

America's WETLAND Foundation

Summit Proceedings Report (Preliminary)

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Summit Proceedings Report

Executive Summary Outline

A. The loss of the Louisiana coast is a national problem that isn't only an environmental problem but a potential economic, social and cultural crisis. (working wetlands)

- The problem goes all the way up the Mississippi River, it is not just Louisiana.
- There is interdependency between nature, culture, and economy.
- Ecological, economic and social factors define Louisiana coastal erosion as a national problem.
- Restoration solution may seem costly now (\$14 billion) but inaction will be most costly.
- Consideration of the strategic petroleum reserve facilities located in coastal Louisiana.
- Harbors chemical plants, petrochemical plants, refineries and five of the nation's largest deepwater ports; 20% of nation's rice production; 37% of the nation's sugar production; 30% of the domestic oil supply.

B. Wetland Stewardship-Institutions need to work together in an interdisciplinary fashion to really link quality science and political will. (not a normal union but it must be achieved for an environmental problem of this magnitude.)

- What it means to them?
- Four Steps needed to happen.
- Standard definition of stewardship.
- Key groups that need to be involved for coastal restoration.
- Businesses realizing their participation -understanding what their role is.

C. Saving the coastal wetlands will also be saving the unique culture in Louisiana. Cultural conservation and environmental conservation go hand-in-hand. (living wetlands)

- Culture translates into commerce through the tourism industry.
- Eco-culture--Culture linked to the environment.
- Cultural loss is already happening. The environmental change associated with coastal erosion has forced many communities to relocate-losing cultural knowledge.
- The beginnings of eco-tourism and cultural tourism refer to the cultures that are tied intrinsically to the ecology of the region. Cultural tourism can support cultural preservation and help prevent land loss.

- Visitors come to Louisiana to see cultural practices that can be found nowhere else.

D. Coastal restoration offers opportunities in addition to its challenges.

- There is a correlation between conservation and economic growth and development. Enhances quality of life and attracts new businesses and visitors.
- Engagement of all stakeholders is important and the avoidance competing individual interests.
- Experiential tourism is a marriage of economic development and conservation that utilizes the natural, cultural and historical features of a region such as Louisiana's Great Gulf Coast Birding Trail. (or alligator farms, boat building, etc.)
- Opportunity to become a world model in coastal restoration efforts -- Building a new educational opportunity in Louisiana for training, etc.
- Sustainability is a key issue for the general management of a coastal restoration plan.

E. Without a solid and well-coordinated research community, any attempt to restore a system of this magnitude, in both size and complexity, would be a futile exercise.

- Each university must find the balance between pure research and applied research to ensure the practical problem solving capabilities are maximized.
- Must communicate the local issue to the broader scientific community to ensure nationwide knowledge of the local situation.
- National coastal science community that is aware of the large-scale efforts to address coastal erosion to create credibility and to result in more success in attaining funding.
- Interdisciplinary need. (social sciences, natural sciences, engineering, traditional knowledge present in communities, etc.)
- New educational need – only 30-35 years old.

America's WETLAND Science Summit

The Science summit was the first of the America's WETLAND summit series. It was timed to coincide with the Society of Wetland Scientists (SWS) 24th Annual Meeting in New Orleans. This meeting attracted an audience of over 700 wetland scientists, including 130 international participants. The America's WETLAND summit, entitled 'Wetland Stewardship: Changing Landscapes and Interdisciplinary Challenges,' was organized as the plenary session for the SWS meeting.

Introduction – Dr. Robert Twilley

- The basis of 'Wetland Stewardship' is the linkage of quality science and political will.
- To achieve 'Wetland Stewardship' there must be an ongoing dialogue between all the interest groups.

Louisiana Wetland Ecologist, Dr. Robert Twilley, co-chaired the entire SWS meeting and acted as moderator for the summit. In his opening remarks, Dr. Twilley outlined that the purpose of today's gathering was "to establish the notion and practice of wetland stewardship." According to Dr. Twilley, "institutions in coastal Louisiana bring diverse capabilities to the table related to understanding ecological landscapes and social and political boundaries. They need to work together in an interdisciplinary fashion to really link quality science and political will." This is the basis of wetland stewardship.

In working towards a solution for coastal erosion in Louisiana, and thereby implementing wetland stewardship, Dr. Twilley believes an important first step is in gatherings like this America's WETLAND summit. "When we come together like this, we must foster a discussion between different groups of interests to really link quality science with political will, because, if we do not find a way to build a dialogue and to engage the various parties that are actually responsible for connecting good science and political will then really we will not accomplish this thing called wetland stewardship."

Key note – John Barry

- To solve the problem that was created with the last solution (flood control) we will have to employ technical and political strategies.

Renowned author and historian, John Barry, was well suited to prepare the summit attendees for today's panel discussion by providing an analysis of the complex interplay of humans and nature in relation to the Mississippi River. His particular field of expertise, the 1927 flood, is a powerful vehicle to examine to social, scientific and political interactions that characterize the management of this phenomenal natural resource.

To set the scene for his discussion, Mr. Barry outlined the scale of the basin of the Mississippi River. The geographic importance of the river was demonstrated historically by its ability to generate revenue and facilitate development. Technological advancements have somewhat diminished the role of the river in this regard. Mr. Barry was sure to point out however that, “the rivers role is not simply historic. It continues to be central to American society, it continues to be the chief artery of the nation, it continues to influence the economic and demographic future of much of the country. How the country handles the issues that this meeting addresses will have a lot to say about that future.”

The ‘issues’ Mr Barry was referring to are the complex set of problems associated with coastal erosion in Louisiana. In relation to the flood control initiated after the 1927 flood he added that “we now need to solve the problem that was created with the last solution, and the issues are again technical and political.” This is why the interdisciplinary theme for this conference is so important.

In a final statement of support for the wetland stewardship concept, Mr. Barry said, “the technical solution to coastal erosion must be as close to perfect as is possible, otherwise the river will find the mistakes and exploit them. When settled on a technical solution, political consensus must be achieved – environmental, shipping, energy, agriculture interests must be in agreement for Washington to back a solution.”

Panel Discussion

- It is of critical importance to engage many academic and professional disciplines in an effort to best understand the complex solutions for this problem.
- There is a need for all stakeholders to put past differences aside and achieve unity behind a sound technical plan to restore the coast.
- Of critical importance to the sustainability of any restoration efforts is the acknowledgement of the interplay between environmental quality and economic development.

Dr. Robert Twilley was the moderator for the panel discussion about the notion of ‘Wetland Stewardship.’ Simply defined as the combination of good science and political will, ‘Wetland Stewardship’ encompasses federal, state, academic, private, and NGO institutions and requires that they become engaged in a dialogue about to how to achieve technical proficiency and political consensus in relation to coastal restoration.

This panel was in many ways a micro approach to 'Wetland Stewardship' with representatives from a diverse range of interest groups present. Dr. Twilley asked that each panelist start by explaining a little about what 'Wetland Stewardship' means to them and their organizations.

Jack Caldwell, Secretary of the Louisiana Department of Natural Resources, said that in relation to coastal restoration his agency has two broad goals in mind. Firstly, "to restore and maintain sustainable ecosystems in part to preserve the enormous value of these ecosystems", and secondly, "to try to protect the assets we have on the coast, particularly oil and gas infrastructure, transport infrastructure and coastal communities." He believes that the combination of good science and political will is inherent in the approach of DNR to these problems.

Recent improvements the state has made in its technical approach to restoration include the adoption of basin wide restoration programs paired with basin wide monitoring efforts. This approach replaced a system of separate, discrete, restoration projects that were monitored individually. The basin wide method allows for the adaptive management approach that is an important component of achieving political will. According to Mr. Caldwell, "this adaptive management is a large part of the states approach to wetland stewardship."

King Milling, President of Whitney National Bank, is a representative from the business sector of coastal Louisiana. Mr. Milling's commitment to coastal restoration in Louisiana is demonstrated by his appointment as Chair of the Governor's Advisory Committee on Coastal Erosion. Mr. Milling pointed out that the groups that need to come together to develop 'Wetland Stewardship' have traditionally often had an adversarial relationship. He believes that these groups must put past differences aside on this issue in acknowledgement of the unbelievable scale and phenomenal detrimental impacts associated with ongoing coastal erosion – "We need the contribution of all the groups. Everybody must come to the table with the recognition that there are a number of different reasons why this restoration effort might be undermined, but you have to look at the horrible conclusion if there is a failure to reach consensus."

As for the possible outcomes of such a consensus Mr. Milling offered, "there will be compromises, the solution may not make everybody happy. The alternative however is absolutely unacceptable which should make it far easier to reach such compromises."

James T.B. Tripp is a good example of the kind of stakeholder that is often on the opposing side of a conflict with other members of today's panel. As General Counsel for Environmental Defense, Mr. Tripp has taken direct action against the companies that utilize Louisiana's coastal wetlands as a business arena. But he, like the previous panelists, agrees that the type and urgency of this environmental problem calls for an unconventional union of interest groups in

order to achieve the necessary political will. “The environmental community and the energy industry must be partners as one part of creating the political will. This is not a normal union, but it must be achieved for an environmental problem of this magnitude.”

In talking to the technical needs of ‘Wetland Stewardship’ Mr. Tripp added, that “for stewardship to be done right we need to have a concept of ecological restoration. We should put together a plan that does as best possible, replicate natural processes. This is how to restore in a way that serves both the ecological and economic needs.”

Stacy Methvin is President of the Shell Oil Company. Her company is a major player in one of the dominant industries in the Louisiana coastal area. It is essential to involve industry in the ‘Wetland Stewardship’ process not only for the direct threat coastal erosion poses to their ability to do business and protect their infrastructure, but also because of their importance to the regional economy in their role as a major employer. A large part of political will will come from industry support.

Ms. Methvin commented that the standard definition of stewardship reads; careful and responsible management of something entrusted to ones care. In recognition of the changing corporate attitudes to the environment and local communities, Ms. Methvin commented, “its not good enough to just be profitable in this world, we have to be able to have sustainable development through partnering with communities and helping to leave areas better off than we found them.” In relation to technical expertise housed within companies such as the Shell Pipeline Company Ms. Methvin added, “we must realize that we have been part of the problem and that we can be part of the solution. Our industry is very interested in working with scientists to be part of the technical solutions, but we also want to work with the communities to work for an acceptable solution in the future.”

The Nature Conservancy is active in coastal Louisiana and brings to these discussions a track record that demonstrates the ability to get results through consensus. According to the Louisiana office’s Executive Director, Keith Ouchley, the process of ‘Wetland Stewardship’ can be broken into four steps. Perhaps most important is the first step, the establishment of priorities. Mr. Ouchley believes “you must have all the players involved in setting the priorities, not just industry and politicians.” This is an essential first step towards building political will, identified as such an important component of success on this issue. The second step of designing strategies to address these priorities will largely be the work of academics and professionals. The third and fourth steps respectively are the implementation of the technical strategies and the monitoring of the projects to facilitate adaptive management. According to Mr. Ouchley, “if you can go around the wheel and keep all the interested parties involved then you are acting as a wetland steward.”

William Jenkins is the President of the Louisiana State University System and this panels representative for the voice of academia. It has already been established that the university community, particularly the research community, will play a key role in developing the technical capabilities to address coastal erosion. By prioritizing this problem, Louisiana researchers can “add to the body of knowledge about the scale and dynamics of the problem over time.” In making this point, Dr. Jenkins is acknowledging the reality of living in the deltaic plain of the Mississippi River, and that there will always be a need for solid technical knowledge related to the best strategies for living in such a dynamic environment.

It is also important for the university community to improve on their ability to communicate horizontally within their institutions, otherwise known as interdisciplinary collaboration. Dr. Jenkins stated that “to practice wetland stewardship we need to utilize the entire cross section of university academic resources.” Dr. Jenkins also noted that in order to ensure the political will is achieved there needs to be public understanding of the issue, “universities have a key role to play in ensuring that the population understands the magnitude and processes of this coastal erosion problem.”

Today’s panel was in general agreement about the model of ‘Wetland Stewardship’ and its importance as a vehicle to achieve the restoration of Louisiana’s coast. Key points reiterated by various members of the panel included the importance of engaging many disciplines in understanding the complex solutions for this problem, the need to put past differences aside and achieve unity behind a sound technical plan to restore the coast, and to acknowledge the interplay of environmental quality and economic development.

America's WETLAND Sports & Recreation Summit

Bruce Shupp, BASS,
National Conservation Director

- Coastal erosion is America's most serious ecological crisis, but it is not only an environmental problem, but a social and cultural crisis.
- The scope and magnitude of this issue extends beyond the borders of Louisiana
- Nonetheless, there is a way to fix the problem

Dean Kessel, BASS,
V. P. and General Manager

The BASS Vice President and General Manager Dean Kessel eagerly devoted the 2003 classic conservation part to promote the **America's Wetlands** Campaign on behalf of the organization's half million members. The largest sport fishing event in the world offered an appropriate arena to highlight the coastal crisis. Erosion threatens the 50 billion dollar a year industry of sport fishing, and that is just one part of the economy, culture, and society that is now at risk.

In the face of such danger, Mr. Kessel offers resolve: "I want to assure everyone in this room, especially people from Louisiana that Bass will be an ally in this campaign to do our part in the **America's Wetlands** Cause."

Opening Address –

Governor's Chief of Staff – Andy Kopplin

- **America's Wetlands** are "working wetlands" that the nation depends upon for its energy needs.
- Louisiana coastal erosion is a national problem, which requires federal participation.
- The holdup on federal involvements reflects an inequity between Louisiana and other states.

Chief of Staff Andy Kopplin thanked BASS for the attention they are granting to the issue. Erosion translates into something very real for fishermen – the loss of concrete fishing spots. However, the reality of the problem extends beyond the concerns of anglers: oil and gas, commercial fisheries, migratory bird habitat, and hurricane protection are all jeopardized by the disappearance of **America's Wetlands**. Addressing this calamity compels a national initiative, which requires the education of the public regarding the details of both the problem and the solution.

Mr. Kopplin enumerated proactive efforts already underway within the state. The Louisiana government proposed three constitutional amendments to lay the groundwork for the restoration plan. This action reveals how citizens of Louisiana have taken responsibility to fix the problem. But, the loss of the Louisiana coast is a national problem; and the nation to embrace the challenge. In light of the immense revenues obtained by the federal government through OCS activity off the Louisiana coast, national participation is only fair and reasonable in order to assure the protection of that infrastructure. In his words, "It is a working wetlands...we recognize that America needs energy and we are willing to do our part. But, a half percent is insufficient to maintain the infrastructure that supports the oil and gas industry."

If this problem was happening to the West coast or the East coast, "they would be fixing the problem instead of talking about," the chief of staff maintains. Because Louisiana is not a large state or major media market, it does not command the same attention. Nonetheless, the problem is fixable if people stand together.

Keynote – How can the Delta be Saved

Robert Twilley, Director, Center for Ecology and Environmental Technology, and Professor, Department of Biology, University of Louisiana, Lafayette

- Ecological processes must be understood from a national scale, not a local scale
- Land loss and subsidence form part of the natural process, but losses are offset by new sediment deposits and plant structure under natural condition.
- Human interventions, including levees construction, oil and gas, agriculture, and timber extraction, obstruct the replenishment component of the natural cycle.
- "We are a working coast." Wetlands generate an indirect value by protecting the infrastructure, highways, and pipelines.
- "Pure restoration is to put the system back to where it was. This is not possible."
- "Rehabilitation" incorporates an objective to transform a degrading system to one that can provide benefits society.
- Science must devise a new strategy to include prediction as well as explanation.

Debate on the erosion question stems from a misunderstanding of the ecological processes. Therefore, Dr. Twilley presented a conceptual framework with the goal of bridging the gap between science and users. The science of the natural processes constitutes a starting point, and, ultimately, the public must be convinced that science and technology can solve the problem.

The first concept introduced by Dr. Twilley was the delta ecosystem because “you have to understand the magnitude of the system to understand the magnitude of the problem.” For example, an examination into the physical and ecological processes reveals that the problem goes all the way up the Mississippi River—it is not just Louisiana. Dr. Twilley proceeded to outline the dynamic interactions between the river and the delta: “This is the cycle: it’s the river and the cycle of the river; the movement of the river across the coast that has given this landscape the reasons that is sportsman’s paradise. It’s the river that built the landscape.” Land loss and subsidence form part of the natural process, but losses are offset by new sediment deposits and plant structure under natural condition. It compensates for the sinking.

Twilley considered Deltas from a global perspective. Deltas have attracted human activity over history across the globe because of their resources for agriculture, navigation, and fisheries. Humans try to control the river with levee systems, which is effective and necessary for population development and human use. Levees are very effective at protecting economic enterprises. In the case Louisiana, additional interventions have produced the landscape. These include included oil and gas activity and their associated canals, the conversion of wetlands for agriculture, and timber extraction. Human actions affect the natural processes: The deltaic plain subsides, and it is not *replenished*. Thus, the coast now loses from 20 – 25 square miles per year.

The relation between humans and the ecosystem are conceptualized as a feedback loop. The public depends upon the ecological processes for “good and services”, which connects culture and economy to natural process. Between them, there is a feedback: the use of resources affects the nature of those sources, which, then, affects the possible uses. In other words, “We are a working coast.” The national economy depends on the goods and services produced from these wetlands.

The interdependency between nature, culture, and economy presents implications regarding the possibility of restoration. “Pure restoration” Twilley argues, “is to put the system back to where it was. This is not possible.” Instead, he proposes the concept of “rehabilitation.” Rehabilitation incorporates an objective to transform a degrading system to one that can provide benefits society by using “the exact science to replace and recessitate the system and, at the same time, complement and sustain all economic activity of the coast.”

This ambition may be validated from a perspective of economic rationality. Twilley presents the concept of *natural resource capital* to do this. Natural resource capital is the material out there in the landscape that we depend on each day: the plants, the animals, then mud, and the water. It provides the goods and services connected to the economic system. There is direct value connected to the flow of money, and there is indirect value. The wetlands that

protect the infrastructure, highways, and pipelines have to be replaced and money spent to provide these goods and services. From an economic standpoint, restoration may be conceptualized as “money that goes down into natural resource capital to bring back the goods and services that these systems provided.” In other words, “restoration money is money well spent.”

