



EXPERT PANEL ON DIVERSION PLANNING AND IMPLEMENTATION

Report #5

September 2015

*Submitted to:
Coastal Protection and Restoration Authority*

EXECUTIVE SUMMARY

The fifth meeting of the *Expert Panel on Diversion Planning and Implementation* was oriented primarily towards the fast-approaching *Fall 2015 Decision Point*. Presentations and discussions were focused on: (1) informing the Panel of work undertaken by the Diversion Subcommittee of the Governor's Advisory Commission on Coastal Protection, Restoration and Conservation; (2) updating the Panel on CPRA activities and providing a response to the recommendations from the Panel's fourth report; (3) providing the Panel with an overview of progress in SWAMP with special reference to Barataria Basin; (4) presenting new information on the potential effects of diversions on land-building, vegetation and water quality; and, (5) discussing the rationale, methodology and impact categories for basin-wide socio-economic analysis. The fifth report summarizes our findings and offers three recommendations for more effectively advancing the diversion planning process as it moves towards the *Fall 2015 Decision Point*. Specific recommendations include (1) expansion of the post-2015 segment of the conceptual model to add further detail on process-based linkages, (2) development of a public participation plan that uses an independent facilitator for stakeholder engagement, and (3) establishment of a peer review process for the technical reports on modeling and socio-economic analysis by subject matter experts outside of CPRA. In addition to the above formal recommendations, the report offers suggestions for improving environmental monitoring and future projections.

1.0 INTRODUCTION AND BACKGROUND

The *Expert Panel on Diversion Planning and Implementation* (the Panel) held its fifth meeting at the Woodland Plantation in Belle Chase on August 4 with follow-up discussions on August 5, 2015 in New Orleans. The Panel was established to provide expert advice and guidance on key issues that pertain to river diversions in recognition that diversions are an essential restoration tool in coastal Louisiana. As noted in previous Panel reports, Louisiana's 2012 Comprehensive Master Plan for a Sustainable Coast states (p. 106) that "...sustainable restoration of our coast without sediment diversions is not possible". The Panel's official charge was thus to *provide technical input, review and guidance as plans are refined on diverting freshwater and sediment from the Mississippi and Atchafalaya rivers into adjacent estuarine basins to build, maintain and sustain coastal wetlands*.

The Panel, convened by The Water Institute of the Gulf (the Institute), is comprised of 12 members with backgrounds in a broad range of physical and biological sciences, social science, economics, and engineering. The extensive experience of Panel members in other restoration programs, together with the particular blend of Panel expertise, was considered important for advancing our understanding of river diversions. The Panel recognizes that there is an expectation that they remain independent and objective, and that their role is advisory in nature. As such, the Panel is not in a position to make policy or implementation decisions. More information on the Panel, including the list of members and their professional expertise, is given in Appendix 1.

The Panel was established to consider a number of issues including: (1) evaluation of critical scientific and technical uncertainties; (2) identification of research that will be needed to reduce uncertainties; and, (3) review and comment on program design and implementation, technical reports, model outputs, and other aspects of project development identified by the Panel or by the Coastal Restoration and Protection Authority (CPRA). The Panel anticipates that topics for consideration will continue to vary from meeting to meeting and that Panel members will remain engaged periodically through webinars between the formal meetings. The agenda for the public part of the meeting is given in Appendix 2. The

Panel also met privately to discuss findings and recommendations, which are summarized below in Section 3 and Section 4 of this report.

2.0 FOCUS OF MEETING #5

Meeting #5 occurred at the approximate mid-point of the three-year period over which the Panel was originally convened. Prior to the meeting, The Water Institute arranged a field trip for the Panel and CPRA staff to the extensive crevasse splay area in the vicinity of Fort St. Phillip on the east side of the Mississippi River.¹ Panel members were afforded an opportunity to see a variety of land-building habitats that had been established naturally and through enhancement by human modifications. Discussion centered on river processes and sediment transport, habitat diversity, and the issue of addressing diverging stakeholder views regarding diversions. The field trip provided context for Panel members who had not been to a crevasse splay, and dovetailed with several topics covered in previous Panel meetings: uncertainty that stems from natural variability and knowledge limitations; data collection and hydrodynamic modeling that define the physical system; socio-economic analyses that need to link to stakeholder concerns; and, ecosystem monitoring and modeling that are essential for understanding the living resources.

