



REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
U.S. ARMY CORPS OF ENGINEERS  
441 G STREET, NW  
WASHINGTON, D.C. 20314-1000

CEMP-SWD

JUL 22 2011

MEMORANDUM FOR ASSISTANT SECRETARY OF THE ARMY (CIVIL WORKS)

SUBJECT: Sabine-Neches Waterway Channel Improvement Project – Final USACE Response to Independent External Peer Review

1. Independent External Peer Review (IEPR) was conducted for the subject project in accordance with Section 2034 of the Water Resources Development Act of 2007, EC 1165-2-209, and the Office of Management and Budget's Final Information Quality Bulletin for Peer Review (2004).
2. The IEPR was conducted by Battelle Memorial Institute. The IEPR panel consisted of eight panel members with technical expertise in engineering; hydraulics/sedimentation; dredging and dredged material management; sediment transport modeling; deep-draft navigation planning and economics; ship simulation and vessel effects; hydrology/coastal hydrology; hydrodynamic-salinity modeling; biology/ecology; estuarine habitat/ecological modeling; and environmental review.
3. The final written responses to the IEPR are hereby approved. The enclosed document contains the final written responses of the Chief of Engineers to the issues raised and the recommendations contained in the IEPR Report. The IEPR Report and USACE responses have been coordinated with the vertical team and will be posted on the internet, as required in EC 1165-2-209.
4. If you have any questions on this matter, please contact me or have a member of your staff contact Ms. Sandy Gore, Deputy Chief, Southwestern Division Regional Integration Team, at 202-761-5237.

Enclosure

  
MERDITH W.B. TEMPLE  
Major General, USA  
Acting Commander

**Sabine-Neches Waterway Channel Improvement Project  
Feasibility Report and Environmental Impact Statement**

**FINAL  
U.S. Army Corps of Engineers Response to  
Independent External Peer Review  
June 2010**

Independent External Peer Review (IEPR) was conducted for the subject project in accordance with Section 2034 of WRDA 2007, EC 1165-2-209, and the Office of Management and Budget's *Final Information Quality Bulletin for Peer Review* (2004).

The goal of the U.S. Army Corps of Engineers (USACE) Civil Works program is to always provide the most scientifically sound, sustainable water resource solutions for the nation. The USACE review processes are essential to ensuring project safety and quality of the products USACE provides to the American people. Battelle Memorial Institute (Battelle), a non-profit science and technology organization with experience in establishing and administering peer review panels for USACE, was engaged to conduct the IEPR of the Sabine-Neches Waterway (SNWW) Channel Improvement Project (CIP) Draft and Final Feasibility Reports and Environmental Impact Statement (EIS).

The Battelle IEPR panel reviewed the Draft Feasibility Report (DFR) and Draft EIS, as well as supporting documentation. The Final IEPR Battelle Report was issued in December 2007. A final back-check review was completed on the Final Feasibility Report (FFR) and EIS dated June 2010. It should be noted that the June 2010 FFR and EIS was further revised, and the final responses contained in this document reflect the revised version dated March 2011.

Overall, 18 comments were identified and documented. Of the 18 comments, eight were identified as having high significance, eight were identified as having medium significance, and two were identified as having low significance. The following discussions present the USACE Final Response to the 18 IEPR comments.

**1. Comment – *High Significance*: The Plan Formulation as described in DFR Section IV appears questionable.**

This comment includes eight recommendations for resolution, six of which have been adopted, and two of which have not been adopted, as discussed below.