Dr. Twilley then moved to elucidate the role of science in restoration. He recommended three possible goal for the next fifty years: (1) reduce loss by ½ (2) maintain the landscape as it is (3) add land. Such aspirations demand to development of specific strategies and engenders new requirements for scientific practice—a movement from explanation to *prediction*. While prediction will always rests upon probabilities, the Louisiana scientific community is more competent than any to address the challenge as related to coastal matters.

Finally, the speaker described a concrete strategy that illustrates an application of scientific understanding of natural process with knowledge of the human dependencies upon the local ecological services. The technique of pulsing at fresh water diversion projects release water in short interval to mimics natural flooding. Furthermore, the timing for these releases occurs in conjunction with human use patterns so as to minimize disturbances. By considering the feedback loop along with the “exact science” of natural process, the strategy of pulsing accommodates ecosystem needs as well as economic needs.

In close, Twilley offered these words: “There should be no expectation that we are going to put this system back the way it was. We cannot do that. But, we can find a balance to protect our natural resources.”

Val Marmillion

- Several generations have enjoyed the management of river resources and now it is future generations are going to pay the cost. How do we get the payback started?

Panel Discussion

Denise Reed –

Randy Hutchinson –

Mike Bourgeois

Sidney Coffee -

- Media message needs to give attention to the solution as well as the problem.
- Ecological and economic factors define Louisiana coastal erosion as a national problem.
- Restoration will stimulate new scientific development and the state of Louisiana will be a leader in this progress.
- All panelists agreed that restoration includes both scientific and social obstacles. It will be a serious challenge.

The panel opened with an evaluation of the **America's Wetland Campaign**. Denise Reed stressed the need to incorporate the complexities of the problem in the national message and not to underestimate the public's ability to grasp the scientific intricacies. The national message must also be honest regarding the difficulty in the restoration task. Randy Hutchinson suggested that the media dedicate more attention to the solution by offering more specific details. Rehabilitation is a long-term commitment and, as such, can be usefully compared to the Mississippi River and Tributaries Project. As the river must be managed, ultimately, forever, so restoration necessitates continuous intervention. Sidney Coffee emphasized how the national public must grapple with the meaning of the coast with respect to the nation as a whole, which is most evident through energy and economic security. Mike Bourgeois evaluated media coverage as "overwhelmingly positive" and reminded the panel that it was unrealistic to expect no negative press. Mr. Bourgeois also added that partnerships will play an important role in restoration, including professional, volunteers, government and private actors.

The panel also reflected upon the relationship between the nation and the coastal crisis. This issue reappeared when questions were fielded from the audience. All panelists agreed that Louisiana coastal erosion constitutes a national problem, not a state or even a regional problem because of both economic and ecological factors. Denise Reed notes how the system extends from the entire Mississippi River basin into the Gulf of Mexico. Nonetheless the public connections with the coast become evident through particular points of contact, such as fishing. Sidney Coffee mentioned that "different things will touch different people." Some may enjoy the song birds in the back yards, which migrate through Louisiana. Others may be affected through seafood industry, but "it's all connected." Randy reiterated the national character of erosion through consideration of economic ties. The Midwest relies upon the Louisiana coast through the ports, which exports its commodities. The Northeast depends upon Louisiana for its supply of natural gas for heating. There are both ecological and economic connections. Mike Bourgeois remarks that the nation's strategic oil reserves – the first line of defense – reside in south Louisiana.

Another topic scrutinized by the panel examined the contribution Louisiana restoration could make to restoration science in general. According to Sidney Coffee, "Louisiana science is going to be held as a model for the nation and the world." In fact, international dialogues have already begun. Randy Hutchison suggested that experience gained since the Breaux Act allows scientists and engineers to begin "asking the right questions." Denise Reed assured everyone that "we have brought the best science there is to bear on this problem" and insisted that practice must continue through out the process.

The panel concluded with a deliberation of some obstacles the successful implementation of restoration program. No panelist denied the challenges and complications inherent in such a bold endeavor. Denise Reed cautioned people to be clear regarding what they do not know. Randy Hutchinson saw some hurdles in conflict between economic activity and restoration. The Louisiana coast is over 80% privately owned, and the displacement of resources upsets the private interest.

Closing Remarks

Berwick Duval,
Governor's Commission on Coastal Restoration

- Louisiana coastal erosion engenders both individual and community tragedies.
- However, erosion is a national problem: "This delicate ecosystem is a national treasure—its America's wetlands."
- The challenge demands cooperation between business, industry and conservation groups.
- The state possesses a "brain trust" regarding the scientific and technical expertise for restoration.
- All Americans have a "moral obligation" to stop this unfolding ecological and economic disaster.

Burt Duval recounted his personal experience growing up in Terrebonne Parish, "ground-zero" in the erosion struggle. Burt fondly remembered the time he spent at a fishing camp owned by his father, which was swallowed by the Gulf of Mexico. His father saw the erosion back then, but nobody recognized the importance of wetlands at the time.

After recalling his personal experiences, Mr. Duval shared the hardships of Louisianans living in Point-au-Charles. These residents are losing more than camps: they are losing their homes. This Native American community has inhabited that area for hundreds of years. It can longer be protected from floods, and officials have told them leave. Mr. Duval does not believe such tragedies are tolerated by the federal government outside Louisiana. Victims from forests fires in the West receive assistance, but Louisianans are left exposed.

The discussion then shifted from the social impacts of erosion to the economic consequences. "As our infrastructure becomes uninsurable, our economy will dry up and die," he explains. Although fisheries appear health for the moment, they will be destroyed in the long term. Erosion is a national problem: "This delicate ecosystem is a national treasure—its **America's Wetlands.**" The \$14 billion restoration solution may seem costly, but not when compared to the price of inaction that may reach up to \$100 billion. In addition to funding, the challenge demands cooperation between business, industry and conservation groups, such as Bass Masters.

Mr. Duval outlines the favorable conditions and obstructions to the restoration initiative in Louisiana. The state possesses a “brain trust” regarding the scientific and technical expertise, and from this expertise, the comprehensive Coast 2050 plan has already been accomplished. On the other hand, Louisiana lacks the political clout and the wealth of other states like Florida.

In conclusion, the speaker states that “the complex system of land and marsh is a physical barrier protecting billions of dollars of investment and infrastructure.” All Americans have a “moral obligation” to stop this unfolding ecological and economic disaster.

America's WETLAND Community and Culture Summit Lake Charles, Louisiana

Welcome

The Honorable Randy Roach, Mayor, City of Lake Charles

- Louisiana's coastal wetlands reflect the 'heart and soul' of the State.
- Many visitors travel to south Louisiana to experience first hand the lifestyle.
- When we speak of preserving the land we are also speaking of preserving the culture.

Lake Charles Mayor Randy Roach enthusiastically greeted the diverse gathering of local, state and federal legislators as well as the coastal experts from a broad suite of natural and social sciences and business interests. His compliments to the leaders present for their proactive record on combating coastal erosion in Louisiana were tempered with the message that much is still yet to be done. To focus the thoughts of all present at the summit, Mayor Roach stated that;

"We need to reflect upon the influence that the coastal wetlands have on the personality, or the heart and soul, of Louisiana".

This statement got right to the heart of the purpose for today's gathering, to work towards an understanding of the impact of coastal erosion on the rich network of communities in south Louisiana, and to include cultural resources in the inventory of threatened features of the landscape.

Quoting out of state sources, Mayor Roach went on talk about what is recognized as the "mystic charm" of cajun culture. Characterized by swamps, bayous, Acadian cottages, marshes, food – etouffees, gumbos and many other natural and cultural symbols, the cultural riches of Cajun culture are very appealing to outside visitors who travel specifically to south Louisiana to experience first hand the lifestyle here. The area recognized as "Cajun Country" is the same area we are talking about in terms of Coastal erosion. Therefore when we speak of preserving the land we also speak of preserving the culture.

"This is the very heart and soul of Louisiana", Mayor Roach declared when referring to the swamps and marsh surrounding the Cajun communities. "What we are really talking about is people. We are talking about saving the coastal wetlands of Louisiana, we are talking about saving the heart and soul of our state. The food, the music and the people make us a unique and special place".

While highlighting the rich cultural capital of the region, it was acknowledged that the real challenge ahead is the estimated \$14 billion restoration project. To achieve this goal there needs to be unity among the areas leaders and a common understanding of what stands to be lost in the face of inactivity.

Opening Comments

The Honorable Mary Landrieu, U.S. Senate, Louisiana

Senator Mary Landrieu spoke briefly to introduce Mayor Ray Nagin's keynote address. As one of coastal Louisiana's representatives on the federal level the Senator again stressed the need for effective leadership at all levels to succeed in this mission, noting that, "This is Louisiana's moment" partly because, "the leadership is more focused".

In promoting the character of coastal Louisiana Senator Landrieu explained that "we're a working coast, we are not trying to build a wilderness environment but a coast where people can enjoy themselves and make a living for themselves". To stress the urgency of the issue Senator Landrieu repeated that, "if we don't do something, what we see and have today will be lost".

Keynote Address

The Honorable C. Ray Nagin, Mayor, City of New Orleans

- In New Orleans culture translates into commerce through the rapidly expanding tourism industry.
- There is potential for significant growth in this industry through increased cruise ship traffic.
- The scenario of a hurricane hitting New Orleans today is devastating beyond belief partly due to coastal erosion.
- A destroyed New Orleans will cripple the state's economy and have a massive impact on the national economy.

Mayor Ray Nagin of the City of New Orleans represents the largest urban center in the coastal region and the state. His investigations as mayor have enabled him to better understand just how important the economy of New Orleans is to the state of Louisiana and to the nation.

"From an economic perspective, New Orleans is one of the key components to keep the state going forward, primarily because of its culture". In New Orleans culture translates into commerce through the rapidly expanding tourism industry; "It seems as though people just love coming to our state and to the city of New Orleans, they love our oysters on half shell, our boudin and our zydeco, they stay up all night in our jazz clubs. Everybody has a great time."

Mayor Nagin focused on the potential for significant growth of the massive cruise ship industry whose patrons that board ships in New Orleans often capitalize on the boarding location and spend 2 to 4 days in New Orleans as part of their vacation. This extra cultural based tourism business accounts for significant income for the city.

This introduction that showed how culture and economics interact in the regions primary revenue generating location served as a kind of rationale for investing in coastal restoration. Mayor Nagin announced; “I’m here to talk you about a very serious issue and that is Coastal Erosion. This is an issue that should have been on the front burner many, many years ago.”

The Mayor went on to outline the scenario when a large hurricane is on a path that will take it up the mouth of the Mississippi River and towards a direct hit with New Orleans. The logistics of an evacuation effort prevent the mayor from evacuating half of the citizens without personal transport, even in a best-case scenario. The loss of life would be catastrophic. But the mayor also went on to outline the associated costs of shutting the city down for as much as two to three months to restore habitable conditions. These costs were not going to be the burden of only residents of the city, but the state and the nation would feel the economic impact of such a disaster.

“I can’t imagine the state of Louisiana without the city of New Orleans.”

Also, because of the loss of wetlands and barrier islands south of the city, New Orleans was increasingly vulnerable to smaller storms. Costly evacuation procedures will be occurring with increasing frequency as these smaller storms that were previously diminished by the marsh barrier will now proceed uninterrupted towards the city. The Mayor’s declaration that, “there is not a more important cultural and economic state and city in this country than New Orleans and the state of Louisiana” further reinforced his belief as to the necessity for federally funded mobilization of a large-scale coastal restoration effort.

Plenary Session – “Our Communities Cannot Disappear”

Panelists:

Phil Dixon, Claims Team Manager, State Farm Insurance

Berwick Duval, Attorney at Law, Member, Governor’s Advisory Commission on Coastal Restoration and Conservation

Ted Falgout, Executive Director, Greater Lafourche Port Commission

Sean Fontenot, Division Chief, Plans, Training and Exercise Division, Louisiana Office of Homeland Security/Emergency Preparedness

Moderator:

Valsin A. Marmillion, President, Pacific Visions Communications, Consultant to the **America’s WETLAND** Campaign

- Communities and towns will be lost as a result of coastal erosion.
- Insurance companies are moving out of the area due to the financial risks of insuring in this landscape, this often causes the forced relocation of business and communities.
- There are many good reasons why this is national problem, including the reliance of the nation on this area to meet the demands for oil and gas.
- Erosion is like a 'silent aggressor' and hurricanes are a 'weapon of mass destruction' but the government is unwilling to take action against this enemy force.

Val Marmillion started the discussion by posing the question, "Is it a stretch to say that the communities and towns will be lost?" For a day devoted to discussing community and culture within coastal Louisiana it was a necessary consideration. The panel unanimously agreed that this situation is a definite possibility. Berwick Duval was sure to point out that hurricanes are not the only direct threat to communities when he stated that the residents of Isle de Jean Charles in Terrebonne Parish had already been told to leave their homes because the land could no longer support them. 'As the crow flies' this community is only 20 miles from Houma and 60 miles from New Orleans.

One of the reasons that people may have to migrate north toward higher ground is their inability to qualify for insurance policies. Phil Dixon from State Farm insurance spoke of the range of conditions present in coastal Louisiana – from hurricane threat to subsidence and land loss – that make insurance a difficult business in the region. A majority of the insurance companies that were providing services to the region 10 and 15 years ago have stopped doing business in the area. State Farm, he added, have not returned a profit in the region in the 13 years he has worked with the company. When people cannot insure their homes and their businesses it becomes very difficult to justify living in an area and many people face having to relocate their livelihoods to areas where they can qualify for insurance. Even now, insurance premiums are significantly cheaper north of I-10 highway. While State Farm maintains its commitment to the region for now, Phil Dixon did acknowledge that if the current trend in land loss in the area continues, insurance companies would eventually have to cease doing business in the area. This would be catastrophic for the network of small and large businesses in the area whose asset base is valued at somewhere near \$30 billion.

The core issue for the insurance industry is property damage, and with the loss of so much of the natural hurricane protection once afforded by coastal marsh, smaller storms are causing more damage than significantly larger storms caused only 40 years ago. Berwick Duval recalled personal experiences with Hurricane Betsy in 1965; "Betsy was a category 3 hurricane and that didn't flood Houma, but today small storms are flooding these areas". Ted Falgout highlighted the recent closure of LA Highway 1 due to tropical storm Bill only 2 months previous.

This small storm would not have come close to disrupting traffic in the area 10 years ago.

Val Marmillion asked the panel to consider why someone from a northern state should care about this regional disruption. The “So What?” question as he put it had some strong answers. Port Fourchon handles 13% of the nations foreign oil supply as well as supporting the Gulf of Mexico domestic supply (which provides 30% of the nations domestic oil). If a hurricane were to hit the decaying marsh today it would destroy the network of pipes that transport oil inland. Such an event would cause not only a local environmental disaster, but oil prices would rise around the nation as this significant component of the countries total oil supply would be unable to reach the marketplace. This does not even take into account the cost to rebuild the pipeline network.

The panel noted that the federal government is willing to spend large amounts of money on protecting America’s oil supply in the middle-east while being so inactive in protecting the oil infrastructure in their own country. Erosion was being compared to an enemy attack, a silent aggressor, and hurricanes as ‘weapons of mass destruction’. This analogy, although causing smiles and laughter, had a serious undertone - that the protection of coastal Louisiana needed to be taken seriously by our government. The economic justification for federal action, which includes consideration of strategic petroleum reserve facilities located in coastal Louisiana, is inseparable from the issue of sustainability for the areas communities and culture.

***Plenary Session* “Don’t Be A Big Loser – Louisiana Culture at a Crossroads”**

Panelists:

Barry Ancelet, Ph.D., Department Head, Department of Modern Languages, University of Louisiana at Lafayette

Joan Exnicios, Senior Archaeologist/Cultural Resources Manager, U.S. Army Corps of Engineers

Robert Gramling, Ph.D., Department Head, Department of Sociology and Anthropology, University of Louisiana at Lafayette

Norman Marmillion, President, LAURA: A Creole Plantation

Phyllis Mayo, Executive Director, Atchafalaya Trace Commission and Heritage Area, Louisiana Department of Culture, Recreation & Tourism

Moderator:

Sidney Coffee, Public Affairs Director, Office of the Governor/
Coastal Activities

- The culture of South Louisiana is inextricably linked to the environment.
- Cultural knowledge is linked to place. When the landscape is lost, part of the landscape is lost.
- Tourists come to see the culture and the local culture has been developed in response to the local environment.
- Tourism is big business in south Louisiana with an estimated 25 million visitors coming to the area in 2003.

In convening the second panel discussion for this Community and Culture conference, moderator Sidney Coffee stated that this group of distinguished scholars and professionals would look beneath the surface of the stereotypes and discuss the deeper issues associated with southern Louisiana culture. The potential loss of the region's culture is not just a disaster for the state it is truly a disaster for the nation.

Barry Ancelet initiated the discussion with a reference to the concept of Eco-culturalism, which refers to cultures that are indigenous to a particular environment. The culture of south Louisiana is inextricably linked to the environment – the landscape, the ecology, the seasons etc. In making this statement a number of the panelists felt the need to articulate that the “culture” that exists in this region is not just the “Cajun” or “Creole” that is commonly referred to, it is in fact a blend of the diverse range of people that settled the entire region over the last 400 years – the Acadians, the French Creoles, the African Creoles, the Isleno's, the Yugoslavians, the Americans and more – and the Native Americans that inhabited the region prior to European settlement. The cultural fusion that occurred between these groups happened “in this environment because of this environment, because of the context they were in”.

Robert Gramling added to the eco-culturalism discussion when he stated that, “cultural knowledge is linked to place, when the landscape is lost, part of the culture is lost”. This comment referred in part to the daily work practices that rely on the environment such as shrimping and fishing, but it also acknowledges place specific cultural knowledge such as distinct linguistic features or environmental signals for the start of various planting seasons. Joan Exnicious agreed; “We are so closely tied to the environment that when we lose it, we lose our culture”. The fact the landscape and culture are inseparable in this region adds significant weight to the need for large scale coastal restoration.

