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EXAMINE COASTAL EROSION CAUSES, EFFECT AND SOLUTIONS IN LOUISIANA, INCLUDING THE LOUISIANA COASTAL AREA ECOSYSTEM RESTORATION PLAN PROPOSED FOR AUTHORIZATION IN THE WATER RESOURCES DEVELOPMENT ACT OF 2005

HEARING

BEFORE THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS UNITED STATES SENATE

ONE HUNDRED NINTH CONGRESS

FIRST SESSION

AUGUST 26, 2005—NEW ORLEANS, LA

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FRIDAY, AUGUST 26, 2005

U.S. SENATE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
New Orleans, LA.

The committee met pursuant to notice, at 10 o'clock a.m. at the University of New Orleans (UNO) Research and Technology Park, 2045 Lakeshore Drive, Room 236, Lindy Boggs Conference Center, New Orleans, LA. Hon. David Vitter presiding.

Present: Senator Vitter.

OPENING STATEMENT OF HON. DAVID VITTER, U.S. SENATOR FROM THE STATE OF LOUISIANA

Senator VITTER. We will now convene the U.S. Committee on the Environment and Public Works to review the causes and effects of coastal land loss in Louisiana and the proposed solutions to address this crisis. Thanks to all of you for being here.

Now, in Louisiana, though we're not too strict on needing reasons to throw a party, I think we have some real good substantive reasons this year: Several major victories on the Federal level, WRDA, which is moving through the process; the Highway bill, which is now signed into law; the Energy bill, which is signed into law with the major coastal provision. I'm very hopeful we're just getting started.

I want to begin this year by saying thank you to all the folks in this room and elsewhere all around Louisiana. All the citizens of Louisiana who came together and are dedicated on this issue, dedicated to the restoration of Louisiana's coast, so please give yourselves and everyone who deserves it a round of applause.

[Applause.]

Together we are making a difference with some initial successes, and more work needs to be done but we are making a difference.

There are so many people to thank, including some here. I can't go through the entire list but I certainly want to point out the work of Secretary Angelle on behalf of the Governor and her administration, Sidney Coffee and Randy Hanchey with the State; and, cer-

tainly my partner in the Senate, Senator Landrieu, who we're going to hear from in just a few minutes. Also Jason, Bubba and Kathleen in Mary's office. Also the two of us want to join together and thank the whole Louisiana congressional Delegation, which is very much united as a team on this important work, and that's paying off.

In my opening statement, I want to very briefly go through the recent history of coastal restoration efforts and where things currently stand today. In 2000, the U.S. House of Representatives passed the Conservation and Reinvestment Act, better known as CARA, and that was originally authored in the House by Congressmen Billy Tauzin, Don Young, and John Dingle.

Of course, it was authored in the Senate by Senator Landrieu, who is with us today. The bill passed by a 3 to 1 margin and would have provided $311 million to the State of Louisiana annually. Despite valiant efforts and a lot of hard work by Mary and others in the Senate, it got bogged down really in some of the instruction there.

So we set out again—my predecessors, I should say, set out, the whole delegation in 2002 and 2003 in CARA, moving it along but not quite to the ultimate finish line. That really paved the way for our continuing work, including our victory in the Energy bill, just a few weeks ago which I'll get to in a minute.

At the same time we've all been working hard on another key piece of Federal legislation, and that is WRDA, the Water Resources Development Act. We had significant inclusion of a Louisiana coastal provision in WRDA last year that was about $325 million a program for coastal Louisiana.

It didn't pass last year so we came back and redoubled our efforts on WRDA this year with really good success. This year we're able to increase that authorization to $1.9 billion in the current Senate WRDA, that comes before the jurisdiction of this committee on which I serve, Environment and Public Works. So we're eager to continue the work to pass WRDA through the Senate and have it signed by President Bush.

That finally brings me to the Energy bill. As I said, all of this work, including CARA, led to our efforts on this year's Energy bill. That was finally passed into law and signed by President Bush on August of this year. We were able to include in it—Through a lot of folks' hard work, certainly Mary, also myself, working on the Senate side, we had a Senate floor amendment, which passed, to provide the State with $540 million to restore the coast. That was part of a billion-dollar, 4-year provision for the coastal-producing States, Louisiana getting the lion's share of that $540 million.

A full 35 percent of these funds will go directly to the parishes, coastal parishes, to help; directly to them for their battle on coastal erosion. Then the remaining 65 percent will go to the effort statewide, led by the State, the U.S. Army Corps of Engineers and others to extend this. This is the first time in decades that the U.S. Senate has passed mandatory spending associated with oil and gas royalties for our coast.

This, together with the Environment and Public Work Committee's WRDA bill provision authorizing a joint effort of seven Fed-

eral Agencies and a $1.9 billion program, are major actions toward comprehensive restoration.

These actions represent the substance of three of the five bills, included in my coast package that I introduced earlier this year with the active partnership and help of everyone in the Louisiana congressional Delegation.

So these are huge victories for all of us that everyone worked on and that we're all very proud of and it's a great start, but, of course, it's just a start on which we need to build.

You know, for decades we've been talking about comprehensive restoration. I want to be clear, this $540 million Energy bill and this $1.9 billion authorization are for construction to actually begin restoration, not just more studies, reviews or reports.

I also want to be clear that this is the start and not the end. This is not the end and this is not in place of the $15 billion comprehensive restoration program identified in the Corps in the coast 2050 plan, this case is just a deposit on that $15 billion program. There will be much more to come as there needs to be.

Note, at the national level, Louisiana coastal area program as compared—has been compared to other large scale projects, like the Florida Everglades and Chesapeake Bay.

Growing up here I've spent a tremendous amount of time in coastal Louisiana. I've also been to Chesapeake Bay in Florida. I am here to tell you that there is absolutely no comparison. Those areas, those projects are important and I'm supportive of them, but there truly is no comparison, including in terms of the national significance of what we're dealing with here in coastal Louisiana.

Maryland's crab cakes use Louisiana blue crab meat, I'll have you know. I understand many of the problems Florida is experiencing are attributable to the decisions of State and ad interest and water interest and others have made there on the ground for temporary political or parochial or State gain.

Further, Florida has repeatedly rejected efforts to address our Nation's need to enhance energy secured and reduce our alliance on foreign energy sources by beginning production of Federal energy resources offshore.

It may be politically correct for Florida to consume energy and oppose production off their coast, but the reality is that they're utilizing up to 23 times the energy they produce and claim energy production offshore will adversely impact their sunbathing, and we are paying $2.60 a gallon for gasoline in New Orleans today; meanwhile, what is the very different picture in Louisiana?

The different picture is we've provided over $120 billion to the Federal Government in energy royalties from our offshore production and we're one of the few States that produce much more energy than we consume so that States like Florida and California and some other coastal States can keep the lights and their home air conditioned without really doing their part.

I wanted to hold this hearing today to talk about this: Where we are, where we go from here, because we are at a truly historic and crucial point.

As we begin to implement our comprehensive restoration strategy, we must keep in mind that the same activities that make our coast important have the potential to derail this effort.

We have come this far because we have had open communications. We've been inclusive and we've worked together. So we need to continue in that vein.

Louisiana has grown into the top seafood producer in the lower 48 States. The Census Bureau determined that Louisiana is the most productive work force in the country. We have developed the largest port system in the world. We produce more energy offshore than the next five most-productive States combined. We're doing great things on our working coast.

If we're going to continue to move forward, we must continue to include fishermen, maritime community, oil and gas community, and most importantly, all citizens of South Louisiana.

We really have an excellent group of panelists today in three distinct panels, and I look forward to hearing from all of them.

According to the rules of the committee, I'm going to ask each witness to keep oral statements to about 5 minutes, and, of course, full written statements will be included in the reference. So let's move on to our hearing and our first panel, and our panel is a very distinguished panel, Senator Mary Landrieu will testify on this topic.

I want to thank Mary for being a full partner in the Senate, for being extremely active and energetic on this issue from the moment she ran for the Senate. She's clearly made coastal restoration an absolute top priority and serves on two extremely important committees for this effort, the Senator Energy Committee and the Senate Appropriations Committee.

Mary, welcome.

STATEMENT OF HON. MARY LANDRIEU, U.S. SENATOR FROM THE STATE OF LOUISIANA

Senator LANDRIEU. Thank you, Senator Vitter, and thank you all for being a part of this very important hearing today. I want to start by thanking Chairman Inhofe, who is a great colleague of ours and partner of the Senate that is really focused on his efforts as chairman of this important committee on Louisiana's coast.

I want to thank Senator David Vitter for conducting this hearing because now, as a new member of this committee, he is very strategically placed to continue to push this issue, not only here at home but throughout the Nation. So having this hearing in Louisiana and right here in New Orleans at the University of New Orleans is quite important. I thank Senator Vitter.

Let me just make a couple of very brief comments, because the Senator covered a great deal of the importance of the coast. First let me say that the loss of much of America's wetlands is indeed catastrophic. With quick, decisive and bold action, this wetland can be restored and rebuilt.

The cost sharing of the Federal Government should be, in my opinion, 75/25; more aggressive than the current cost sharing. I think the witnesses that are on the first and second panel will give the details for the record of this conference why this should be the case.

The magnitude of the security and economic benefits of this working coast, the only energy coast in the Nation, will justify this—this cost sharing.

Unfortunately, as Senator Vitter knows and is committed to help me reverse this decision, the current administration is arguing for a 50/50 cost share. I understand there will be a lot of testimony about that, but let me in my opening remarks be right on the record.

Because of the uniqueness of Louisiana's coast, because of the unique and special contribution the Corps of Engineers is certainly aware of, we're going to have to receive—in order to restore the coast the way we know we need to, we are going to have to receive a more generous cost share. We think we deserve it. The testimony that will be laid down today will hopefully move us in that direction.

Let me just add a few things to what Senator Vitter said about the history here. The foundation for a lot of this work that we are now pushing forward through the WRDA bill and through the Energy bill was initially laid down by our predecessor, Senator John Breaux, when he passed the Breaux Act—and somebody can put the date into the record in 1990.

The Breaux Act was not related to energy; it wasn't necessarily related to WRDA, but it was through the Finance Committee that there was a special tax that was directed, particularly to Louisiana, and that $20 to $50 million a year, which Senator Breaux and Congressman Tauzin, particularly Congressman Tauzin helped, and John was on the Finance Committee—laid that down and that gave us the science. The Corps has used that money with the State and the previous Administration, the Foster Administration, and now in the Blanco Administration, to lay down the science that we now know the coast can be restored.

Ten years ago that was a real question. But we believe with the work that's been done and the research that our university and the Corps have done primarily, that we know that the coast can be saved. We have a plan now to save the coast.

The challenge is that the plan is going to cost us between $15 and $20 billion. So we have to get as many different sources of Federal revenue as we can so that we can actually accomplish this task.

The people of Louisiana cannot afford to pick up this tab. They shouldn't be asked to, considering, as Senator Vitter has stated, the tremendous contributions that this working coast makes to the bottom line of the economy and to the direct impact positively to the General Fund.

So I'm going to submit the rest of my statement to the record, but I wanted to add that. The work on the education work that was done through CARA, I think in large measure laid much of the ground work for—at least for the recognition of the importance of this issue to Louisiana and to the Nation.

Then, finally, as the Senator mentioned on this final Energy bill, it is not insignificant and should not be underestimated the importance of only $2 billion being in the entire Energy bill for the Nation in direct spending in it's entirety, $2 billion. This coastal project for the energy coast, for Texas, Mississippi, Louisiana, and Alabama, California, and Alaska—and I'll get to California in a minute—we got half of that money directed; half, $1 billion. Of that, Louisiana has 54 percent.

So the Federal Government is awake. They're recognizing what we're doing. If this, hopefully, committee that David is conducting lays down testimony, we can build on that record and really begin to bring the huge dollars that it's going to take to restore this coast and make a tremendous contribution to our State and the Nation.

Thank you. Senator Vitter.

Senator VITTER. Thank you, Senator.

I've never had the opportunity to cross-examine you before so I'm certainly not going to let that pass now. I did just want to ask you a few things that you've been very involved in, and one is this cost share.

As you know, a sort of typical standard cost share for projects is 65 percent Federal. I believe, as you do, there's a lot of justification for going higher than that, say, 75 percent, but the Administration has proposed significantly less, 50 percent.

If you can speak a little more to that and why we should—we should not only get 65 but higher.

Senator LANDRIEU. Well, I think the Senator points out a great point. The normal cost share in the WRDA bill for all projects of this nature are 65/35. It's been a standard the Corps has used. The Corps will be here to testify to that.

The Administration is, I think, wrongly proposing that this plan have a 50/50 cost share. I'm hoping the testimony today will make clear into the record that our cost share should really be 75/25 because of the direct and substantial contribution that this coast makes, uniquely—uniquely to the Federal Government.

The Everglades is not host to the oil and gas industry. The Great Lakes do not drain two-thirds of the United States. The Chesapeake does not produce anywhere near either energy or fisheries resources that this Delta does. It is the only one like it in North America.

So the Federal Government must understand that they have more of an interest; therefore, they should pick up more of the tab. Not only to mention that Louisiana, while we're a proud State, we are not as wealthy as some of the other States are: Connecticut and New York.

We keep the lights on in Connecticut. We keep the lights on in New York, and we keep the lights on in California.

Our people don't have the same level of income to support this massive project, and we shouldn't have to.

So, Senator Vitter, I know you feel as passionately as I do about this, and I hope we can lay this testimony down in a way that we might persuade some of our colleagues that you and I are correct about this, and change some minds in Washington.

Senator VITTER. Mary, I know a big part of this challenge, nationally, that you have taken a leadership role in is the education of challenge; educating a lot of folks, certainly other U.S. Senators.

How do you think that has progressed in the last several years?

Senator LANDRIEU. Well, one word to describe it would be an amazing turnaround. You know this, and others in the room know this, but 8 years ago when the testimony—and the Energy Committee will show this, Senator Pete Domenici, who chaired the Energy Committee stated 8 years ago at a public hearing that he was

opposed, unequivocally opposed to revenue sharing with the Federal Government for Louisiana.

Eight years later, after many conversations and many hearings and all of the work that went on and a flight over the marsh, he led the effort—republican Chair of the Energy Committee, led the effort to make this possible.

So, Senator Vitter, I can only say that the many trips that you and others and our delegation and the Governors have hosted for Members of Congress worked because we can see the results; and even with Senator Bingham, who you know initially opposed it, once he got down here to see it for himself.

So I'm hoping—You know, our Governor's extended an invitation to the President to come see the coast. Senator Vitter and I have urged him to take her up on that offer. I hope the President himself will come and see it. The Corps obviously sees it; they work on it every day. Hopefully we can get, I don't know, a little bit more energy, if you will, about what we're trying to do.

Senator VITTER. Great.

The last question: Could you briefly describe the differences between onshore and offshore royalty treatment under Federal law and the enormous disadvantage that it creates for us?

Senator LANDRIEU. Absolutely.

Every State came into the union with a different boundary and Louisiana's boundary was set by Federal law decades ago at 3 miles. Outside of that three-mile limit, the State basically does not share directly in any royalties, severance with the Federal Government.

With one exception, that exception is between 3 and 6 miles there was dispute about leases and where the oil was, you know, being drilled, whether on Federal land or State land, so Bennet Johnson and John Breaux—this was before we were even in Congress—argued successfully with the Federal Government to get 27 percent of that funding, which is—now makes up the AG Fund, which we refer to, $640 million.

The legislature spent 500—spent 100—put 540 in a trust fund and that money is still with us today. I used to manage it when I was State treasurer. It's now over a billion dollars, and it funds the university that you're sitting in, so it's going to good use; and all the universities.

The problem is, is that we're generating now off of that 3 miles about $5 billion a year—it used to be about $2 and now it's up to $5, and it's projected to go up to $8.

The reason is, is because drilling is moving offshore—I mean from onshore to offshore to deeper and deeper waters. So one idea Senator Vitter has suggested, that we move our boundaries out, which we may be able to do; whether other States will allows us to move our boundaries without them moving theirs, we don't know, but I think Senator Vitter has a great idea to move it out if we can, or we can get a percentage of everything out from zero to 200 miles because the outer Continental Shelf is 200 miles, from zero to 200. That is basically off limits except for drilling—except off the coast of Louisiana, Mississippi, Alabama, and Texas.

So any way we do it, whether we move our boundaries or just increase our percentage, we need to get a couple of hundred million

dollars a year, at a minimum, from that source because the General Fund is running a pretty significant deficit as we speak.

Senator VITTER. Thank you very much, Senator. Thank you for being here today. More importantly, thanks for all your work on this particular issue.

Senator LANDRIEU. Thank you, Senator.

Senator VITTER. We'd like to invite our next panel to take the stage, and that includes General Riley, Secretary Angelle, Senator Boasso and President Randolph.

As they get seated up here, I'm going to go ahead and begin the introductions so we can move right to their testimony.

First, we have Major General Riley, Director of Civil Works and Deputy Chief of the U.S. Army Corps of Engineers. By the way, General, the new star looks great on your uniform. Congratulations on that.

STATEMENT OF MAJOR GENERAL DON T. RILEY, DIRECTOR OF CIVIL WORKS, U.S. ARMY CORPS OF ENGINEERS

General RILEY. Thank you.

Senator VITTER. I also wanted to mention a quick story involving General Riley. You know, in Washington we have strategically placed a number of Louisianians all over the Federal Government to work on our issues and protect our interests. A lot of folks up there refer to these folks as the "Louisiana Mafia."