**USACE Response: Adopted.**

**Action Taken:** The USACE concurs that more analysis and additional information was necessary for the overall plan formulation of the project. The plan formulation updates include a more detailed description of the No Action Alternative; more detailed descriptions of channel and turning basins alternatives; further elaboration on non-structural alternatives, specifically relaxation of pilot rules; use of offshore terminals similar to the Louisiana Offshore Oil Port

(LOOP), and use of the U.S. Coast Guard's Vessel Management System/Vessel Traffic System (VMS/VTS); and further discussion on the channel extension portion of the project. Additional information on the No Action Alternative and Future-Without- Project Condition has been added to the Final Feasibility Report (FFR) Sections II, IV.C. and IV.D; the Economic Appendix, Sections 3.5.1, 4, and 6.3; and in the Environmental Impact Statement (EIS) Section 2.2.1. Additional information on incremental widening and deepening alternatives and turning basins and anchorage alternatives has been added to the Final Feasibility Report Sections I.V.D, V.E, and in the Economic Appendix (Appendix 2) Sections 6 and 8. Additional information has been added in consideration of nonstructural alternatives, including lightering larger vessels, handling large vessels at off-shore terminals, VMS/VTS improvements, and relaxing pilot rules. This information can be found in the Final Feasibility Report Section I.V.D, and the Economic Appendix Sections 3.0 and 6.0. Additional information on the channel extension portion of the project was added to the Final Feasibility Report Section IV. Discussion of the screening process was expanded in the Final Feasibility Report Section IV, as well as in the EIS Sections 2.1 through 2.3.

**USACE Response: Not Adopted.**

Although the overall comment has been adopted, the USACE did not find it relevant to the study to evaluate relaxation of pilot rules because the alternatives affected by the pilot rules (i.e. channel widening) were dropped from consideration because they were not incrementally justified. The USACE has provided additional analysis and discussion of pilot rules in the Final Feasibility Report Sections IV.D, V.E, and Economic Appendix, Section 3.1. Similarly, the USACE did not perform a quantitative analysis of the use of the existing or an expanded LOOP facility. A quantitative analysis of LOOP was not included because it is an unlikely alternative. Expansion of LOOP and/or the development of new offshore terminals surfaces every few years but has not progressed because potential users have not been able to negotiate the legal agreements necessary to proceed. As outlined in the Appendix, specific access to LOOP for the SNWW market is periodically reviewed; however, actualization would require substantial investment as SNWW crude oil import volume nearly equals LOOP's capacity. LOOP's design capacity of 1.4 to 1.8 million barrels per day is only marginally higher than SNWW's 2003-2007 crude petroleum import volume which ranged from approximately 1.1 to 1.3 million barrels per day. A *qualitative* economic analysis of the use of the existing or an expanded LOOP facility was completed and is included in the Final Feasibility Report Section IV.D, the Economic Appendix Section 3.2, and the Economic Addendum to the Economic Appendix Section 2.0.

**2. Comment – *High Significance*: The report does not present a strong analysis of the current and future vessel fleet, or of vessel dimensions.**

**USACE Response: Adopted.**

**Action Taken:** Data on the current and future fleets and trends are presented in the Economic Appendix of the Final Feasibility Report Sections 3.3, 3.7, 3.8, 3.9, 3.10 and Table 27. The updated Economic Appendix also outlines existing vessel loaded draft utilization. The USACE concurs that the Taylors Bayou vessels, which have a 124' beam, would not generally be affected by pilot rule #1. This vessel would be able to meet vessels with comparable or lesser beams if the loaded draft of the vessel it is meeting is less than 30 feet. The last year of historical

data included in the report is 2007. SNWW crude oil imports for 2008-2010 decreased from 2007 levels. The drop in imports is associated with the current recession and refinery expansions that have affected short-term capacity. Annual Energy Outlook's (AEO) and Global Insight's most recent forecasts reflect economic downturns through 2015. Both AEO (including its reference forecast) and Global Insight show imports growing from 2015-2035.

**3. Comment – *High Significance*: The crucial analysis of vessel design and sailing drafts is inadequately supported by data and appears questionable.**

**USACE Response: Adopted.**

**Action Taken:** The Final Feasibility Report was updated to include a thorough analysis of current design and sailing drafts. This updated information can be found in the Economic Appendix, Tables 23-28, and Table 110. The benefit calculations recognize that factors other than SNWW channel depth (i.e. trade route limitations and parcel size demand) will affect vessel loads. The Economic Appendix, pages 192-197 and Tables 112-113 provide specific information on the crude petroleum imports and vessel utilization. Sections 4.4 through 4.14 outlines the percentage of commodities other than crude oil imports for which deepening benefits were calculated. The LNG multiport analysis has been included in the Final Feasibility Report, Economic Appendix, Section 2.7 and 4.15. Additional sensitivity analyses on crude oil imports were included in Section 3.0 of the Economic Addendum. Sensitivity analyses on the LNG market share were included in Section 4.0 of the Economic Addendum.