To balance the focus of the previous panel discussion, this panel felt it necessary to point out that while major disasters such as hurricanes pose an obvious threat to cultural survival, the slow ongoing process of cultural loss is already happening. The incremental environmental change associated with coastal erosion has already forced many communities to relocate further inland. When people move out of a place where their knowledge is rooted, that knowledge is

lost. And the reasons for moving vary, from inhospitable living conditions to the inability to continue to make a living.

Phyllis Mayo and Norman Marmillion represent the industry that capitalizes on the cultural riches of the region. Tourism is big business in south Louisiana with the region hosting an estimated 25 million visitors in 2003. This represents \$9 billion coming into the area. Both panelists emphasized that visitors come to the region to experience culture; “They come to see the culture that has been our response to our environment”.

In reflecting on what action to take in the face of ‘cultural erosion’ the panel agreed on the importance of documenting everything we can now, from regional language variants through to ecological knowledge. Joan Exnicious referred to the success of the WPA projects of the 1930’s in documenting the culture of the time and how it preserved valuable knowledge. It was also strongly advised that the coastal restoration efforts that are eventually instituted must not inadvertently trample the people and culture as they rush to save the environment.

“It’s All in the Science”

Secretary Jack Caldwell, Louisiana Department of Natural Resources

Washington Update

Mark Menezes, Chief Counsel for Energy and the Environment, U.S. House Committee on Energy and Commerce

“Resolution to Save America’s WETLAND”

The Honorable Randy Roach, Mayor, City of Lake Charles

America's WETLAND Eco-Eco Summit Baton Rouge, LA

Introduction:

- Summit investigates the impact of the ecology on the economy of the state, nation and world.
- Purpose of summits – “Designed to create the important record of ideas of how we face Louisiana’s most challenging moment and to find answers that will impact the future of our state, nation, and world and perhaps, most importantly, our future generations of Louisianans.”

Introduction of the Governor

Bruce March, Baton Rouge Refinery Manager, Exxon Mobil Refinery

Bruce March affirmed Exxon Mobil’s commitment for “giving back in the communities we work and live.” Exxon Mobil proudly sponsors the America’s Wetlands Campaign to invest in the future of Louisiana, for its future has “national significance and world wide economic repercussions.” The company seeks to promote dialogue on the “importance of sustainability and conservation as they pertain to the goals of economic growth.” The **America’s Wetlands** Campaign represents a large public initiative where state, industry and conservations have come together.

Opening Remarks

The Honorable M. J. “Mike” Foster, Governor, State of Louisiana

- **America’s Wetlands** are “absolutely worth saving just as an ecological treasure.”
- The nation must “pay now or pay latter because, really and truly, we will pay as this coast disappears.”
- The coastal crisis has created a “renaissance” in civic participation, especially on the part of business.

Governor Mike Foster possesses a deep passion regarding the wetlands of the Louisiana coast. These wetlands contain a source of immense environmental and aesthetic value: “I think about the wetlands that I am so familiar with and spent so much time in, and it is absolutely worth saving just as an ecological treasure—the eagles...and the pelicans. For that reason alone, it should be saved.” But, the governor congratulates the participants of the summit to ponder the economic implications of the coast as well. The commercial fishing, oil and gas, navigation, and recreation are all sustained by the same wetlands that house so many plant and animal species.

For the Governor, the choice of restoration is clear. The nation must “pay now or pay latter because, really and truly, we will pay as this coast disappears.” The economic risks present two options: “we can save the coast, do a wonderful

thing, and spend the same amount of money; or we can sit here, tread water, and go down the tubes and loose it.”

The Governor concludes with some comments of the role of the business community in the civic life in Louisiana. The coastal crisis has led the “business community [to] become interested in the responsibilities of government.” In response to erosion, “the big oil companies are coming around.” Gov Foster anticipated a new “renaissance” in civic participation when the “business community understands what government has to do, has to do with them too.”

Setting the Context

King Milling, President, Whitney National Bank

- “Louisiana confronts an ecological crisis as well as an economic crisis for our culture, our commerce and our population.”
- From 1932 to 2000, Louisiana lost over 1,900 square miles of land, which equals the area of Delaware. Forecasting predicts that another 700 square miles, the size of the greater metropolitan area of Washing DC and Baltimore combined, will be lost by 2050. Louisiana undergoes 90% of the total marsh loss in the continental United State.
- King Milling identified the channelization of the river as the “root cause” for coastal erosion.
- In the restoration effort, the “adversarial interests” of ecology and economy have merged to establish “a new paradigm.”
- The Louisiana coast has always been a “working ecosystem”, which has “spoiled” the nation and state with its productivity. “It is the heart of Louisiana’s economic activity.”
- Billion of dollars in south Louisiana make **America’s Wetlands** a “vital ecological and economic engine.”

After celebrating the progress made in the restoration effort, King Milling laid out the dangers of the coastal crisis. The loss of coastline exacerbates the damage of future storms. “Clearly, Louisiana confronts an ecological crisis as well as an economic crisis for our culture, our commerce and our population.”

The audience viewed the US Geological Survey film from the National Wetland Resource Center entitled *Louisiana Coastal Land Loss Complex Simulation: 1932 to 2050*. From 1932 to 2000, Louisiana lost over 1,900 square miles of land, which equals the area of Delaware. The Southwest portion of the state experience 25% of the loss. The other 75 % occurred in the Southeastern part of the state. Forecasting predicts that another 700 square miles, the size of the greater metropolitan area of Washing DC and Baltimore combined, will be lost by 2050. Louisiana undergoes 90% of the total marsh loss in the continental United State, and this region is an area of economic and recreational opportunity.

King Milling referred to this catastrophe as a “virtual implosion of the 7th largest delta on earth.” State of the art science and engineering can reverse the 25-35 square mile yearly loss rate. A concerted effort can “develop and build a sustainable system...if we attack the root cause of the problem.” Milling explained, “It’s the river, stupid.” The channelization of the Mississippi River and its tributaries is the “proximate cause” because the construction of the levees “created unintended consequences.” The channelization of the river transformed the delta into “a system that allows our ecosystem to vanish as it literally starves to death.” The process is “almost like a cancer.”

Confronting the “cancer” commands a list of comprehensive engineering projects that will reintroduce the river in a controlled fashion. In this project the “adversarial interests” of ecology and economy have merged to establish “a new paradigm.” The unprecedented cooperation evolved from the “complexity of what is South Louisiana.” The unique nature and history of “this fragile ecosystem has been Louisiana’s salvation over the many years.” The landscape of South Louisiana does not and never has formed a “classically pristine” ecosystem. The Louisiana coast has been a “working ecosystem”, which has “spoiled” the nation and state with its productivity.

The demise of an environmental area twice the size of the Everglades is unacceptable. Milling argued that “it is a national treasure.” Consisting of 30% of the nation’s coastal marsh and 45% of the inter-tidal marsh, “it is truly America’s Wetlands.” The environmental system possesses international importance.

However, the Louisiana coast is more than an ecosystem. “We live in it. We work in it. It is the heart of Louisiana’s economic activity.” The “foundation of our livelihood” benefits everyone in both the state and the nation. On the working coast, oil and gas platforms have been fabricated for delivery across the world and ship vessels of every size have been constructed. It harbors countless chemical plants, petrochemical plants, refineries, and five of the nation’s largest deepwater ports. It shelters 20% of the nation’s rice production and 37% of the sugar production. The wetlands offer a physical barrier that protects this entire infrastructure valued in the billions.

The infrastructure in Louisiana delivers 27% of the nation’s oil and 32% of the natural gas. This infrastructure includes thousands of oil and gas platforms, wellheads, holding tanks, valve systems, and the nation’s strategic oil reserves. The coast also contains thousands of miles of pipelines. Milling asserted that “every facility and mile of pipe was build predicated upon the inherent protection of that ecosystem.” In light of these conditions, the president of Whitney Bank postulated that erosion may not only increase the price of these commodities but threaten their availability.

Milling also testified to the plight of the coastal communities. The beauty alone is worth the effort, but the micro and macro economic issues make action

imperative. The potential damage to “this vital ecological and economic engine” is beyond dispute. “We must establish a sustainable coastal ecosystem, the consequences of inaction, regardless of your point of view, are unacceptable.”

Keynote Address

“America’s WETLAND: Energy Corridor for the Nation”

Jack Caldwell, Secretary, Louisiana Department of Natural Resources

- “The Louisiana coast is truly America’s energy corridor.”
- Coastal erosion is a threat to the nation’s energy security.
- Polling and focus group evidence demonstrate both state and national concern for the problem.

The secretary focused upon the oil and gas contribution from the “working coast.” “The Louisiana coast is truly America’s energy corridor,” he explained. These “working wetlands” are not pristine and will continue to work for the state and nation as a seafood producer, a “gateway” for shipping, a recreation area, a bird migration route, and an oil and gas center. The story of Port Fouchon, which delivers 16% of the nation’s oil and gas, exemplifies the vulnerability presented to energy security. Highway 1, the lifeline to the port, is now rendered impassable from the slightest storm. The 24,000 mile network of pipelines is becoming a major hazard. Erosion leads to the exposure of pipes, which can be struck by passing boats

Secretary Caldwell reviewed the significance of oil and gas to the state of Louisiana. The industry provides over 300,000 jobs, generates 92 billion in economic impacts, and pays a billion in state taxes. The Louisiana Offshore Oil Port (LOOP) is the nation’s only oil facility capable of unloading oil from super tankers. It transfers over one million barrels of oil per day.

The secretary appraised previous restoration initiatives over the last fifteen years. Previous work employed a small-scale strategy. The comprehensive plan of Coast 2050 called for a move to long-term regional projects. The cost of large-scale restoration projects should be interpreted in comparison to other federal programs, such as the Everglades restoration or the “Big Dig” in Boston. Focus groups in Philadelphia revealed the public saw the cost of restoration as reasonable. In Louisiana, scientific polling documents a broad public awareness of the erosion problem and public support for the restoration solution.

Plenary Session “Ground Zero or Zero Ground: Building Consensus on the Economic Threat”

Panelists

Raymond Butler, Executive Director, Gulf Intra-Coastal Canal Association

Ted Falgout, Executive Director, Greater Lafourche Port Commission

Channing Hayden, President and CEO, Steamship Association of Louisiana

Mark Schexnayder, Coastal Advisor for Fisheries, Louisiana Sea Grant Extension

Peter Smith, Senior Vice President and Manager Environmental and Engineering, Waldemar S. Nelson & Co., Inc.

Moderator

Rex Caffey, Ph.D., Associate Professor, Department of Agriculture Economics, Louisiana State University Agricultural Center

- The disappearance of **America's Wetlands** threatens all economic activity in the coast.
- Federal OCS revenue sharing constitutes a major inequity for Louisiana that contributes to the erosion problem: "We are really the oil pump for much of the United States, and they are going to have to help sustain the infrastructure."
- Erosion represents a security threat to the nation and should be treated as such.

This panel explored the suspected economic impacts erosion. The panelists cited recent industry trends in key coastal industries, including commercial fisheries, ports and navigation, and oil and gas. The economist [name] opened by reviewing a report that quantified impact scenarios in 12 economic sectors. A 4-6 disruption in production will cost 2 billion in the oil and gas sector alone. Mark Schelstien explained that the short-term effects of erosion on shrimping are actually positive, but long-term effects will be disastrous. The steamship rep (Tennon) emphasized the importance of bulk cargo—grains, petroleum, and ores—in port commerce. Over 50% of the nation's grain exports travel through Louisiana ports. Ports confront strong national and international competition, making the upkeep of infrastructure essential. Tennon commented, "If we are going to be competitive in the world market, we have to do the things we need to do to compete. One of those is to maintain the infrastructure." Barge man identified the degradation of roads as the greatest threat to barge transportation. Port Fouchon Man (Ted) characterized Port Fouchon as the "poster child of infrastructure at risk." Deepwater oil and gas production has increased by 500% since 1996 off the continental shelf. This level of productivity will continue for the next 30 years and will rely upon the Louisiana coast.

Panelist then turned to the controversy of Off the Continental Shelf (OCS) revenue sharing. Ted put the matter in these terms: "It is hard to talk about your culture washing away in face of the huge inequity in federal revenue sharing." In 2001 the Federal Government received 5 billion in taxes from OCS activity off the

Louisiana coast. Currently, there is no mechanism to share these funds. Louisiana received ½ of 1 percent of these revenues. Tennon added: “Everybody gets the benefits of the oil that comes offshore, but nobody wants to pay for it. We are really the oil pump for much of the United States, and they are going to have to help sustain the infrastructure.” Barge Boy proposed a possible funding mechanism modeled after the Inland Waterway Industry Trust Fund, which supports inland navigation structures.

The moderator directed the panel to question the significance of coastal erosion in the post 9-11 political context. The slogan “pay now or pay latter” re-emerged. Several panelists expressed a position that erosion constitutes a security threat to the nation and should be treated as such.

In conclusion, the panel addressed the topic of restoration priorities. Several panelists affirmed the importance of education and infrastructure protection. Tenen recommend a search for “synergies” between navigation and environment. For example, restoration practices could actually reduce the cost of maintaining navigation. Slestien mentioned the importance of compensations and highlighted “pulsing” as a solid model.

Plenary Session “Losing Louisiana – Culture and Economy: A Crystal Ball Forecast of State Without a Coast”

Panelists

Joan Exnicios, Senior Archaeologist/Cultural Resources Manager, U.S. Army Corps of Engineers

Jim Richardson, Ph.D., Professor, Department of Economics, E. J. Ourso College Of Business Administration

Moderator:

Valsin A. Marmillion, President, Pacific Visions Communications, Consultant to the **America's WETLAND** Campaign

- The culture and diversity of south Louisiana makes it a unique place
- Louisiana stands to loss an entire “way of life.”
- Businesses will be force to embark on expensive relocations, but not all Louisiana assets can be replaced.
- South Louisiana is not just a "working wetlands" but a “living wetlands” that supports the life of several communities.

Val Marmillion posed the question dealing with the meaning of Louisiana’s culture for the economy. Joan emphasized the uniqueness of the south Louisiana culture, which is based upon its “gumbo” of ethnic diversity. All these ethic groups – Acadian, African, Pilipino, Chinese, Vietnamese, Yugoslav, and

Sicilian – were tied together through the food provided by the wetlands. The uniqueness, the specialness of the Louisiana culture would be a tragic loss. Jim Richardson stressed the population and the economy. “You can not sell a \$14 billion restoration on shrimp and oysters. Oil and gas is a different story.”

Mr. Marmillion directed the panelists to consider what will be lost if erosion continues unabated. Joan argued that “a way of life” is at stake. Already, one hundred communities have disappeared in the coast. Settlement patterns are shifting with people relocating to northern areas in the parishes. Along with this practice, old traditions are lost. Mr. Richardson reflected on loss from the perspective of individual business owners. He suggested that insurance companies will, first, increase their premiums, and, then, abandon the area completely. Businesses will follow “ending up with an area that still may have land but, for all practical purposes, is a liability.” Overtime, businesses will find substitutes to Louisiana although it may cost them more. Some of the goods from south Louisiana cannot be replaced, such as the fur trade and the alligator.

Reflecting on the experience of Port-au-Isle-Charles (this is not right obviously), Joan admitted that “there is going to be a price. We cannot protect everything.” She continued, “This is not only a working wetlands, but also a *living wetlands*.” Mr. Richardson returned to the interest of business. In order to attract business to the state, investments have to be protected.

Turning to the future, Mr. Richardson communicated hope. “People will be successful and we will have a chance to grow and prosper.” Furthermore, he promoted a shift in economic thinking away from the short-term to the long-term, as much as fifty years. Joan returned to the communities, promoting the expansion of the “working wetlands” to a “living wetlands.” Additionally, here must be cooperation between all levels of governments.

Closing Session “Rising to the Challenge: Economics of Conservation and Opportunities to Accompany Restoration & Sustainability”

Panelists

Tony Franchina, Legislative and Regulatory Affairs, Shell Pipeline Company

Don Hutchinson, Secretary, Louisiana Department of Economic Development

Richard Martin, Director of Conservation Programs/Associate State Director, The Nature Conservancy of Louisiana

Robert Tannen, Urban Planner, Creative Industry

Moderator:

Sidney Coffee, Public Affairs Director, Office of the Governor/
Coastal Activities

- The coastal crisis offers opportunities in addition to its challenges.
- Restoration and state incentives could enhance the quality of life through conservation and through the acquisition of public lands.
- The restoration process need to assure the participation and continued support of all stakeholders.
- The involvement of universities is essential.
- Restoration could become a Louisiana business that may be exported to other parts of the world.
- Louisiana leadership must send a consistent message regarding its value of wetlands.

Moderator Sidney Coffee requested the panelists to “think outside the box” and generate ideas of how the coastal crisis may bring opportunities to the state of Louisiana. All panelists expressed agreement that opportunities are present along with the problem. Sec. Hutchinson argued that a “\$14 billion infusion of capital cannot be a problem.” The infusion of capital will mean job opportunities in addition to the preservation. Mr. Mathews highlighted the potential for business spin offs, such as the growing \$40 billion industry of eco-tourism. Mr. Tannan encourage the implementation of incentives to concentrate new develop in the I-10 corridor and avoid the production of new risk and added that restored wetlands possess greater economic value. Mr. Mathews picked up the idea of incentives advocating land trust as a win-win means for the state to relieve the burden of land owners and match federal funds.

Ms. Coffee solicited the panelists’ views on tensions between conservation and economic growth. The secretary responded, “In this case, conservation means economic development.” Mr. Mathews pointed out that conservation enhances the quality of life, which draws business in. Mr. Tannan expounded upon the quality of life issue. Louisiana possesses a limited quantity of public land and parks, which could be expanded in restoration.

The rep from Shell Pipeline offered a definition for sustainability: “We should be accountable for our decisions in the conducting of business activities. And, we should conduct them in a way without jeopardizing the ability of future generations to meet their needs later.” Sustainability includes three components: (1) Include economic and social concerns with economic (2) Engage all the stake-holders (3) Balance the short-term with the long-term. **America’s Wetlands** represents Shell’s primary sustainability project.

The panel considered how to avoid a division between “winners and losers” with restoration projects. Several panelists noted the significance of process. Mr. Mathews introduced the importance of “optimizing the values of the coast” by finding the areas where objectives overlap. Also, the process must be inclusive to allow for the creation of trust. Shell Tony emphasized the engagement of stakeholders and devising procedures to avoid competing individual interests.

