

From: Tim McKay.com tim@timmckay.com
Subject: Fwd: Proposed changes to how Morehead City Harbor dredge spoil will be used in the draft IDMMMP AND EIS
Date: June 4, 2014 at 2:35 PM
To:



From: Fegley, Stephen Robert
Sent: Monday, February 03, 2014 11:56 AM
To: 'Hugh.Heine@usace.army.mil'
Subject: Proposed changes to how Morehead City Harbor dredge spoil will be used in the draft IDMMMP AND EIS

Dear Mr. Heine,

I attended the informational meeting held at Duke University Marine Laboratory on 15 January 2014. During the National Park Service (NPS) presentation several statements, essential to their rationale for sequestering a portion of the spoil material collected while dredging the port basin, were made that should be re-examined. I am a research faculty member at the University of North Carolina's Institute of Marine Sciences. Most of my research over the past 7 years has focused on the ecology and geology of barrier islands in North Carolina. This work, funded by the Department of Defense, has led me to conduct a broad array of studies on Onslow Beach, Bear Island, and Bogue Banks quantifying: 1) changes to beach and island morphology; 2) invertebrate and vertebrate uses of barrier island habitats; and 3) ecological succession of habitats disturbed by overwash and human activities (such as driving on the beach, placing dredge spoil on the beach, and creating/destroying dunes).

Twice during the NPS presentation, the speaker stated that the NPS was aware that barrier islands are dynamic but then asserted that changes seen in the last few decades are a consequence of human activity and therefore unnatural, requiring mitigation. Although dredging operations probably have contributed to recent erosion on Shackleford Bank, no compelling, indisputable evidence was presented at the meeting, nor is present in the Integrated Dredged Material Management Plan and Environmental Impact Statement, that dredging is the sole reason for island change. Local sea level rise, the patterns of storms over the past few decades, and interactions of regional wave/current patterns within the eastern end of Onslow Bay have contributed likely to changes in Shackleford geomorphology as well. Assigning, unambiguously, the proportion of geomorphological change to any of these factors, given the amount of information available, is not possible. Furthermore it is not clear that there is a stable island configuration target available for the NPS to achieve. Even though the western extent of the island was greater several decades ago, and the beach extended further south than it now does, what evidence is there that those conditions were stable? They are as likely to have been unstable configurations resulting from dredging, storms, etc. during the preceding years. Finally, placing sand on the beaches to recreate some semblance of preserving a former island configuration is fruitless if the island is still in disequilibrium with existing forcing factors derived from current anthropogenic activities and environmental conditions that continue to alter island geomorphology.

The above comments, associated with the efficacy of preserving a specific Shackleford Bank configuration, do not touch on a more fundamental issue. As stated publicly during the presentation, barrier islands are dynamic. Changes in barrier island morphology, changes to the extent and nature of barrier island habitats, and changes to how barrier island organisms respond to habitat alteration are THE defining characteristics of barrier islands. Because so many barrier islands presently have human communities we have been nourishing beaches on these island to avoid the loss of homes and towns. That means there is a small number of islands left on the US east coast, but the most essential

That means there is a very small number of islands left on the US east coast where the most essential aspect of barrier islands, change, has been allowed to persist. If the NPS truly wishes to maintain the most essential character of barrier islands for the appreciation and education of future generations they should let the island move, regardless of the cohort of factors inducing island movement. The species that the NPS Wilderness Minimum Requirements Analysis focused on do occur on islands where humans live as well. Loss of some habitat for all of these species on Shackleford Bank will not result in regional extinction for any of them (indeed, many of the species need new habitat created by natural island movement to prosper). If Shackleford Bank is added to the extensive list of barrier islands that have been nourished extensively, the opportunity for education and research on such a naturally dynamic system cannot be regained; it will be gone forever.

Dr. Stephen R. Fegley
Research Associate Professor
UNC Institute of Marine Sciences
3431 Arendell St.
Morehead City, NC 28557

252-726-6841 x222 (voice)
252-726-2426 (FAX)