Well, we kept trying to break into General Riley's office in that effort, we tried assistance, cleaning people in the office, nothing seemed to work. Finally, we realized the huge opportunity that we had missed before: General Riley's wife is from Louisiana. So we now—we definitely have the inside practice; she's been all over him about restoring our coast.

General Riley was former district commander for the Mississippi Valley Division, which includes Louisiana. He has been a key player in the development of the LCA. Mr. Dan Hitchins from his division office is also with General Riley today.

Also on the panel we're very honored to have Secretary Scott Angelle, Secretary of the Louisiana Department of Natural Resources. Secretary Angelle is the former parish president and has clearly placed coastal restoration at the top of his priority list for the department, working very closely, of course, with Governor Blanco on that commitment.

We also have Senator Walter Boasso. Senator Boasso represents the southeast portion of the State, a good part of St. Bernard and Plaquemines Parishes. This is the area where the Mississippi River Gulf Outlet is located. Senator Boasso is extremely well-versed on this environmental disaster because he has lived in one of the center of gravity for that very worrisome activity. We're honored to have him today and President Charlotte Randolph, the President of Lafourche Parish. Charlotte is very involved in this issue as President of Lafourche Parish, but also as a real leader and a great organization named PACE, Parishes Against Coastal Erosion.

That is a collection of parish leaders from throughout our coastal parishes that has really been very effective, fighting and battling that land loss and fighting for the policy we need to send to the

top. President Randolph has a very unique prospective to provide to the committee, really from front lines of coastal erosion.

So welcome to you all, and we'll begin with General Riley.

General RILEY. Thank you, Senator Vitter.

As General—Senator Vitter said, I'm General Don Riley, Director of Civil Works for the Corps of Engineers, as well as the acting deputy chief of engineers at this time.

Senator I want to thank you for this opportunity to testify. You and Senator Landrieu, thank you both for your leadership in the Senate and our Nation and certainly on this important effort as we restore coastal Louisiana.

You have heard already and will hear more about this great effort, and certainly the urgency to restore America's wetlands. I am here from Washington to demonstrate that both the Corps' and the Administration's support for this work.

We are sincerely committed to this effort with the State of Louisiana. Our strategy has been to reverse the trend as we develop this plan; reverse the trend and stop the losses of coastal wetland loss.

Our initial plan that we have developed addresses the most critical, ecological needs over the first 10 years or so. We have three major components of that: First is targeted restoration of certain areas of the wetlands where we can achieve the most effective impact quickly; second, sustain the natural system as much as possible over a long period of time; and, third, to seek an integrated program across all Federal agencies, State agencies, communities and an integrated project life, as well, with all the project and the coastal restoration efforts ongoing.

This effort has been a multi-Agency achievement, a really heroic effort with the Senate as the team between the Corps and the State of Louisiana.

The chief of engineering signed his report with Senator Landrieu earlier this year. At first, in that report addresses the needs through several different features. It provides the most and the highest return on net environmental and economic benefits per dollar of cost.

As you stated earlier, Senator Vitter, this is just the beginning. Also in the chief's report we recommend studies, potentially long-term, large-scale, long—very promising ecosystem restoration concepts that have a great deal of uncertainty in them, and that's why it's a longer term.

Second, over the long term, we recommend and we clearly recognize we need to address key scientific uncertainties as well as engineering challenges through an S&T program, science and technology program, as well as a science and technology demonstration program.

We do recognize the urgency of this challenge, and we also recognize because of that we cannot proceed with business as usual. So we do look forward to working with the State of Louisiana to develop more streamline approaches that are; one, both timely and effective; and, two, once authorized, we get the projects in the ground quickly.

We are committed to a program that will enable the State and the Nation to protect American wetlands. Again, Senator Vitter, I'd

like to thank you for this opportunity to testify and I look forward to answering any questions you might have.

Senator VITTER. Thank you very much General.

Secretary Angelle, welcome and thank you for being here.

STATEMENT OF SECRETARY SCOTT ANGELLE, LOUISIANA DEPARTMENT OF NATURAL RESOURCES

Secretary ANGELLE. Thank you, Senator. Good morning.

Thank you, Senator, for hosting this very important meeting in New Orleans on such a critical issue for all of America. I am honored to testify today on behalf of Governor Blanco and the pending WRDA bill and a provision that is critical to Louisiana, the LCA.

Let me take a moment to publicly thank you, Senator Vitter, Senator Landrieu, and members of the congressional Delegation for your great work during the consideration of the Energy bill.

Because of the cooperation and leadership of the Governor, our congressional Delegation, our State Legislature and our parish leaders, we are one step closer to restoring America's Wetlands. Indeed, there is a new hope in Louisiana.

As you well know, Senator, Louisiana's coast provides benefits to our Nation, unrivaled by any other coastal area in the United States, from oil and gas production to fisheries to flyaway habitat. These working wetlands serve as storm surge protection for the world's largest port system and for more than two million of our citizens.

As they disappear at the rate of 24 square miles a year, the Nation's economic and energy security is put at risk. The loss has reached crisis proportions and Congress must address it as an emergency, both through funding and speed of action.

While we value and appreciate the Everglades, our problem cannot be compared with restoration effort or any other restoration effort in all of the country. No place on the planet is experiencing land loss of this magnitude, and in no place are the economic and energy impacts to our Nation so severe.

There are many causes of Louisiana's land loss, natural and man-made, not the least of which is the leveeing of the Mississippi River; done for the best of reasons but with the unintended consequences that we protect the wetlands from rebuilding and staying ahead of natural subsidence and sea-level rise.

This generation is not about the blame—blame-game, it's about pulling together to save this vital area and to sustain its values for future generations of Americans. Louisiana considers the Corps of Engineer to be a valuable partner.

Because the special circumstances surrounding Louisiana's unique situation, I would like to point out a few elements of the proposed LCA plan we consider critical.

First, justification for reduced cost share, rather than the traditional 35/65 WRDA match, not just because Louisiana is a poor State and will find it very difficult to match this level of funds for such a massive undertaking, but more importantly, as both you have said, and Senator Landrieu, because Federal actions associated with the land loss and the energy and economic benefits the Nation derives from this area, justify a reduced cost-share requirement.

Second, the passage of the Energy bill was the first major step by Congress to recognize the needs of coastal oil and gas-producing States.

Again, we thank you and the entire delegation for your work in that area. We consider it to be a tremendous down payment; however, we refer to it, as you do, a down payment, not out of greed but out of need for a permanent funding source and we will continue to press Congress to pass legislation that would provide true sharing of OCS revenues with the coastal-producing States.

Louisiana is serious about using such funds to restore our coast. Our State Legislature unanimously passed a bill that will allow our people to vote on a constitutional amendment next fall to dedicate to coastal restoration, the first $600 million a year of any OCS revenues we receive. We feel confident, as other constitutional amendments have passed, this one will also pass overwhelmingly.

President Bush recently said that Louisiana should use the revenues to match with other Federal funds. We believe this is great news. We suggest language in the WRDA bill to codify that notion and that future said such revenues could indeed be used as State matching funds.

Third, part of Louisiana's Energy bill funds will be spent on jump-starting the scientific modeling and a construction of LCA projects. We feel such work to be accepted as in-kind credit by the Corps of Engineers.

Fourth, I spoke of the urgency and the need for swift action. Ironically, what would prevent us from achieving our goal, more than a lack of funds, will be the lengthy Corps of Engineers process we are forced to endure. By the Corps' own admission, it takes an average of 11 years from authorization to completion of a project. That's an average. We have a river diversion project that took more than twice that to complete.

Louisiana, as General Riley has said, does not have the luxury to have "business as usual." The reality is that we will have very little land to save if the LCA is not treated as a special circumstance and changes are not made to shorten the Corps process. We ask you to please help the Corps so the Corps can help us.

Finally, I would like to address the critical element of the proposed LCA plan, the science and technology program. State and Federal agencies, NGO's and our coastal stakeholders agree on the value of an independent, yet inclusive, science and technology program to insure that sound science and engineering continue to guide the restoration efforts.

I have included for the record a short document that outlines the proposed science and technology program. It includes a science advisory board named by and given oversight by USGS, a science coordination board and other elements that ensure the coordination of Federal and State Agencies as well.

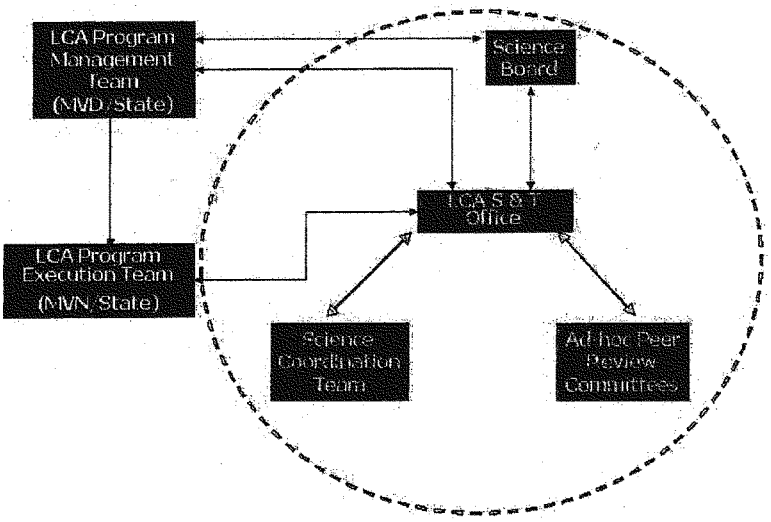
[The referenced document follows.]

THE SCIENCE AND TECHNOLOGY PROGRAM OUTLINE

The LCA Science and Technology program has been designed to ensure the best available science and technology is continually applied to implementation of the program's recommendations. To accomplish this mission, both review and research and development activities are required. The S&T Program has been constructed to maximize the three qualities of independence, accountability, and inclusiveness.

This document provides a short description of the S&T Program structure, and then describes how these core characteristics have been incorporated.

S&T PROGRAM STRUCTURE



Relationship of the S&T Program with LCA Program Management and the Program Execution Team.

The goal of the S&T Program is to provide the necessary science and technology to effectively address coastal ecosystem restoration needs. The S&T Program would provide analytical tools and recommend to Program Management Team appropriate studies to ensure that current issues of uncertainties can be reduced by sound scientific investigations.

The S&T Office, under the leadership of the S&T Program Director, is the focal point for activities of the S&T Program. It provides a physical location and single point of contact for all agencies and individuals with interests in science and technology. It must communicate regularly and efficiently with the LCA Program Management and the Program Execution Team while maintaining a separate identity and independence from the day-to-day activities of implementation. While addressing the scientific needs of the LCA Program, the S&T Program would also strive to meet the technical needs of participating agencies within the context of their participation in the LCA Program. The S&T Office must also be responsive to the technical needs of the Program Execution Team and provide analytical tools responsive to the team (e.g., hydrodynamic and ecological models) and frequently assess the effectiveness of those tools through close communication.

The Science Board is charged with three tasks: 1) understanding and improving the technical underpinnings of the LCA Program; 2) reviewing the structure and operations of the LCA S&T Program; and 3) reviewing and improving the processes for integrating the S&T Program activities with the LCA Program. The Science board, in its independent capacity, will ensure the application of world-class science to the LCA Program and provide national perspective and oversight of general scientific processes and structure in support of the Program Management Team and the S&T Program Director.

The Science Coordination Team is charged with four tasks: 1) facilitate information transfer; 2) aid in planning periodic science symposia; 3) assess and advise on new and innovative science and technology; and 4) leverage resources to support LCA S&T plan activities. The S&T Program Director will serve as the Chairperson of the Science Coordination Team in order to facilitate focusing available resources on execution of the LCA S&T Plan.

The S&T Program Director will establish ad hoc peer review committees for individual LCA project studies. The peer review process will include a review of the economic and environmental assumptions and projections, project evaluation data, eco-

nomic analyses, environmental analyses, engineering analyses, formulation of alternative plans, methods for integrating risk and uncertainty, and models used in evaluation of individual projects.

MAINTAINING INDEPENDENCE

The Science Board has been incorporated as the primary mechanism to ensure independence. This independent review body, composed of nationally and internationally recognized experts is empowered to review any aspect of either the S&T Program or the overall LCA Program and make recommendations to both the S&T Program Director and the Program Manager on how to improve scientific and technical methods and their incorporation into the program. The tasks of chartering, incorporating, staffing, and managing the operations of the Science Board have been delegated to the USGS; they have appointed their Gulf Coast and Lower Mississippi Valley Science Coordinator as the Executive Director of the Science Board. Although the USGS is responsible for operations of the Science Board, they are being funded for these activities by the USACE with LCA Program funds.

In addition, the management structure of the LCA Program has been constructed to place the S&T Program Director and the S&T Program as co-equal with the New Orleans District of the USACE, the entity responsible for executing feasibility, design, and construction activities. Both the District Engineer and the S&T Program Director report to the Mississippi Valley Division Commander who is acting as the program manager. This structure minimizes the perceived potential that the technical teams responsible for developing projects can exert improper influence over the scientific and technical activities being undertaken to reduce uncertainty in the overall program. The S&T Program Director has been given his own budget and the authority to manage that budget. In addition, the S&T Program Director reports to a member of the Program Management Team, which has been incorporated to support the MVD Commander in making program decisions.

MAINTAINING ACCOUNTABILITY

Since review functions are not the only functions assigned to the S&T Program, accountability and responsiveness to program needs are necessary. The S&T Program in general is responsible for reducing uncertainties in LCA Program implementation, and so must orient its activities toward those ends. This accountability and responsiveness is ensured by placing the S&T Program Director within the USACE chain of command, specifically hired by the Mississippi Valley Division and reporting directly to the Division Commander. This reporting structure gives the Program Manager the ability to exercise due diligence in ensuring that the expenditure of S&T Program funds is for their authorized purpose. The USACE maintains the responsibility to implement the S&T Program in a manner that supports overall LCA Program needs, and has the authority to change the S&T Program operations if the Program Manager and the Science Board have identified issues that need to be corrected.

MAINTAINING INCLUSIVENESS

Many entities have been involved in the discussions concerning the structure of the S&T Program, including the USACE, ERDC, State of Louisiana, academic and private sector scientists, and the USGS. The S&T Program has been constructed to address lessons learned from other large-scale ecosystem restoration programs, and provides avenues for all interested agencies, academic institutions, non-governmental organizations, and the private sector to participate. The structure specifically includes a Science Coordination Team, which is designed to provide an interface between the LCA S&T Program and other research and development programs, allowing other entities to participate in the implementation of the S&T Plan. In addition, all activities will be documented and all reports will be made public for any interested parties to review and comment on.

In closing, I stress to the committee that Louisiana is a land in crisis. There is no time for business as usual. We are experiencing a true emergency. Because of the national benefits provided by what is truly America's wetlands and the impacts of the Nation as a result of this crisis, Congress should recognize it as a special circumstance and address efforts to save it accordingly.

After all, all we are trying to do is save a portion of the very same land that President Jefferson purchased some 200 years ago on behalf of all Americans in the historic Louisiana Purchase.

Thank you, Senator, for holding this field hearing in New Orleans, allowing the State to share its views on the legislation we consider critical to our State survival and the future of our Nation.

Senator VITTER. Thank you very much, Mr. Secretary.

Senator Boasso, thank you for your leadership, particularly with regard to the Mississippi River Gulf Outlet, MR-GO. We'd love to hear your testimony.

STATEMENT OF HON. WALTER J. BOASSO, SENATOR, LOUISIANA STATE LEGISLATURE, SENATE DISTRICT 1, ST. BERNARD AND PLAQUEMINES PARISHES

Senator BOASSO. Thank you, Senator. I just want to add for the record that I also represent Orleans Parish and St. Tammany, so I have the whole east-coast Louisiana. The Southeast corner of our State is very highly vulnerable to advanced land loss from ravages from coastal erosion. Today I'm going to just narrow my comments to the MR-GO.

Senator someone has to make a decision. The new locks at the Industrial Canal is an excuse that no longer can be used as an alternative to wait to close the MR-GO. With the deficits today in our Federal Government, I personally believe we will never see the $1 billion to replace the locks in my lifetime.

In the meantime, there is uncertainty in the maritime industry on whether they should or should not continue to do business with the Port of New Orleans. This is unjust, both to the maritime community and to economic development.

Second, the people of St. Bernard are sitting by while the Federal Government plays Russian roulette with our lives and our community. You have seen the destruction firsthand; you've heard the cry of the people of St. Bernard. You have heard the maritime decision, maritime industry. Someone has to make a decision.

When I was Chairman of the Port of New Orleans, we built Napoleon Avenue container wharf. This had the effect of moving a majority of the vessel traffic on the MR-GO to the river, thus making the MR-GO's continued use virtually obsolete.

The MR-GO is a symbol of how poorly we have treated our wetland environment in favor of commerce. It has never developed to its original purpose and, once again, we are left with a situation no one wants to make a decision about.

I think in fairness to everyone, someone has to come up with a conclusion. You have three options: One is continue with the proposed plan of $108 million of rocks, which we all know will disappear in time and accomplish nothing for the Metropolitan area regarding saltwater intrusion, hurricane protection and the mixed messages on the resolution of the MR-GO's future.

I want to reiterate, this is a very important project because something will have to be done on at least the northern shore of the MR-GO. That does not solve the immediate problem of saltwater intrusion.

The second thing is to properly fund the relocation of these businesses and close the MR-GO. It could be as simple as sinking two

environmentally cleaned scrap Marad vessels in the channel's west end of Breton Sound, which we refer to as The Rocks, cover them with dredge material, in essence, creating a dam, then raise our levees to the Army Corps of Engineers' required height and shore-up the break on the Northern banks of the MR-GO.

