CERD-C/CEWESCD-S DRAFT 30 OCTOBER 95

MEMO TO:CESAM-PD-EC (ATTN: Dr. Susan Ivester Rees)

SUBJECT: Comments on 24 October 95 Public Workshop on Dauphin Island, AL

1. As requested by CESAM in a 6 October 95 Dredging Operations Technical Support (DOTS) request, the undersigned participated in the subject workshop. The workshop was offered to the residents of Dauphin Island as a way to provide information on the maintenance of the Mobile Harbor Federal Navigation Project and on the erosion of Dauphin Island. This memo is being prepared at the request of Dr. Rees in order to summarize my observations and recommendations from the workshop.

2. WORKSHOP During the workshop I had the opportunity to talk to a broad array of residents with varying levels of coastal process savvy and opinions. I also had a limited opportunity to talk to some of the Island's public officials and Dr. Scott Douglas (University of South Alabama). There is a strongly set public opinion that erosion on Dauphin Island is in part or whole due to the maintenance dredging of Mobile Harbor. The technical issues Dr. Douglas has verbalized related to sand management and sediment pathways have been widely embraced, while the caveats that Dr. Douglas has included in his thesis have been trivialized. The technical context of his augment has been largely lost on the public sector. Although I would like to think that the workshop did help to deciminate more complete information, particularly to the more open-minded attendees; I believe CESAM will still have an uphill struggle to counterman the "easy-fix" public perception and the mobilization of residents to get a Federal solution to their erosion problems.

3. TECHNICAL ISSUES. Dr Douglas' public statements regarding the impact of the entrance channel maintenance on "severing" the littoral transport from east to west, thus aggravating the erosion on Dauphin Island have technical merit. In fact there has been a long history of discussion on this issue within Mobile District, at CERC, and the coastal profession in general. The significant question is that of "what is the degree of potential and realized impact?" Several issues to consider follow:

A. The Mobile Bay entrance bar was naturally (pre-dredging) very deep with minimum depths of approximately 18-20 ft across the shallowest part of the bar. This depth is at the outer envelop of the conceptual "depth-of-closure" for this wave climate and suggests that the pre-dredging sand by-passing across the inlet throat would have involved fairly low quantities with alongshore transport generated only during significant wave events.

B. The morphology of the Mobile ebb delta emulates delta forms which are influenced more strongly by tidal currents then by littoral currents. In other words, the in-out transport is more likely to be a factor then the alongshore component in the Mobile inlet and entrance complex.

C. Dauphin Island has a lot of general trend similarities with the other Mississippi Sound barrier islands (i.e., erosion on the east, accretion on the west), however, the presence of the Sand

...and/Pelican Shoal complex of the east end of Dauphin Island is unique. East and west Dauphin ...and behave very differently, almost as separate islands. East Dauphin Island is partially ...otected from wave-attack by the offshore shoals, however it is strongly influenced by nearshore ...dal currents. The shoreline position (erosion-accretion pattern) on the east end is directly ...fluenced by the emergent and submergent shoal pattern offshore of the island. The west end ...isodically receives sand released from the shoal and the east end as shoal island complex ...volves.

D. The island-shoal evolution process discussed in C is natural and the most dominating process which influences the daily pattern of erosion and accretion on Dauphin Island. The role played by a sediment supply across the inlet to the shoal complex is unknown and could range from no impact to a minor long-term influence.

E. Having said all this, it would still be in the best interest of rational sand-management stewardship to place sand dredged from the entrance channel onto the shoal complex, possibly continuing the practice which was tested during the Feeder Berm Demo. Of course the funding authority and economic return associated with this activity as a continuing practice would have to be resolved through the appropriate studies.

4. RECOMMENDATIONS: Following are a few recommendations for your general consideration:

A. The residents and officials on Dauphin Island need to become better educated about coastal processes if they are to become better stewards of their shore and partners with CESAM in determining the appropriate activities. Currently there are some examples of unwise development practices and philosophies about shore protection approaches on the Island. Recommend that CESAM look into the possibility of providing technology transport presentations to the residents on general issues related to coastal processes and shoreline management. Possibly this could be developed with the state.

B. The local press seems to have a tendency for mis-quotes and sound-bite reporting. It might be worthwhile to work through CESAM public affairs to put together a public information brochure or press-release which is far more comprehensive then the bits and pieces of the story which the public is presently getting.

C. A better level of exchange and dialog is needed with Dr. Douglas and the state officials relative to issues on Dauphin Island. When different sides of the same story are coming out from different sources, the public does not perceive that one side is not necessarily negating the other. The technical "experts" need to debate the issues together professionally, prior to verbalizing them in the public forum. The end result is counter-productive to the common goals shared by all. I'd be happy to participate in a follow-up meeting with Dr Douglas to discuss these issues and try to define areas of communality.

D. Presently, CESAM does not have the study base needed to document historical trends and present a rational picture to either the state or the public. An assessment of geomorphic evolution and coastal processes is needed before degrees or impact and effectiveness of solutions could be addressed. These studies should include documentation of historical dredging practices, shoreline change, impacts of previous works (including the post-Frederick beach fill), and evolution of the offshore shoal complex. These historic trends would then need to analyzed for cause and effect relationships. Additional coastal process studies such as numerical modeling of waves, field measurement of tidal currents, sediment tracers studies such as seabed drifter deployments, and

alongshore change modeling might also be warranted.

E. The best vehicle for conducting the fore-mentioned studies might be either a Section 933 or a Section 111. However, considering the administration's present policy and longer term budget trimming trends it would probably be wise to determine a course and pursue it expeditiously. These fundings and authorities are viable candidates for near-future cancellation.

5. Please contact the undersigned at 202 761-1841 (through December 95) or 601 634-3034 (permanent) if we can be of any further assistance or if you have any questions on this memo.

Joan Pope
Chief, Coastal Structures
and Evaluation Branch