The primary focus of presentations to the Panel during the fifth meeting was to (1) inform the Panel of work undertaken by the Diversion Subcommittee of the Governor's Advisory Commission on Coastal Protection, Restoration and Conservation, (2) update the Panel on CPRA activities and provide a response to recommendations from the Panel's fourth report, (3) provide the Panel with an overview of progress in the System-Wide Assessment and Monitoring Program (SWAMP) with special reference to the Barataria Basin, (4) present new information on the potential effects of diversions on land-building, vegetation and water quality, and (5) discuss the rationale, methodology and impact categories for basin-wide socio-economic analysis. The above topics have been the subject of Panel recommendations in previous reports and continue to be essential in the *Fall 2015 CPRA decision* to advance one or more projects to full design and engineering.

The Panel, during the second day of the meeting, discussed specific charge questions that were framed in advance of the meeting (Appendix 3), and discussed at length how best to furnish advice and guidance to CPRA that would inform in a meaningful way the *Fall 2015 Decision Point* and beyond. The findings and recommendations in this report, as in previous reports, have their origin in the discussions of uncertainty, monitoring and modeling from earlier Panel meetings. Given the complexity of the science and engineering associated with the design and operation of major freshwater and sediment diversions, it became clear that uncertainty and prediction from modeling were highly relevant and pressing topics that would form the underpinnings of virtually every future decision. Earlier findings and our 39 previous recommendations (consolidated into four high-priority recommendations in Report #4) are still relevant.

3.0 RESPONSE TO THE CHARGE

The Charge (Appendix 3) provided to the Panel in advance of the meeting covered three broad topics: the *Fall 2015 Decision Point* and beyond; water quality, vegetation and soils; and, socio-economic analysis. Advance reading materials were given to the Panel for each of the topics, and two webinars

¹ The Panel gratefully acknowledges Capt. Ryan Lambert and his staff for furnishing the boats, guiding the trip, and providing lunch.

were held in June, 2015 on Socio-economic Analysis and Decision Point planning and implementation. The Panel's response to the questions in the Charge is given below.

3.1 CHARGE QUESTIONS: FALL 2015 DECISION POINT AND BEYOND

(1) *Is the approach to using data and information from various sources, e.g., modeling, engineering, socio-economic assessments clear and appropriate for the current stage of sediment diversion planning and are the associated decision drivers leading to the Fall 2015 Decision Point (advancement to detailed engineering and design) appropriate?*

The answer in a single word is yes. Documentation, formal presentations in public meetings by CPRA personnel, and discussions between the Panel and CPRA staff show that data and information to be developed by CPRA are clear and appropriate for advancing the diversion projects to the *Fall 2015 Decision Point*. At that decision point, CPRA will be equipped by adequate science and engineering understanding to make an informed decision about whether or not to advance individual diversion projects to the next planning stage. The Panel observes that researchers have moved quickly and effectively in the development of models and creation of a potentially useful monitoring network. In the Panel's opinion, no other environmental restoration project in the nation has come so far so quickly. While the Panel may critique details of models and available data, the overall picture of research in support of decision making is encouraging.

The Panel's positive assessment includes additional observations that CPRA may wish to consider to enhance the confidence and effectiveness of the general planning process. The Panel foresees two broadly defined issues that will require attention: the short time frame, that is, the fast track approach to major decisions in 2015 and 2017; and, the refinement of models. First, the remaining time to digest and synthesize the abundance of model output in support of decisions is severely limited, so it is essential that CPRA appropriately qualify its reported findings in public briefings and reporting to the CPRA Board. This is a routine part of using model-based inferences. Uncertainties in model outputs should be clearly articulated by using, for example, ranges of values rather than single numbers. If statistically specific statements about uncertainty are not possible, then qualitative statements should convey the general level of confidence in the results.

Results from different models could be divergent, and it will take time to resolve conflicts in model outcomes. Researchers and decision-makers should be patient with the resolution of conflicts related to modeling processes. This situation has occurred in other large, complex restoration projects. For example, in the 1990s when the restoration of the Colorado River below Glen Canyon Dam began, sediment transport models could not provide reliable predictions of the movement of sediment through Grand Canyon. In the case of Everglades restoration, in the early 2000s the basic hydrologic model in the project predicted unrealistic water flows in some areas. Further investigation in both cases resolved the issues, and the projects moved forward with increased clarity and understanding of system behavior.