Or Plan 3, stop dredging from The Rocks to France Road. Understand the impacts of vessel traffic on the MR-GO shoreline and react accordingly. Install a gate system on the east side of Bayou La Loutre to be opened and closed for vessel traffic. Install a shallow draft gate for the recreational and commercial fishing industry.

Install locks at Bayou La Loutre, Shell Beach, Violet and Bayou Bienvenue on the MR-GO's Northern shore just to be closed and protect against rising water during hurricanes or strong east winds. Make one more pass with a dredge from Paris Road bridge to The Rocks, depositing material on the Northshore of the MR-GO, creating a small levee and closing off all other openings.

Limit and enforce large vessel speed limits. Properly install safety barriers around exposed piers of the Paris Road bridge which was once protected by land and serves as our evacuation route. Continue to maintain at 36 feet from the rocks to the opening of the MR-GO.

So, in essence, what I'm saying is that the vessels, all except one company, use the MR-GO can live with 28-foot draft and under. It is shown that it's estimated that it will take 30 to 50 years for the MR-GO to silt into 28 feet.

A long-term draft of 28 feet satisfies every requirement of all businesses including—using the MR-GO but one. Lone Star Cement could be accommodated by ship-to-barge transfers at a cost of less than $3 million per year. We can stop or limit major saltwater intrusion. We can protect not only St. Bernard but New Orleans, Jefferson and St. Tammany Parishes from rising waters and storm surge.

Last, we satisfy almost all of the needs of the current maritime industry.

So Senators, I'm asking, we have to make a decision. There is no sense in sending the mixed signals to the maritime community and the people who have to live and deal with the saltwater intrusion with the MR-GO.

Thank you.

Senator VITTER. Thank you very much, Senator, for all your leadership.

Now we'll hear from President Charlotte Randolph. President, welcome. Thank you for your leadership, particularly to the PACE organization.

STATEMENT OF MS. CHARLOTTE RANDOLPH, PRESIDENT, LAFOURCHE PARISH

President RANDOLPH. Thank you, Senator Vitter, and good morning to you as well. Thank you for hosting this. Senator Landrieu, as well, thank you for your leadership.

I'd like to deviate from my written statement this morning for a couple of reasons. First of all, there is a storm in the Gulf, which puts parishes such as ours on the alert very early this morning. All indications are from the Weather Service that it will take a dif-

ferent direction, perhaps head to the Florida coast. We do not wish that on anyone else, but, certainly it's an opportunity again for us to test our system and make certain that we are ready for these events.

Second, the decision this morning between you and Senator Landrieu is about cost share. I want people to know that Lafourche Parish has already absorbed much of the cost of this problem.

The people of South Lafourche Parish first taxed themselves to establish a port south in the southern-most part of our parish. By doing so, we became a strategic point in the oil and gas industry. The initial money that came into Lafourche Parish came from our own people.

Second, with South Lafourche Levee District, because we recognized the need to begin a levee system in 1965, we again taxed ourselves to begin this process. We have used that money to match State and Federal moneys, and we're grateful for that participation, but each time we've taken it upon ourselves to make certain that the money—create the programs and projects needed to protect ourselves.

That's very, very important because the cost of this is the cost of doing business in Lafourche Parish. Drainage projects are funded by our top taxpayers and so are these major projects. We've begun to recognize that a modest cost of this is being borne by our own residents in this area.

So the share must come from the other portion of this, the money we contribute to the Federal Government. That $5 billion a year is something that we deserve a major portion of every year, and I hope that's taken into account by the Senate, by the House and by the President himself, because we have made much contributions in that level.

We, too, have tasted salt water in our Parish, Senator Boasso. At one point in 2000, a drought led to saltwater creeping all the way up to our water intake, which is 45 miles north of the Gulf of Mexico.

Senator Landrieu stepped in at that point and helped us set up a fund where we would install a structure to stop the intrusion at that point. We're now considering another structure because it's entering through many different areas.

That water supply supplies the drinking water for 300,000 people. At that point, a major industry shut down for about a week—a major industry, which employed about a hundred people. People with high blood pressure were warned not to drink our drinking water. This was 5 years ago. So any similar situation now would certainly lead to much dire circumstances as we stand now.

We are in a desperate situation in Lafourche Parish. We are a significant parish because we contribute much to this Nation's energy needs; and, therefore, we're asking that much of it would be returned to us.

The saltwater situation and pending storms all lead us to live each day kind of looking over our shoulder and wondering what we are threatened with next.

Port Fourchon was developed by the people of Lafourche Parish who contribute that—much to that $5 million that goes into the coffers annually.

Senator Vitter, you've introduced a series of five coastal bills which address near-term and long-term solutions to our problem. For a very long time members of our congressional delegation has been petitioning our Government for assistance.

True success will be achieved when the nation's leaders finally recognize the value of coastal Louisiana and fully fund the projects necessary to protect us.

We are indeed grateful for the recent allocation provided in the recently enacted Energy bill and the Transportation bill, which will allow us to build a much-needed highway to Port Fourchon to continue serving the Nation with it's energy needs.

These funds provide for opportunities to reinforce our existing levee system as well as to construct that major highway to the very significant Port Fourchon. It's a good start, and we thank you for your funds.

I'd like to repeat a phrase that Secretary Angelle said: This is not out of greed that we ask for more money, it is out of need. I think that is an essential message that we need to send to the Federal Government.

A guaranteed source of revenue will allow us to plan for our future, which at this point is very, very shaky. What is our future? Do we plan for retreat or do we continue to fight? We continue to fight.

Thank you, Senator Vitter.

Senator VITTER. Thank you, Madam President. Thank you very much.

Now, we'll get the questions.

First, General Riley, just as—for many years we've been talking about an LCA program that comes to about $15 billion total. Now, the Chief's report refers to a $2 billion program, Phase I.

So, if you can, please reassure us that you have the other $13 billion in mind; it hasn't disappeared, and that this is the start and not the end.

General RILEY. Sure, Senator. In the administration, when we developed that near-term plan, we thought that was the most prudent to get into action and done quickly; as Senator Landrieu said, bold and decisive action.

We knew that waiting and developing a long-term comprehensive one might take more time, so we thought: Let's get some good done now.

We also know there's tremendous uncertainty about the future, that's why we need the science and technology program and demonstration program. We just don't know how the system will act to the actions that we place into it.

So I don't want you to take the urgency of the situation in the near-term focus as a signal of a lack of commitment. Clearly the Administration's commitment—I mean, I've come out here to demonstrate that. Clearly, the President has already spoken about this project and the long-term commitment of it. So this focus that we have initially on the—on the near-term plan is not the only piece; there is more to it and we have recognized that.

We also know that the State still remains very interested in developing a more comprehensive blueprint for the future and we will work very, very closely with them.

Senator VITTER. Thank you, General.

General the—the statement of administration policy released by OMB, not the Corps, but office of management and budget for the House WRDA bill recognized coastal Louisiana as a "National Priority", however, the same statement of policy suggested that Congress should consider a 50/50 Federal/State cost share versus the traditional 65/35 or something above that.

Now, obviously, that would save the Federal Government money, so there's that argument from the Federal level. I understand that, although I don't accept it.

Is there any other legal or equitable argument to support a 50/50 cost share when traditionally it's 65/35? Many arguments can be made that it should be more generous than that.

General RILEY. Well, sir, clearly, in our Chief's report we have recommended—the only thing we could recommend, and that's in accordance with law and policy for construction, that being 65/35. In the Chief's report, we also recognize and laid it out in the table pretty clearly what the State's desires were in the case of construction it was 75/25.

In addition to that, I'm also aware that the administration has commented on the House WRDA bill and that in their discussions that they recommended the 50/50 cost share.

So really, until the Administration works out all that, the only thing the Corps can do is recommend cost sharing in accordance with the present law and policy.

So there are—I guess there are many other different alternatives that are being weighed at this time, but until that's resolved we'll stay with the present law and policy.

Senator VITTER. OK, General. General, last year on the House side you testified at a hearing on the LCA. Although the event was cut short due to business on the House floor, just before that hearing adjournment I was surprised and intrigued to hear you state that you didn't believe our coastal erosion was attributable to the levees installed in the lower Mississippi.

You've heard that alluded to here. I certainly believe that is a key piece of the puzzle; not the only piece, but a key piece of the puzzle since Louisiana's delta is built by the river, consisting of several thousand square miles of land that was growing prior to the insulation of levees and eroding after the installation of levees.

Can you comment on that?

General RILEY. Sure, Senator. Thank you.

The question was whether or not I thought the work the Corps did on the levee was the primary cause of coastal loss and coastal erosion. My comment was that there—before we had to go to vote began to discuss the multitude of different actions that have taken place along on the coast that contribute to that.

Clearly, levees are a very significant factor because with those levees there they do not allow the national regeneration of and sediment introduction into the system.

As you know, back in the early 1700's they began building levees here. Even before the Corps initiated the Flood Control Act in 1928, there was already a continuous system of levees from here—from the Gulf to Arkansas and that there's also subsidence that has to do with—and—[in audible] got me here this morning he can

tell you about the faults that are there, the oil and gas exploration, the oil and gas navigation channels, pipeline channels, the fishing navigation channels. Even the State has gone out and moved Barrier Islands for—road—road work. There's the saltwater intrusion the storm—as the President's mentioned that's incoming. All those are very large contributing factors.

The real important point, I guess, is that interrelationship of activities that really has an infinite combination of causes and actions and reactions.

To answer your question, specifically, clearly the levees are a major contributing factor due to the loss.

Senator VITTER. Thank you, General.

General there have been some recent questions about the ability of the State of Louisiana to use these Energy bill funds, which we just secured to match Federal funds from the Corps of Engineers for coastal restoration work.

The solicitor's office of the Department of Interior, has informed us that they believe the State may use these funds as a match for these other Federal funds, and the President actually encouraged Louisiana to do this in his statement.

Is this consistent with Corps policy and from your point of view can the State use Energy bill funds to help meet their match?

General RILEY. As I understand that, that program is administered by DOI; so if the DOI makes that judgment, I think the Corps will clearly comport with that and allow that to happen. Certainly if the President has encouraged that. I'm sure that Secretary Woodley would—would then go along with the DOI calling.

Senator VITTER. Great. Thank you, General.

Secretary Angelle, you referred extensively in your testimony to the cost share that is being debated right now for this program. Can you expand for just a minute on why you think Louisiana should be treated differently and why the LCA again is different from, say, the Florida Everglades and Chesapeake Bay?

Secretary ANGELLE. Thank you, Senator. Certainly when you take a look at what everyone has said, the contributions that Louisiana has made to America, when you take a look at 34 percent of the oil and 30 percent of the natural gas either produced or flows through our wetlands, and you take a look at some of the Federal decisions, although, you know, made for the right reasons, had unintended consequences.

The contributions that Louisiana has made to America and how important this area is, not only to the economic securities, but the energy security of this country.

I think if you take a look at cost share, if we looked at how important this is, a 65/35 would not even be considered. A 75/25 is certainly in the right direction, but we might get into a new—a new number, perhaps even greater than that when you take a look at the value of the contribution the wetlands has made.

Senator VITTER. Thank you very much.

Secretary I'm really concerned that some people nationally have alleged that Louisiana is basically waiting for a sort of handout for the Federal Government to come in and fix this.

Can you describe everything that the State and citizens in the State are doing in terms of laws, programs, actions, financial, and other commitment to doing our share?

Secretary ANGELLE. You know, coastal restoration was cool in Plaquemines and St. Bernard and Lafourche and Terrebonne before anybody knew about it. It really started with the leaders from those areas bringing this to attention. The State, over four different Governors, regardless of party, made it a significant part of their platform and their leadership has been directed toward this. We've passed constitutional amendments.

Since 1989, the State has put $355 million of its own resources. We are doing what we are asking the Federal Government to do. We take a portion of our mineral income from our offshore production and we dedicate it to fighting the coastal problems by a constitutional amendment that was passed.

We have another constitutional amendment that is going to be scheduled here in November of 2006.

The record is very clear that Louisiana takes this very serious. When you take a look at the margin of victory of constitutional amendments in Caddo, and Rapides, Ouachita Parish, those amendments are passing almost with the same level of support that they are passing at the epicenter of land loss in Lafourche and Terrebonne.

Louisiana has done a tremendous job carrying this ball to a point and putting ourselves in a position. When—One of the things that really strikes me is there's one constitutional amendment that takes away some property rights, and this is a very strong property right State.

We are lining up and we are doing the things that we believe shows our commitment to this, again, beyond politics and beyond anything else that one could imagine would put a limitation on this.

Senator VITTER. Thank you very much, Secretary.

Senator Boasso, thank you for all of your comments and work on MR-GO. If you can tell us briefly what real-world on-the-ground impact Mississippi River Gulf Outlet has on storm surge and how that impacts all of Southeast Louisiana.

Senator BOASSO. Senator, what we're doing at this time, Secretary Angelle was very helpful in commissioning these two studies. The Army Corps of Engineers provided a study that said whether the MR-GO was open or closed that there would only be a 6-inch rise in storm surge on top of—or a 6-inch difference.

There's some people who had disagreement about that and so what we have done, we've got the Governor's office and Secretary Angelle, the Army Corps of Engineers and some citizens and we got together and there is a re-look of all the studies that have been done to confirm whether or not if you damned off the MR-GO is it only a 6-inch difference. So that study will be finished by the end of this month.

Also, there's another study that Secretary Angelle commissioned, is that we'd want to understand the hydraulic effects on the banks of the MR-GO, whether you have a vessel that's at 28-foot draft going 10 knots versus a vessel going 8 knots with a 32-foot draft

to understand the drag and effect on the banks itself to try to determine what we can do in that case.

So right now we have those two studies that have been going on now for some 7 months, and they should be brought to conclusion within the next 30 days. So I think that will give us a great affect on exactly where we stand. Everybody's agreed that whatever these studies say, we're all going to agree that this is gospel.

Senator VITTER. Thank you, Senator. You touched on the current inadequate, and I agree with that, LCA recommendation about MR-GO—$170 million on rocks on riff-raft, again, I agree with you. Because of that, I got inserted in the Senate WRDA bill, language to direct the Secretary to provide Congress with a plan to fully protect and restore MR-GO area within a year and to implement those recommendations without the need for any further action by Congress.

Do you support that, and what else should we be considering inserting into WRDA and MR-GO?

Senator BOASSO. Well, I think you'd take a lot of pressure off of everyone if it was going to stay open or if it was going to close.

You're going to have to do that type of bank stabilization if you're going to keep it open to maritime traffic. If you're going to close it, we've got a whole other plan that you have to go in that direction with.

As far as $100 million—billion on rocks, you're going to need something there, Senator. If you really want to start, let's go ahead and stop the storm surge coming in, whether it's 6 inches above the normal surge or not, is that we've got to stop—You ought to see the tidal movement when we have an east wind—is that we need something to stop this water from coming in, because, once again, that water doesn't stop in St. Bernard Parish, it, therefore, goes right into the lake.

You've got more salt water being introduced into the lake, and this is where you have your potential problems for the whole Metropolitan area, not just St. Bernard in itself. So I think—and there is technology in Europe on gate systems like this. It's very commonly used along the Rhine Rivers.

It's there, but if it's something that we're going to have to study for another 10 years we're really just wasting our time because it's just a part of a rush on the levee. Once again, I'm going to reiterate because someone's got to say "yes" or "no" because it's not fair to the people who live in the area and it's not fair to the maritime industry.

If you own a business and you're going to invest money on the MR-GO, you don't know if you're going to be in business 5 years or 3 years or 10 years and you constantly have that drag on whether or not, so why come here? You might as well go to some other State where you know you've got some kind of longevity.

Senator VITTER. Frank, well, I certainly agree with you. Then in your testimony, you alluded, I believe, to commercial traffic of lessor depth. From what you know now, do you think that is consistent with some sound policy for MR-GO in the future, or whether we really need to phaseout all commercial traffic?

Senator BOASSO. Well, if you deauthorize to 30—if you deauthorize the channel or even go up to a 28 feet. If you left it at 36 feet,

the only thing you really have to worry about is from The rocks out to the mouth of the MR-GO, because those are usually your problems when you have some kind of a storm.

So if you go from The Rocks all the way to France Road, they estimate it will take somewhere between 30 and 50 years before it starts to sit at 28 feet.

Now, you still have to do some bank enhancements, so that might even prolong it's life even further. So, should we close it to commercial traffic? There's a lot of theory on whether that should be done. Could you have a duplicate MR-GO? No, you can't do it in today's times. But there's a solution that helps the maritime industry: Can you help us relocate all those businesses to the Mississippi River? We've moved most of them but you still have some there that you won't be able to move.

I think you can find a balance there. All of those businesses, except one, can live with 28 feet draft. So this way, if you can put some gates there, we took care of some bank stabilization, we're good for 30 or 50 years. So basically everybody wins in the end with that.

Senator VITTER. Thank you, Senator.

President Randolph, you know, we're talking about large commitments of Federal money, but right now there are regular, periodic, large confusions of Federal money through FEMA whenever we have a storm.

Can you talk about the sort of money FEMA spent in Lafourche because of this working situation after storms?

President Randolph. Well, with your assistance and Senator Landrieu's assistance, we were recently—received disaster declaration from the President. Just yesterday we were informed that we not only were going to receive some assistance from FEMA—and Tropical Storm Cindy was something that even the meteorologist were dismissing as a minor storm.