**4. Comment – *High Significance*: The benefits estimates cannot be validated from the report material, and include some questionable uses of ranges and averages.**

**USACE Response: Adopted.**

**Action Taken:** The USACE has provided updates in the Final Feasibility Report to include more detailed documentation with appropriate source citations for cost input values; careful analysis of ranges or averages; and provision of data. The lightering and lightening cost functions were constructed based on the time it takes to unload offshore and travel to and from port. The hourly vessel costs were based on the USACE vessel operating costs. The report expansion included the addition of data and material regarding lightering versus lightening and shuttle costs to the report based on vessel time and associated operating costs. A sensitivity analysis was performed using critical variables. The additional information can be found in the Final Feasibility Report, Economic Appendix, Sections 3.5.1, 6.3, 6.4.1.1, and in Tables 104-106, 110-113, 120-122 and Section 5.0 of the Economic Addendum.

**5. Comment – *Medium Significance*: There is no comprehensive description of existing vessel operations.**

**USACE Response: Adopted.**

**Action Taken:** The Final Feasibility Report was expanded to include data on current and past vessel fleets; design drafts; sailing drafts and a detailed description of the convoy system; lightering/lightening process; and barge operations. These data and associated discussions are

located in the Economic Appendix, Sections 3.3 and 3.5. The report does not include tables that show both loaded and design draft. The report provides tables with tonnage by loaded draft and tonnage by vessel class but it does not have the combined tables. The report does include details on vessel sizes and loaded drafts for each of the major commodity groups.

**6. Comment – *Medium Significance*: The commodity discussions and forecasts are fragmented and incomplete, and do not adequately support the forecasts used for the benefits estimates.**

**USACE Response: Not Adopted.**

**Action Taken:** The USACE expanded the report and provided more information on the commodity analysis and forecasts to include the history of each commodity, details on the future growth rate (such as why the rate was chosen and where it was obtained, and the steps taken to verify the realism of the forecast) and sensitivity to future events. Expanded presentations on this information are provided in the Final Feasibility Report, Economic Appendix, Sections 2.0 to 2.7, 4.0 to 4.17, and Section 6.0 of the Economic Addendum. However, the USACE determined that the selection of the forecast used in this study was appropriate for the Western Gulf coast, which historically has demonstrated higher growth rates than other regions of the country. We used Global Insight's published forecasts which are within the margin of error of AEO's forecasts. Global Insight is more relevant for the Gulf Coast whereas AEO reflects national trends. Additionally, the AEO forecasts give too much weight to recent trends without consideration of expected economic recovery. It is our determination that the Global Insight's forecast represents the most likely future condition.

The rationale for using the Global Insight (2009 release) crude oil import forecast rather than AEO's recent forecasts is that SNWW is a major refining center with expanding capacity. For general comparative consideration, the effect of using the AEO2011 reference crude oil import forecast would result in a BCR of approximately 0.9 for the NED plan and the Locally Preferred Plan (LPP). The effect of using Global Insight's most current forecast (as presented in the AEO2011) would result in a BCR of 1.2 for the NED plan and the LPP.

**7. Comment – *Medium Significance*: The choice of project design vessel appears to drive the project design and benefits estimates, yet remains unjustified in the report.**

This comment includes three recommendations for resolution, two of which have been adopted, and one of which has not been adopted, as discussed below.

**USACE Response: Adopted.**

**Action Taken:** The Final Feasibility Report was expanded to provide additional detailed description of justification for the project design vessel which is presented in the Economic Appendix, Section 3.5. In reference to the review of the 2000 PE report, the USACE reviewed vessels-on-order and included those findings in the Final Feasibility Report.