Mr. Tannan affirmed system strategies over the piecemeal restoration to insulate restoration from political favors. Sidney summed it all up with a quote from King Milling: "We may not please all, but we know what we will loose."

The panel turned to the role of technology and universities. Mr. Tannan called attention to the leadership role universities can play in restoration by incorporating restoration into curriculums and designing products and strategies. Several panelists insisted that if Louisiana developed technologies and models to solve this problem, that state could export its solution to other areas of the world. Mr. Tannan remarked that the role of universities need not be restricted to engineering but should also investigate the nontechnical remedies.

On the question of stakeholder participation, Shell Tony outlined the challenge. First, stakeholder must be included in the process. Second, their participation has to be sustained, which requires that the feel they have a voice and can contribute. Both Shell Oil and Exxon Mobil have assumed leadership positions in the oil and gas community to encourage greater participation.

The panel concluded with some comments on leadership. Mr. Tannan and Mr. Mathews agreed that the state must send a consistent message regarding its commitment to wetlands. State leaders must minimize new projects that will only introduce new problems. For example, the extension of I-49 will stimulate new development in an already volatile area.

Report of the Coastal Louisiana Technical Summit
America's WETLAND
Campaign to Save Coastal Louisiana
October 16-17, 2003

A. Background –The Louisiana Wetland Challenge

Coastal Louisiana is one of the world's most significant wetland areas. It has lost over 900,000 acres since the 1930s. As recently as the 1970s, the loss rate for Louisiana's coastal wetlands was as high as 25,600 acres per year. The current rate of loss is about 16,000 acres per year. It is estimated that coastal Louisiana will experience a 320,000-acre net loss by the year 2050. The cumulative effect of human activities in the coastal area has been to drastically tilt the natural balance from the net land building deltaic processes to land loss due to altered hydrology, subsidence, and erosion. Approximately 30 percent of the land losses being experienced in coastal Louisiana are due to natural causes. The remaining 70 percent are attributable to human effect on the environment, both direct and indirect.

The Louisiana coastal plain remains the largest expanse of coastal wetlands in the contiguous United States. The coastal wetlands, built by the deltaic processes of the Mississippi River, contain an extraordinary diversity of estuarine habitats that range from narrow natural levee and beach ridges to expanses of forested swamps and fresh, brackish, and saline marshes. Taken as a whole, the unique interplay of habitats, with their hydrological connections to each other, upland areas, the Gulf of Mexico, and migratory routes of birds, fish, and other species, combine to place the coastal wetlands of Louisiana among the Nation's most productive and important natural assets. In human terms, these coastal wetlands have historically been a culturally diverse center for social development.

The coastal wetlands protect an internationally significant commercial-industrial complex from the destructive forces of storm-driven waves and tides. This complex includes deep-draft ports that handle the Nation's waterborne commerce and the most active segment of the Nation's Intracoastal Waterway and that have an annual commercial and natural security impact valued at more than \$15 billion. ***America's WETLAND*** indicates "More than 25% of all oil and gas consumed in this nation comes across Louisiana's shore by tanker, barge or pipeline. It is from this area that distribution of energy for the entire eastern U.S. begins. As the protective wetlands and barrier islands disappear, oil and gas infrastructure along the coast becomes exposed to open Gulf conditions. Wells, pipelines, ports, roads and levees that are key to energy delivery become more vulnerable and the potential for damaging oil spills increases." (<http://www.americaswetland.com>) Louisiana's coast is at the end of the Central and Mississippi flyways, and nearly 70 percent of the waterfowl migrating along these flyways winter on the Louisiana coast. Coastal Louisiana also provides

critical stopover habitat for neotropical migratory songbirds, as well as other avian species. Coastal Louisiana also provides critical nesting habitat for many species of water birds such as the brown pelican. These economic and habitat values, which depend on the biological productivity of Louisiana's coastal wetlands, merit national attention.

Louisiana's coastal wetlands were built up by Mississippi River floodwaters depositing enormous volumes of sediment and nutrients on the continental shelf at its mouth. These sediments were eroded from the lands of the vast Mississippi River basin in the interior of North America. For the last several thousand years, the dominance of the land building or deltaic processes resulted in a net increase of more than 4 million acres of coastal wetlands. In addition, there was the creation of an extensive skeleton of higher natural levee ridges along the past and present Mississippi River channels, distributaries, and bayous in the deltaic plain and beach ridges of the chenier deltaic plain. The landscape this produced gave rise to one of the most productive ecosystems on earth. Only the most intensively managed agricultural systems that are artificially subsidized by large inputs of energy and fertilizer could possibly rival the ability of these estuarine wetlands to convert sunlight and carbon dioxide into biomass.

Today, most of the Mississippi River's freshwater with its nutrients and sediments are channeled out to the deep waters of the Gulf of Mexico, bypassing the coastal wetlands where they would otherwise naturally build land and nourish the estuarine ecosystems. Deprived of the sediments provided by the deltaic processes, the estuarine wetlands continue to sink, or subside, as they have always done, but without the net land building effect of the unconstrained natural deltaic processes. Deprived of the natural sustenance provided by the nutrients available in the intermittently flooded zone in which they are adapted to live, the plants that define the surface of the coastal wetlands die off. Once the coastal wetlands are denuded, the fragile substrate is left exposed to - and unprotected from - the erosive tidal environment.

In 1990, passage of the Coastal Wetland Planning, Protection Restoration Act (CWPPRA), provided authorization and funding for a multi-agency task force to begin actions to curtail wetland losses. In 1998, after extensive studies and construction of a number of coastal restoration projects accomplished under CWPPRA, the State of Louisiana and the Federal agencies charged with restoring and protecting the remainder of Louisiana's valuable coastal wetlands adopted a new coastal restoration plan in 1998. The underlying principles of the new plan, "Coast 2050: Toward a Sustainable Coastal Louisiana," known as the Coast 2050 Plan, are to restore and/or mimic the natural processes that built and maintained coastal Louisiana. This necessitates basin-scale action to restore more natural hydrology and sediment introduction processes. The plan subdivides Louisiana's coastal zone into four regions with nine hydrologic basins. The plan proposes ecosystem restoration strategies that would result in efforts larger in scale than any that have been implemented in the past.

The Coast 2050 Plan report served as the basis for the federal government to seek Water Resources Development Act (WRDA) approval of a comprehensive plan and authorization of major projects beyond what was being pursued under CWPPRA. In 2000, it was envisioned that a series of feasibility reports would be prepared over a 10-year period. The first feasibility efforts focused on the Barataria basin and involved Marsh Creation and Barrier Shoreline Restoration. However, early in fiscal year (FY) 2002, it was recognized that a more in-depth comprehensive study was needed that could be used early on to present to Congress a Comprehensive Plan that could be submitted to Congress for a "Programmatic Approval." As a result, the Louisiana Coastal Area (LCA) Comprehensive Coastwide Ecosystem Restoration Study was initiated. Subsequent to authorization, detailed studies would be completed on features of the Comprehensive Plan. As envisioned, these studies result in project implementation reports (PIR). PIRs would be in detail, sufficient to prepare plans and specifications to implement the proposed projects (Louisiana Coastal Area (LCA) Louisiana Comprehensive Coastwide Ecosystem Restoration Study Home Page. <http://www.lca.gov/>)

B. The Technical Summit - Learning from Others

The State of Louisiana is working to raise public awareness of the impact of Louisiana's wetland loss on the State, Nation, and world and is seeking to develop support for efforts to save coastal Louisiana. In August 2002, the State launched a three-year public education campaign, ***America's WETLAND***, designed to "... establish the values and significance of this vast world ecological region and...highlight the pending economic and energy security threat posed to our nation by its destruction."

As part of its efforts, ***America's WETLAND*** is sponsoring a series of seven 'summits' on various topics to bring together experts to discuss the State's and the federal government's plans for coastal restoration and the programs designed to manage the implementation of these plans and programs (<http://www.americaswetland.com/index.cfm>). Each summit is focused on identifying problem areas and recommending possible solutions. In August 2003, ***America's WETLAND*** sponsored its fourth Summit, Community & Culture to address threats to the culture of communities whose existence is threatened by wetland loss. In order to take advantage of the experience of scientists and engineers in carrying out restoration projects, ***America's WETLAND*** commissioned the American Society of Civil Engineers (ASCE) to convene the fifth Summit in New Orleans, Louisiana, on 16 and 17 October 2003. ASCE, in May 2003, had adopted Policy 498, Louisiana Coastal Restoration, to support the national and State efforts to deal with the coastal challenge.

C. Organization of the Summit

Organization

America's WETLAND asked ASCE to develop the agenda for and oversee the conduct of a technical summit that would bring together distinguished engineers and scientists with experience in restoration or similar activities to "create a record of current thinking on challenges presented by coastal land loss." ASCE appointed a select committee of experts representing three of its institutes - Coastal, Oceans, Ports, and Rivers Institute; Environmental and Water Resources Institute; and the Geotechnical Institute (Appendix A). The Committee members were selected for their broad technical and/or management experience related to restoration projects or other large, complex efforts requiring the melding of science and engineering most often at the interagency level. The committee was charged to develop the summit agenda, identify those who should participate, guide the conduct of the summit, and oversee the preparation of a report on the summit. Mr. James R. Hanchey, Assistant Secretary, Louisiana Department of Natural Resources, chaired the Committee.

Theme Areas

As indicated above, the purpose of the Summit was not to discuss specific restoration techniques but to foster discussion of key issues facing the scientific and engineering communities. The summit focused on the three theme areas: adaptive management, sustainable programs and sustainable development, and the marriage of engineering and science. Adaptive management was to include the concept of iterative planning. Sustainability would include the political, social, economic, technical, cultural, and environmental aspects of ensuring program viability over time, and the marriage of science and engineering would include discussion of ecological engineering as well as hydrology, geology, biology and chemistry.

Adaptive Management

Adaptive management has been defined as a structured process of "learning by doing" that involves much more than simply better ecological monitoring and response to unexpected management impacts...[it should] begin with a concerted effort to integrate existing interdisciplinary experience and scientific information into dynamic models that attempt to make predictions about the impacts of alternative policies." (Walters, C. 1997. Challenges in adaptive management of riparian and coastal ecosystems. *Conservation Ecology* [online]1(2):1 <http://www.consecol.org/vol1/iss2/art1.>) C.S. Holing, considered by many to be the father of adaptive management, and his colleagues at the University of Florida, indicate that, "Adaptive management seeks to aggressively use management intervention as a tool to strategically probe the functioning of an ecosystem. Interventions are designed to test key hypotheses about the functioning of the ecosystem. This approach is very different from a typical management approach of 'informed trial-and-error' which uses the best available

knowledge to generate a risk-averse, 'best guess' management strategy, which is then changed as new information modifies the 'best guess'. Adaptive management identifies uncertainties, and then establishes methodologies to test hypotheses concerning those uncertainties. It uses management as a tool not only to change the system, but as a tool to learn about the system. It is concerned with the need to learn and the cost of ignorance, while traditional management is focused on the need to preserve and the cost of knowledge...The achievement of these objectives requires an open management process which seeks to include past, present and future stakeholders. Adaptive management needs to at least maintain political openness, but usually it needs to create it. Consequently, adaptive management must be a social as well as scientific process. It must focus on the development of new institutions and institutional strategies just as much as it must focus upon scientific hypotheses and experimental frameworks.”
(<http://nersp.nerdc.ufl.edu/~arm/research/adaptiveMngmt.html>).

Adaptive management is in use today in the Everglades restoration, in management of the Columbia, Missouri, and Colorado Rivers and is being planned for use in the Upper Mississippi River ecological restoration program.

Sustainability

There are several meanings to 'sustainability.' Program sustainability deals with those actions that influence a program to fail or to continue. It implies that political, social, and economic actions can be taken to ensure the viability/continuation of a program over time. Resource sustainability implies that there are limits on the extent humans can use or modify a natural resource before significantly compromising the resource's value for future years or generations.

Program sustainability is a relatively new concept, tied most often to health program maintenance. In the context of restoration projects, it implies taking those actions necessary to ensure that a program, once started, will not be derailed by the absence of the resources need to continue it or because it comes to lack the political or social support of its goals and objectives.

The most widely used definition of resource sustainability was given in the context of sustainable development in 1987 when a United Nations Commission called for *a form of sustainable development which meets the needs of the present without compromising the ability of future generations to meet their own needs*. Brian Richter, Director of the Sustainable Waters Initiative at the Nature Conservancy, indicates that "...managing for sustainability implies LIMITS to the degree to which humans can appropriate or modify a resource before compromising its value in future years or generations." Both approaches require careful analysis of the impacts of program actions on future use of the resources

involved so that these resources will not be depleted or damaged to a point that they would not be available in the future.

The summit examined both types of sustainability although the majority of the discussion was focused on program sustainability.

Engineering and Science

Coast 2050: Toward a Sustainable Coastal Louisiana indicates that ...”developments in restoration technology are required if the Coast 2050 Plan is to move forward...managing natural flows and directing sediment to areas of need means manipulating a major river system on an unprecedented scale. The engineering design of structures, channels and gates must advance to facilitate the control of the river’s resources to meet the ecosystem needs...The effectiveness of [new] measures in different physical and ecological settings should be determined and the information disseminated to all involved in restoration work.” Engineering and science in the 21st century will involve use of measures that represent a blend of structural and non-structural approaches. Opportunities to use natural processes as part of project development are growing. Bioengineering is already in use for slope stability, protection against traffic noise and pollution control. This marriage of engineering and science will require increased and continuous cooperation between engineers and scientists. Coastal restoration will deal not only with the coastal areas but will also require modifications to existing Mississippi River programs to accommodate such work as freshwater diversions.

Experience with restoration activities in other regions points out the need for engineering and science – both natural science and social science – to work together to solve the complex issues faced in restoration efforts.

Conduct of the Summit (Agenda: Appendix B)

On the morning October 15, summit attendees were given the opportunity to tour a restoration project south of New Orleans. During the opening session that afternoon, experts from within Louisiana reported on the history of the issues surrounding the loss of wetlands in Southern Louisiana and the ongoing challenges facing the State. Senior federal officials, including the Assistant Secretary of the Army (Civil Works), the Assistant Administrator for Water, US Environmental Protection Agency, and the US Army Chief of Engineers, provided a national perspective on wetland restoration and related federal programs. (List of Speakers: Appendix C)

The sessions on October 16 were moderated workshops with extensive attendee participation. In an initial plenary session experts briefed the attendees on five current restoration programs (the CALFED (San Francisco) Bay Area restoration project, the Everglades restoration in Southern Florida, the multi-state

Chesapeake Bay restoration program and the restoration and maintenance programs in the Venice Lagoon, Italy and coastal maintenance of shore protection and coastal areas in the Netherlands. These programs are large in scope and involve significant public participation. Following the plenary session, attendees were asked to participate in breakout sessions reviewing the experiences of the just briefed restoration programs (Venice and the Netherlands were combined into one international session). During the breakout sessions, attendees addressed the applicability of lessons learned in the other programs to the work in Coastal Louisiana and developed agreement on experiences that might be transferred to the Louisiana program. The summit attendees reassembled for a final plenary session during which the results of the breakout sessions were used as a basis for identification of the most important findings within each of the three theme areas. The summit concluded with a conference summary.

Participants

The 94 Summit participants represented a broad array of disciplines and backgrounds and came from 13 states and two foreign countries. Attendees included representatives of five federal agencies, state and local government officials, the academic community, non-governmental organizations, consultants private businesses, and landowners.

D. The Case Studies and What They Represented

Each of the case studies presented in the Summit represented years of experience in dealing with political, engineering, and scientific challenges similar to those facing coastal Louisiana. Presenters focused on identifying lessons learned that might be transferable to the Louisiana environment.

CALFED

According to the State of California, "... the San Francisco Bay/Sacramento-San Joaquin Delta Estuary is the largest estuary on the West Coast of the United States. It includes over 738,000 acres in five counties. The tributaries, sloughs, and islands support over 750 plant and animal species... the bay-delta, its tributaries, and watershed are critical to California's economy, supplying drinking water for two-thirds of Californians and irrigation water for over 7,000,000 acres of the most highly productive agricultural land in the world. It also supports 80 percent of the State's commercial salmon fisheries...The bay-delta is the hub of California's two largest water distribution systems ...It also provides the conveyance of floodwaters from most of the rivers in the Central Valley." (http://calwater.ca.gov/AboutCalfed/adobe_pdf/Booklet_DeltaAct.pdf)

The state is faced with conflicts over the use of the water, and the maintenance of its quality and the subsequent impact on the environment. The CALFED Bay-Delta Program was established “to develop and implement a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta System.” It represents an amalgam of more than 20 State and federal agencies working together with local communities to coordinate planning for and of implementation actions needed to “improve water supplies in California and the health of the San Francisco Bay-Sacramento/San Joaquin River Delta watershed.” (<http://calwater.ca.gov/AboutCalfed/AnnualReport2002/AnnualReport2002IntroductionOverview.pdf>)

Everglades

According to those planning its restoration, the Everglades is an ecosystem in peril. Water systems have been disrupted and the region faces significant water quality challenges. “Once it was a vast, free-flowing river of grass extending from the Kissimmee chain of lakes to Florida Bay. Wading and migratory birds were so prolific they darkened the skies. Panthers, manatees and deer were abundant...in the 1800s, ...primitive canals were dug to begin draining south Florida. These changes continued throughout the 20th century, as more than 1,700 miles of canals and levees vastly changed the landscape, interrupting the Everglades' natural sheetflow and sending valuable freshwater to sea. More than half the Everglades wetlands were lost to development [as the population in Southern Florida skyrocketed.] In 1948,[after a devastating flood, the US Congress authorized] a massive project to provide essential flood protection and water management to south Florida ...While the Central and Southern Florida Project allowed the region's rapid growth, it worsened the Everglades' problems.”

To respond to the situation, the federal government, in partnership with the State of Florida and local organizations has developed the Comprehensive Everglades Restoration Plan that spells out how the \$7.8 billion 20 year Everglades restoration program will “capture freshwater destined for sea ...and direct it back to the ecosystem to revitalize it [and]...improve water supplies for people and farms.” (http://www.evergladesplan.org/about/why_restore.cfm).