A second, closely related issue is the continued refinement of the various models as decision drivers in the sediment diversion projects. Confidence in model outcomes requires a more thorough analysis of model sensitivity and exploration of the results of calibration and validation. Reports on model results should include clear explanations of uncertainty associated with poorly constrained parameters that sensitivity analyses reveal to be important in model outcomes. Because the

analyses use linked models, it is becoming increasingly important to establish the capability of the models to communicate with each other and to exchange data smoothly. The output of one model must be compatible with the input requirements of other models. If the decision is made to go forward with one or more projects into the next phase of planning, this data exchange will become increasingly important.

(2) Is the methodology for project advancement in 2016 and beyond appropriate?

The Panel concluded that the general planning methodology for the project as depicted in the conceptual model is an effective foundation for post-2015 planning, though it is still a work in progress. The upper portion of the conceptual model diagram effectively transmits to the reader how the project is working and how the various pieces fit together. The items in the grey box labeled “Additional Evaluation (Optimization)” are a logical next step, but the entries in the grey box need to be revisited. The processes that link the elements are not clear. The conceptual model would benefit from an expanded presentation much in the same style as the nicely done upper part of the conceptual diagram. Such an expansion will require considerable thought, but it will serve the CPRA well in planning its own investments and activities, as well as serving as a communication tool. In its more complete process-oriented presentation, CPRA can define the decision drivers that will shape the programmatic elements. In particular, a detailed explanation of the how the information produced by integrated models can be explored to more thoroughly understand uncertainty. The conceptual model of the processes can show how programmatic elements (design, permitting, policy, management and other considerations) represented in the current conceptual model are linked to the process and timing of decisions.

(3) Are there any key additional elements that should be considered during the next phase?

In addressing the challenges for CPRA decision-making in the post-2015 period, the Panel concluded that three areas will need attention: improved monitoring, improved stakeholder engagement, and detailed peer review. These elements grow out of existing efforts in the project and do not represent new project directions. Moreover, they are connected to previous Panel recommendations. The first of these, environmental monitoring, is critical to the success of diversion projects to guide operations, communicate results to stakeholders, and to fuel an adaptive management approach. The decision to employ energy-flow modeling to predict animal production and spatial locations using the ensemble approach with two of the state-of-the-art energy flow models is an approach that is likely to be effective. However, both models require a firm understanding of the biomass of organisms at the intermediate trophic levels, which is not currently part of the monitoring plan, so it is not clear how these models will be calibrated or validated unless zooplankton and small invertebrates are monitored as part of SWAMP. Without these data it will be difficult to understand the differences between fish monitoring data and model predictions.

The second element to add in the near future relates to stakeholder participation in the diversion planning process. Stakeholder engagement and community participation in restoration projects are essential to overall project success.² Consensus is not always possible, but an organized summary of the breadth of stakeholder concerns and their recommendations can be included in order to better support decisions by policy makers. A public participation plan should specify how key sectors of the community will be identified and organized. Such a plan can also put forward to various stakeholders the vision for how information will be exchanged with CPRA representatives, and how the information will be disseminated to the general public. This “feedback loop” demonstrates to everyone that their time and effort to engage in the process is a good investment, and that their comments and concerns have been accurately communicated to decision makers.

The Panel urges CPRA to engage an independent facilitator with no vested interest in outcomes to coordinate that information exchange both in public meetings and behind the scenes. The advantage of an independent facilitator is that it increases stakeholders’ confidence that their concerns are being heard and can ensure that the broad spectrum of opinions on diversion planning can be captured. Such an individual can be the point person to organize the community non-profit organizations, churches, and community groups with their own strong networks of contacts within the affected communities.

As part of an earlier report, the Panel indicated the wisdom of communicating general operating scenarios to the stakeholders rather than waiting until the end of construction. The panel observes that shortly after the *Fall 2015 Decision Point*, such communication can begin, so that stakeholders will be involved in providing ideas and feedback on diversion operational scenarios. Such an effort will further involve stakeholders in the decision-making process, and may allow CPRA to better avoid, minimize and potentially mitigate impacts while maximizing benefits from project operations.