**USACE Response: Not Adopted.**

The role that design vessel selection could play in the benefits analysis was rendered moot by the elimination of widening from the recommended plan. Because the widening was dropped from consideration, the sensitivity analysis on the design vessel was not necessary and was not performed.

The USACE had previously included an analysis of the vessel costs based on more recent costs, which determined that the design vessel is still a cost effective choice. However, once the widening alternative was removed from consideration, further review of the design vessel was no longer necessary and was not completed.

**8. Comment – *Medium Significance*: The ERDC, HarborSym, and @risk models were used in crucial analyses, but the analyses lack documentation.**

**USACE Response: Adopted.**

**Action Taken:** The Final Feasibility Report, Economic Appendix, was expanded to include more material relating to HarborSym. The additional information was added to Sections 6.3 and 8.3. More information than is presented is not necessary because the ship simulation model was not used to support the project benefits analysis, as presented in response to comment number 7 above. These HarborSym and ERDC models were reviewed by the Agency Technical Review (ATR) team, which included economists and engineers with the appropriate expertise for such a review. The ATR team members confirmed that these models were appropriately applied in this study.

**9. Comment – *Medium Significance*: The report is written at a summary level and lacks proper documentation throughout.**

**USACE Response: Adopted.**

**Action Taken:** The USACE examined the Final Feasibility Report and EIS to ensure that sufficient information has been provided so the reader can follow the analysis. The information gaps that previously existed in the report were addressed. In an effort to keep the report to a reasonable length, some data and analytical reports were incorporated by reference and made available to the public on the district's website. Numerous sections of the EIS and its appendices, in particular, Sections 2.3.3, 2.5.2.7, 2.5.3.2.2, 3.1.3, 3.2, 4.1, 4.10, and 7.29, have been revised to include additional information on the environmental setting, an updated estimate of the rate of relative sea level rise, the effects of recent hurricanes, Gulf shoreline erosion, the proposed Gulf Shore Beneficial Use Feature, the role of salinity in land loss estimates, and supporting documentation for the Wetlands Value Assessment (WVA) model. In addition, references have been extensively updated throughout the Final Feasibility Report and EIS. The relationship of the proposed SNWW CIP to other coastal restoration plans has also been updated to include the Texas Coastwide Erosion Response Plan, Louisiana Coastal Area (LCA) Ecosystem Restoration Study and Plan, the Louisiana State Comprehensive Master Plan, the Louisiana Coastal Protection and Restoration Study, and the North American Waterfowl Plan.

Many areas of the report have been improved with more complete citations of supporting analyses.

The Final Feasibility Report, Economic Appendix, Section 8.3.1 provides documentation and application of the HarborSym Model and Section 8.4 provides channel deepening benefits. Clarification of the channel safety has been made in the Final Feasibility Report, Sections II.B and IV.D, and well as in the Economics Appendix, Section 3.1. The data demonstrating the growth of traffic has been documented in the Final Feasibility Report, Economic Appendix, Section 6, and references utilized to develop traffic forecasts have been documented. Pilots and captains did not provide traffic forecast input data. Traffic forecasts were prepared based on historical trend lines and evaluation and the associated suitability of forecast indicators and published trends. The Environmental Setting of the EIS now includes more recent estimates of relative sea level rise (RSLR) and the effects of hurricanes. In particular, RSLR was incorporated into the hydrodynamic-salinity model and RSLR effects were considered in the WVA modeling. Discussions of the RSLR have been added to descriptions of the environmental setting in the Final Feasibility Report Section II.C and IX.C, EIS Sections 1.4.2, 2.2.1 and 2.3.3 and Appendix C.

**10. Comment – *Low Significance*: Public involvement in the feasibility analysis process was carried out well.**

This comment includes two recommendations for resolution, one of which has been adopted, and one of which has not been adopted, as discussed below.

**USACE Response: Adopted.**

**Action Taken:** The USACE devoted much time to engaging the public, stakeholders, Federal and State Agencies throughout the study process. Additional information regarding the coordination with and input from the Sabine Pilots Association was added to the Final Feasibility Report, Sections IV and IV.D, as well as Section 6 of the Economic Appendix.