Chesapeake Bay

The Chesapeake Bay Program Office reports that the Bay is “... the largest estuary in the United States and one of the most productive in the world, ... this nation's first estuary targeted for restoration and protection. In the late 1970s, scientific and estuarine research on the Bay pinpointed three areas requiring immediate attention: nutrient over-enrichment, dwindling underwater Bay grasses and toxic pollution. Once the initial research was completed, the Bay Program evolved as the means to restore this exceptionally valuable resource. Since its inception in 1983, the Bay Program's highest priority has been the restoration of

the Bay's living resources- its finfish, shellfish, Bay grasses, and other aquatic life and wildlife.”

The program is a partnership led by a Chesapeake Bay Executive Council whose members are the governors of Maryland, Virginia, and Pennsylvania; the mayor of the District of Columbia; the administrator of the U.S. Environmental Protection Agency and the chair of the Chesapeake Bay Commission. In 2000, the partners signed a new agreement that will guide the next decade of restoration and protection efforts throughout the Bay watershed. The agreement commits to protecting and restoring living resources, vital habitats, and water quality of the Bay and its watershed. (<http://www.chesapeakebay.net/overview.htm>)

Venice and the Netherlands

The Netherlands

Water management has been a matter of survival in the Netherlands for over 750 years. The Dutch coast is made up of dunes, dikes, and water barriers that provide the low-lying areas of the country with a natural defense against the erosive forces of the North Sea and the English Channel. NetCoast reports that “Dunes are an important feature in the coastal landscape, extending along approximately three-quarters of the coastline and varying in width between less than 100 metres and several kilometers and are constantly moving under the influence of natural forces, advancing in one place and receding in another...Current Dutch policy with regard to coastal protection is to accept a certain amount of erosion in some areas and so far as possible to work with nature and accommodate it, rather than resist it by building engineering structures... It is considered prudent...to give nature a free hand in these areas and to do nothing so long as the islands continue to exist as a whole. In 1990, the Dutch government adopted a new coastal defence policy to the effect that the coastline would in future be held in the position it occupied in early 1990. This policy of dynamic preservation of the 1990 coastline means that dikes remain strong and in place, while maximum freedom is allowed for natural processes and considerable shoreline movement is tolerated in the beach flats ...where there are no significant resources or assets.” (http://www.netcoast.nl/info/process/erosion_case.htm)

Venice

The Venice Lagoon has been used by humans for centuries for living, commercial fishing, hunting, transport and protection from enemies. To avoid filling up of the lagoon with river sediments, in medieval times the principal rivers flowing into the Lagoon were diverted from the Lagoon. The well-protected lagoon zone provided the site for a large port and industrial area, but created severe environmental problems. Modern habitat restoration measures for salt marshes and tidal mudflats of the Lagoon are now underway and another effort is

being conducted to protect the lagoon from the high water from the Adriatic Sea. According to a panel of experts, “Venice is continuously exposed to the threat of high water. Over the last 300 years, the sea level in Venice has risen by about 50 centimeters relative to the land. The historic city is frequently flooded, which threatens the integrity of the buildings, causes inconvenience to the population, and is a disincentive for economic development. It is highly probable that relative sea level will continue to rise by an additional 10 to 20 centimeters over the next 50 years...” (http://www.ramsar.org/mtg_venice_2003.htm) (http://130.37.129.100/english/o_o/instituten/IVM/research/fb_venice.htm)

E. Findings of the Summit – Parsing the Case Studies

The considerable discussion among participants, first in breakout sessions and then in the facilitated plenary session, resulted in the identification of lessons learned and approaches used in other programs that merited consideration in moving ahead with Louisiana coastal restoration. These ‘findings’ are listed below and separated into items that cut across the entire program, those that fall into the three theme areas and their sub-themes, and comments on a technical issue that was surfaced by several participants.

General

1. The first step in restoration of the Louisiana coast must be the establishment of clear, broadly supportable, and publicly acceptable goals for the restoration program. These goals must recognize that the coast cannot be restored to some fixed previous state, that the task of restoring and maintaining the coast will be never ending, and that the plans for restoration must change over time.
2. In dealing with restoration activities, program leaders must recognize that they are dealing with natural forces whose actions cannot be completely predicted or controlled. Those formulating restoration plans need to recognize the difference between those mechanisms they can influence and those they cannot. The timing, magnitude, and consequences of natural events such as floods and hurricanes over long periods can be predicted, but in the short-term, they must be treated as random events and probability distributions where anything can happen.
3. Ecosystem restoration as a science is in its infancy. The larger the scale of the restoration, the less is known about how restoration efforts will work on the ecosystem as a whole. It is essential that those dealing with restoration projects appreciate the uncertainty involved in restoration. As work progresses, the uncertainties will be reduced but never eliminated. Promises of specific success represent opportunities to disappoint those who support restoration. Predictions must be guarded.

4. While there are still scientific unknowns concerning the ecosystem of the Louisiana coast and the Mississippi River, considerable data and information have been gathered over the last two centuries and are available for use. Complete knowledge of river and the coast will never be achieved. The amount of data and information that has been gathered is sufficient to proceed. Lack of information or data should not be used as a reason to delay work.
5. For restoration activities to be successful, the program must find leaders who are passionately committed to the task and prepared to remain engaged in the work for the long-term. These individuals must be responsible for maintaining program momentum.
6. While support may initially be strong for restoration, continuous effort must be placed on maintaining this support over time.

Adaptive Management

“The Committee does not expect rigid adherence to the Plan as it was submitted to Congress. This result would be inconsistent with the adaptive assessment principles in the [Everglades restoration] Plan...Instead the Committee expects that the agencies.... will seek continuous improvements of the Plan based on new information, improved modeling, new technology and changed circumstances.” Senate Committee on Environment and Public Works July 27, 2000

7. As indicated in the above quote concerning the Everglades Restoration Project, it is expected that plans for complex ecological restoration programs will change as new information is gained. Adaptive management, as described in the earlier section, is widely recognized as the appropriate paradigm for the development and execution of such program and is being employed by federal and state agencies across the Nation. It provides for planning in the face of uncertainty, the situation found in coastal Louisiana.
8. Adaptive management, as a process, is new and not well understood by many who are responsible for its funding and its support. Both the public and government leaders need to be educated on the need for and the value of adaptive management and why the results obtained and the savings that result from use of adaptive management justify the costs of such programs.

9. To be successful, adaptive management requires the development of clear program goals and objectives. These goals and objectives provide direction for the establishment of 'experiments' that will test the effectiveness of program elements in achieving the desired goals and objectives.
10. The adaptive management program must not focus solely on experimentation and assessment but must produce tangible results in order to maintain stakeholder support. It is important to understand that some decisions will have to be based on incomplete, but best available science.
11. Adaptive management is founded on stakeholder involvement. Participation by a broad array of parties is critical to the success of the process. Adaptive management vests with stakeholders some decision-making (e.g. goal setting) and as a result can come into conflict with established roles and responsibilities of governmental agencies. It is critical that the program management structure clearly defines responsibilities for adaptive management so that, going in, participants understand their roles and responsibilities.
12. Adaptive management requires full acceptance of the process by all participating agencies and stakeholders. This will require education of participants about adaptive management. When there are changes in leadership, the new leaders must be prepared to move into an established and ongoing process and understand the problems that would occur were they to make arbitrary changes in the process.
13. Adaptive Management requires a significant investment in monitoring, data collection, and assessment. It is impossible to understand if progress is being made without first understanding the baseline conditions and then monitoring these conditions to identify changes and trends.
14. Adaptive Management requires periodic evaluations of progress, revisions of objectives, reexamination of goals, and adjustment of targets to react to the results of the experiments that have been conducted. These changes should not be seen as flaws in the management process but rather as adjustments needed to retain focus on the goals and objectives. Evaluations must be scheduled on a regular basis so as not to confuse the public and decision makers with what could be perceived as ephemeral or subjective management decisions.
15. Monitoring, data collection, and assessment are expensive and must be carefully planned to avoid wasted effort in unnecessary collection of data. Monitoring, data collection, and assessment programs of participating groups should be complimentary not duplicative. While it will be

impossible to monitor all conditions all the time, it is critical that some conditions be monitored continuously and the remainder on a defined rotational basis.

16. The program goals and objectives and the accompanying adaptive management programs should define the monitoring, data collection, and assessment programs.

Sustainability

17. Program sustainability requires continuous public support; however, because of the nature of the work, benefits are not quickly apparent, making it difficult to show the public success in the short term. This requires well-designed public involvement (education) programs to support the restoration process.
18. Program sustainability requires developing consensus on how to deal with the program elements. “Consensus takes time...but brings everyone to the same place”
19. The goals of programs should be agreed to by voluntary consensus of the stakeholders; however, all must recognize that this consensus is driven by an underlying foundation of regulatory programs, federal and state laws as well as local ordinances and codes which must either be observed or modified.
20. In some part, the political sustainability of the program rests on the ability to harmonize the different programs, timelines, and responsibilities of the local, state, and federal government.
21. Sustaining a natural resource does not necessarily result in preserving the present condition or returning to some previous condition. Resource sustainability must be carefully defined and all must understand and agree on the definitions. A sustainable status is not necessarily self-maintaining although some components may be self-maintaining.
22. The economic value of the goods and services associated with natural resources –their real market value – is generally underestimated and must, in the long run, be factored into the economics of coastal restoration.
23. A key to gaining public understanding of sustainability is continuous and evolving education. As restoration takes place, natural processes will be modified and the end state redefined. The public must understand this shifting end state.

Process.

24. Three key elements to a successful regional program are top-level political involvement, strong citizen support, and aggressive science-based goal setting.
25. In developing the process that is to be followed, it is important to define and publicize how decisions are going to be made and who is going to make them.
26. All must recognize that the goal of restoration is not a finishing point where all the work can be said to be complete; the goal must reflect the resource sustainability status sought and the implementation of actions necessary to maintain that status.
27. Goals provide program direction and a target for assessment of progress. Goals permit program leaders to display program progress to the public. Establishment of easily understood progress metrics is critical.

Public Involvement

28. The public involvement program must be non-partisan to enable long-term success. Any indications of sectoral or political bias will undermine the credibility of the program.
29. The public is more than those directly affected by coastal restoration. The public must include those who live in the area, those who live in the State, the basin, and, to a lesser degree, the Nation. The value of the program must be communicated to all of these publics. It is important to educate those living outside the project area so that they understand the political, environmental, and economic linkages between their hometowns and the Louisiana coast.
30. Public opinion will change during the life of a given project as results are seen and problems are identified. Adjustments to the program will have to be made to address these changing opinions.
31. In developing a public involvement program, program developers must have a clear understanding of the community knowledge base – what people know about the problem - and understand the present level support for restoration. As public knowledge grows, the public involvement program will also change.
32. The public must be involved in the planning and assessment process from the beginning. This involvement must be continuous and must recognize

that over time participants will change but the involvement should not. The door must always be open for the addition of 'new' people to the public involvement effort. The addition of new participants will require education programs to bring the new participants up to date on what has already occurred.

33. The program communications strategy must call for use of all available means to get the program message across, but must also recognize the realities of fiscal and legal limitations on such efforts. Existing communications mechanisms, such as those of the tourism industry and the programs of NGO's (including those beyond environmental and conservation groups, e.g. the League of Women Voters) can be used effectively to support the effort.
34. To be relevant over the long term, the public involvement process must be open, transparent, and inclusive. The process cannot be or be perceived to be a 'public relations' campaign. The operations of the program must be visible to the public. Key documents, including minutes of meetings, need to be available to the public on the web and in public facilities. Efforts must be made to ensure representation from all elements of the public including normally underrepresented groups.
35. To overcome difficulties in incorporating public concerns into project planning, it is important to:
 - Engage professional facilitators.
 - Involve local governments before or concurrent with conduct of public meetings.
 - Conclude meetings with clear identification of the level of consensus reached on the issues discussed.
 - Take a program approach rather than a project approach in public involvement in order to provide sufficient room to accommodate conflicting interests. Focusing on a small project makes it difficult to sort programmatic objections from site-specific issues.

Partners

36. The restoration of coastal Louisiana will require a partnership among the various levels of government, the private sector, and the public. Each has an important role that must be recognized and incorporated into the overall process. The federal partners include the Congress, the Administration, (the President, his office (OMB, CEQ) and the political appointees in the agencies) as well as federal agencies that must carry out elements of the program.
37. Non-federal partners must play strong and decisive roles, and program leaders must capitalize on use of their unique competencies. In dealing

- with the federal government and especially with the Corps of Engineers, they must be assertive and establish that the restoration program will require a different type of partnership than has been traditionally established for federal-state-local efforts.
38. The private sector must provide strong support for the program. While elements of the private sector will provide funding support for components of the program, the private sector must also play significant roles in other aspects of the program including the development of science, conduct of monitoring, data collection, and assessment, and participation in public involvement activities.
 39. Program leaders must develop a thorough understanding of the process by which federal funds and programs are requested by the Administration and authorized and appropriated by the Congress. They must adapt their schedules to conform to the needs and requirements of the Administration and the Congress. They must reach agreement with the appropriate committees of the Congress on the level of specificity required in planning documents and the timing of the submissions required to support their authorization and appropriation processes.
 40. In developing the funding strategy for the program, program leaders must examine alternative authorization and funding models. Because much of the work during the later stages of the program will be dependent on the results of the initial phases of work, it will be difficult to accurately define a fixed authorization and funding stream. The experience of funding the Everglades indicates that a model that is based on contingent actions (i.e. later actions are dependent on the result of the earlier actions) may be more appropriate than a linear –fixed funding stream - model.
 41. Program leaders must seek and obtain the support of other states in the Mississippi Basin for the restoration program. Since many of the problems associated with the coast have resulted from actions taken in other parts of the basin, it is imperative that this is communicated to the leaders in other states and that they provide political support in Washington for the program. They must understand that they have a stake and a role in the program.
 42. Coastal restoration will involve some investment of public monies for work on private lands and such action may elicit negative public reaction. Program leaders must be prepared to address the rationale for each use of public monies for such work.

Program and Project Review

43. Periodic independent reviews of project and program elements have been an essential component of successful restoration efforts in other regions. The lack of such reviews has hampered progress on some projects and has ultimately resulted in project delays to 'go back' and review the work.
44. Reviews must be independent, rigorous, and transparent. Reviewers must come from in and out of the state and from elements of agencies not directly involved in the program to avoid any inference that the review reflects a narrow perspective or is politically driven. In some limited and sensitive cases, it may be useful to include anonymous reviewers.
45. The scope of any review must be carefully and clearly defined and focused on program needs. Failure to be specific may lead to reviews that deal only with generalities and do not provide adequate information to support program change decisions. It may be useful to conduct tiers of independent review based on issues and projects rather than just conducting broad program level reviews.

Engineering and Science

46. Program success will require the full support of both engineers and scientists.
47. Participation from the scientific community must include both natural and social scientists. The challenges faced in dealing with coastal restoration will require the talents of economists, political scientists, geographers, biologists, ecologists, and a number of other disciplines. No one discipline has a corner on the knowledge required.
48. Over time engineers and scientists will become familiar with aspects of the program beyond their fields of study and responsibility and their views on these topics should not be disregarded but should be considered along with those of other stakeholders.
49. By nature of agency make-up and responsibilities, to many people, engineers appear to be in the center of the work and scientists appear to be outside. Engineers and scientists need to be equal team partners in the development of the program, working together from the beginning and focused on accomplishing the mission. Scientists engaged in the process must see their roles to be as team participants, not critics, and this must be reflected in how they are treated by the engineers and program managers. The work of engineers and scientists must be collaborative and multi-disciplinary. Multi-agency collaboration (as opposed to coordination) must be considered an integral part of the process. Engineers and scientists need to work together to develop concepts and methods that are satisfactory for both groups.

50. Engineers and scientists have different attitudes and approaches to problem identification and problem solving. The same situation also occurs within science and within engineering. It is important that as work begins, provisions are made to bring the disciplines together for cross-education in the critical topics being addressed. The groups must gain respect for each other's paradigms, approaches, and culture. The program leaders must develop methods to ensure a constructive interaction among disciplines that fosters innovation and the retention of objectivity.
51. Even when a specific project appears to be entirely focused on engineering, e.g. levee construction, it is important to bring other disciplines into consultation. Most programs that have been successful have followed this approach.
52. The European experience would indicate that while there is room for considerable innovation during the initial planning of restoration projects and consideration of all alternatives, when implementation begins, innovation is often pushed aside by need to cope with economic restrictions and the chosen approach is often the cheapest, non-innovative one. Program leaders must fight to retain innovative approaches and ensure their inclusion in program planning.
53. It is a challenge to keep scientists, who are not working on the program on a day-to-day basis, fully engaged over the long term. In many cases, their expertise is only needed on an intermittent basis and it is easy for them to move away from work on restoration issues. Program leaders need to develop incentives to ensure their continuous participation.
54. There must be funding for continuous research to support the restoration program. Efforts must be made to encourage innovative –out of the box – research. The research community must have sufficient flexibility to adjust research programs to address issues and gaps as they arise.

Technical Comments

55. Several individuals were concerned about the challenge of finding and using adequate sediment to carry out restoration activities. They raised the following questions, all of which must eventually be addressed:
- Is there enough sediment in the river?
 - What other options exist for sediment supply other than taking it from river flow- dredged material?
 - What has caused sediment reduction in river?
 - How do you go about restoring more than one delta lobe?

- How do you take into account the fact that the current delta has extended beyond the pattern of earlier deltas by reaching the continental shelf with sediment being deposited in deep water?

F. Drawing Conclusions and Recommendations

This report was prepared to describe the conduct of the Technical Summit and to identify key points raised during the Summit. As a next step, the ASCE Task Committee on ***America's WETLAND***, based on their participation in the Summit and their review of this report, will develop conclusions and recommendations and identify next steps to be taken by the State of Louisiana in dealing with the Coastal Restoration Program.