The third additional element that CPRA should consider for the post-2015 decision period is the employment of a rigorous peer review process. Panel members are tasked with aiding CPRA with the overall project, providing observations and recommendations about the conduct of the science, engineering, and management of the diversions. However, the Panel is not well-suited for deep assessments of technical, scientific or management documents and reports. Most restoration projects require research that produces results published in public documents, and these documents are almost always formally reviewed in some detail. Peer review comments then trigger written responses from researchers who may reject comments or suggestions, but they must explain why they have not accepted the input. On the other hand, the researchers may accept comments and suggestions, but they must indicate how they have accommodated them. The Panel may be able to play an as yet unspecified role in coordinating this review. Restorations on the Klamath, Missouri, and Platte rivers illustrate the success of this approach. In the Klamath case, research results were reviewed twice, once in house by the U.S. Geological Survey, and then a second time by a peer review panel assembled by a consultant.

² A good example of a stakeholder engagement plan for a large-scale public project is the San Francisco Bay Area Rapid Transit Authority Draft Public Participation Plan. 2011. (www.bart.gov/sites/default/files/docs/BART_PPP_Draft_rev7.pdf). For a concise summary of basic principles in stakeholder engagement see the article “The Six Principles of Stakeholder Engagement” by Raj Sharma in the October 2000 issue of Supply Change Management Review, p. 1-8, on line at <http://www.censeoconsulting.com/media/pnc/2/media.12.pdf>.

Based on field reconnaissance, written documents, CPRA public presentations, and discussions with CPRA researchers, the Panel offers three additional observations primarily related to the post-2015 planning phase of the project when specific projects might be chosen. First, the Panel cautions against complete reliance on model outputs and suggests supplementing this effort with other available information for natural analogues, such as the effects of previous crevasse splays. Second, the Panel observes that the EwE and CASM energy-flow ecosystem models being developed are top-line choices for predicting community responses to perturbations affecting trophic groups included in the models, but the Panel cautions that it is unreasonable to expect that these models will accurately predict biomass or catch of fishery species, or other specific ecological outcomes. Third, the Panel finds that to address this limitation on ecosystem modeling, investigators can use single species models such as the habitat suitability index (HSI) approach developed for the 2017 Coastal Master Plan. Further detail on these observations can be found in Section 3.2.

3.2 CHARGE QUESTIONS: WATER QUALITY, VEGETATION, AND SOILS

- (1) *Does the approach to predicting the basin side effects of river diversions on sediment retention, wetland/gain/loss, wetland type and water quality seem appropriate to support the types of decisions the State of Louisiana expects to make in the next few months?*

The panel considers the approach being used for predicting basin-wide diversion effects to be appropriate, though it is difficult to fully evaluate the approach without seeing model results. The use of two parallel and complementary modeling efforts that incorporate varying levels of simplicity, different assumptions, and different sets of parameters is a strong approach that will be helpful for gauging robustness of the models. Convergence of model results will provide confidence in predictions. In the event that model outputs from the two differ, it will be important to dissect and explore model assumptions and parameters to better identify what is driving the differences. The panel cautions against complete reliance on model outputs and suggests supplementing this effort with other available information for natural analogues, *e.g.*, near and far field impacts of previous crevasse splays. Simple approximations based on observations and expert opinion would be particularly useful to determine whether model predictions, and thus the model approach, are reasonable. Incorporating updated bathymetry data into the models will improve accuracy of land-building estimates. Additionally, the panel recognizes that some of the land-building from the diversions will be sub-aqueous. These heterogeneous shallow water habitats are ecologically beneficial and should be quantified, along with the benefits of maintaining existing wetlands and increasing wetlands.

- (2) *How does the approach used compare to current state of the art for decadal scale predictions of estuarine physical and ecological change?*

For the ecological modeling designed to predict fish biomass, given the decision to use energy flow ecosystem models, the EwE and CASM models are top line choices. We caution, however, that the expectation that these models will accurately predict biomass or catch of fishery species and other specific ecological outcomes is unrealistic. Ecosystem models are more valuable for understanding trends in populations and potential changes in species composition. A fundamental limitation with implementing these models in coastal Louisiana is the lack of any monitoring on important prey items for the species of interest (such as zooplankton, polychaete worms, amphipods, infauna). This limitation has been mentioned in prior reports.

To help address limitations in the utility of ecosystem model output, the panel recommends that the habitat suitability index (HSI) approach developed for the 2017 Coastal Master Plan be used in addition to assess potential impacts on fishery resources. This also will allow direct comparisons with the master plan assessments. The HSI approach could be brought into line with other state-of-the-art work to infer patterns and processes influencing animal population distribution and dynamics by using occupancy modeling approaches. Such work is common in terrestrial systems, and is expanding in marine environments.

