

# Peer Review Summary Document

(4/15/2021)

## Peer Review Plan

<https://www.usgs.gov/atom/108712> [73 KB PDF].

## Title and Authorship of Information Product Disseminated

Impacts of sand removal and placement in coastal barrier systems, By Jennifer L. Miselis, James G. Flocks, Sara Zeigler, Davina Passeri, David R. Smith, Jill Bourque, Christopher R. Sherwood, Christopher G. Smith, Daniel J. Ciarletta, Kathryn Smith, Kristen Hart, David Kazyak, Alicia Berlin, Bianca Prohaska, Teresa Calleson, Kristi Yanchis.

## Peer Reviewers Expertise and Credentials

Reviewer 1 holds an M.S. degree in geology, has decades of coastal policy and environmental planning experience and expertise, and has authored or contributed to over 40 scientific publications and reports.

Reviewer 2 holds an M.S. degree in biology, has decades of specialized experience in evaluating the environmental implications of sand and sediment dredging and beach placement studies, and has authored or contributed to more than 10 scientific publications and reports.

Reviewer 3 holds a Ph.D. degree in marine geology and geophysics, has decades of experience researching physical and ecological processes related to coastal sediment movement and climate-change impacts, and has authored or contributed to over 30 scientific publications.

## Charge Submitted to Peer Reviewers

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

## Summary of Peer Reviewers Comments

All reviewers deemed the overall scientific and technical quality of the manuscript acceptable and made mostly minor suggestions to improve quality. Specific comments focused on the amount of contextual information connecting the background and findings to the Coastal Barrier Resource Systems (CBRS) designation. Reviewers also wanted to know when or how some of the identified gaps were to be filled and all reviewers wanted to know how the stated conclusions would be tied to specific management applications.

Reviewer 1 remarked that the manuscript delivers a much-needed comprehensive summary of the current state of science of sediment removal and placement in coastal barrier systems and appreciated the extensive references that were included in the manuscript. The reviewer also thought the manuscript not only fulfills the requested information from Congress but will also be extremely useful to U.S. Fish and Wildlife Service (FWS) and their partner agencies in further assessing the potential impacts of sediment removal and placement projects that undergo permit reviews and Endangered Species Act, Section 7,

consultation guidance. The reviewer specifically commented that little attention was given to stating recommendations for best management practices that could be concluded from the research finding. The reviewer further commented that if follow-up studies are needed to fill identified gaps, the results of these studies might lead to implementation of practices that may or may not improve long-term resiliency, depending on trade-off costs related to, for example, ecosystem function, development sustainability, or increasingly high economic costs of utilizing available sand resources.

Reviewer 2 stated that the manuscript provides a relatively comprehensive, multidisciplinary summary of the available literature related to short- and long-term physical and biological impacts of sediment dredging and placement activities. A specific comment was that critical information is largely missing from the Introduction section to establish important context relevant for CBRS decisions related to geographic and operational scope of sand dredging and beach placement actions, as well as content on best management practices typically implemented to avoid and/or minimize adverse effects. Additionally, the reviewer wanted more information on current management challenges within example CBRS units and a clear articulation of the CBRS decision context and application of key findings in order to tell a complete story regarding the scope, scale, and risk of sand removal and placement effects. Finally, the reviewer thought that the manuscript would benefit from having a new “application of findings” section that applies the findings back to the CBRS decision context. And, the reviewer suggested adding a clear strategy to prioritize these gaps to make better CBRS related decisions.

Reviewer 3 remarked that the manuscript is a comprehensive and up-to-date synthesis that should clarify key issues and information needs. In the detailed review, the author suggested additional topics for the authors to include, such as adding effects of uncertainties and to included additional references that cover this topic. The reviewer suggested further elaboration on how sediment transport, habitats and coastal morphologic structures and their potential change may be controlled by geologic constraints. The reviewer suggested that the manuscript should make specific recommendations that hypothesis-based research and monitoring should be conducted, including sediment transport modeling.

## **Summary of USGS Response to Peer Reviewers Comments**

In response to three broad suggestions from the reviewers related to (1) adding more context to CBRS designation, (2) ensuring identified gaps were filled, and (3) connecting the conclusions of the manuscript to the specific management applications that would benefit from the new information, the authors addressed the first two points in revisions they made, deeming them within the scope of the manuscript. However, the third point is beyond the scope of the manuscript’s intent, which is to summarize of knowledge (and gaps) regarding sand removal and placement. Making specific prioritizations or recommendations would require assumptions about policies and regulations that are not within the author’s expertise or the manuscript’s purview.

In response to a review comment, additional information was added to explain the context for CBRS designated areas. A new statement was added the Executive Summary to explain that the congressional inquiry focused on physical and ecological impacts of sand removal. New text and references related to additional connections to larger-scale systems were also added as suggested by the reviewers.

In response to the reviews, the authors incorporated additional information related to model uncertainties, cumulative impacts of sand removal and placement, and broader CBRS physical-ecological system linkages. Also, several new references were added to expand the scope to better represent current understanding.

The focus of the manuscript is on the state-of-science as a precursor to application of this knowledge to coastal resource management and policy and regulation response related to CBRS management. Therefore, definitive statements on the management decisions, priority applications, and cost-benefit calculations are deemed beyond the scope of this manuscript and were not added as suggested. However, the authors did include applicable references to these topics.

## **The Dissemination**

The published information product will be released as a USGS Open-File Report and will be available at <http://pubs.usgs.gov/>.