APPENDICES

A - Organizing Committee

B – Summit Agenda

C- Speakers

America's WETLAND Eco-Cultural Tourism Summit

WELCOME

Carrie Stansbury,
Chairman, Louisiana Travel Promotion Association

- The Chairwoman of the Louisiana Travel Promotion Association understands coastal land loss through first hand experience as a native of Chauvin, LA.
- Cultural and Eco tourism are promising industries in coastal Louisiana and rely primarily on the culture and landscapes of coastal Louisiana.
- Coastal erosion has given us an opportunity to grow a new market for eco-cultural tourism in Louisiana.

Carrie Stansbury, the Chairwoman of the Louisiana Travel Promotion Association, was well qualified to convene the Eco-Cultural Tourism Summit in Baton Rouge. As well as being a leading tourism administrator in the State, she was born and raised in the coastal Louisiana community of Chauvin and has witnessed in her lifetime the large-scale disappearance of the land around her home; "My dad took me fishing in places that are no longer there".

She also saw the beginnings of eco-tourism in the region when she worked on recreational fishing charter boats. She and her colleagues privately laughed at the strange people who paid to go out in the boat but were not interested in catching any fish they instead just wanted to look at birds. It didn't take long however for Ms Stansbury and her colleagues to understand that the millions of waterfowl and songbirds that call the Louisiana coast home for at least part of the year were a sustainable resource to be exploited through nature tourism.

With the re-evaluation of the tourism industry came another model classification, that being cultural tourism. "Cultural tourism refers to the cultures that are tied intrinsically to the ecology of the region, it refers to tourism opportunities that arise from that connection". Ms Stansbury was sure to put this general definition in a local context; "the unique history of **America's WETLAND** and the state as a whole is driven by our connection to the wetland, - its ecosystem and its people and its culture".

In addressing the reason for this gathering of tourism and coastal experts, Ms Stansbury reflected on a potential benefit of mobilization around coastal preservation by saying, "the issue of coastal erosion has given us an opportunity to grow a new market for eco-cultural tourism in Louisiana, and that helps all aspects of the tourism industry". This involvement of another coastal Louisiana industry in the dialogue on land loss highlights the working value of this landscape and just how closely the environment, culture and, consequently, the economy are intertwined in this region.

KEYNOTE ADDRESS

“Les maringouins a mangé ma belle ('The Mosquitoes Ate My Girlfriend'): A Tour of Louisiana's Coastal Cultures and Communities”

Nick Spitzer,

Ph.D. Host and Producer, American Routes, Public Radio International

- Coastal land loss a common problem for cultural and natural researchers.
- The cultures of Coastal Louisiana are a rich draw for the cultural tourist.
- Cultural Tourism can support cultural preservation and help prevent land loss.

Dr Nick Spitzer is an acclaimed folklorist and the producer of the nationally syndicated radio program 'American Routes'. His work with the Smithsonian Institute has produced CD's that document the rich musical traditions of the Louisiana Gulf Coast region while his current position within the New Orleans university system has produced some excellent Lectures and panel discussions highlighting the rich folk culture of the area. He is uniquely qualified to introduce this Eco-Cultural Summit with his depth of understanding about what human traditions stand to be washed away with the landscape, as well as just what we can do in the field of cultural tourism to both generate economic growth and highlight the fragility of the environment and the culture of the region.

Cultural and natural researchers have coalesced in recent years because of the common problem of coastal land loss. By declaring that; “Cultural conservation and environmental conservation go hand in hand in Louisiana”, Dr Spitzer is explaining how intertwined the cultures of southern Louisiana are with their landscape. Hence, coastal erosion equates to cultural erosion.

As a way to introduce the rich cultural capital of the region Dr Spitzer highlighted a number of examples from the built environment. From grand plantation mansions to simple Acadian workers cottages, houses in the region showcase a rich building arts heritage. People have also built houses that compliment the seasonal water based environment and are uniquely equipped for seasonal flooding cycles. All of these styles are of interest to the cultural tourist who is looking for expressions of a lifestyle unique to the region.

From houses to boats: “Louisiana boats are a great understudied utilitarian cultural symbol”. The pirogue is somewhat of a visual icon of life on the bayou and the opportunity to see local people utilizing these boats in the region is an exciting prospect for visitors. But also highly valued are the more modern shrimping and oyster harvesting vessels equally unique to southern Louisiana.

Without an inhabitable coastal ecosystem, these traditions will be lost as well as the cultural tourism opportunities that accompany them.

With the boating culture come many cultural events that are very interesting to visitors. The 'Blessing of the fleet' at the start of shrimp season or All Saints day are two under promoted festivals that are extremely "exotic and interesting to the out of state visitor". Many of these festivals are the product of the Catholic culture dominant in the region. This too is unusual in a national context and a contributing factor to the regions strong identity. Less formal events such as crawfish boils are already extremely popular activities for tourists and have helped shape the way people view the lifestyle of the areas inhabitants.

In explaining the huge potential of the cultural tourism industry, Dr Spitzer stated that there are; "so many wonderful events to attend, and visitors are welcome in south Louisiana". He also reflected on an often overlooked aspect of day-to-day life in the area by saying that, "the modern world and traditional world are fully wrapped up in Louisiana....people live off the land at the most basic level" . Blow-gun hunting, palmetto weaving and other practices that most people associate with more exotic locales are still practiced in the coastal region.

To balance the promotion of the region as a cultural tourism destination with the needs of the local people, Dr Spitzer highlighted that tourists who come to the area play a role in conserving threatened cultural traditions. It is through sharing and conversing that these traditions prevail. In saying, "So much of what we have here is in the life of the people and their ability to communicate not just to themselves but to the outside world", Dr Spitzer is privileging the cultural tourist as an important character in the coastal land loss struggle. And by finishing in saying, "we can continue to share Louisiana's cultural riches for the betterment of that coast and culture and for the conservation of that coast and culture" Dr. Spitzer is challenging the audience of coastal professionals to engage cultural tourism as such a tool.

KEYNOTE ADDRESS

Louisiana's Great Gulf Coast Birding Trail

Ted Lee Eubanks, President, Fermata, Inc.

Mary Jeanne Packer, Chief Operating Officer, Fermata, Inc.

- Experiential tourism is a sustainable marriage of economic development and conservation.
- The Louisiana Great Gulf Coast Birding Trail will expose many tourists to the changing landscapes of **America's WETLAND**.
- With this network of sites identified, many other aspects of tourism can be layered in, e.g. cultural, art history, etc.

Ted Lee Eubanks is the president of Fermata Inc., a Texas based company that studies and promotes experiential tourism as a sustainable economic approach for communities. Experiential tourism is a marriage of economic development and conservation, or in other words, a type of tourism that utilizes the natural, cultural and historical features of a region. Mr Eubanks is presenting at this **America's WETLAND** Summit about his role in developing the Louisiana portion of the Great Gulf Coast Birding Trail.

The Louisiana Great Gulf Coast Birding Trail, once established, will be part of a larger gulf coast wide network of birding sites. A vast majority of the sites identified in Louisiana are in the coastal zone, which immediately makes this project of specific interest to the coastal restoration community. Through channeling birding enthusiasts through the region, the state will not only be able to generate a significant and sustainable income, it will also be able to expose the plight of **America's WETLAND** to a wide range of visitors, or as Mr. Eubanks put it; "if you want to show people the plight of **America's WETLAND** then put them in these wetlands".

According to Mr. Eubanks, "This is a community based 'bottom up' project", meaning that this project relies on existing local knowledge for its development and ongoing maintenance, and that it relies on maintaining the regional character of these locations as opposed to suffocating them with large scale tourism. It also fits nicely with other sustainable experiential tourism markets such as cultural and historical tourism; "once this trail is in place, this network of sites, its easy to layer in all these other interests, music, food, art history, its very easy to find these other connections."

Mary Jeanne Parker, also from Fermata Inc., was present to speak about the specifics of the Louisiana trail. The process began in 1998 with some vocal support from local enthusiasts and the National Scenic Byways Enhancement Program. As a result of an initial request for nominations to locate the sites that would constitute the trail, Miss Parker received an unprecedented 182 nominations from 28 parishes. What was most impressive about this list to the folks at Fermata Inc. was the rich range of habitat types and bird species there are in the coastal Louisiana area. This overwhelmingly large response reflects the wealth of local knowledge and enthusiasm for nature experiences in the region. These sites would, in the process, all be visited and evaluated and those selected would be placed into one of 14 regional 'loops' that are organized 'trails' for a birder to choose from.

In explaining the concept of the 'trail' in this context Miss Parker stated; "Experiential trails are not a pathway that you walk along. They unify and connect birding and nature tourism places in the coastal area. They are an itinerary, a way of bringing people into nature". This explanation really highlights the power of such a tourism initiative in its ability to educate people about the

natural resources that are being lost in the greater coastal erosion process while also demonstrating yet another economic, and non-extractive, use of this great coastal resource.

The Louisiana Great Gulf Coast Birding Trail is nearing the completion of its planning phase. \$18 million is the estimated funding requirement to move to the implementation phase and develop this tourism product. In view of the massive revenues generated by similar efforts in neighboring states, these experts believe that the state must make every effort to find this money. Not only is this an investment in a sustainable and sensitive industry, it is a portal for tourists to explore the changing landscape of **America's WETLAND**.

Plenary Session - "Defining America's WETLAND for Tourism"

Panelists:

Elinor Craven, Director Outreach and Outdoor Recreation, Louisiana Office of State Parks

Beverly Gianna, Vice President of Public Affairs, New Orleans Metropolitan Convention & Visitors Bureau

Sean McMahon, Assistant Director, Government Relations, National Audubon Society

The Honorable Randy Roach, Mayor, City of Lake Charles

Fran Thibodeaux, Executive Director, Iberia Parish Convention & Visitors Bureau

Moderator:

The Honorable Mitch Landrieu, Lieutenant Governor, State of Louisiana

- Many tourists come to Louisiana to see cultural practices that can be found nowhere else in the world. These practices are intrinsically tied to the coastal environment and will be lost if coastal erosion continues.
- Tourism promoters throughout coastal Louisiana must pool their resources to, (a) promote the entire region, and, (b) to apply for state and federal funds for necessary infrastructure improvements.
- Road improvements, including the provision of shoulders and other stopping areas, and sign improvements, are major steps toward making Louisiana more attractive to bird enthusiasts.

Mitch Landrieu introduced this panel session by reflecting on coastal erosion in Louisiana and how today's summit is an important step towards "taking something that has been a powerful negative and turning it into a significant and powerful opportunity for the state of Louisiana." As has been mentioned in all previous summits to date, this is an issue that affects the energy security of the nation, and for this and many other substantial reasons, coastal restoration should become a priority according to Mr. Landrieu. But a question that is of greater importance for today's panelists is "how do we use it (coastal restoration)

for the benefit of the citizens of the state and the nation.” The answer to this question involves the growing eco-cultural tourism industry in Louisiana.

To initiate the discussion for the Eco-Cultural Summit, Mitch Landrieu asked the group; “What tourism opportunities are available as a result of the cultural ecological connections present in **America’s WETLAND**, how can this opportunity to be used to promote new opportunities and attractions for the state.” Sean McMahon responded by pointing out “there are many ways that Louisianans can further exploit the economic opportunities provided by coastal Louisiana.” Speaking in relation to his personal and professional specialization Mr. McMahon continued by saying; “this is a deltaic system of hemispheric importance – I’m talking about a billion birds that migrate each spring and fall.” As was made clear by the earlier keynote address about Louisiana’s Great Gulf Coast Birding Trail, this has the potential to be translated into a large and lucrative tourism industry with many shared benefits for the communities in the area.

Beverly Gianna commented that in addition to birding resources, Louisiana is rich with unique cultural practices, and it is often these practices that are the most popular and sought after tourist activities. “People like to see things like alligator farms and boat building and other activities unique to Louisiana.”

In an effort to promote coastal Louisiana to New Orleans tourists, Miss. Gianna has also created a gallery space at the New Orleans CVB office. People who come to the office for information can view an exhibition of photographs by C.C. Lockwood featuring the Atchafalaya basin. In this way, the New Orleans CVB is hoping to introduce tourists who may have only been considering staying in the city to the riches of coastal Louisiana.

This strategy of sharing resources rather than competing for tourism resources is seen as a powerful tool to promote coastal Louisiana with a louder and more effective voice. Elinor Cravin articulated the feelings of the panel on this issue when she declared that; “We need to market the state, not just individual regions. The whole coastal area can be marketed and people can collaborate and cooperate from regions within this area to promote a single product. This needs to be marketed to the legislature as well as the public so funds can be obtained to get prepared for tourists to visit.”

With coastal Louisiana Parishes working as a group, as opposed to collection of separate interests, funding opportunities for eco-cultural tourism development can be utilized more efficiently to the benefit of the coastal area. Fran Thibodaux spoke of some benefits a small infusion of state funds into New Iberia would have for the Atchafalaya basin tourism industry; “New Iberia needs a new docking platform that boat based tourists can utilize as an entry point in and out of the water. The benefit of providing a docking platform there is that tourists will also experience historic New Iberia. To make these necessary improvements

communities need access to grants and federal and state funds.” Other general infrastructure improvements that the panel agreed would make coastal Louisiana more attractive and user-friendly to the eco-cultural tourist are, road improvements, specifically the provision of shoulders and other stopping areas, and an increase in the amount and quality of signage. These two improvements alone are seen to address some of the main reasons why Texas and Florida generate far more income in bird-watching related tourism than does Louisiana.

With the panel in agreement about strategies to leverage resources for region-wide tourism promotion, all speakers felt it important to highlight the urgency of a well-funded coastal restoration effort. Mayor Randy Roach reminded the audience “ a lot of what the rest of America identifies as Louisiana is found only within the coastal wetlands region. We are the stewards of **America’s WETLAND** and we need to band together and promote and protect this treasure.”

America's WETLAND Education Summit

Sidney Coffee

Sidney Coffee welcomed the education professionals gathered today to discuss the role of the higher education community in the coastal restoration process. Of key concern for the day were two issues:

1. How to export the marvelous research that is taking place in Louisiana universities to the rest of the world.
2. How are we going to break down the barriers and start melding rather than segregating disciplines to help create the graduates of tomorrow that can truly address the solutions needed for coastal restoration.

Welcome

Dr. William L. Jenkins, Ph.D., President, Louisiana State University System

- Universities must address this problem in a cross-disciplinary and cross-institutional fashion.
- The coastal restoration challenge has provided the Louisiana Universities with an opportunity to become world leaders in a future growing global problem.

William Jenkins, president of the Louisiana State University system, welcomed all the summit participants to the LSU campus for this important event. In making these remarks, President Jenkins was not only acting as a host, but also as a colleague as this summit is dealing specifically with the role of the higher education community in coastal restoration.

As well as noting the need for adequate funding to rise to the challenges this situation has created, President Jenkins referred to the scope of the action required; "We have a mammoth problem to address and we will only do this in a cooperative, collaborative, cross institutional, inter-disciplinary and cross disciplinary fashion. There will be no other way to do this. I don't believe in my lifetime I have ever dealt with such a complex enormous problem and, especially from the perspective of an academic institution, the breadth of disciplines and expertise that have to play a role, not only in the basic sciences, but in the social sciences, law, agriculture and more."

The opportunity that the coastal erosion problem has presented to the Universities in the State has not been lost on President Jenkins. Through the research needed to address this problem, Louisiana can become a world leader in what is going to be an ongoing problem for the major river delta's of the world. In a call to action for the days proceedings the President stated; "We as an academic community have to accept this challenge. I believe we have the intellectual ability, we have the research and scientific skills and we have the fundamental

tools to begin to address a terribly important problem that faces our country. But this is an international problem, so we can lead the world and become a destination for those under the same stress and strain as we are at the present time.”

Keynote Address & Response

Keynote Address:

“Cooperation Leading to Comprehensive Wetland Solutions”

Dr. Donald F. Boesch, Ph.D., President, University of Maryland Center for Environmental Science

- We must deal with coastal erosion in a way that will not leave an ‘impossible legacy for future generations.”
- The construction of LUMCON was important capital investment in the coastal zone. Now there must be an investment of intellectual capital to continue addressing this coastal problem.
- There must be improved institutional communication between the universities, “getting the job done must trump institutional parochialism.”
- Each university must find the balance between pure research and applied research to ensure the practical problem solving capabilities are maximized.
- Louisiana university researchers must actively communicate the local issue to the broader scientific community to ensure nation wide knowledge of the local situation.

Don Boesch is nationally recognized coastal scientist and university administrator. He is a native of New Orleans and a product of Louisiana higher education. Currently Dr. Boesch is President of the University of Maryland’s Center for Environmental Science and a scientific advisor with the LCA technical committee. This life history makes Dr. Boesch uniquely qualified to present a personal, local perspective on the current shape of the coastal restoration effort in relation to higher education as well as an ‘outsider’s’ perspective through his work on a similar issue in the Chesapeake Bay.

Reflecting on a photo of himself as a young boy on Grand Isle, Dr. Boesch notes the absence of oil and gas rigs on the horizon as one tangible example of the rapid change that this landscape has undergone in recent years; “There is a tremendous amount of changes that have taken place in our lifetime. We have to deal with them in a way that we don’t leave an impossible legacy for the future generations.” This was just one example of a selection Dr. Boesch related from personal experiences of growing up in the area and taking regular excursions into the marsh with his father.

In moving on to discuss some of the important steps higher education has made towards addressing coastal issues, Dr. Boesch noted the construction of the

Louisiana Universities Marine Consortium (LUMCON) as a major step. This was the first real investment in physical capital made by the state education entities and its importance as a site to develop the local intellectual capital to solve coastal problems cannot be overestimated. In urging the state to continue to prioritize this issue Dr. Boesch commented; “It can’t be an issue where we compromise and settle for less. The leaders of agencies and universities must make this a priority. Now that we have the hardware, we need to invest in the software.”

By referring to aspects of his own experience in Chesapeake Bay, Dr. Boesch, had some recommendations to improve the overall contribution of higher education to the coastal restoration process. Largely these, recommendations involved improved inter-institutional communication, and that specifically, “Getting the job done has to trump institutional parochialism.”

Once the models of university communication are established and the roles of each institution have been clearly defined, the focus can be shifted to the individual university level. Dr. Boesch believes that to maximize their contribution, each university must find the right balance between ‘Pure Research’ and ‘Applied Research’, or in other words to address real problems in a way that advances general scientific understanding of a given issue. Speaking as an individual researcher, Dr. Boesch commented to his peers; “We should be interested in discovery and the application of that knowledge for the betterment of society.”