We spent over $300,000 in the aftermath cleaning up after that storm from the damage that it caused, and that was a very, very minor storm. FEMA has spent a considerable amount of money in our area.

In fact, right now we are working with them to do some remapping, which is necessary. It's also an indication that our levees are too low, which is a concern, and they're going to assist us in identifying which levees need to be raised to a higher level so that we will be protected against storm surge. They're going to infuse about half a million dollars—they are infusing that amount of money right now.

So FEMA is certainly contributing greatly to our parish but as with anything, you wonder how much is enough and are we doing enough.

If I may deviate for one moment, I'd like to recognize someone who is here. You mentioned PACE earlier, and Parish President Benny Rousselle is here from Plaquemines Parish, and he is President of PACE. So certainly he is our leader right now in this fight.

Senator VITTER. Certainly. Thank you very much.

Madam President, just to follow up with the FEMA issues. Is it fair to say that if we start doing what we need to do about coastal

erosion in Lafourche, the money FEMA would otherwise spend will go down?

President RANDOLPH. Oh, considerably. It's the situation where you pay us on the back end or pay us on the front end. I've always asked people if we should be preparing for the rainy day or saving for the rainy day. I think what we need to be doing is preparing.

If we spend the money through the assistance from OCS revenues, from the Energy bill and WRDA, then we are preparing for the rainy day and FEMA can respond to the other disasters in this country; the tornados and earthquakes that we can't do anything about.

I mean, we can run from hurricanes and certainly repair the damage, but if we can protect ourselves from that by reshaping those Barrier Islands or reshaping our protective system, then the loss will be a lessened and the critical damage which occurs after these storms will also be lessened.

Senator VITTER. Great. As you know, a significant share of this money we just secured in the Energy bill, 35 percent of everything that comes to Louisiana will go directly to coastal parishes. I thought that was very important, and I certainly fought to protect that and the 35 percent.

Can you talk about the importance of that, funding that work at the parish level and how it should be integrated with the broader effort?

President RANDOLPH. This is not a per-parish fight. This is a regional fight, a State fight. We've already begun discussions among the parishes the projects where we can work regionally; whereas, otherwise, if we look at parochial projects, it won't always assist each other.

The examples of that is, if we start the dredge project on the western side of Lafourche Parish and shore up the South Lafourche Levee District. We're also assisting Terrebonne Parish in their fight because we're creating a protective barrier for them in the event of a storm approaching us.

The same thing on the eastern side of Lafourche Parish. If we address projects such as—[in audible] project, we're not only protecting Port Fourchon, we're protecting lower Jefferson Parish, and in some ways Plaquemines Parish, depending on the direction of the storm.

Each project reviewed is assisting another parish, and therefore, through PACE, we're looking at combining much of this money to create the much larger projects which will help other parishes, with that statement, money which can come in and be a part of those projects.

Orleans Parish at one time did not recognize coastal erosion as a problem, just the upper parts of Jefferson Parish. They are integral now to PACE because they recognize that we sit in an area which protects them, and putting money into Lafourche Parish projects will help in protecting Orleans Parish and other upper area parishes.

It is now being recognized by the 19 coastal parishes that we can help each other, and so now this money needs to be spent in a regional way, with the assistance of the State and with further money coming from the Federal Government as well.

Senator VITTER. Great. Thank you very much. Thanks to all for your testimony. I'm really happy you could be here.

I'd now like to invite our third and final panel to take the stage, and I'll be introducing them in just a minute for the same business. If they will come up and take their seats.

We want to welcome our third and final panel for this Senate Hearing. I'm honored that all of you can be here to testify, and I'll introduce everyone and we'll get right to your testimony.

First, we have Mr. Jerome Zeringue, Executive Director of the Terrebonne Levee and Conservation District; also Mr. Randy Lanctot, Executive Director of the Louisiana Wildlife Federation; Ms. Alexis Duval, Chairwoman of the Board of the Houma-Terrebonne Chamber of Commerce; Mr. Roy Francis, Executive Director of the LA1 Coalition. Unfortunately, he's leaving that position very soon but at least it's on a very high note. And Dr. Shea Penland, Director and Professor of the Pontchartrain Institute of Environmental Sciences, UNO chairman, Department of Geology and Geophysics here at UNO.

Welcome, and thanks to you-all. We'll begin with Mr. Zeringue.

STATEMENT OF MR. JEROME ZERINGUE, EXECUTIVE DIRECTOR, TERREBONNE LEVEE AND CONSERVATION DISTRICT

Mr. ZERINGUE. Thank you, Senator. Thank you for the opportunity to speak today. I want to welcome you and everyone to South Louisiana where a sinking feeling is not just an emotion, but an unpleasant fact.

In Terrebonne Parish, we are losing our land, our resources, and our communities due to coastal land loss resulting primarily from subsidence, sea level rise, and salt water intrusion.

Terrebonne Parish is the largest coastal community, most exposed and vulnerable to the effects of high tides, high winds, tropical storms, and hurricanes. In any given year, we face a 60 to 65 percent chance of a named storm making landfall and impacting our State, and a 25 percent to 30 percent chance of a hurricane making landfall or affecting Louisiana.

Terrebonne Parish has some of the most ecologically significant and productive habitat in the world. We have 2 of the top 10 seafood docks in the United States in terms of dollar value and poundage harvested. We have oil and gas infrastructure that is vital to the State and the Federal economy.

We have an increasing population and tax base with a healthy productive economy and, frankly, we have people, infrastructure, and wetlands that need and deserve protection.

I have worked for Louisiana State University as a fisheries biologist. I have worked for a non-profit environmental organization, the Nature Conservancy, and now with the levee district, a career path that on the surface may appear somewhat convoluted and disconnected, but in reality, considering the problems we face, a fortunate series of events.

It has afforded me an opportunity to view the issues affecting our State from an academic, business, and environmental perspective; all of which must work together to turn back current trends and very dire predictions.

Academically, we should deal with coastal land loss with practical research, capable of complementing and enhancing desperately needed projects. The academic community must work cooperatively to implement projects and share information with a focus on constructive research, not conducting studies simply for their intrinsic scientific value.

Projects must be put on the ground to stem the ravaging effects that subsidence, sea-level rise and saltwater intrusion impart continuously, even now as we discuss, debate, and study these issues.

Fixing our problems will require the environmental community to accept seemingly unnatural, contrived and untested projects in order to establish a functioning system that will enable systemic long-term solutions to the problems we face; keeping in mind that we are in this predicament because of unnatural, insensitive, and unintentional events, which should not be repeated, but may be necessary to achieve the preferred result.

From an economic perspective, industries that have traditionally relied on convenience or unfettered access must understand that implementing necessary fixes will require sacrifices. It will necessitate changes in ways we traditionally conducted business, and rely on innovation and least-damaging alternatives in oil and gas extraction and exploration, and adapting to changing fisheries resources that will result from habitat modifications.

Unfortunately, our future will require a line in the sand drawn from a certain point. A point where we will stand and fight, retreat no more and do what we must to sustain ourselves. Just like the city of New Orleans, our coastal communities will require some form of protection through levees, walls, or embankments in order to survive.

The line will be drawn, either by persistent degrading forces or through consensus. Coastal communities are retreating and we have lost several, and several more will not be around 20 to 40 years from now.

In Terrebonne Parish, we face a land loss rate of 10 square miles per year. We have one of the highest land loss rates in the Nation. Our line in the sand is the Morganza-to-the-Gulf Hurricane Protection project. The Morganza Project will provide hurricane protection for Terrebonne and Lafourche Parishes, their 200,000 residents and infrastructure. The Morganza-to-the-Gulf Project is a leaky system, which sounds odd if you consider this strictly as a flood protection system; however, leaky is the ideal way to build such a system in this environment.

The obvious concern with building a project of this magnitude in coastal Louisiana is the potential impacts to wetlands, wetlands we intend to protect and restore. The Morganza Project is sensitive to these environmental concerns. We are designing this project in the most environmentally friendly way practicable.

We will achieve this by constructing our levees, floodgates and environmental structures along existing hydrologic barriers, such as drainage levees, and adjacent roads minimizing impacts to wetlands and enhancing the existing hydrologic regime.

In addition, the Morganza Project will provide flood protection capable of adaptively managing the wetlands within and around the system. The lynch pin of the whole project is the lock on the

Houma Navigational Canal. The HNC Lock is the key feature necessary to protect, maintain, and restore wetlands within the Terrebonne Basin. This lock is considered a critical restoration component within the Coastal 2050 Plan, Louisiana Coastal Area Study, and by the Morganza Habitat Evaluation Team.

These studies agree that the Houma Navigational Canal lock can effectively assist restoration efforts of adjacent wetlands in a systemic, comprehensive approach. The Houma Navigational Canal Lock is a case study of how a flood protection project feature can serve as an adaptive management tool.

Initially, the Houma Navigational Canal lock was considered only as a Morganza Project component, designed to protect thousands of residents and businesses from a 100-year storm event, provide safe harbor for navigation, protect the local drinking water supply, and reduce saltwater intrusion.

The lock has evolved into a significant environmental structure which can substantially reduce the devastating impacts of saltwater intrusion, maximize and efficiently utilize available freshwater from the Atchafalaya River to enhance, restore, and reestablish fresh and brackish water marsh within this coastal environment and oh, by the way, can protect the citizens from a Category 3 storm event.

The HNC lock will work collaboratively with the 12 other environmental control structures along the Morganza alignment to protect and maintain wetlands within the Terrebonne Basin.

We are anxiously waiting WRDA authorization for remaining portions of this project that must be authorized. The citizens of Terrebonne cannot continue to wait, nor are they relying solely on Federal and State financing. In fact, we are the first South Louisiana community to pass a local tax to support coastal restoration.

Our citizens have assessed themselves a quart cents sales tax generating over $4 million per year that can only be spent on the Morganza-to-the-Gulf Project. Some may say that this is not coastal restoration but flood protection, but I can assure you that from where I come from we do not differentiate between the two. To us this project is coastal restoration.

The Morganza-to-the-Gulf Project can serve as a model for designing a system that can protect people, infrastructure, and the environment. The Morganza Habitat Evaluation Team, composed primarily of State and Federal regulatory agencies, will adaptively manage this project by manipulating floodgates and environmental structures throughout the project life. This dynamic ecosystem can never be managed to a one-size-fits-all solution.

We have a sufficient amount of information to begin putting restoration projects on the ground; the question is: Do we have the political will to get it done? To put into operation these large-scale projects included within the LCA study, it will require a trial-and-error approach, and we must understand that there will be failures. These efforts are necessary to achieve success.

Unfortunately, someone's constituency or user group will be affected, which could impact one's standing, government funding, a fear of legal prosecution. We must all have the courage and compassion to ensure that our efforts are successful. We are all too con-

fident in the consequences of doing nothing; we cannot let the fear of uncertainty encourage inaction.

I appreciate the efforts of Senator Vitter, Senator Landrieu and our congressional delegation for funding included within the Energy bill, and I respectfully request your support and passage of WRDA which will enable us to protect our coast and our citizens. Help us to hang on to a unique national treasure, an area rich in diversity, culture and resources.

It was Benjamin Franklin who said, "When a well's dry, we know the worth of water." Let us not have to lose this valuable resource before the Nation truly appreciates its worth.

And I thank you.

Senator VITTER. Thank you very much. Although I introduced the panel in a slightly different order, why don't we go in the order that you're seated; so we'll next hear from Ms. Duval.

STATEMENT OF MS. ALEXIS DUVAL, CHAIRWOMAN OF THE BOARD, HOUMA-TERREBONNE CHAMBER OF COMMERCE

Ms. DUVAL. Thank you Senator.

Good morning. As Senator Vitter said, my name is Alexis Duval. I am the board chair of the Houma-Terrebonne area. Houma which is about 55 miles southwest of New Orleans, as a crow flies.

The plight of coastal Louisiana has been a topic of lengthy discussion and much concern for Chamber members for many, many years. Coastal erosion crosses all barriers. It cuts through all spectrums of our society. It affects the economy, infrastructure, as well as the quality of our lives. These effects are far reaching. They cross parish boundaries. They cross State boundaries. They effect the entire Nation.

We have all heard the statistics relating the amount of land lost over time, as well as that being lost as we sit here in this very room. There is no other area in this great country that is losing land as rapidly as the Barataria-Terrebonne National Estuary. Terrebonne Parish constitutes a large portion of that estuary system. Terrebonne Parish is unique as to both the causes of its coastal erosion problem and the solutions needed to contain that very erosion. Please note I said "contain." We are very aware that efforts need to be focused on maintaining the land mass we have in place and doing everything humanly possible to minimize, if not eliminate any future land loss.

The causes have been studied and are well known. Lack of sediment deposits from natural flooding events eliminated by the containment of the Mississippi River and the Atachafalya River, salt water intrusion, sea level rise, subsidence, the unintended affects from oil and gas exploration, to name a few.

Terrebonne Parish lies between the Mississippi River to our east and the Atachafalya River to our west. Because we are so far removed from these two sediment sources, restorative efforts will be the most costly. It will take a large scale diversion project to help the eastern part of our parish, while smaller scale diversion projects have been studied for the western part.

Due to lost land, Terrebonne Parish residents are more at risk from storm surge because, unlike our neighboring parish, we have no hurricane protection levee.

The Chamber fully supports the LCA restorative plan; however, we recognize that any comprehensive restoration plan will take years to build and implement. Therefore, our greatest priority is to ensure that a hurricane protection levee is built which offers the most instant protection to life and property.

Authorization for a hurricane protection levee, Morganza-to-the-Gulf, is presently contained in the WRDA bill that will be considered by Congress in the next few months. It is vital to the safety and well-being of the 100,000 plus citizens of Terrebonne Parish that the Morganza-to-the-Gulf levee system is authorized and funded.

Efforts for coastal restoration in Terrebonne Parish will not be successful unless the effects of the Houma Navigational Canal, the HNC are addressed. Running North-South, the HNC cuts the lower half of our parish in two. The LCA near-term plan does not authorize any major project for Terrebonne Parish. Major projects contained in the original LCA plan include major sediment diversion projects from the Mississippi traveling westward and the Atachafalya traveling eastward and the lock for the HNC. These large scale projects must be addressed and funded. The HNC lock is presently being designed.

My husband and I are both life-long residents of Terrebonne Parish. We raised our family in Terrebonne Parish. If I convey anything to you today, it is a plea for our safety and well-being. As a businesswoman who is concerned for the well-being of our infrastructure and economy of our parish, and as a mother who is concerned for the safety of her family, my goal is to impart to you the urgency of our situation.

Unlike a wildfire, earthquake or tsunami, the disaster occurring in our parish is insidious. Since it is occurring gradually, it has not drawn the attention of other natural disasters and we have let the problem fester until it has become malignant. Without a quick and decisive treatment this cancer will kill our community, and in the event of a major hurricane, will contribute to the death of many of our citizens.

Monday morning as I watched the Channel 4 Eyewitness Morning News, I was struck by comments made by President Bush. The comments were part of a taped segment leading to his future talk to the Veterans of Foreign War. "We must deal with threats before they fully materialize".

While I understand the President's comments were made in context of the War on Terror, I found they applied to our coastal plight as well. Terrebonne Parish and all of coastal Louisiana are at war with Mother Nature, and she has weapons of mass destruction. We are currently losing that war. Without large-scale Federal help, we are doomed.

I applaud the efforts of our congressional delegation, and especially Senator Vitter and Senator Landrieu for the passage of the Energy bill with the revenue sharing provision. I know you realize that that passage was only the first step. I, along with members of the Houma-Terrebonne Chamber of Commerce, stand ready to help you in any way possible to ensure passage of a WRDA bill authoring both the LCA and Morganza-to-the-Gulf projects.

Thank you.

Senator VITTER. Thank you for your work. I, too, want to recognize the great work of your husband, Berwick; he's with us in the audience today. He's on the State's Coastal Commission and he's been an enormous leader in this effort for many years. Thanks.

Now, we'll hear from Dr. Penland.

STATEMENT OF SHEA PENLAND, DIRECTOR AND PROFESSOR, PONTCHARTRAIN INSTITUTE OF ENVIRONMENTAL SCIENCES, AND CHAIRMAN, DEPARTMENT OF GEOLOGY AND GEOPHYSICS, UNIVERSITY OF NEW ORLEANS

Dr. PENLAND. Thank you, Senator. Thank you for the opportunity to speak before the committee.

We've heard that coastal Louisiana has a land-loss crisis and hear about proposed solutions, proposed opportunities for restoring coastal Louisiana. We've heard very important comments from the previous panel, Senators. The important thing for us to realize is, in order to be successful in this battle against this restoration effort that our restoration efforts have to be proportional to our land loss.

We've learned a lot over the last decade and a half, the CWPPRA Act, the State programs. One of the things we have learned is that we need to use the right tools; and the right tools are sediment, vegetation, and water.

There are other tools, too, but those are the practical primary tools that have built the coastline.

It's important to realize that we've heard that coastal land loss is at 20–24 square miles per year currently and it's been that way for a decade and a half and it continues today.

This tells us that we need to implement larger programs, more effective programs. It's the challenge to Louisiana Department of Natural Resources, Army Corps of Engineers to implement these large-scale programs.

We've heard about causes of land loss. Causes of land loss are complex, very complex. The French, the Americans, you'll see, began levees. We began the unintentional consequences of building the levee, flood control, eventually oil and gas exploration, navigation.

It's a very complex thing and I think the blame games are a very important concept that—to understand, but we need to understand all the contributing consequences of coastal land loss.