**USACE Response: Not Adopted.**

The USACE did not modify the report to include cross referencing between public comments/suggestions and USACE modifications to the study and report that were made as a result. No systematic effort was made to cross reference the public comments and suggestions because of the large number of comments solicited and received. For example, public workshops conducted as part of the scoping efforts to identify potential beneficial use and mitigation measures resulted in a list of 244 suggestions. The public coordination of this project was extensive and is well documented in the Feasibility Report and EIS.

**11. Comment – *Medium Significance*: Need to conform to post-Katrina changes in policy and to incorporate changes in scientific understanding of the Gulf Coast.**

**USACE Response: Adopted.**

**Action Taken:** Specific incorporation of systems engineering considerations, risk-based analysis, and adaptive planning and management has been addressed in the Final Feasibility Report. The SNWW study complies with the directive to use a comprehensive systems approach to project planning. A Risk and Uncertainty section has been added to the Final Feasibility Report in Sections III, VI.C, and IX, as well as EIS Section 4.2, Appendix C, Section 9.0, and Appendix J. USACE concurs that the significant advancement in scientific understanding of Gulf hurricane physics and sediment regimes and processes resulting from the Interagency Performance Evaluation Taskforce (IPET) studies needed to be taken into consideration for the SNWW study. The IPET report was reviewed to determine if this information would significantly change impact assessments resulting from the modeling used. It was determined that the IPET study does not make recommendations that would affect the application or conclusions of the STWAVE or GENESIS models used in the study. A sensitivity analysis of potential storm surge impacts of the proposed project was conducted, and the results are described in the Final Feasibility Report, Section IX, and the EIS, Sections ES.4, 4.1.5, and 4.6.2.1. Considerations other than NED were included in evaluating alternatives; they are presented in EIS Table 2.3-1, Alternatives Impact Comparison Summary Table. Additional information was added to the Final Feasibility Report Sections IV.C, IV.D, IV.E and the EIS Sections 2.2, 2.3, and 2.5. Potential effects to environmental, regional economic and socioeconomic resources were thoroughly considered in evaluating the environmental consequences of feasible alternatives. For clarification, the description of the evaluation methodology has been expanded in the Final Feasibility Report and EIS to provide the reader with the assurance that all potential effects were considered in the formulation and screening of alternatives.

**12. Comment – *High Significance:* Many issues of significance regarding dredging and sedimentation are not thoroughly evaluated or analyzed (e.g., regional sediment management plan, potential for sea-level rise and its implications, improved understanding of hurricane storm surge in the Gulf, the effects of hurricane Rita on shorelines and interior wetlands).**

This comment includes seven recommendations for resolution, six of which have been adopted, and one of which has not been adopted, as discussed below.

**USACE Response: Adopted.**

**Action Taken:** The Final Feasibility Report was revised to include additional information in the following areas: documentation of historical behaviors and littoral processes; evaluations of expanded set of alternatives for offshore and beach disposal; re-examination of appropriateness of WVA models; justification of compliance of offshore disposal actions; identification of the effect of each alternative on future channel shoaling and maintenance requirements; predictions of environmental consequences which consider changes by alternatives; and reliance on professional opinion. Information on historical sediment behavior, regional littoral processes, regional sediment characteristics and a storm surge sensitivity analysis can be found in the Final Feasibility Report, Section VII, and the EIS, Section 2.5. The EIS Section 2.5.3.1 and EIS Appendix B, Section 2.3.2 were revised to expand the set of alternatives that were considered for the beneficial use of dredged material from the offshore channels. An independent assessment of