As well as improving inter-institution communication within the higher education system, there needs to be improvement in university and government agency communication. Dr. Boesch urged the local agencies such as the Vicksburg Laboratory for the Army Corp of Engineers and the Department of Natural Resources, as well as the universities, to start an ongoing dialogue that will benefit the statewide coastal restoration process.

Looking beyond the state, it is extremely important to reach out to other science leaders for a number of reasons. Firstly, Louisiana coastal science is not mainstream coastal science – the systems here are different. For scientists elsewhere who are part of the peer review process for Louisiana projects, it is essential that they understand the dynamics of this system and have an appreciation of just how different a system it is to other large coastal areas in the country. Following on from this point, we need to have a national coastal science community that is aware of the large-scale efforts to address coastal erosion in Louisiana. Credibility on this issue is essential if we are to be successful in attaining funding for the work that needs to be done. Dr. Boesch summed this point up in the context of federal funding requests for the LCA plan; “The scientific community broadly helps shape the impression of how credible the science is – if we have a real case that you can solve the problem, if you have the right solution mix.”

As a final point, Dr. Boesch posed a question or a challenge to the university leaders present, “How do we recruit bright young assistant professors to the area?” This is one of the tasks facing Louisiana’s higher education leaders and it leads on nicely to some of the more detailed panel discussions to follow.

Response:

James R. “Randy” Hanchey, Assistant Secretary, Louisiana Department of Natural Resources

- The universities and state agencies must undertake more partnership activities and improve communication in addressing coastal restoration.
- This problem has no ‘silver bullet solution’, it will be managed for as long as we live and work here.
- The interdisciplinary approach from within universities is key to establishing the right mix of solutions for this problem.

To begin the state’s response to Dr. Boesch’s address, Randy Hanchey notes that the building the summit is being held in today is in fact representative of a more recent capital investment by the state in coastal science. “The Energy, Coast and Environment Building was opened recently as a location from which to centralize the universities coastal restoration efforts. Mr. Hanchey reiterated this point when he said that, “This facility represents a commitment the LSU system has made to this issue.”

Mr. Hanchey took this opportunity to clearly state the position of the Louisiana government on the coastal erosion issue to the education leaders present. His comment that “the state remains committed to a comprehensive statewide solution to the coastal erosion problem” reinforced the need for all the universities and community colleges statewide to work together on this program.

In responding to Dr. Boesch’s comments regarding strengthening the relationship between state agencies and the universities, Mr. Hanchey agreed and noted the recent dedication of a hydrologic modeling center at LSU as an example of such a partnership. This project went one step further in that it successfully solicited funding from the private sector, hence establishing a broad lateral partnership around a specific project. These kinds of partnerships need to be utilized a lot more in the coming years.

To clarify some of the terminology that is so often used when speaking about the coastal restoration work to be done, Mr. Hanchey stated that; “This is a problem that has no solution. We are going to have to be involved in this system where we continue to do science and management as long as we live here.” The implications of this important point are that the local universities will need to

address these problems into the foreseeable future. This point was again stressed when Mr. Hanchey stated; “We talk about this being a 20-30 year effort, but this is really a lifetime effort. We may spend most of the money in the first 20-30 years but we will always be working on it.”

As an indirect way of introducing some of the issues this summit was convened to address, Mr. Hanchey spoke of the need to understand what the people of Louisiana are willing to accept as changes to their landscape and lifestyle that might result due to large scale restoration projects. This topic brings in the social sciences, whose representation at these discussions has been minimal until recently.

“Are the people of Louisiana going to have the will to deal with the dislocations that are inevitable? We have seen these conflicts of interest manifest themselves principally at this stage in the oyster industry. There are a lot of other things that we haven’t stumbled over yet.” These are the types of questions and issues that the social science community needs to engage. This interdisciplinary approach to finding the right mix of solutions is a key theme in today’s discussions.

Plenary Session “Home-based Research Agenda with Global Implications”

Panelists:

Dr. Carl A. Brasseaux, Ph.D., *Professor, Department of History and Director, Center for Cultural and Eco-Tourism, University of Louisiana, Lafayette*

Dr. Shea Penland, Ph.D., *Director, Pontchartrain Institute for Environmental Sciences and Professor, Department of Geology and Geophysics, University of New Orleans*

Dr. Gregory W. Stone, Ph.D., *James P. Morgan Distinguished Professor and Director of the Coastal Studies Institute, Louisiana State University*

Dr. Robert R. Twilley, Ph.D., *Director, Center for Ecology and Environmental Technology and Professor, Department of Biology, University of Louisiana, Lafayette*

Moderator:

Sidney Coffee, *Acting Director, Governor’s Office of Coastal Activities, Campaign Director, America’s WETLAND: Campaign to Save Coastal Louisiana*

- University research will play a fundamental role in the ongoing coastal restoration effort.
- The peer review process needs to be utilized to engage the wider scientific community and to establish nationwide credibility for the restoration science being proposed for Louisiana.

- Research in Louisiana is dedicated towards developing new tools that are calibrated to our unique deltaic system.
- Their needs to be a better reward system in place in universities if the best researchers are to tackle applied research questions.
- Natural scientists are now utilizing knowledge supplied by social scientists as a key element of research activities. More interdisciplinary work is needed.
- More employers in this industry are seeking people with a broader range of skills and the universities must respond by bolstering interdisciplinary courses tailored to the coastal restoration issue.

Sidney Coffee initiated this panel discussion by asking these leaders in varying disciplines of coastal research, “What role do each of you see research playing in the restoration of coastal Louisiana?” It was immediately clear that these people had plenty of ideas to share in response.

Dr. Gregory Stone of the LSU Coastal Studies Institute started by stressing just how important research is in the process; “It’s fundamental. It’s a must, this is one of the most complex deltaic systems in the entire world.” Without a solid and well coordinated research community, any attempt to restore a system of this magnitude, in both size and complexity, would be a futile exercise.

But as well as doing the research, Dr. Stone feels that it is of critical importance to engage the wider research community by “reaching out to other scientists and going through peer review.” This echoes the sentiments of the morning’s speakers and their hopes to see the local research community make an effort towards establishing scientific credibility on a national and international scale.

Dr. Shea Penland of the Pontchartrain institute for Environmental Sciences at UNO agreed with these sentiments but added the point that the unique nature of the Louisiana coastal area means that the research here is basically aimed towards developing new tools that are calibrated and tested to this delta. Again this point reiterated comments made earlier in the day.

Dr. Robert Twilley of UL-L Center for Ecology and Environmental Technology expressed his enjoyment at receiving compliments from broader society that higher education was responding to the challenge of coastal restoration by providing science with problem solving capabilities. Sometimes, however, there is a contrasting message coming from his peers. The earlier point made about needing to bridge applied and pure research alluded to a distinction that is very real in the university system. Dr. Twilley spoke of how conducting research that was applied in nature had lead to some criticism from his colleagues and potential troubles in gaining recognition for the work done. Again agreeing with earlier comments Dr. Twilley stated that, “The contrast between pure research and applied research is real and it’s a real challenge to keep the scientific community engaged in problem solving.”

Shifting topics a little, Dr. Twilley raised the important issue of the need for interdisciplinary studies. To address this coastal erosion problem it will involve cooperative work from people of many disciplines. It is necessary to equip the workforce of the future with the skills needed to address this interdisciplinary challenge. Dr. Penland supported this position by highlighting some of the barriers that exist today to achieving this goal: “we have compartmentalized higher education and we have to rebuild it and retool it so we can teach interdisciplinary courses.”

Dr. Carl Brasseaux, a history professor at UL-L has seen the coastal restoration ignore the input of the social sciences up until recently. There are many important sources of data that scientific community can source through the social sciences, “historical records are an important resource and that is just one thing that a history professor can share with a restoration scientist.”

To highlight another resource that the social sciences can bring to the table, Dr. Brasseaux discussed the concept of the traditional knowledge that exists in the communities in these coastal regions; “We also need to begin to listen to and utilize traditional ecological knowledge. Three of the five most sedentary communities in the USA are in the coastal LA plain. That represents generations of accumulated knowledge and this should only be ignored at your peril.” Dr. Penland agreed immediately with these sentiments; “there is a tremendous amount for a geologist to learn from historical information.”

As an indicator of just how broad the interdisciplinary need is, Dr. Twilley highlighted the need for other disciplines to be engaged at the higher education level; “its not just the social sciences and the natural sciences but we also need to bring in the engineering.”

But considering interdisciplinary studies at the undergraduate level also raises a few important issues. There is a fear that by broadening the knowledge base at this level of education there will be a loss of depth of knowledge. There are also issues with adequate rewards from education departments, meaning that a student who takes a unit that is cross-taught between disciplines may have trouble getting the credit for that unit that they need to complete their course requirements.

There are also concerns about this approach from professionals within the industry who have highlighted the need for interdisciplinary personel. Dr. Twilley summed this up when he stated that we may end up with “people who know the vocabulary but can’t speak the language of any single discipline.” Dr. Stone’s belief is that this can be addressed by maintaining the undergraduate system used now, then exposing students to interdisciplinary studies after they have completed studies in a fundamental discipline.

All these concerns are valid, however it is important to listen to the customer, which in this case is the people who will be hiring the coastal restoration professionals of the future. Dr. Penland thinks that the customers of the future want people who are more broadly educated and that there therefore is a need for some undergraduate interdisciplinary courses: “how do we design future courses, the key is to listen to our customer, and our customer is DNR, the Corp of Engineers, the private sector, who do they want to hire.”

At this point the panel diverged to the topic of how to educate the international scientific community about the Louisiana delta system and what science is going on here. Again Dr. Stone sees the peer review journal process as critical. Dr. Penland agrees but adds that it is important to initiate the large-scale restoration projects that have been proposed and to write papers as part of the project monitoring rather than continue to use the publishing process as a way of building ‘faith’ in the science community. Such a utilization of the peer review process during project monitoring could strengthen the adaptive management component of these projects by engaging the larger coastal science community.

On a more pragmatic note, Sidney Coffee asked the panel how to make sure that the State Science Program is interdisciplinary. Responses in general related to the need to clearly define who was going to be working on what issues in both the universities and the agencies. This comes down to clearly identifying the needs of the state and then identifying which university department or state agency is best equipped to provide the necessary information. This answer demonstrates that these coastal experts have embraced the basic need for a coordinated interdisciplinary approach to coastal restoration and that the priority now is to establish how best to coordinate these efforts.

Plenary Session “Trained, Tooled & Exported: Louisiana Higher Education Responds to the Challenge”

Introduction:

Dr. Len Bahr, Ph.D., *Director of Applied Coastal Science, Louisiana Governor’s Office of Coastal Activities*

Panelists:

Dr. Russell L. Chapman, Ph.D., *Dean, School of the Coast and Environment, Louisiana State University*

Winston R. Day, *Professor, Louisiana State University Law Center*

Karen Gautreaux, *Deputy Secretary, Louisiana Office of Environmental Quality*

Oneil Malbrough, *President, Shaw Coastal, Inc.*

Robert C. Tannen, *Consultant, DMJM + Harris*

Dr. Elizabeth J. Teles, Ph.D., *Program Director, Division of Undergraduate Education, National Science Foundation*

Moderator:

Valsin A. Marmillion, *Campaign Consultant, America's WETLAND: Campaign to Save Coastal Louisiana*

Len Bahr is the Director of the Governor's Office of Coastal Science. He sees today's discussions about the role of higher education institutions in the coastal restoration process as an important step towards improving the dialogue between science and management. This is important to him as he describes his role as "the go-between for the science and policy for the Governor's Office." In this role, Mr. Bahr has been "trying to arrange a marriage between restoration and management for 13 years, and it's not easy."

As the principle link between the science community and the policy makers, Mr. Bahr is uniquely positioned to reflect on the state of communication between these two very different fields. He believes that "a quiet revolution has been going on for the last two years, largely because science is really getting on board with the management process."

In reflecting on the gaps that need to be filled in terms of expertise Mr. Bahr stated that, "there is a shortage of engineers and scientists in the state compared to the national average." This is not a good situation considering the relative need we have in Louisiana for people with these skills. Although Mr. Bahr agreed that this is a challenge in large part for the higher education community to meet he did reflect that we have an incredible situation for people to come and learn these skills, whereby we present the coastal area as a massive field laboratory for students to learn the place specific skills we need.

Panel

- There is an immediate need for the development of a Coastal Engineering program within the Louisiana University system.
- This training needs to be provided to students as well as to current industry professionals who need to add this skill set to their qualifications.
- Louisiana needs to compete more for available NSF funding to assist in the establishment of these programs.
- The Law departments are mobilizing to train students in coastal law to address the emerging legal issues associated with coastal restoration.
- The Louisiana coastal system is so complex and unique that there is a need for locally trained people if this coastal restoration effort is to be truly effective.

Val Marmillion started this panel discussion by presenting these higher education and industry leaders with the question; "Do we have the talent in the state for today's demand and the demand that will be growing for the different kinds of

careers that we can imagine, the capacity to manage scientific, environmental engineering, legal, project management aspects of such a massive project?"

Russ Chapman of LSU offered part of an answer by pointing out that "colleges and universities around the state have been providing well trained professionals in this industry to private positions and state agencies for some time." It was acknowledged that some gaps in the programs do still exist, of which the most glaring to many people is the absence of a coordinated Coastal Engineering program. LSU is currently developing such a program, and Tulane University is about to offer a cross disciplinary graduate program from the Engineering school where such skills can be attained, but why has this taken so long? Dr. Chapman thinks the reason is a simple one; "generally because there is an inadequate budget to introduce new programs."

Coastal Planning consultant Robert Tannen made the point that this is a new field – "maybe 30-35 years old" and that this is a new educational need in general. Prior to the identification of the coastal erosion problem as well as the impetus to do something about it, there was not a need for such a qualification. O'Neal Marlborough, Director of confirmed Mr. Tannen's comments; "the need has just become apparent in the last 15 to 18 years since the state and public have got serious about trying to solve this problem."

While many people are quick to say that Coastal Engineers need to be brought in from out of state to address the critical shortage we are experiencing now, Mr. Marlborough has experienced his own problems doing this for his company; "Louisiana's completely different systems means that people trained elsewhere do not have the knowledge that we need." This strengthens a point that is becoming a common theme for the day's discussions - coastal systems in Louisiana are so complex and unique that we need a strong educational program in State to provide a majority of the professionals to work on the problem.

Winston Day from LSU's law program added that there is an emerging field in this coastal restoration program that requires specifically trained law professionals. Currently "the wealth of talent in the legal profession is in the oil and gas industry." Mr. Day announced that he has established a coastal zone law unit that will help people train in the local law necessary to contribute to this effort. In terms of job opportunities for people who choose to specialize in this field, Mr. Day believes that there will be myriad issues that will need professional legal attention – "therefore jobs for people who train in this issue."

Karen Gautreaux of the Department of Environmental Quality added to this consideration of what jobs will become available as the coastal restoration process progresses. Ms. Gautreaux strongly believes that the state "science plan will prioritize the needs for trained workers to work in coastal restoration. Higher education should respond to the needs highlighted in the plan."

Elizabeth Telis of the NSF was asked to respond as to why the NSF should care about this locally based issue. Her answer was “it is the future of the country to have a well trained science and technology work force.” To add to this point, Ms. Telis stated that Louisiana has been notably absent from competing for the significant suite of NSF grants that are offered to strengthen educational programs such as the ones discussed today. Ms. Telis urged Louisiana’s Universities and Community Colleges to utilize this resource as a means to strengthen the programs that are being discussed here today.

Mr. Marlborough urged the higher education to take advantage of these programs. As a means of illustrating the realities of these ‘holes’ in the system, Mr. Marlborough told the audience of how he had to travel to Madison Wisconsin to take a wetland engineering course so he could get the skills he needed to meet the needs of his customers in Louisiana. He feels that these gaps could be filled quite easily to meet the immediate needs of industry professionals who need these added skills.

In agreeing with these comments, Mr. Tannen suggested that; “you could train existing engineers with some supplementary courses on coastal issues. The oil and gas engineers in state could modify there skill set only a small amount with a small focus shift to utilize their science skills for a different resource.” Ms. Telis agreed that this would be a good start to addressing these real needs.

Mr. Marlborough added another element to strengthen this position. His company has had such problems finding appropriately skilled professionals that he has had to recruit from overseas. Although these people with a little extra training can meet the technical requirements of the job, they come up short in being able to deal with the people of the area and their values and ideals about their environment. “Very few people from outside the area understand why people want to live in Chauvin and Montegut, so recruiting local people to work in the field who can appreciate this kind of thing is much appreciated.”

The local postgraduate program needs to step up pretty quickly and to provide for the needs of the industry according to Mr. Marlborough and his colleagues. A Masters program in coastal engineering is needed. In agreeing with Mr. Marlborough, Dr. Chapman expressed concern as to how the academic community will keep abreast of the changing needs of industry as this coastal restoration process progresses over time.

Val Marmillion takes this moment to ask these professionals to reflect on whether we have the local talent to utilize the coastal restoration money that might arrive soon. Mr. Tannen again stressed his point that as a parallel to bolstering undergraduate and graduate programs, some adult education is needed. This is not a huge process as Mr. Tannen specifically states – “not an additional degree, but existing engineers could take classes tailored to existing professionals to give them the extra skill sets that they need.”

As another rationale to move quickly to ensure we have the local talent to meet these needs, Ms. Gautreaux adds that; “we have a wonderful opportunity to develop the sciences and technologies to export to other areas in the world that are experiencing similar problems or where there are similar applications.” By mobilizing to meet our own needs, Louisiana could become a world leader in what is an important emerging field. Delta systems are important systems worldwide and many of the failing deltas are in countries that do not have the educational resources to deal with the problem. By establishing the educational programs that train people in these kinds of problem solving applications we can export our knowledge to the world.

Address

“Peril Without Prescription: Resulting Impact of Inaction”

R. King Milling, President, Whitney National Bank and Chairman, Governor’s Advisory Commission on Coastal Restoration and Conservation

- “Louisiana is at the cross hairs of a crisis of untold cost to our economy to our culture our history and every aspect of life.”
- The Louisiana coast is a “working ecosystem” that is the protective barrier for billions of dollars of infrastructure and investments.
- Without adequate funding to institute restoration Louisiana and the nation is facing an economic, environmental and cultural catastrophe.

