the evolution of nearshore morphology during and after storms. Peer Reviewer #1's research has been funded primarily by the Office of Naval Research, the U.S. Geological Survey, and the U.S. Army Corps of Engineers.

Reviewer #2 is a geochemist specializing in terrestrial and marine pollution studies, coastal geomorphology, and environmental risk assessments and is an Adjunct Professor in the School of the Environment, University of South Carolina. The reviewer also has specialized expertise in the behavior, tracking, recovery, and effects of submerged oil and extensive knowledge of and practical experience in pollutant fate, transport, and effect issues. Having worked in 32 countries, the reviewer has extensive international experience and has worked in many different coastal and marine environments and has written over 185 technical publications. Peer Reviewer # 2 has been the NOAA Shoreline Assessment Cleanup Technique Coordinator at the Deepwater Horizon oil spill since April 2010.

Charge Submitted to Peer Reviewers

The reviewers were asked to make an objective evaluation of the research.

Summary of Peer Reviewers Comments

Peer Reviewer #1 had a favorable response to the manuscript, and had no concerns regarding the substance of the paper but had several suggestions regarding clarifying the text to provide a more accurate description of the methods and results, and also had a few questions regarding the manuscript that indicated the text was not clear. Specific comments included that the description of the model bathymetry resolution was unclear, as was the discussion of the high, medium, and low critical stress thresholds used to estimate uncertainty in the value as a result of surface residual ball (SRB) exposure above the seafloor. In the description of the alongshore current calculations, the reviewer questioned how sensitive the alongshore maximum value is to changes in bathymetry. The reviewer also asked about the specific dynamics of SRBs within the active sediment bed layer, but noted this question was a possible future research topic and not germane to the conclusions of this paper. The reviewer asked for clarity in the period of the tidal cycle over which SRB

dynamics were analyzed. In addition, the reviewer made several minor suggestions for text clarity.

Peer Reviewer #2 also had a favorable response to the manuscript, and did not have concerns regarding the methodology, results, or conclusions of the work. The reviewer made a suggestion regarding the best citation for background information on Deepwater Horizon relevant to the paper, and asked if more background was required regarding the choice of threshold of mobility for surface residual balls (SRBs). The reviewer questioned a point in the conclusions section regarding a proposed hypothesis on why SRBs might not be found during storm events, and also made several suggestions to the text for clarity.

Summary of USGS Response to Peer Reviewers Comments

In all of the locations where Peer Reviewer #1 raised questions on the methodology, the manuscript has been modified for clarity. This clarification relates to the discussion of model bathymetry resolution, the use of exposure-based critical stress thresholds, the alongshore current statistics, and the tidal cycle over which SRB mobility was analyzed. The dynamics of SRBs within the active bed layer are taken as a valuable suggestion for future research, but are not necessary for the conclusions of this paper and are not included.

The suggested citation by Peer Reviewer #2 on Deepwater Horizon spill rates was accepted. The threshold of mobility discussed in the methodology is based on prior work, so the paper was modified slightly to clarify that the prior work could be referenced for additional information. The conclusions were modified to remove the suggested mechanism by which SRBs might not be recovered during storms that was questioned by the reviewer. The reviewer's suggestions for text clarity were also accepted.

The Dissemination

The product will be released as a scientific journal article in Marine Pollution Bulletin and will be available at <http://www.sciencedirect.com/science/journal/0025326X>.