the WVA model and its use for the SNWW study was performed and the WVA model was approved for use in the SNWW application. The WVA Model Assessment determined that the theoretical approaches behind the WVA's Emergent Marsh Community Model, the Swamp Community Model, and the Bottomland Hardwoods Model are valid. The model assessment confirmed that the assumptions of variables are appropriate. The EIS, Sections 3.1.3 and 5.1 were revised to include a justification for the use of the WVA model, and further discussed its limitations regarding evaluation of open water areas. Clarification of the evaluation and impacts associated with the dedicated dredging in Sabine Lake for the Willow Bayou mitigation has been made in the EIS, Sections 4.3.2, 4.4.2, 4.11.2.1.2, 5.1 and 5.5.1. The USACE has evaluated offshore beneficial use alternative and regional management concerns, and is in compliance with enforceable policies of the Texas and Louisiana coastal management programs. The effect of future channel shoaling and maintenance requirements were evaluated and can be found in the Final Feasibility Report, Sections VII, II.D and VII.G, as well as in the EIS Table 2.3-1 and Sections 2.5.3 and 2.5.4. Further evaluation of environmental consequences was reviewed to verify consideration of fundamental alterations that the future with-project condition will make in the system. All impacts, including those that make alterations to the estuarine system, are fully disclosed in the EIS, Section 4.

**USACE Response: Not Adopted.**

While the majority of the recommendations in this comment have been adopted, the USACE does not agree that there was too much reliance on in-house professional opinion. While striving for the highest feasible level of validation and documentation, the USACE balanced the amount and rigor of supporting scientific analysis, the risks of the proposed actions, and the cost and time required to prepare the report.

**13. Comment – *Medium Significance*: Wave transformation and sediment transport processes are inadequately evaluated using STWAVE and GENESIS models.**

This comment includes four recommendations for resolution, one of which has been adopted, and three of which have not been adopted, as discussed below.

**USACE Response: Adopted.**

**Action Taken:** The Final Feasibility Report was revised to address the reconciliation of observed shoreline features with model output, to provide additional information on an expanded examination of littoral processes, and to include a sediment budget for the project area. These revisions are located in the Final Feasibility Report Sections VII.C and VII.D, and in the EIS, Section 2.5.

**USACE Response: Not Adopted:**

The ERDC modeling studies are based on well-known, widely used models (STWAVE and GENESIS) that represent the state of practice in forecast modeling. The USACE provided key model assumptions during the review. It was noted that assumptions utilized in the model runs resulted in a conservatively high estimate of potential shoreline impacts, but even this high

estimate proved to be a very small actual effect. Therefore, the USACE concluded that the usefulness of performing sensitivity analyses of this very small impact was not warranted.

In reference to the recommendation to re-evaluate the model input scenarios with particular reference to the role of storms, angle of wave approach, the influence of the jetties, and provisions in STWAVE for frictional effects that arise from the muddy offshore conditions, the USACE reviewed these recommendations and concluded that the modeling was appropriate as initially run and adequate for the purpose of evaluating changes due to proposed channel improvements. In STWAVE, 30 unique input conditions were run to produce a transformation coefficient and estimates of nearshore wave angles. In GENESIS, offshore wave heights over a 10-yr record of hindcast were statistically analyzed and transformed into nearshore wave heights using the transformation coefficient from STWAVE. Similarly, the wave angles of all waves in the 10-yr record were statistically analyzed. The jetties were intentionally omitted from the STWAVE study in order to provide a conservative estimate of potential shore line impacts. Wave dissipation was not expected to be a significant factor in this analysis and thus frictional effects from muddy offshore conditions were not included as part of the analysis. Including dissipation during wave transformation would reduce the estimate of the already minor channel impacts on the adjacent shorelines.

In reference to the model results from STWAVE and GENESIS, the ERDC explained that uncertainty and sensitivity assessments cannot be produced by these models, but the need to perform a risk assessment is low because the impacts predicted by the modeling are very small. Applying a risk-based type of analysis would add no practical value and would not be expected to change study conclusions. Additionally, the model LTFATE can predict the rate and direction at which material would leave the immediate disposal site. However, it is well documented that the offshore disposal sites are dispersive, with transport predominantly to the south and west. The distance from shore of the current and proposed sites is such that material placed there is not expected to significantly enter the littoral zone. As such, it is not reasonable to expect that the model could be used to track material movement over hundreds of square miles to determine the small percentage that may affect the littoral zone. The Regional Sediment Management analysis in the EIS has adequately evaluated the effect of the proposed project on the littoral zone.