3.3 CHARGE QUESTIONS: SOCIO-ECONOMIC ANALYSES

(1) *What recommendations does the Panel have for further socio-economic analysis during the next stage of detailed engineering and design?*

We begin by commending CPRA for initiating the socio-economic analysis (SEA) being conducted by Royal and Earth Economics in support of the *Fall 2015 Decision Point*. The SEA team was recruited late in the analytical process, and had no ability to influence the outputs or analytical structure produced by the biophysical modeling. Given the quick turnaround, the Panel's sense is that the SEA team is primarily – and appropriately – focused on linking its analysis to the environmental outcomes derived from the various biophysical models. Socio-economic analysis can take a variety of forms such that there are pros and cons to various approaches, and the recommended approach depends on how the analysis is to be used and for what purpose. A virtue of the Earth Economics and Royal studies is that they leverage data that is already available and can produce a broad suite of results quickly. They are not designed to produce precise analyses of more specific, detailed economic questions.

(2) *What types of predictions of socio-economic effects are reasonable for 50 years following diversion operation?*

In the longer term, CPRA should consider additional approaches (beyond the EV toolkit and IMPLAN model) to socio-environmental analysis. It is possible that CPRA will need socio-environmental input to address more specific policy questions. The EV toolkit and IMPLAN model are, by design, less well-suited to such analysis. While the EV toolkit and IMPLAN Model are academically defensible as broadly informative first-cut forms of analysis, when subjected to more aggressive academic, technical, or even community scrutiny – such as in litigation or regulatory contexts – the tools may not serve CPRA's needs. The Panel thinks that it would be beneficial for CPRA to identify and report to the Panel on the decisions and audiences it is trying to inform with socio-economic analysis post 2015. For example, is socio-economic analysis envisioned as an input to permitting decisions; statewide, public communication of diversion pros and cons; design of adaptation strategies; resolution of key economic uncertainties; litigation on diversion projects and their operation? Other important information to report includes the deadlines associated with, and financial resources available for, any such analysis. With that information, the panel could better advise CPRA on the most appropriate and practical socio-economic research strategy going forward.

The Panel also concludes that the SEA team should include in its report a discussion of the many reasons that community and economic change is difficult to predict 50 years into the future and consider the development scenarios to capture a range of possible futures. The accuracy of demographic and economic projections significantly declines with increasingly distant time horizons. Scenarios offer a straightforward, transparent and considerably less complex approach to examine

change and future potential impacts. Also, future socio-economic analyses could explore the ways in which policy could promote or inhibit social and economic adaptation to diversion outcomes.

4.0 RECOMMENDATIONS FOR 2015 AND FUTURE DECISION POINTS

The Panel recognizes that, given budget constraints and limitations in human capacity, it will be difficult or even impossible to explicitly address each of our 39 previous recommendations. Thus in our fourth report we synthesized a subset of the recommendations into three principal themes to better enable CPRA to address critical elements that needed to be developed or better articulated to the Panel and to the public. Much progress has been made: many of our recommendations have in fact been followed and there has been considerable progress in moving forward with technical studies to support sediment diversion planning. In particular, we think that the general conceptual model of the diversion planning process has been a very useful tool to communicate with public and CPRA partners. Many of the recommendations in our earlier reports were about monitoring and modeling of ecosystem impacts, and we appreciate the progress being made in addressing these concerns through the development of SWAMP, EwE, and CASM.

As CPRA now moves rapidly toward the *Fall 2015 Decision Point* to implement sediment diversion projects, we offer the following recommendations.

Recommendation 1:

Expand the post-2015 section of the current conceptual model of the sediment diversion planning process to provide greater detail on process linkages.

Recommendation 2:

Develop a public participation plan that features the use of an independent facilitator who can provide deeper, more confident stakeholder engagement and community participation, especially on early discussion of evolving post-construction operating plans.

Recommendation 3:

Establish a program for detailed peer review of the first set of technical reports on monitoring, modeling, and socio-economic analysis using subject-matter experts from outside CPRA.

These recommendations are in recurring themes that the Panel has focused on over the past year-and-a-half. They are highly relevant beyond 2015 and, if implemented, will enhance project clarity, technical rigor, stakeholder communications, and planning continuity.

Appendix 1:

ABOUT THE EXPERT PANEL ON DIVERSION PLANNING AND IMPLEMENTATION

The Expert Panel on Diversion Planning and Implementation was established to provide independent advice as plans for implementing sediment diversion projects along the Mississippi and Atchafalaya rivers that support coastal restoration are refined.