King Milling has been one of the most the most outspoken supporters of Coastal Restoration in Louisiana since the magnitude of this problem was first publicized. As a leading member of the business community in New Orleans Mr. Milling immediately saw the economic devastation this environmental catastrophe would induce. But also as a Louisianan, he saw how the loss of this wetland ecosystem meant the loss of the heart and the soul of the State.

To focus attention on the immediate need for action, Mr. Milling reflected on the one-week period in the hurricane season of 2002 when two large hurricanes were in the Gulf of Mexico heading for the Louisiana coast. These storms both weakened just before landfall, hence preventing total catastrophic destruction of the area, but even as weaker storms they caused an enormous amount of damage.

Mr. Milling stated; “Louisiana is at the cross hairs of a crisis of untold cost to our economy to our culture our history and every aspect of life. The real question boils down to whether LA has the capacity to do everything possible to reestablish a sustainable coastal system that has over 100’s and thousands of years protected life within this area. If the answer to this no, if we do not have that resolve and we cannot achieve that political will then I can suggest to you without any hesitation that the long term continuation of the lifestyle we enjoy and

the lifestyle we intend our grandchildren to enjoy is in clear jeopardy. The question is then, can this be fixed? I have been told that we can reverse this destruction and achieve a sustainable coastline.”

This call to action is the kind of commentary Mr. Milling has been making to business leaders in the region and around the nation in an attempt to highlight the seriousness of this issue. What is so important about Mr. Millings message is his ability to communicate the threat to the economic sustainability of the state and the nation if this ecosystem was to totally collapse.

“It is the protective barrier for billions of dollars of infrastructure and investments. It is a working ecosystem. We do not have sandy beaches and million dollar homes. It is the foundation of our economy and everybody benefits from it.” The billions of dollars that Mr. Milling refers to is largely made up of oil and gas infrastructure and port facilities, two industries that will not be able to continue to do business in the region without the protection offered by the coastal wetlands. Two industries also, that stand to lose massive investments if the rate of coastal land loss is not reversed.

In expanding on the scale of business that is currently conducted within this coastal area Mr. Milling pointed out that, “the largest port system in the world here handles 483 million tones of commerce annually, which is in excess of \$75 billion” and that “\$4.7 billion a year is saved on the shipping provided by the intra-coastal waterway.” The coastal wetlands are the protective barrier for this waterway. As the coastline disappears, all of this infrastructure, including all of the public roads and utilities, are threatened.

Based on this short presentation alone there is a clear economic justification to proceed with coastal restoration in Louisiana. But without a clear guarantee that every method employed by the coastal restoration community will be successful, funding is proving difficult to secure. Mr. Milling acknowledged this when he said, “We all know that there are significant risks involved, we will most likely make mistakes, but we have no choice but to continue.”

In strengthening this argument on a national perspective Mr. Milling raised the example of the Barataria-Terrebone area: “In Barataria-Terrebone basin alone there are 220 thousand homes, 180 thousand commercial buildings, 200 schools and more. If this country decides that they will not provide the resources for this problem they will effectively be abandoning entire communities.”

To appeal to people statewide Mr. Milling included that; “the impacts of this problem effect more than the local people. The state tax base will be literally washed away – 60 cents out of every dollar spent on state infrastructure come out of the wetlands.”

Even with this strong argument for the rapid mobilization of the coastal restoration workforce, Mr. Milling acknowledge he had barely skimmed the surface of what will be lost if we continue to fail to act to stop this erosion. “Everyone in this room lives and works and plays on the edge of a crisis” Mr. Milling reminded all present, “We have no option but to proceed with coastal restoration.”

Plenary Session “Sustainable Development in the Coastal Zone”

Panelists:

Dr. John W. Day, Jr., Ph.D., *Professor, Coastal Ecology Institute and Department of Oceanography & Coastal Sciences, Louisiana State University*

Tony Franchina, *Legislative and Regulatory Affairs, Shell Pipeline Company LP*

Dr. Shirley B. Laska, Ph.D., *Director, Center for Hazards Assessment, Response and Technology and Professor, Department of Sociology, University of New Orleans*

Dr. Paul H. Templet, Ph.D., *Professor, Department of Environmental Studies, Louisiana State University*

Moderator:

Ted Falgout, *Executive Director, Greater Lafourche Port Commission*

- Sustainability is a key issue for the general management of a coastal restoration plan.
- Sustainability in coastal Louisiana comes with different emphases for different interests.
- Ecosystem restoration must be the focus if the sustainability achieved is to be equally available to all of the interested parties in the area.

As Executive Director for the Greater Lafourche Port Commission, Ted Falgout is well positioned to talk about the importance of sustaining the Louisiana coast as a place to do business. He is also quick to admit that this just one of many perspectives on the concept of sustainability as it applies to this area. Mr. Falgout initiates this discussion by asking the panel for their versions of what sustainability means in coastal Louisiana.

Coastal Ecologist Dr. John Day answered in the context of a scientific interpretation. From his perspective, sustainability is “the ability of the wetlands to keep up with the sinking of the deltaic plan. In the past the Mississippi delta has been sustainable when seasonal flooding has provided sediments and nutrients to assist the plants in keeping up with the subsidence. But now this is not possible due to the levees. We must reintroduce these natural elements to achieve sustainability.”

Tony Franchina of Shell Pipeline Company had brought along Shells official operating approach to sustainability. This approach calls on three modes of behaviour that the company self-enforces on all of its activities. These are to conduct business in a way that is economically viable, that is environmentally sound and responsible and that is socially responsible. Mr. Franchina expanded by saying that this “is not a program it is more of a mindset.” And that “supporting the **America’s WETLAND** campaign is one way we implement this mind set locally.”

Dr. Paul Templet of the LSU Environmental Studies looked at how to best re-instate ecological sustainability through coastal restoration projects. “The diversions in the current plans are heading in the right direction for achieving sustainability in the wetlands survival.” This mimicking of the seasonal flooding cycle is strongly favored by most scientists involved in the establishment of the unified restoration plan as the most powerful tool at our disposal.

Dr. Shirley Laska was sure to include people and their activities somewhere in this locally based definition. From a sociological perspective, or more specifically political ecology, sustainability requires that land and resources, both renewable and non-renewable, need to be managed in as wise a manner as possible. To achieve this the local communities must be aware of what might help or hurt them through their own actions and through actions of others. To add to this general idea, Dr. Laska included a definition she had worked with previously that has a good ‘fit’ with coastal Louisiana; “certain places through the peculiar combination of physical, cultural and perhaps spiritual characteristics, inspire people to care for their communities, these are the places where sustainability has the best chances of taking hold.”

These simple statements reflect the differences in the meaning of sustainability to coastal Louisiana’s citizens. With the term so commonly used as a general goal for the entire restoration effort it is critically important that all of the stakeholders have the chance to articulate their feelings on the issue. Such a discussion can go a long way towards deciding how to distribute the costs and benefits of restoration fairly as Dr. Laska said. She further believed that “the restoration must truly be based on ecosystem restoration rather than who is going to benefit from restoration. This way everybody cannot benefit from the restoration and the ecosystem services that will be sustained.”

Closing Session “**A Compact for Cooperation: Promoting Ideas from Within Louisiana, Publishing & Attracting the Best Talent & Science**”

Panelists:

Dr. Walter G. Bumphus, Ph.D., President, Louisiana Community & Technical College System

Dr. William L. Jenkins, Ph.D., President, Louisiana State University System

Dr. John A. McLachlan, Ph.D., Director, Center for Bioenvironmental Research at Tulane and Xavier Universities

Dr. Timothy P. Ryan, Ph.D., Chancellor, University of New Orleans

Moderator:

Dr. Robert R. Twilley, Ph.D., Director, Center for Ecology and Environmental Technology and Professor, Department of Biology, University of Louisiana, Lafayette

- Louisiana Universities must focus on applied research to address this huge problem in our own backyard.
- Universities are uniquely positioned to address this issue as they have neither a profit motive nor a political agenda.
- The trend for universities to embrace interdisciplinary research must be further encouraged in Louisiana for the benefit of coastal restoration research.
- Universities must strike a balance between common areas of interest in coastal restoration and discrete fields of specialization so a structure is maintained where each university can maintain its individual institutional excellence.

The members of this panel are from the highest level of higher education administration in the state. This discussion, to be moderated by Dr. Robert Twilley, is a unique opportunity to hear the group reflections of the university leaders about their goals for an appropriate institutional response to the coastal land loss crisis. Dr. Twilley initiates the discussion with the broadest of questions, Where does higher education fit in the restoration effort, what is our mission?

Dr. William Jenkins, President of the LSU system feels very strongly that “our institutions of higher learning are absolutely central to this effort. What we do in our research institutions must be absolutely applicable.” He added that the operating guidelines for the LSU system call for community engagement in university operations. This coastal erosion problem is the perfect example of how the university system can use its teaching and learning as well as research and discovery capabilities to engage and aid the Louisiana community.

Dr. Tim Ryan, Chancellor of the University of New Orleans (UNO) also feels strongly about the role of universities in assisting communities in big problems like this one. He says that as “universities have neither a profit motive or an agenda, we can bring all of our resources to the table and not be impeded by these things that hold back private business and government. This is part of what we as universities were designed to do. We as leaders of education need to listen to audiences like today and respond.”

The theme of interdisciplinary learning and research was popular with earlier panels and Dr. John McLachlan from the Center for Bioenvironmental Research at Tulane and Xavier Universities raised the issue again. Dr. McLachlan reflected on the fact that “universities are in a period of transition where interdisciplinary projects are being embraced and that this can definitely be used for the benefit of this situation.” To reinforce the power of such collaborations he added that, “universities comprise a talent pool that do not exist anywhere else in the state.”

Dr. Twilley asked the panelists how they could utilize their leadership roles to ensure the responsiveness of their universities to the needs of this situation. Dr. Ryan answered; “As university leaders we can set the incentive structure and make applied research a priority in Louisiana universities – that is where the leadership comes in.” By making sufficient rewards available for faculty willing to explore the pressing applied science issues that the community is facing, the universities can ensure that the best minds available are addressing the coastal erosion issue.

As another method of ensuring the best minds are applied to the tasks at hand, it was suggested that state funding streams are established to encourage inter-university collaborations. This would leverage expertise across institutional boundaries. Dr. McLachlan agreed with this concept, however he expressed concern at how these institutions would maintain their individual institutional excellence. He suggests that a method such as cooperative specialization where each of the universities can specialize in a niche in the system, but cooperate in the system as a whole, could facilitate this need. In his example, Dr. McLachlan suggested a theoretical framework where LSU would specialize in wetlands, UNO in Lake Pontchartrain and barrier islands and Tulane in the river. This way “we can continue to have our individual institutional excellence and reputation but work in a way that the big project works and acknowledge that this is one big system.”

This initial meeting of the minds of the state education leaders shows that there is clear engagement of this problem from within the higher education community. With strong leadership, these institutions can provide effective and beneficial support services for the coastal restoration while adhering to their operational guidelines for good education.

Appendix A

Task Committee on America's WETLAND American Society of Civil Engineers

James R. Hanchey, PE, Chair

Assistant Secretary, Louisiana Department of Natural Resources

Steven R. Abt, PhD, PE, Member

Professor of Civil Engineering and Executive Associate Dean, Colorado State University

Gordon P. Boutwell, Jr., Ph.D., PE, Member

President, Soil Testing Engineers, Baton Rouge, Louisiana

Charles C. Calhoun, Jr., PE, Member

Consultant, Vicksburg, MS

Henry J. Hatch, PE, Member

Consultant, Washington, DC

Donald F. Hayes, Ph.D., PE, Member

Associate Professor of Civil Engineering, University of Utah

Ehab A. Meselhe, Ph.D., PE, Member

Associate Professor at the Civil Engineering Department of the University of Louisiana, Lafayette

John E. Durrant, PE, Advisor

Managing Director of Engineering Programs, American Society of Civil Engineers

Dominic Izzo, PE, Advisor

Vice President, Marine Engineering Business Line, U.S. Gulf Coast, DMJM+HARRIS, Houston, TX

Gerald E. Galloway, Jr. PE, Ph.D., Consultant

Vice President, Enterprise Engineering Group, ES3 Sector, Titan Corporation

Jerome Delli Priscoli, Ph.D., Consultant

Senior Policy Analyst, US Army Institute for Water Resources, Ft. Belvoir, VA

Appendix B

America's WETLAND Technical Summit

October 16-17, 2003

Hotel Monaco - New Orleans

Organized by:

American Society of Civil Engineers *Thursday, October 16, 2003*

1:00 PM **America's WETLAND INTRODUCTORY VIDEO**

1:10 PM **INTRODUCTION**

James R. Hanchey, Assistant Secretary, Louisiana
Department of Natural Resources

1:15 PM **WELCOMING ADDRESS**

Andy Kopplin, Chief of Staff for Governor M. J. "Mike" Foster, Jr.

1:30 PM **OPENING SESSION**

The Honorable G. Tracy Mehan, Assistant
Administrator for Water, U.S. Environmental Protection
Agency

The Honorable John Paul Woodley, Assistant Secretary of
the Army (Civil Works)

Lieutenant General Robert B. Flowers, Chief of Engineers,
U.S. Army Corps of Engineers

2:30 PM **BREAK**

2:45 PM **EXPLANATION OF PROCEDURES AND GOALS
OF WORKSHOPS**

Gerald E. Galloway, P.E., Vice President,
Enterprise Engineering Group, Enterprise Services
and Solutions Sector, Titan Corporation

Jerome Delli Priscoli, Institute for Water Resources

3:00 PM **GENERAL SESSION "The
Challenge"**

James Coleman, Professor, Louisiana State University

Robert Twilley, Director, Center for Ecology and Environmental Technology, and Professor, Department of Biology, University of Louisiana, Lafayette

Ted Falgout, Executive Director, Greater Lafourche Port Commission

"Responding to the Challenge"

Berwick Duval, Attorney at Law, Member, Governor's Advisory Commission on Coastal Restoration and Conservation

Bill Good, Administrator, Coastal Restoration Division, Louisiana Department of Natural Resources

Jon Porthouse, Planning Section Manager, "Coastal Restoration Division, Louisiana Department of Natural Resources

5:00 PM RECEPTION
Cobalt Restaurant, Hotel Monaco

Friday, October 17, 2003

8:00 AM America's WETLAND "DON'T BE A BIG LOSER" VIDEO

8:10 AM WELCOME
Thomas L. Jackson, P.E., F. ASCE
President, American Society of Civil Engineers
Vice President and Chief Engineer, DMJM-Harris

8:20 AM CASE STUDY BRIEFINGS

California Bay-Delta
Dan Ray, Environmental Scientist, Ecosystem Restoration Program, California Bay-Delta Authority

Chesapeake Bay
Carin Bisland, Associate Director for Ecosystem Management, Chesapeake Bay Program Office

Florida Everglades
Stuart J. Appelbaum, Chief, RECOVER Branch, U.S. Army Corps of Engineers, Jacksonville District

Venice and The Netherlands

Charles McClennen, Professor, Colgate University

Huib de Vriend, Professor of Integrated Modeling at the University of Twente, Netherlands

9:30 AM WORKSHOP PROCEDURES & THEMES

Gerald E. Galloway, PE, Vice President, Enterprise Engineering Group, Enterprise Services and Solutions Sector, Titan Corporation

9:45 AM BREAK

10:00 AM WORKSHOP SESSION I

California Bay-Delta - *Sydney Boardroom*

Chesapeake Bay - *Athens Boardroom Florida*

Everglades - *Tokyo Boardroom Venice and The*

Netherlands - *Paris Ballroom*

12:00 PM LUNCH

1:00 PM WORKSHOP SESSION II

California Bay-Delta - *Sydney Boardroom*

Chesapeake Bay - *Athens Boardroom Florida*

Everglades - *Tokyo Boardroom Venice and The*

Netherlands - *Paris Ballroom*

2:45 PM BREAK

3:00 PM WORKSHOP GENERAL SESSION

Breakout Reports and Workshop Conclusions

4:55 PM CLOSING REMARKS

James R. Hanchey, Assistant Secretary, Louisiana Department of Natural Resources

Appendix C

Speakers America's WETLAND Technical Summit

Stuart J. Appelbaum
Chief, RECOVER Branch, U.S. Army Corps of Engineers, Jacksonville District

Carin Bisland
Associate Director for Ecosystem Management, Chesapeake Bay Program Office

Dr. James Coleman
Professor, Louisiana State University

Berwick Duval
Attorney at Law, Member, Governor's Advisory Commission on Coastal
Restoration and Conservation

Ted Falgout
Executive Director, Greater Lafourche Port Commission

Lieutenant General Robert B. Flowers
Chief of Engineers, U.S. Army Corps of Engineers

Dr. Gerald E. Galloway
Vice President, Enterprise Engineering Group, ES3 Sector Titan Corporation

Bill Good
Administrator, Coastal Restoration Division, Louisiana Department of Natural
Resources

James R. Hanchey
Assistant Secretary, Louisiana Department of Natural Resources

Lauren L. Hastings
Delta Regional Coordinator, Ecosystem Restoration Program, California Bay-
Delta Authority

Thomas L. Jackson
President, American Society of Civil Engineers
Vice President and Chief Engineer, DMJM-Harris

Andy Kopplin
Chief of Staff for Louisiana Governor M. J. "Mike" Foster, Jr.

Dr. Charles McClennen
Professor, Colgate University

Honorable G. Tracy Mehan
Assistant Administrator for Water, U.S. Environmental Protection Agency

Jon Porthouse
Planning Section Manager, "Coastal Restoration Division, Louisiana
Department of Natural Resources

Dr. Jerome Delli Priscoli
US Army Institute for Water Resources

Dan Ray
Environmental Scientist, Ecosystem Restoration Program, California Bay-
Delta Authority

Robert Twilley
Director, Center for Ecology and Environmental Technology, and Professor,
Department of Biology, University of Louisiana, Lafayette

Honorable John Paul Woodley
Assistant Secretary of the Army (Civil Works)

Dr. Huib de Vriend
Professor of Integrated Modeling, University of Twente, Netherlands