**14. Comment – *High Significance*: Risk and uncertainty are mostly ignored.**

**USACE Response: Adopted.**

**Action Taken:** Risk and Uncertainty were considered throughout the performance of the study and the decision documents were revised to more thoroughly document these analyses. The need for formal Monte Carlo simulations was evaluated, but it was determined that sensitivity analyses would be sufficient for evaluation of the impact of uncertainties on alternative selection and impact predictions. Sensitivity analyses were performed for the economic benefit calculations, Hydrodynamic-salinity modeling of deepening impacts, effects of a range of RSLR predictions on project design considerations and environmental impacts, WVA modeling assumptions on salinity and marsh cover, and cost risk analyses. Sensitivity analysis was not performed for the ERDC modeling studies (STWAVE and GENESIS) because the predicted impacts are too small to warrant additional analysis. Revisions pertaining to risk and uncertainty analyses are located in the Final Feasibility Report, Section IX and Appendix 2 (Economics),

Section 8.0. Section 4.2 of the EIS summarizes sensitivity analysis conducted on the WVA variables, and the EIS Appendix C, Section 9, presents the detailed analysis. A new mitigation monitoring and contingency plan that incorporates adaptive planning and management tools was added as Appendix J of the EIS.

**15. Comment – *Medium Significance*: The presentation of data in maps, figures, and tables needs to be substantially improved.**

**USACE Response: Adopted.**

**Action Taken:** The Final Feasibility Report and FEIS was substantially improved by adding and updating maps, figures and tables to better identify the aspects of the project being discussed in the text.

**16. Comment – *Low Significance*: The report needs an extensive editorial review and detailed copy-editing.**

**USACE Response: Adopted.**

**Action Taken:** The USACE conducted a thorough editorial review on the report, with revisions made to ensure consistency and readability. The Final Feasibility Report and EIS reflect the extensive editorial review.

**17. Comment – *High Significance*: The analysis and conclusions are based on what appears to be over-reliance on the pilots or at least a lack of documentation of their opinions.**

**USACE Response: Adopted.**

**Action Taken:** The Final Feasibility Report and Economic Appendix have been revised to better explain the role of the Sabine Pilots Association in the waterway operations and the ultimate selection of a Recommended Plan. The Final Feasibility Report relies less on pilot input. For instance, while the pilots do not have confidence in the HarborSym results for the Neches River reach, the model results were used by the USACE for the baseline evaluation. A side analysis was prepared prior to the completion of the HarborSym modifications. The side analysis reflects how the pilots expect the Neches River anchorages and basins to function. The Final Feasibility Report, Appendix 2 (Economics), Sections 8.0 and 10.8 provide documentation on pilot input and expectations, and clarification of the authority of the Sabine Pilots Association.

**18. Comment- *High Significance*: The prediction of salinity changes and their impact on plant and animal communities conveys a false sense of certainty about future conditions that result from cumulative impacts and physiographic and climatic changes that may take place over the project life.**

**USACE Response: Adopted.**

**Action Taken:** The Final Feasibility Report and EIS evaluations of salinity impacts of the project were revised utilizing outputs from a revised Hydrodynamic-Salinity (HS) model that incorporates an estimate of relative sea level rise and predictions of future freshwater inflows for the period of analysis. Section 2.3.3 of the EIS addressed the effects of relative sea level rise. The EIS was also revised to more fully describe predicted salinity changes, their spatial and temporal variability and to include an assessment of salinity tolerance. The WVA model was rerun using the revised HS model output and the mitigation plan was reexamined based on these analyses. A sensitivity analysis was performed to evaluate uncertainties in the salinity and land loss predictions. The Final Feasibility Report Section VIII was revised to include the revised modeling and mitigation plan and Section IX.C summarized the engineering and ecological sensitivity analyses. The EIS Section 3.1, 4.1, 4.2, 4.6.3 and 4.10 also address the revised modeling and mitigation plan.