Hurricanes pose a great threat right now to our coast. Hurricanes have taught us that our Barrier Islands are very important. The measure for coastal erosion is land loss, and the measure for restoration should be land gain, and we need to make a difference there.

If we look at the Atachafalya, we look at nature across the seas and we got to figure out how we can make a dent in this portion at 20 square miles per year. How do we do that? How do we build 20 square miles a year? It's a huge challenge. How do we do that?

We've learned a lot, and we've learned things such as social impacts cannot be ignored. Some of those are unintended consequences also.

We've also learned that we need to have tools of restoration that produce results in scales of less than a decade. Generationally, it

effects us immediately; we've learned that. We have to believe in adaptive management. We have to—Even though we've been through the process of LCA, and we've made a near turn list for LCA of five projects, we're still learning about the projects and thinking about these projects.

In LCA there are five main projects. What I've learned 20 years ago is that you should do the simplest things first. Twenty years ago it was recommended doing a Barataria Shoreline project. Here we are 20 years later recommending the same project. We are looking at doing major restoration along the headland, Lafourche Parish, Shell Island, Plaquemines Parish. So these are things we understand how to do.

In hindsight, we should build shorelines, vegetate them, and we know we can do that successfully as we are challenged by MR-GO, as we are challenged by the large-scale freshwater diversions, as we're challenged by freshwater diversions in Northern and Davis Pond.

We can move large amounts of sediment more economically than we give ourselves credit for, pipeline slurry, moving materials that I think the Mississippi River had done, through a slow process built a building. We had to do it through a process enhanced by us, by man. The pipeline slurry, that's really the key to this.

If you look at projects built through CWPPRA, we've learned that projects that move material via pipeline build land which is a measure of our success. That's what we have to look forward too.

We also have to learn that the land ridge, Lake Pontchartrain, is important. We've learned that the coastal land loss in the Pontchartrain basin has accelerated, but it's more important on the land area such as the land of region of Orleans Parish and we need to pay particular interest to that with the energy process.

Last, I want to leave for people who, you know, use the academic community, we understand the need for practical applied science. We understand the need for a new style of education for a new professional workforce here in New Orleans, here in the State of Louisiana, and I want to be sure that the University of Louisiana is here to help the DNR, State of Louisiana Corps of Engineers to help with these challenges of restoration in Louisiana.

Senator VITTER. Thank you very much, Doctor.

Now we'll hear from Mr. Randy Lanctot.

STATEMENT OF MR. RANDY LANCTOT, EXECUTIVE DIRECTOR, LOUISIANA WILDLIFE FEDERATION

Mr. LANCTOT. Thank you, Senator Vitter for having the committee hearing down here in New Orleans, and other members of the Environment and Public Works Committee in the U.S. Senate.

Senator, also thank you and to Senator Landrieu, and congratulations for getting the energy money (OCS), you know, those—all the people here that I'm sure were involved in the fight to get the CARA funding when we thought we really would bring it home, and even though what we really got was not what we originally hoped for, I heard the Cha-Ching when it was announced and we're pleased to be on the right track with the Nation recognizing that that's really our (Louisiana's) fair share and we need to continue to seek our fair share and insist that we do get that.

I've been working for Louisiana Wildlife Federation for the past 25 years, and during that time, a lot—we've learned a lot about land loss, the causes and how to deal with it. What we learned most is that we're losing ground despite our best efforts to do something about it.

Doctor Penland hit the nail on the head: We need to do the simplest projects that protect the most and get the land out there and vegetation and those things that create the habitats that the members of our organization are particularly interested in, the fish and wildlife resources and just by coincidence that's also important protection for our cities and our communities on the coast.

If you have reviewed the Louisiana Coastal Area study, you know that much of the southern part of Louisiana was built by the deltas of the Mississippi River as it whipped back and forth over the continental shelf, and that land loss and land gain is normal for delta system. Under natural conditions, loss is balanced by gain, and that loss and gain occurs slowly over hundreds and even thousands of years, that's a timeframe long enough to invite disregard for the future evolution and the inevitable loss of delta lands.

The immediate concern of the European explorers and immigrants to the region that is now South Louisiana was to keep floodwaters at bay, exploit the region's natural resources and establish commerce to support growing society. That familiar paradigm is common to communities across America.

The delta's remarkable abundance and dynamic and challenging geology sets Louisiana apart from them all. I might add that we're more than happy to be different because of our lively and creative cultures, our great musical heritage, our wonderful cuisine, and carefree life view, which is all nurtured by our unique location on one of the world's great deltas, but we are not so happy to be different because we are the victims of losing our land to the sea.

Land loss on a deteriorating delta is a natural process caused by wind, wave, tide, compaction of organic soils, subsidence and geologic faults and a complex of other things you need to read about in the LCA report. That loss is dramatically accelerated, however, by the people effect, the dredging for access and navigation channels; removal of subsurface minerals; unenlightened engineering of bulkheads, channels and dredged spoil deposition; impoundments; leveeing, and the list goes on.

All of these are prominent contributors to coastal land loss, but many of these activities, of course, have kept us dry and generated products and wealth that have contributed to the local and national economies.

Impacts of coastal erosion are the loss of tens of thousands of acres of wetlands and headlands in a domino effect fashion; along with that, loss of real estate and its economic value; the loss of wetland-based fish and wildlife habitat and its dependent wildlife and fisheries productivity, and along with that the economy and employment opportunities associated with that.

There is increased risk of flooding and associated costs of insurance and disaster relief; the disruption and relocation of communities; outmigration of Louisiana citizens; increased costs to estab-

lish and maintain infrastructure, including infrastructure critical to energy production.

The toll is in dollars, of course, but it is much greater than that. The particular interest of our organization, the Louisiana Wildlife Federation in coastal land loss is the inevitable loss of the fish and wildlife as their habitats disappear.

As an organization that represents folks who are out in the field using and enjoying the natural resources of the State, we have a big stake in halting land loss and restoring the productive ecosystem that has made Louisiana the "Sportsman's Paradise."

The LCA report represents a number of approaches to dealing with coastal land loss; one that has been rejected is GET OUT. Another is, Do nothing and take your chances. We concur with the LCA on that. One consideration that deserves more emphasis is the need to rethink and re-engage society's relationship with the Mississippi River Coastal Delta ecosystem to incorporate a larger measure of flexibility and uncertainty with respect to habitation and economic activity.

We must adopt an attitude that will allow us to reconcile our expectations with the necessary changes that we will have to make, as individuals and as a society, to achieve a sustainable coastal ecosystem. To put it bluntly, we have to be willing and prepared to get out of the way of the projects that will be needed to accomplish that task. I think others have said that in other ways.

In particular, as coastal restoration efforts impact coastal lands and waters, hunters, fishers, and other affected interests like landowners will be called upon to cooperate and accept fair consideration for any disproportionate losses that they will sustain and that are inevitable when the kind of coastal restoration efforts that are needed are applied.

So far, that road has been a little rocky, but hopefully, the lessons learned from the past will smooth the way for the future.

"Attitude is everything," as the saying goes, and assuming all attitudes are adjusted to be in sync with the coastal restoration program, the solutions proposed by the LCA and efforts to follow can be accomplished, especially if we follow a fundamental rule of success: First, do no harm. Activities that contribute to coastal land loss can be limited and/or designed and redesigned to reduce impacts. This applies particularly to dredging and navigation and levee work and activities that reduce stabilizing vegetative structure. Requiring that local, State, and Federal activities and projects, including private activities that are regulated by Federal and State Government, are consistent with conserving and restoring the coast also falls under the do-no-harm concept.

The LCA report contains an impressive statement of objectives and principles in Section 3.2 that is consistent with that concept in most respects, and we commend the Corps for including that in the report and making that commitment.

There are many solutions as the LCA report articulates in Coast 2050 Plan. With a little informed contemplation, stating the solutions to coastal erosion is easy. Getting the political and financial support to do the work is a little more challenging. So in an effort to inform and educate the people from all around the United States about Louisiana and our coastal land loss challenge, Governor

Blanco and the America's Wetland Campaign initiated a new outreach effort this week—"Save America's Wetland: Write Now" to encourage all of us to let our friends and colleagues throughout America know about what is at stake here and how we all are bonded to the outcome.

So it is the intent of our remarks and our efforts to engage the members of the Environment and Public Works Committee and citizens throughout the country in hope that you will pitch in and lend a hand. I thank you for the opportunity to speak with you today.

Senator VITTER. Thank you very much, Randy.

Now we'll hear from Mr. Roy Francis.

STATEMENT OF MR. ROY FRANCIS, EXECUTIVE DIRECTOR, LA1 COALITION

Mr. FRANCIS. Thank you, Senator. I appreciate the opportunity to be present today. I'm OK with being last; I've been last my whole life.

I also want to thank you, the delegation, for being so successful. As you, I'm going on with another position and I've been telling people that, "I got the money" and I appreciate this new job offer based on you-all's success.

As mentioned, my name is Roy Francis, and I am the Executive Director of LA1 Coalition, Inc. The Coalition is a non-profit organization created in 1997 by community leaders that has one goal—improve the infrastructure servicing Port Fourchon, LA. The founding members realized the threat to this critical energy infrastructure due to coastal land loss.

I have worked in coastal zone management, flood protection and coastal infrastructure since I obtained my degree in geology in 1992. I feel I have come to understand the ripple effect of coastal land loss to infrastructure and the industries associated with oil and gas production.

Coastal land loss is not only threatening our environment, but our very existence as a community. One of the greatest threats to infrastructure is to Louisiana Highway 1, a two-lane, winding road that is the only means of land access to Port Fourchon, a port which currently services about 16 percent of this Nation's energy supply. LA1 is only 3 feet above sea level, Senator, and is subject to 8- to 10-foot storm surge. The highway provides access for 6,000 offshore workers and their equipment to support 75 percent of all deepwater activities in the Federal waters.

The Leeville Bridge, the weakest link of this highway system was built in 10 feet of water. It now stands in 40 feet of water. It is the most scoured bridge in the State due to the water exchange between the Barataria and Terrebonne basins. All the land that surrounded the bridge is gone; it has disappeared.

There is now a real threat to the oil and gas structures built on land that is no more. Hundreds of structures producing energy every single day, thousands of miles of pipeline buried underground are now exposed to open water. The pipelines are threatened by wave energy and impact of marine vessels every single day.

One of the major oil and gas companies that operates at Port Fourchon transports over 600,000 barrels of oil per day through pipelines in coastal Louisiana. They spend nearly $5 million per year reacting to coastal erosion, repairing bulkheads, relation of pipelines and marking pipeline crossings. Another company's main offshore support base is in Leeville, an area that has sank 14 inches in the last 20 years.

Not only is the country's domestic supply threatened, but 13 percent of this United States' imported crude oil is offloaded at Louisiana Offshore Oil Port. It is based in coastal Louisiana and serviced through Port Fourchon. The 48-inch pipelines are connected to 35 percent of all United States' refinery capacity; and remember, this country has not built a refinery in decades and they are at 96 percent capacity.

The impact of LA1 affects more then the Nation's energy production. The highway was built on the Bayou Lafourche Ridge and now is the dividing line between the Nation's two most productive estuaries, the Barataria and Terrebonne basins. About 20 percent of the State's total catch goes to market by way of LA1, in a State that leads the lower 48 in fisheries production as you mentioned. The loss of these wetlands is a loss to fisheries production.

Another impact, as our parish president mentioned, is the impact to our water supply. In 2000, salt water intruded into Lafourche Parish's water pumping system about 50 miles inland via a channel in a neighboring parish. For the first time, the people of South Louisiana did have a taste of coastal land loss. The paper mill had to shut down, the oil and gas industry which uses over 20 percent of the parish's water supply was affected. We couldn't drink the water, and the children bathed in salt water.

All of this could have been avoided with a lock and floodgate on that channel of that neighboring parish.

Our flood protection, as Jerome mentioned, are also at risk. Historically, these marshes would act as buffers around the levees, holding back the energies of the waves against the base of the levees. Today, open water now surrounds those earthen ring levees and wave action erodes at them every single day. The floodgates on the levees have to be closed earlier, more often, trapping marine vessels outside, trying to get out of the way of storms.

The Louisiana coast is a blue collar coast, unlike many of its State's coastal areas. It is not a place that we just visit, it's a place where we live, work and play. It is no longer just about the birds and the plants; it's about coastal land loss affecting every aspect of our lives.

I thank you, Senator.

Senator VITTER. Thank you very much, Roy. Sorry to make you last to testify, but it was either that or putting you last in the highway——

Mr. FRANCIS. I always go with the money, sir.

Senator VITTER. I have a few question to round up the hearing.

Mr. Zeringue, thank you again for being here. You touched on a very important project that we're working on in the WRDA, Morganza. Could you again explain briefly the direct concrete complications to that project caused by the coastal erosion?

Mr. ZERINGUE. Thank you, Senator. The problems that we face, obviously, is constructing a project of this magnitude, it's going to take a substantial amount of investment and it's going to require sensitivity, and much to the credit of the Corps of Engineers and our partners, the Louisiana Department of Transportation and Development have gone a long way to address the need, the obvious need for flood protection in the areas to protect the citizens.

But also keeping in mind the environmental concerns and need to protect the resources that are there. So what we are doing is developing the flood protection system and those structures that work in concert to protect the people but also the environment.

Again, much of the credit to the Corps, unlike other projects that Federal law provides, the highway habitat evaluation teams to get the project passed and the environmental impact statement, and it means going to another project. The habitat evaluation team for the Morganza-to-the-Gulf Project will survive throughout the life, the 50-year life of the project, which we hope will last even past 50 years but will provide, will be there to serve and work with the Corps and the Levee District to operate those gates.

Because, as I mentioned, you know, this is a dynamic system and there's no way we can just put up a levee or put up a structure or build a few acres of marsh and expect it to be there. We are going to have to manage it, and as Dr. Penland said, we're going to have to continuously maintain those structures, and we hope to achieve that.

Senator VITTER. Great. Thank you. As I mentioned to Secretary Angelle, it really irks me whenever it's suggested, particularly at the Federal level, that somehow we're involved in demanding handouts here.

With respect to Morganza-to-the-Gulf and activity, particular in your area, could you explain the funding commitments of citizens on the ground in Lafourche and Terrebonne.

Mr. ZERINGUE. It wasn't that much of a hard sell. I mean, obviously when you tax someone, no one favors tax but the problem is so immediate and so apparent. Right now, we have to close floodgates. High tides and southeast winds puts water on roads. The title prism, because of the loss of the levee, has moved so much further in, so we're feeling the effects from not so much storms but just different tidal events much sooner and much quicker.

So people are recognizing that and they feel that they're—obviously something needs to be done and they just took it upon themselves, fortunately, to tax themselves to apply that money to meet our portion of the cost share. I know we had 65/35 percent cost share. Ideally, we could get it to 75/25, we'd appreciate that as well, but we believe that this project is so important to the economy and for their—our ability to live down there in Terrebonne Parish, that the citizens, much to their credit, have agreed, and we're applying that.

It can only be used, and there's no sunshine, perpetuity, this money will be applied. We believe that we can, with our help from our State Delegation, meet our amount of Federal cost share.

So you're right, we're not asking for a handout. We recognize a commitment. We recognize that we need to do our part in terms

of funding this project, and we are capable and stand ready to do that, but we can't fund the whole thing.

Senator VITTER. Great.

Ms. Duval, as one of the chief economic development officers of your region, could you explain how these issues have a direct impact on economic development job creation efforts?

Ms. DUVAL. Certainly. Thank you.

As our parish becomes more susceptible to flooding and not just from major storm events, as Jerome has alluded to, but just from day-to-day south winds or a storm perhaps going way to the west of us—I know we were flooding tremendously when Tropical Storm Allison went into Texas several years ago. But these day-to-day flooding events are undermining the goals to keep our business to obtain affordable insurance or insurance at all for their infrastructure and equipment.

That just has a spiraling effect. If you don't have insurance, it's hard to get financing; the real estate market begins to collapse, the economic of the base of your community begins to collapse, it starts with one little thing but it has a spiraling effect that runs through the whole spectrum of our economy.

Senator VITTER. In terms of those economic job effects, how would you describe the trends of the impacts in your region over the last, say, 20 years?

Ms. DUVAL. Well, we have been very fortune that the oil and gas exploration is still so vital and even though we had a downturn, you know, back in the 1980's, it wells up again and oil and gas exploration is the No. 1 economy of our parish.

We still have people coming in but you have them doing a lot more investigatory work today than they would have 20 years ago. There has to be a lot of profit made upfront to be able to absorb the added expenses that doing business in South Louisiana generate.

One thing I didn't—and we also, the commercial and the recreational, that is a huge industry for Terrebonne Parish. While it is very good right now, the scientist at LSU have told us that the miles of our estuary, this will change that and, you know, everybody is catching fish where you never caught fish before, you know.

I just recently built a home off of the Intercoastal Canal in Houma, which is in Northern Terrebonne Parish. You can catch redfish and speckled trout in my backyard, and that's supposed to be freshwater. So I mean, it just—it just spirals, Senator.

Senator VITTER. Great. Thank you.

Doctor Penland, you're very focused on the science of this effort. What are the greatest uncertainties in the science, broadly speaking, as we move forward with this effort that we need to resolve?

Dr. PENLAND. I think that, Senator, with the uncertainties, we need to resolve any near-term, short-term gaps information that will prevent limitation of LCA projects and moving forward with successful completion of those. Sediment resources, do we have enough material? We do. But we need to get that message out to the planners and engineers that we do. They're going to have to make greater use of the river, use the material offshore, but the material there is to move forward which is not—project, thinking that we have a material deficit out there.