This independent panel is expected to meet approximately three times per year. It will identify critical scientific and technical uncertainties, suggest specific research to reduce uncertainty, and review and comment on technical reports, model outputs, and other aspects of project development. Given the issues surrounding the complexity of the design and operation of a major sediment diversion, the panel's recommendations will be in an adaptive management context. Meetings of the panel will be structured to ensure key input is received from a variety of local experts, stakeholders, and citizens. Panel reports will be presented at meetings of the CPRA Board.

The Expert Panel was formed at the request of CPRA, which is also funding the effort. The Water Institute of the Gulf provides staff and logistical support to the panel.

MEMBERS

Member	Affiliation	Expertise
Dr. John T. Wells	Virginia Institute of Marine Science (Panel Chair)	Deltaic Processes
Dr. Loretta Battaglia	Southern Illinois University	Restoration Ecology and Climate Change
Dr. Philip Berke	Texas A&M University	Urban Land Use and Environmental Planning
Dr. James Boyd	Resources for the Future	Economics and Environmental Policy
Dr. Linda Deegan	Marine Biological Laboratory	Fish Ecology, Biogeochemical Cycling and Nutrient Delivery
Dr. William Espey Jr	Espey Consultants Inc	Civil/Coastal Engineering and Water Resources
Dr. Liviu Giosan	Woods Hole Oceanographic Institution	Morphodynamics and Sedimentation
Dr. William Graf	University of South Carolina (Emeritus)	Rivers and Water Resources Management
Dr. Matt Kirwan	Virginia Institute of Marine Science	Coastal Landscapes and Sea Level Change
Dr. Tom Minello	NOAA Southeast Fisheries Science Center	Fisheries Ecology
Dr. Martha Sutula	Southern California Coastal Water Research Project Authority	Water Quality Management, Systems Ecology
Dr. John Teal	Woods Hole Oceanographic Institution (Emeritus)	Coastal Wetlands Ecology

Appendix 2: MEETING #5 AGENDA

August 4, 2015
Woodland Plantation
Belle Chase, LA

8:45	Welcome and Panel Introductions Review Agenda	Dr. John Wells (Panel Chair) Virginia Institute of Marine Science
9:00	Governor's Advisory Commission On Coastal Protection, Restoration and Conservation, Diversion Subcommittee	Ms. Karen Gautreaux The Nature Conservancy
9:15	Diversions Update	Mr. Bren Haase Coastal Protection and Restoration Authority
10:00	Break	
10:15	SWAMP: Barataria Pilot	Mr. Rick Raynie Coastal Protection and Restoration Authority
10:45	Modeling the Effects of Diversions On Land Building, Vegetation and Water Quality	Ms. Elizabeth Jarrell, CPRA Dr. Mead Allison, The Water Institute Dr. Melissa Baustian, The Water Institute Dr. Scott Duke-Sylvester, University of Louisiana Dr. Gary Brown, USACE ERDC
12:00	Framework for Basin-Wide Socio-Economic Analysis	Mr. Mitch Andrus, Royal Engineering Mr. Kirk Rhinehart, Royal Engineering Mr. Josef Hoffmann, Royal Engineering Mr. David Batker, Earth Economics Dr. Tania Briceno, Earth Economics
12:40	Public Comment Period	
1:00	Adjourn	Lunch for Panel and Presenters
2:00	Closed Session	Further modeling/use of results discussion

Appendix 3:

CHARGE FOR MEETING #5

- (1) Is the approach to using data and information from various sources, e.g., modeling, engineering, socio-economic assessments clear and appropriate for the current stage of sediment diversion planning and are the associated decision drivers leading to the Fall 2015 Decision Point (advancement to detailed engineering and design) appropriate? Is the methodology for project advancement in 2016 and beyond appropriate? Are there any key additional elements that should be considered during the next phase?
- (2) Does the approach to predicting the basin side effects of river diversions on sediment retention, wetland gain/loss, wetland type and water quality seem appropriate to support the types of decisions the State of Louisiana expects to make in the next few months? How does the approach used compare to current state of the art for decadal scale predictions of estuarine physical and ecological change?
- (3) What recommendations does the Panel have for further socio-economic analysis during the next stage of detailed engineering and design? What types of predictions of socio-economic effects are reasonable for 50 years following diversion operation?