Senator VITTER. All right.

Can you describe the relationship between the channelization uppercoast and the lower Mississippi and coastal land loss?

Dr. PENLAND. Well, one of the challenges is trying to understand the cause of land loss. Regionally, in terms of centuries, we have been leveeing the river, be it with the French, be it with early exploration, birth of our country, we have been altering the hydrology of the levees; this is how it's been.

Superimposed upon that are things such as navigation, such as oil and gas, hurricanes. It's a very complex problem. But, fundamentally, river-controlled levees, stopping the delta, which is the process involved, is playing havoc on our landscape.

Senator VITTER. Final question, because this is a central question that comes up in the national debate with uncertainties, with various factors. Fundamentally, do you believe coastal restoration is truly possible?

Dr. PENLAND. Coastal restoration is truly possible using the right tools, using them in proportion to the land loss. We need to accept through our learning experiences through the Breaux Act, the LCA planning that pipeline slurry, us getting out there and basically mimicking Mother Nature much more rapidly than she did naturally, that we can do that. We've demonstrated that.

We have rebuilt barrier islands. We have built marshes for a variety of Federal programs. The issue is about being—[in audible] fortunate to the magnitude of the loss. All we need now is—with your support, is to move forward with division regional restoration that will be successful with this implementation.

Senator VITTER. All right. Thank you, Doctor.

Randy Lanctot, broadly speaking, does the LCA program have the support of the environmental community?

Mr. LANCTOT. Well, certainly I think that the environmental community in the State of Louisiana; nationally they may have some trouble with the change in cost share that we would advocate and that sort of thing. I think, by and large, they do support the LCA plan. I think you can look forward to that as it moves forward.

Senator VITTER. What do we have to do to even broaden that support nationally so this is properly recognized as a national priority in terms of environment concerns?

Mr. LANCTOT. I think that's really a grassroots effort. The Governor, as I mentioned in my presentation, kicked that off the other day to let folks around the country know what's going on down here. If they have a stake in it, just tell them a little bit about our State that—I'm not from Louisiana. Please don't whip me for it.

Senator Chabert, Leonard Chabert used to give me "what for" every time I testified before his committee down at the Capital in Baton Rouge. He'd ask me, "Where are you from, Boy?"

But anyhow, you know, we give ourselves a bad wrap. One of the terrible things we do is flog ourselves in public over: "We're not doing this right, we're not doing that right." That's a shame. I've been around the country and we're no worse than any place else. Most people around the country don't really have a thought about Louisiana.

They think we're like Mike Fink, riverboat pilot and all that, and Errol Flynn movies and things like that, and they know about

Mardi Gras, but they don't really know about Louisiana. They're fascinated by it. So we have an entre to explain a little bit about our culture and what's going on here, and I think the rest of the country will be very receptive to that and will support the programs down here and will support the funding to get it done, but we have to take more of an initiative and not have such an inferiority complex. That's ridiculous, and shame on us.

Senator VITTER. Thank you. Thank you for your group's efforts in terms of that national education campaign in conjunction with your partners around the country.

I can tell you from personal experience, you know, Mary and I talk to our colleagues all the time in the Senate about this, and that's a fact. But there is one thing that is even more effective, is when they hear from folks in their State, voters who vote for or against them, about this and how it's a national environmental issue. That's beginning to happen through national networks and national organizations, so I certainly want to encourage that. Thank you.

Finally, Roy Francis, thank you again. Of course you've been working hard on the LA1 project. What's the total cost of that project? Although it can't be quantified precisely, what might the total cost be without coastal erosion, say, the last 30 years?

Mr. FRANCIS. Basically, we're having to build a bridge so that the entire highway system will be an elevated 22 feet above sea level and built to withstand a Category 4 hurricane; so that will add additional costs based on that.

Senator VITTER. So basically, instead of building a highway, you build a bridge.

Mr. FRANCIS. Because you look at what's happening in coastal erosion. Basically at some point it may just be the ring levee at South Lafourche and another bridge tying into Port Fourchon as that marsh continues to erode. The cost for the elevated highway or bridge from the ring levee to Port Fourchon will be about $650 million. To build a highway from—all the way up to US 90 is total $850 million and the first phase will be about $200 million for construction.

It's not—you're dealing in a harsh environment and the oil and gas companies need to be on the coast. That's what they have, there's probably no better place geographically, environmentally than Port Fourchon to service this industry, and that's where they need to be at.

Senator VITTER. Correct. How many times has LA1 been impassable, say, south of Golden Meadow?

Mr. FRANCIS. It varies from the year. For example, with Ivan, it flooded twice. When Ivan came around the first time and when it came back as a depression, it doesn't take a storm to flood LA1; just a bad southeasterly wind now will inundate the water—the road with flood waters.

It may average three, four or five times per year, depends upon just the systems in the Gulf of Mexico. But storms in Mississippi or even Florida affect LA1 now; it just doesn't have to be a storm that impacts the Louisiana directly.

Senator VITTER. To tie this into something the Nation definitely does care about, what does the closure, any closure of LA1, and

this is happening four or five times a year, what does that do to gasoline prices, oil and gasoline prices?

Mr. FRANCIS. You're going to pay more at the pump. We use this—We're the first to create this effort. Hats off to all the people of South Lafourche; they created this effort. They put their money where their mouth was, and they saw what was at risk. This is when gas was at about 97 cents, and we would say, "Just imagine gas being $3 a gallon."

When you look at 16 percent of the United States' energy supply being supported by this one port, that's significant. The Gulf of Mexico is one of the top geological regions in the world. And we talk about the Persian Gulf, that supplies 23 percent of our crude oil. Well, we supply domestic and imported crude oil and natural gas through these facilities. You would see a significant impact to the price with heating oils along the east coast and also the country and also the gas price. This port, if you lose the highway, you know, there will be a shutdown in the activities at the port. If you look at just what happened with Ivan and the impact of a barrel of oil, the price for that period of time, that those structures were impacted in the Gulf of Mexico.

The Leeville Bridge, we sent a diver down a year and a half ago to do a survey. He was actually able to swim underneath the pile that supports the bridge. I was in the paper the other day as saying, "It was like a telephone pole being held up by the wires itself."

The bridge is at risk for what engineers call "critical failure." To us down the bayou, the thing is going to fall into the water. If you lose that structure you're going to have to carry a thousand 18-wheelers to the port. I don't know how that's going to happen.

We're in trouble.

Senator VITTER. That is the only access to the port, which is 20 percent of our energy needs.

Mr. FRANCIS. You have no other choice. I think, you know, when people are filling up their SUV, they don't realize what it takes for that to happen. I know we need to look at alternative sources of fuel, you know, how much we need to conserve, but until we, you know, really put some programs where it hits them—and we have to have this resource.

Other people want to be furious and think that, you know, I don't want this off my coast, but everybody wants to use it. I hate to say it like this, but nobody really road a bicycle here.

Audience Member. I walked.

Mr. FRANCIS. You walked?

Audience Member. Yeah.

Mr. FRANCIS. That's 1 percent out of 120 people.

Senator VITTER. Well, again, I think it's important to tie up to any legitimate national concern of gasoline pump prices. We're talking about a service port that helps account for 20 percent of our needs.

Mr. FRANCIS. Correct. That's the thing. As this gentleman mentioned, he walked, but if you look at what's going on in the country and the need and what's happening in other countries, you know, there's going to be more and more of a demand on this resource with China coming on-line, developing nations; that's just the world that we live in.

Senator VITTER. Final question, and my staff thought it was very important to get this on the record of the U.S. Senate, and that's: What type knot would you tie to connect a rope to a boat?

That's an inside joke. I think Roy has—

Mr. FRANCIS. This goes into the record? When you say, "staff," I think I know the individual you made reference to. Senator Vitter, all I can say is that I was in the vehicle, I launched the boat and I looked back in my rearview mirror and there was a gentleman, who represents you, holding both ends of the rope.

Now, as I understand, he was born and raised in Baton Rouge, not quite on the coast, but when I asked him to "hold the rope," I did not mean take it off the boat and hold both ends. But he did as he was told, sir.

Senator VITTER. I'll be very careful to phrase my instructions to him very carefully.

I want to thank you-all for all your leadership. I want to in particular thank our host today, the University of New Orleans led by Chancellor Tim Ryan. With that, the Senate Committee on Environment and Public Works hearing is adjourned.

[Whereupon, at 12:10 p.m., the committee adjourned.]

[Additional statements submitted for the record follow:]

STATEMENT OF MAJOR GENERAL DON T. RILEY, DIRECTOR OF CIVIL WORKS, U.S. ARMY CORPS OF ENGINEERS

INTRODUCTION

I am Major General Don T. Riley, Director of Civil Works, U.S. Army Corps of Engineers. I am pleased to be here today and to have the opportunity to speak to you about the Louisiana Coastal Area (LCA), Louisiana-Ecosystem Restoration Program. My testimony today will provide a brief background and update the Committee on progress made to date by the Corps of Engineers and the State of Louisiana in addressing the serious degradation and loss of this nationally significant ecosystem.

BACKGROUND

The loss of Louisiana's coastal wetlands has been ongoing since at least the early 1900s with commensurate deleterious effects on the ecosystem. There have been several separate investigations of the problem and a number of projects constructed over the last 30 or so years that provide localized remedies. For example, since 1990, under the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA), Federal agencies and the State of Louisiana have completed projects that we estimate will result in the creation or restoration of a total of 66,000 acres as well as enhancing 321,000 acres of coastal wetlands. Under this Act, the principal Federal wetlands agencies and the State use a competitive process for allocating funds to potential wetlands restoration projects. They select the best individual projects on the merits, but lacked an overall strategy to identify integrated groups of projects that could yield greater environmental benefits by acting in concert on a watershed basis. It has become apparent that a more systematic approach can be more effective in restoring natural processes. In recognition of this, in 1998 the CWPPRA Task Force developed "Coast 2050: Toward a Sustainable Coastal Louisiana" which detailed a set of strategies for addressing the needs of this complex ecosystem more holistically.

In March 2002, Louisiana and the Corps jointly decided to undertake development of a comprehensive plan, and signed an amendment to the original Barataria Basin study cost sharing agreement to initiate a broader ecosystem restoration study. Building on the Coast 2050 plan, the LCA Study team produced an internal, preliminary draft report in October 2003. Guidance from the Assistant Secretary of the Army (Civil Works) and in the President's fiscal year 2005 Budget identified the need to refocus this study's effort to address the most critical ecological needs of the Coastal Area over the next 10 or so years. The Corps and the State have worked together to develop a restoration program consistent with this guidance. Our recent

study is a multi-agency achievement reflecting the partnership of both the Corps of Engineers and the State of Louisiana through its Department of Natural Resources.

Based upon data and lessons learned from similar projects initiated in past years, the report proposes to address ecological needs through a series of projects targeted to the parts of the ecosystem that require the most immediate attention. Further detailed analysis and site specific design for these projects will ensure that the selected projects are highly cost-effective and represent the best way to use the available funds. In short, we will focus our efforts on the parts of the ecosystem that require the most immediate attention, and will address these needs through features that provide the highest return in net environmental and economic benefits per dollar of cost. The report also calls for studies of potentially promising, long-term ecosystem restoration concepts, with the objective of determining whether they would provide a highly cost-effective way to create coastal wetlands. In addition, the report underscores the need to address the key scientific uncertainties and engineering challenges associated with coastal restoration, and to otherwise lay the groundwork to improve the cost-effectiveness and likelihood of success of restoration efforts undertaken during, and beyond, the immediate 10-year period of the current plan.

CURRENT STATUS

Governor Kathleen Babineaux Blanco and LTG Carl A. Strock, Chief of Engineers, signed a partnership agreement on Monday, Jan. 31, 2005, dedicating their "combined efforts towards a common goal of reversing the current trend of degradation of Louisiana's coastal ecosystem."

In addition, LTG Strock signed his Chief of Engineer's Report, on the Louisiana Coastal Area Ecosystem Restoration Study. The Chief's approval reflects his commitment to an integrated approach, which targets the available resources in highly cost-effective ways to meet the most immediate ecological needs. This approach builds upon, and will advance, the ongoing restoration effort that is already underway. It is the next logical step in this effort.

As noted in LTG Strock's Chief's Report, the challenge of creating a program that can rapidly put structures in place means that we cannot simply proceed with business as usual. This of course presents a number of policy issues about how the LCA Program is to be structured and funded. Those policy issues are beyond the purview of the Corps of Engineers and must be decided by Congress and by the Administration. I know, however, from their interest and participation in our work so far that the Administration strongly supports the effort to help protect and rebuild this ecosystem, and recognizes the urgency of addressing this challenge.

In accordance with guidance from the Secretary of the Army and consistent with the Chief of Engineers Report, we look forward to working with the State of Louisiana to develop streamlined approaches and efficient ways to effectively address these issues in the most cost-effective and timely manner. We are committed to putting a program in place that will enable the State and the Nation to make significant progress towards protecting and rebuilding this nationally significant coastal ecosystem.

This concludes my statement. Again, I appreciate the opportunity to testify today. I would be pleased to answer any questions you may have.

STATEMENT OF SCOTT ANGELLE, SECRETARY, LOUISIANA DEPARTMENT OF NATURAL RESOURCES

Mr. Chairman—I am honored to sit before you today to testify on behalf of the pending WRDA bill and a provision that is of critical importance to my state of Louisiana-the Louisiana Coastal Area Ecosystem Restoration Plan (LCA).

As you well know, Senator, Louisiana's coast—America's Wetland—provides benefits to our nation that are unrivaled by any other coastal area in the United States—benefits that include the hosting of 80 percent of the Nation's offshore oil and gas supply, a third of the Nation's fisheries' landings, wildlife habitat for the second largest flyway in the United States, and the nursery ground for marine life for the entire Gulf of Mexico. These working wetlands also provide protection from storm surge for the world's largest port system and for the two million citizens who live and work in Louisiana's coastal zone.

As these wetlands continue to disappear at the alarming rate of 24 square miles a year, the Nations economic and energy security is put at great risk. As energy pipelines are exposed to open Gulf conditions and protected wetland areas become open bays, the national environmental and economic implications are unthinkable.

The loss of America's Wetland has reached crisis proportions and the Congress must address it as a "special circumstance" through both funding and speed of ac-

tion. The restoration needs of this area cannot be compared with the Everglades or with any other ecosystem in this country. No place else on the planet is experiencing this magnitude of land loss and no place else will the impacts to the United States be so severe.

There are many causes of Louisiana's land loss, both natural and man-made, not the least of which is the leveeing of the Mississippi River—done for the best of reasons to protect citizens from flooding and for the Nation's navigation needs. But the unintended consequences of this Federal action prevented the natural flooding of the river from depositing sediment and fresh water in this great delta so that the wetlands replenish and rebuild.

Oil and gas pipeline canals and east/west navigation channels have exacerbated the loss by allowing saltwater intrusion and wave action to further degrade the system.

The natural subsidence of the land and sea level rise also play a part in the destruction.

This is not about blame, but about all of us pulling together to save this strategic area and to sustain its values for future generations of Americans.

Because of the special circumstances surrounding Louisiana's unique situation, I would like to point out certain elements of the proposed LCA plan that we consider crucial to our success in saving this ecosystem:

• Louisiana is proposing a 35 percent State/65 percent Federal cost share match, not just because ours is a poor State and will find it difficult to achieve even that level of matching funds. Because of the Federal actions associated with the loss and the national benefits derived from this area, we feel the cost share is more than justified. Unless and until there is a permanent and steady stream of revenues like those tied to the sharing of Outer Continental Shelf revenues, Louisiana would not have the ability to carry a greater cost share burden.

Our citizens are serious about using such funds for the purpose of restoring our coast. In our legislative session that just ended, enabling legislation was passed unanimously that would allow our people to vote on a constitutional amendment to dedicate the first $600 million a year to this purpose. We have reason to believe such an amendment will pass a vote of the people overwhelmingly, as three others have passed in recent years that would help prepare us to fund this massive effort.

• The recent passage by Congress of the Energy bill is the first major step in this direction and on behalf of all of us in Louisiana, I thank you Senator and our entire delegation for your great victory. We consider it a tremendous down payment for the work ahead. We refer to it as a down payment, not out of greed, but out of critical need of a permanent funding source.

The President has stated that Louisiana and the other coastal producing States should use the revenues to draw down further Federal funds. Because of this, we would like to see language in WRDA that states that these and future such revenues can be accepted to match other Federal dollars, such as through a WRDA bill.

• As we embark on our plans for spending the Energy Bill funds, we will be jump-starting scientific modeling for projects included in the LCA and accelerating the design and construction of these projects. Therefore, we feel it is absolutely necessary for this work to be accepted as in-kind credit by the Corps of Engineers.

• I spoke of the urgency and need for swift action to address this devastating land loss. Ironically, it will probably not be the lack of funding that prevents us from achieving our goal, but the cumbersome, protracted Corps of Engineers process we must endure. By the Corps' own admission, it takes an average of 11 years from authorization to completion of a Corps project. That's an average. We have a river diversion that took twice that length of time to complete.

Louisiana does not have the luxury of that kind of "business as usual". Sounds good on paper, but the reality is we will have very little land to save if the LCA is not treated as a "special circumstance" and urgent changes to the present Corps process are not made.

• The question has been raised about the need to continue the CWPPRA program in light of an authorization of the LCA. Louisiana's response is a resounding "yes". A job this big requires more than one tool and since Congress enacted the Coastal Wetlands Planning, Protection and Restoration Act in 1990, the program has played a key role.

A large-scale restoration program, even a near term program as envisioned by the LCA, is fundamentally different in scale and approach. CWPPRA is a program that can roll out projects in less than 5 years in response to critical, local needs. It fills the gaps through its flexibility and comparatively quick turn-around time and addresses smaller, yet critical projects that buy us time as we tackle the larger, longer-term solutions.

CWPPRA has forged valuable partnerships, not only between the State of Louisiana and its five Federal partners led by the Corps of Engineers, but with our local parishes, who depend on the program

The CWPPRA program must remain active if we are to protect key national assets and ensure the safety of our citizens. The crisis will not wait while the more massive projects are fine-tuned. In short, CWPPRA is responsive, fiscally prudent, complementary of the LCA plan, community-supported, well established and science based. (I have included a document with my written testimony entitled "The Case for CWPPRA" that details the critical role CWPPRA plays in our restoration efforts.)

• Finally, I would like to address an element of the proposed LCA plan that the state of Louisiana considers imperative to its success-the Science and Technology Program. The design of the LCA plan is based on the continued need for sound science and engineering to guide the effort. The value of an independent, yet inclusive science and tech program is undisputed by state and Federal agencies, NGOs and our coastal stakeholders.

I have included with my written testimony a short document that outlines the S&T Program proposed in the LCA plan. It includes a science advisory board-named by and given oversight by the USGS, a science coordination board, and other elements that ensure the coordination of all appropriate Federal and state agencies, as well as front-line scientists from academic institutions in and out of the state.

It has taken the work of many people more than a year to design the proposed S&T program and the result has been buy-in at every level. We feel it would be unacceptable for the program to be turned over to any one Federal agency to direct and implement.

In closing, Mr. Chairman, I would like to stress to the committee that Louisiana is a land in crisis. There is no excuse for business as usual. We are experiencing an emergency. Because of the national benefits provided by this coastal area and the national impacts associated with this crisis, Congress should recognize it as a special circumstance and address efforts to save it accordingly.

Thank you for taking the time to hear the views of the State of Louisiana today on this issue so critical to our survival and to the future of our Nation.

The Case for CWPPRA

Draft Report by the Coastal Wetlands Planning, Protection, and Restoration Act Task Force

August 2005

The CWPPRA Task Force thanks the many individuals who provided information for the preparation of this document.

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"This is an economic artery that's vital to the country. We've got to look at the economic security that south Louisiana is providing the rest of the nation."

Scott Rayder, Chief of Staff
National Oceanographic
Atmospheric Administration

CHAPTER 1

Louisiana Wetlands

Provide Security and Essential Resources to the Nation

The traditional image of Louisiana's wetlands makes for a striking visual. Photos often depict a grassy expanse of vegetation with trawling shrimp boats and sea birds dotting the horizon. The image is accurate, but its serenity can be misleading. Within that tranquil scene are assets worth billions of dollars that serve our nation across an array of economic sectors.

Protection of National Assets

Louisiana's coast—America's Wetland—is one of the most hurricane-prone regions in the U.S. Fortunately, the wetlands provide a natural buffer during storms by absorbing surging water. Scientists estimate that every 2.7 miles of wetlands reduce storm surge by an average of one foot. In Louisiana's flat, low-lying coastal areas, these reductions in storm surge can mean the difference between an area that survives a storm and one that suffers catastrophic damage. A 2004 study of Louisiana's coastal infrastructure indicated a total asset value of approximately

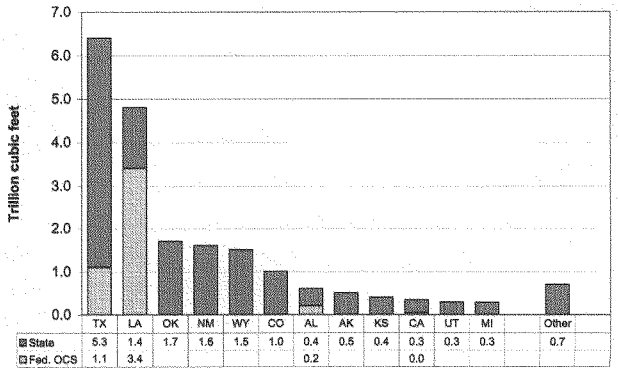
$96 billion. The wetlands protect this infrastructure, much of which directly serves the nation's needs for energy, navigation, and fisheries.

Energy Security

Energy is the lifeblood of the U.S. economy, and Louisiana's coastal wetlands protect one of the system's primary arteries. The oil and gas industries have concentrated their activities within south Louisiana to take advantage of nearby refining capacity as well as the coast's proximity to offshore exploration zones. The network of energy facilities located in and around the wetlands moves over 26% of the nation's natural gas supply and over 26% of the nation's crude oil supply. In 2003, the volume of crude oil and natural gas flowing through Louisiana's energy corridor represented $150 billion in annual energy value, or 24% of the total U.S. domestic gas production and 30% of the total U.S. domestic oil production. The federal government receives an average of $5 billion each year from royalties and related fees associated with oil and gas activity off coastal Louisiana. The recent upsurge in gasoline prices will undoubtedly increase this figure.

A great deal of infrastructure is required to support this level of activity. For example, approximately 14,000 miles of pipelines snake through the marshes of coastal Louisiana. The wetlands protect this and other energy infrastructure from storm damage. In 2003, this function alone gave the wetlands an estimated per acre value of $50,000, or $30,000,000 per square mile. Without the shelter provided by wetlands, Louisiana's energy hub would be crippled, and the nation's security would be compromised.

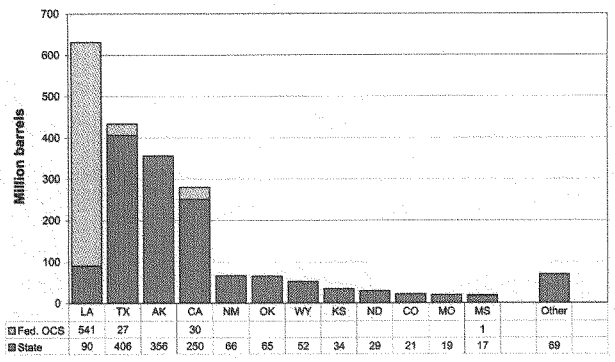
2003 US Marketed Gas Production By State



	TX	LA	OK	NM	WY	CO	AL	AK	KS	CA	UT	MI		Other
State	5.3	1.4	1.7	1.6	1.5	1.0	0.4	0.5	0.4	0.3	0.3	0.3		0.7
Fed. OCS	1.1	3.4					0.2			0.0				

DNR Office of Technology Assessment

2003 US Oil Production By State



	LA	TX	AK	CA	NM	OK	WY	KS	ND	CO	MO	MS	Other
Fed. OCS	541	27		30								1	
State	90	406	356	250	66	65	52	34	29	21	19	17	69

DNR Office of Technology Assessment

Navigation Security

Nearly 3,000 miles of deep and shallow-draft channels are located in Louisiana's wetlands. Five of the busiest ports in the U.S., ranked by total tons, are located in south Louisiana, handling cargo valued at over $75 billion. South Louisiana ports carry 21% of all U.S. waterborne commerce and ship 75% of U.S. grain exports. The wetlands protect these waterways from hurricanes and storm surge, and in so doing ensure the flow of goods to and from U.S. markets. This flow directly affec the ability of thousands of U.S. workers to do their jobs and obtain the services they need.

Fisheries and a Flyway

No other region in the U.S. supports the diverse fish and shellfish species seen in Louisiana's wetlands. Louisiana is by far the nation's largest shrimp, oyster, and blue crab producer. The region also provides almost one-third (by weight) of the fish harvested in the lower 48 states. These resources are gathered in south Louisiana and shipped throughout the world, providing jobs for 40,000 Louisiana citizens.

The North American Flyway passes directly over coastal Louisiana. More than five million migratory waterfowl spend the winter in Louisiana's marshes. In addition, the wetlands provide stopover habitat to millions of neotropical migratory birds on their journeys across the Gulf of Mexico. Hundreds of bird species as well as the jobs and recreational opportunities associated with birding, hunting, and eco-tourism all depend on the wetlands.

Louisiana's coast directly supports national goals of energy security, job creation, and enhanced trade. However, this unique region is disappearing before our eyes, eliminating benefits that our nation has relied upon for decades.

"We fret about the Amazon and we worry about the Nile, but within our own borders, we have a national catastrophe of huge proportions."

- R. King Milling, President
Whitney Bank

CHAPTER 2

Land Grab

The Gulf of Mexico is Reclaiming One of Our Nation's Key Economic Zones

A Land in Peril

For all the abundance generated within Louisiana's coast, the wetlands themselves are dying. The Mississippi River built the wetlands; its annual floods spread tons of water and sediment across south Louisiana, creating an ecosystem that endured for thousands of years. But in the last century, the river's floods were contained by levees. Because the river's water and sediment are channeled into the Gulf of Mexico, the wetlands do not receive materials that allow them to regenerate. Rising sea level, saltwater intrusion from man-made channels, and a host of other factors all increase stress upon the ecosystem. As a result, the wetlands are rapidly converting to open water.

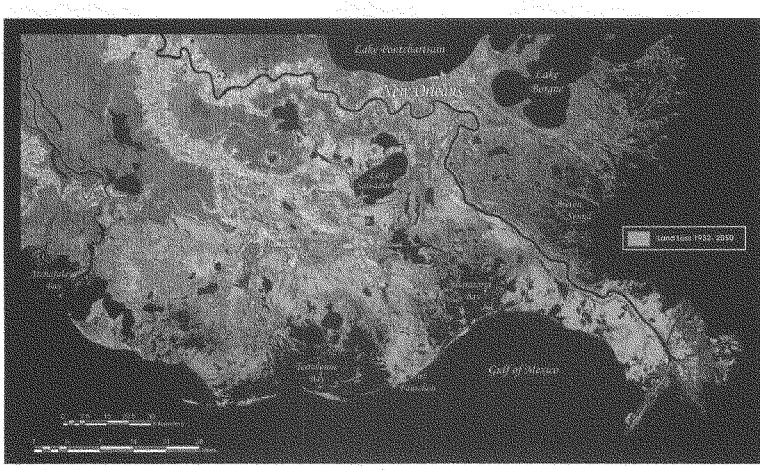
How Much Land Is Louisiana Losing?

Since the 1930s, coastal Louisiana has lost over 1,875 square miles, an area more than 25 times larger than Washington D.C. Scientists estimate that the state will lose an additional 673 square miles by 2050. The decade of land loss from 1990 to 2000 cost Louisiana approximately 24 square miles per year, enough to convert once dry land into open water. Sadly, it has become common to hear south Louisiana residents reminisce about tracts of land their families used just 10 or 20 year ago—land that is now under water.

National Implications

If this rate of loss is not reduced, critical energy infrastructure will be damaged or destroyed. Pipelines, offshore support centers, and other facilities constructed for inland conditions will be subject to the open water of the Gulf of Mexico.

Land Loss in the Louisiana Deltaic Plain



The land loss between 1932–2000 is historical. The land loss between 2000–2050 is projected based on historical trending if no further action is taken.

Prepared by the U.S. Department of the Interior, The U.S. Geological Survey, and the National Wetlands Research Center.

Land Grab 6

These facilities include the Strategic Petroleum Reserve as well as the Henry Hub, one of the nation's major natural gas distribution centers. Should present trends continue, the nation can expect disruptions in the delivery and pricing of crude oil and gas, conditions which could be destabilizing to the economy as a whole.

Shipping will be similarly affected. As wetlands erode, it will become much more expensive to maintain national waterways and ports in south Louisiana. U.S. taxpayers will be asked to pay these increased maintenance costs, whereas today, the wetlands provide this service for free.

Fisheries stocks will plummet as the spawning, breeding, and foraging grounds of fish and shellfish are absorbed by the Gulf. Consumers can expect rising prices and shortages of resources that are readily available today.

The increased risk from hurricanes, both in terms of infrastructure and human life, cannot be ignored. Approximately two million people or over 50% of Louisiana's citizens live in Louisiana's coastal parishes. Should a strong hurricane come ashore in an area that is no longer protected by wetlands, the loss of life and property would be enormous.

Even if such a doomsday scenario does not occur, the gradual loss of coastal Louisiana communities and habitats presents a high cost to the nation. We are losing one of the most vital and unique regions of our country. Whether one considers the human cost, the risks to infrastructure, or the danger to wildlife and landscape, it is clear that we must take bold action.

What Can Be Done?

America's Wetland can be restored to a sustainable level, one that coexists with human uses and communities. Achieving this equilibrium will require us to mimic nature's own land building processes, specifically the distribution of water and sediment through river diversions and other large scale civil works projects. The state of Louisiana is encouraging Congress to supply funds for these projects through the Water Resources Development Act (WRDA) and other sources.

In addition to these massive engineering enterprises, which will take many years to construct, Louisiana must also be able to respond quickly to emerging land loss crises felt by human and natural communities. The Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Program provides this level of local responsiveness while supporting the larger restoration projects upon which the future of south Louisiana depends.

"It used to be that people would ask 'Where are the results? Is this just another study?' Now Louisianans are seeing real physical projects and not just studies on a library shelf."

- Former Senator John Breaux

CHAPTER 3

Stepping in to Face the Crisis

CWPPRA's Record of Success

CWPPRA's Track Record

In 1990, awareness about the impacts of Louisiana's land loss crisis was growing, thanks in large part to Louisiana Senators John Breaux and J. Bennett Johnston. In response, Congress enacted the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA), the first stable source of federal funds dedicated exclusively to the long-term restoration of coastal habitats, fish, and wildlife in Louisiana. Since then, the state has received approximately $50 million each year for coastal restoration projects through CWPPRA. These federal funds are matched by a 15% state contribution.

The program limits planning expenditures to $5 million each year. As a result, more than 90% of CWPPRA's funds are spent on direct project costs in areas of need. In the last 15 years, the program has built, is building, or

CWPPRA Projects Constructed to Date

Coastal Region	Number of Projects	Approximate Net Acres Re-established or Protected	Percentage of Total Budget
Deltaic Plain	40	35,800	72%
Chenier Plain	34	30,100	28%
Totals	74*	65,900	100%

**Does not include the Coastwide Nutria Program, which is counted as one constructed project for tracking purposes.*

has approved for construction 75 projects at a total cost of nearly $588 million. These projects are projected to re-establish or protect a total of approximately 65,900 net acres of wetlands. In 2004, recognizing CWPPRA's value to Louisiana and the nation, Congress reauthorized the program until 2019, and 43 new projects are in the design phase.

The CWPPRA Program has been the state's primary tool for responding to wetland loss. After 15 years on the front lines, the program has created a distinct niche, one that emphasizes practical benefits to habitats and human communities while supporting the economic uses that make this region so valuable to the nation.

Responding to Local Needs

CWPPRA is known for employing a wide array of restoration techniques, from vegetation planting, to sediment trapping, to stabilization of barrier islands. CWPPRA also builds projects ranging in size from 9 to 36,000 acres. Using different project types and sizes has enabled the program to respond more fully to the individual circumstances of each project area.

The program is also flexible in terms of timing, and has been able to take a project from the design phase to construction in as little as three years. This comparatively quick turn-around time allows the program to meet needs more quickly than is possible with other flood control initiatives funded by WRDA.

A Collaborative Approach

Through its governing structure, the program emphasizes intergovernmental cooperation. Five federal agencies sit on the CWPPRA Task Force, and each agency brings a different, and complementary, perspective to the table. These agencies include the U.S. Fish and Wildlife Service, the Natural Resources Conservation Service, the National Marine Fisheries Service, the U.S. Environmental Protection Agency, and the U.S. Army Corps of Engineers. The Louisiana Governor's Office represents the state on the task force.

A Technical Committee, Planning and Evaluation Subcommittee, Environmental and Engineering Work Groups, and similar entities are responsible for project planning and engineering. The Task Force also retains the services of Louisiana coastal scientists to advise as needed. Each built project is assessed throughout its lifetime using an intensive monitoring program. The feedback gained by monitoring allows the program to continually improve project designs and establish a field tested array of information about which restoration techniques work best. This information is helping

decision makers optimize plans for the large scale program, now under development.

Strong links have also been made with local government agencies, coastal zone management agencies, and the public. The process of identifying and selecting the projects to be built uses a "bottom-up" model that encourages local constituencies to contribute. This approach has created strong buy-in for the program from a broad array of interest groups throughout south Louisiana.

The emphasis on collaboration and grassroots participation has had other implications for the program as well. CWPPRA projects have tended to provide local impacts, with a specific focus on enhancing habitat in areas of acute need. This approach has been entirely appropriate given the program's budget and scope as well as the distress being felt by human and natural communities throughout the region. However, in recent years, the state has sought to augment CWPPRA with a larger scale program that can more fully address the roots of the land loss problem.

A Large Scale Vision

By the late 1990s, it was evident that the CWPPRA Program was over-extended. Evaluations revealed that if CWPPRA were to continue single-handedly confronting the complex land loss problems involved, the program would prevent less than 15% of the wetland loss predicted for coastal Louisiana.

While recognizing CWPPRA's important role, the CWPPRA Task Force and the state began examining options for creating a companion program that could address the systemic problems fueling land loss in Louisiana. The resulting Coast 2050 Report outlined a comprehensive set of restoration strategies for restoring south Louisiana's wetlands to a sustainable level. These strategies were integrated into CWPPRA's project selection and planning criteria.

In 2003, the Louisiana Coastal Area Comprehensive Coastwide Ecosystem Restoration Study (LCA Study), developed by the state and its federal partners, further delineated a sequence of projects for restoring south Louisiana's landscape to health. A near-term LCA Plan has since been distilled from the study. The plan identifies steps that must be undertaken in the next 10 years, including large scale initiatives, studies, and demonstration projects.

The LCA Program envisions the construction of massive civil works projects that would reshape the region's plumbing by, for example, reintroducing large amounts of Mississippi River water into the wetlands. Implementing the near-term LCA Plan will cost approximately $1.9 billion, and work is underway to secure funds through WRDA.

These developments are good news for national energy, navigation, and fisheries interests, as well as for the communities of south Louisiana. But the question arises: with momentum growing for a large scale, restoration program in Louisiana, where does CWPPRA fit in?

"In order to make this work...a cooperative effort involving government, business, private conservation organizations, and private citizens must evolve. Responsibility for the restoration of coastal Louisiana should be shared by all."

- Don Young, Executive V.P.
Ducks Unlimited

CHAPTER 4

A Job This Big Requires More Than One Tool

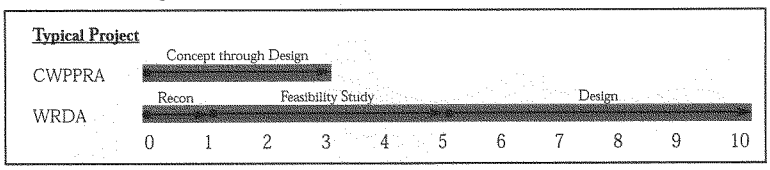
CWPPRA's Role in the Restoration Process

Holding the Line

By preserving habitat in areas that need immediate help, CWPPRA offers an essential counterpoint to the large civil works program envisioned in the LCA Program. By law, a WRDA funded project must proceed from a reconnaissance phase, to a feasibility study, to engineering and design, all before construction actually begins. This cumbersome pre-construction process has traditionally taken up to a decade to complete. In the meantime, Louisiana's land loss emergency will continue, and nationally important assets will pay the price.

By contrast, Congress has already authorized CWPPRA until 2019. Program funds are available, and procedures for allocating these funds are well established. Although it cannot tackle the scope of projects outlined in the near-term LCA Plan, the CWPPRA Program can hold

Years to Begin Construction



By law, WRDA projects must follow a strict pre-construction process involving several phases, whereas construction of CWPPRA projects can begin within three to four years.

the line in targeted areas while the state and its federal partners prepare to implement LCA initiatives. In fact, without CWPPRA's continued involvement, unchecked wetland deterioration could render some large scale projects infeasible.

Smaller Projects Essential

Even if WRDA funded projects were being built today, the CWPPRA Program would not be redundant. WRDA projects are typically large and multi-purpose, involving components such as river diversions, marsh creation, and barrier shoreline protection. CWPPRA projects, on the other hand, are usually smaller and can even comprise stand-alone vegetation plantings or marsh terracing.

Though compact, these CWPPRA projects deliver important benefits. By addressing localized problems as they arise, the program prevents larger problems from developing. This responsiveness is particularly crucial after hurricanes and storms. In these cases, CWPPRA projects can repair immediate damage and prevent further destruction of habitat. Problems like these are not addressed by the LCA Program, even though correcting hot-spots of habitat degradation will always be crucial to the overall success of the state's restoration efforts.

Landscape Level Effects

Some parts of coastal Louisiana may need more in-depth assistance than a single CWPPRA project can provide. Many of these areas, particularly along the coast's western Chenier Plain, are not included in the near-term LCA Plan. CWPPRA can meet the needs of these areas by building several interrelated projects that collectively address the problem at hand. Bundling projects in this way has allowed the program to create landscape level effects, while keeping overall project costs relatively modest.

CASE STUDY: The Barataria Basin Landbridge is sinking and subject to erosion from nearby lakes and bayous—a situation that threatens the communities of Barataria and Lafitte. Numerous oil and gas wells, pipelines, and storage facilities are also at risk. To address the problem, the CWPPRA Program authorized a series of 12 projects to be constructed. Projects in areas needing more immediate attention were approved first. When complete, the projects will strengthen the landbridge by re-establishing or protecting 5,400 acres and enhancing 27,500 acres.

Complementary Programs

The large scale restoration program envisioned for south Louisiana is fundamentally different in scale and approach than the CWPPRA Program. While CWPPRA is able to roll out projects in under five years in response to local need, the LCA Program must move more slowly, focusing on building big projects that meet long-term, systemic needs. Because the two programs are so distinctly different, their respective strengths can be coordinated to produce highly complementary results.

By themselves, neither program could accomplish all that needs to be done at selected sites throughout the coast. But together, LCA and CWPPRA can more fully address the diverse array of problems created by land loss in Louisiana. The challenge is to enhance this relationship to ensure optimal results.

CASE STUDY: A 465-acre marsh is all that separates the Mississippi River Gulf Outlet (MRGO) from Lake Borne. However, the landbridge is eroding at an alarming rate: 9 feet per year on the Lake Borgne side and 24 feet per year on the MRGO side. In response, the CWPPRA Task Force has authorized a project to create a rock dike along the marsh's edge that will prevent shoreline erosion in the short-term. This will stabilize the area while the U.S. Army Corps of Engineers examines options for reducing MRGO-related erosion in the long-term.

Opportunities for Partnership

How should CWPPRA coordinate with the LCA Program? The CWPPRA Task Force has identified several options for consideration. As the WRDA process evolves and the LCA Program management team takes shape, we welcome further exploration of these and other ideas.

To foster additional coordination with the LCA Program, the CWPPRA Program could:

- continue implementation of projects that address publicly identified restoration needs;
- identify geographic gaps not filled by the near-term LCA Plan, and focus on areas where land loss is medium to high;
- focus on projects in the lower end of the cost range, with primary emphasis on projects costing less than $20 to $30 million;
- consider a project with estimated costs over $30 million only if it addresses a critical gap not covered by LCA; and
- offer continued interaction as the LCA Task Force and Program develop.

"We would not allow a foreign power to threaten our land without a fight. Therefore we should not allow a less obvious, but equally threatening power to take our land away."

- Senator Mary Landrieu

CHAPTER 5

Summary

Why the Nation Needs CWPPRA

The clock is ticking for south Louisiana and the nation. The acres of coastal land washing away each day endanger not only communities, but the viability of energy and navigation networks that directly support our nation's security and economy. Although large scale solutions are being developed, the crisis will not wait while details of these massive projects are fine tuned.

In order to forestall dire national consequences, the federal government must consider Louisiana's land loss emergency a special case, one that merits multi-faceted assistance. In this regard, the CWPPRA Program must remain active if we are to protect key economic assets and ensure the safety over two million south Louisiana residents.

- Responsive. By addressing land loss hot-spots, either in single projects or in tandem with larger efforts, the program is able to respond to a range c urgent needs. Projects are completed in five years,

compared to the longer time-frame needed for WRDA funded projects. This flexibility allows the CWPPRA Program to address land loss problems as they arise, thereby preventing manageable situations from becoming full blown disasters.

• Fiscally prudent. The CWPPRA Program must hold the line while preparations are made for larger scale projects. Without CWPPRA's ability to stabilize rapidly degrading areas, LCA projects will become more difficult and costly to implement. In some cases, large scale projects will become infeasible without immediate CWPPRA action. Should this occur, communities and infrastructure worth billions of dollars would be at serious risk.

• Complementary. The near-term LCA Plan does not address many areas that need restoration assistance, particularly in the western region of the coast. The CWPPRA Program can help fill these gaps. In addition, LCA and CWPPRA can each tackle different aspects of the same large project, phasing in results over time for greater overall project effectiveness.

•Science based. The program's monitoring procedures provide a vehicle for field testing restoration techniques, thereby generating information that is essential to the success of larger scale projects.

• Community supported. The program has strong grassroots support and a proven track record of delivering results.

• Well established. Given the imperative for swift and effective action, the nation needs programs on the ground now. The CWPPRA Program has a 15 year track record, it has been congressionally authorized until 2019, and it has a productive management structure involving multiple state and federal agencies.

Together with the elements in the proposed LCA Program, the CWPPRA Program can ensure that south Louisiana's landscape—America's Wetland—continues to enhance the nation's wealth and security.

Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA)

Providing Effective Coastal Restoration Solutions For Louisiana Since 1990

STATEMENT OF CHARLOTTE RANDOLPH, PRESIDENT, LAFOURCHE PARISH

Lafourche Parish was built by the force of the Mississippi River. That force took the soils from 41 percent of the United States and reassembled that sediment into a natural platform for 2 million people to live in southeast Louisiana. Plainly stated, the Mississippi River system has built a platform of ridges, swamps, marshes, estuaries, rivers and bayous which serve the Nation through navigation, gas and oil supply, and fisheries production. The need for navigation and flood control has caused the natural cycle of building land to change so that wetlands, beaches and ridges are now being lost at 25 to 35 square miles a year. The continued degradation of one of the most important environmental and monetarily valuable deltas in the world should be addressed seriously on the Federal level. There is no other place in the United States that has provided the function of this delta. The Federal Government has finally recognized that damage in South Louisiana was in the pursuit of national interest. Because of national interest, we insist that the damage be mitigated. Louisiana has 30 percent of the Nation's coastal wetlands. Of the Nation's total wetlands' loss, Louisiana is experiencing an astonishing 90 percent of that loss. We are also losing elevation in the range of one foot in 20 to 30 years in an area where most of the dry land is no more than seven feet above sea level.

These land loss factors not only threaten an important environmental area, it places 2 million people at greater risk from hurricane storm surge. Major pipelines and other infrastructure for oil and gas are now exposed to more extreme hazards. This oilfield infrastructure was constructed in protected waters of coastal Louisiana. Much of the area is transitioning into an open water marine environment. This directly affects the working condition of this infrastructure to contain the oil and to deliver it to its markets nationwide. Surface water used for industry and drinking has been contaminated on several occasions by increased salinity at the raw water intake 45 miles inland. This has made the water source unusable for thousands of people and several industrial plants during these events. We tasted salt in our drinking water; people with high blood pressure were advised to boil their water. This system we use serves 300,000 people. Senator Mary Landrieu stepped in with emergency funds to build a structure that would help alleviate this problem. We're investigating building another. To solve these challenges from the Gulf, we must enhance our natural protection such as barrier islands and marshes, and protect our increasingly threatened communities. For our communities it is necessary to build tidal and hurricane levees, and increase the elevation of the levees in communities which already have protection. Although we have retreated from the most threatened communities, we can justify protection for the remaining areas. These communities support people and businesses which work to provide 25 percent of the Nation's oil and gas, supply five (5) of the top 15 ports in the country, and produce 30 percent of the fisheries of the lower 48 States. To abandon these communities is to abandon over $100 billion in public infrastructure. Studies indicate that for $10 billion to $15 billion, this environmentally and economically productive area, and its communities, can be maintained. Re-introduction of Mississippi River water and sediments will allow us to maintain, and possibly regain thousands of acres of wetlands. Re-nourishment of our uninhabited barrier islands with quality offshore sand through pipeline sediment delivery would re-establish much of the tidal protection which has been lost. It will reduce the tidal prism which has increasingly invaded marshes, 30 miles from the coast. A comprehensive plan of lateral barriers would protect us in the near term, while we implement the long—term sediment recovery processes. These projects would, in effect, keep the wetlands wet and the dry lands dry. The marriage of structural flood protection for the communities and re-establishment of the environment functions of our barrier islands and marshes is what we term Comprehensive Hurricane Protection. A substantial portion of the levee work has been accomplished through the Congressional authorizations in 1965. However, new authorizations are necessary, along with financial support for completion of the ongoing projects. To some degree the erosion problems of South Louisiana are attributed to international trade, and domestic onshore and offshore oil development. When one realizes that $5 billion of royalties and lease payments go to the Federal treasury only through the support of coastal Louisiana and the infrastructure it provides, it is obvious that this source of money should fund the repairs of the impacts its production causes. Louisiana has virtually no direct share of those revenues, according to agreements with the Federal Government. Other States, which are impacted by oil and gas development on Federal Government lands and waters, receive 50 to 90 percent share of the revenues from that development. No American argues the fairness of that sharing to the States that accept this burden. The Federal Government is receiving this revenue through the support of coastal Louisiana and the fragile platform on which it sits. We ask that the Federal Govern-

ment reinvest the revenue necessary to protect the communities which work to produce the energy. It should reinvest the revenue necessary to maintain the most biologically productive ecosystem in the lower 48 States. If the Federal Government takes care of protecting its interest, Louisiana will not need funding since protection of the Federal interest protects our unique corner of America. We do not ask for money from other States. Only reinvest in the place which is producing this revenue. As this is written, we monitor another tropical system. Last year, we narrowly escaped the devastation of Hurricane Ivan, which, save for a slight jog to the north, would have presented our worst case scenario as to storm surge. A minor system, Tropical Storm Matthew followed, causing over $1 million in water damage to a facility owned by Lafourche Parish's top tax payer, among others. How do we implement an effective drainage system? We must get the water out, yet there's no place for the water to go. We spend millions annually on drainage projects against rising tides and lower elevations.

Senator Vitter has offered a series of five coastal bills which addressed near-term and long term solutions to our problem. For a very long time, members of our Congressional delegation have been petitioning our government for assistance. True success will be achieved when the Nation's leader fully recognize the value of coastal Louisiana and fully fund the projects necessary to protect us. We are indeed grateful for the recent allocations provided in the recently enacted Energy bill and the Transportation bill. These funds provide for opportunities to reinforce our existing levee systems as well as to construct a major highway to the very significant Port Fourchon. It's a good start and we thank you for these funds. Louisiana's Governor Kathleen Blanco said it best when she noted that we are not asking for more money out of greed but for need. A guaranteed annual source of revenue will allow us to plan for the future, which at this point is very, very difficult. Our shrimp fishermen recently took on imports and won. Yet they also face the loss of the estuaries which allow for the breeding and spawning of their valued catch. Lafourche Parish is also home to many sugar cane farms, which become the reservoirs during heavy rains.

What is our future? Do we plan for retreat or do we continue to fight? Of course we will fight for Lafourche and southeast Louisiana. We have formed an organization with the acronym PACE-Parishes Against Coastal Erosion, comprised of parish presidents from 19 coastal parishes. Together we represent one half of the population of Louisiana. The National Association of Counties has participated in one of our meetings and recommended that the Federal Government recognize the concerns erosion is causing. The Breaux Act has funded numerous projects on our coast. We have allies in our fight, including other States which share our plight. But the most important relationship must be with the Federal government. Our parish and our State cannot fund the needed projects. We must use the funds derived from our coast to win this battle and keep us viable.

STATEMENT OF JEROME ZERINGUE, EXECUTIVE DIRECTOR, TERREBONNE LEVEE AND CONSERVATION DISTRICT

Members of the committee, my name is Jerome Zeringue, I live in Houma, LA, and I am the Executive Director of the Terrebonne Levee & Conservation District. I thank you for the opportunity to speak to you today, and I welcome you to south Louisiana where a sinking feeling is not just an emotion but also an unpleasant fact.

In Terrebonne Parish, we are losing our land, our resources, and our communities due to coastal land loss resulting primarily from subsidence, sea level rise, and salt water intrusion. Terrebonne Parish is the largest coastal community most exposed and vulnerable to the effects of high tides, high winds, tropical storms, and hurricanes. In any given year, we face a 60-65 percent chance of a 'named' storm making landfall and impacting our State, and a 25-30 percent chance of a hurricane making landfall or affecting Louisiana.

Terrebonne Parish has some of the most ecologically significant and productive habitat in the world. We have two of the top ten seafood docks in the United States in terms of dollar value and poundage harvested. We have oil and gas infrastructure that is vital to the State and the Federal economy. We have an increasing population and tax base with a healthy and productive economy. Frankly, we have people, infrastructure, and wetlands that need and deserve protection.

I have worked for Louisiana State University as a fisheries biologist, I have worked for a non-profit environmental organization, the Nature Conservancy, and now with the levee district, a career path that on the surface may appear somewhat convoluted and disconnected, but in reality, considering the problems we face, a fortunate series of events. It has afforded me an opportunity to view the issues affect-

ing our State from an academic, business, and environmental perspective; all of which must work together to turn back current trends and very dire predictions.

Academically, we should deal with coastal land loss with practical research, capable of complementing and enhancing desperately needed projects. The academic community must work cooperatively to implement projects and share information with a focus on constructive research, not conducting studies simply for their intrinsic scientific value. Projects must be put on the ground to stem the ravaging effects that subsidence, sea-level rise and salt water intrusion impart continuously, even now as we discuss, debate, and study these issues.

Fixing our problems will require the environmental community to accept seemingly unnatural, contrived, and untested projects in order to establish a functioning system that will enable systemic long-term solutions to the problems we face; keeping in mind that we are in this predicament because of unnatural, insensitive, and unintentional events, which should not be repeated, but may be necessary to achieve the preferred result.

From an economic perspective, industries that have traditionally relied on convenience or unfettered access must understand that implementing necessary fixes will require sacrifices. It will necessitate changes in ways we traditionally conducted business, and rely on innovation and least damaging alternatives in oil and gas extraction and exploration, and adapting to changing fisheries resources that will result from habitat modifications.

Unfortunately, our future will require a "line in the sand" drawn from a certain point. A point where we will stand and fight, retreat no more and do what we must to sustain ourselves. Just like the city of New Orleans, our coastal communities will require some form of protection through levees, walls, or embankments in order to survive. The line will be drawn, either by persistent degrading forces or through consensus. Coastal communities are retreating and we have lost several, and several more will not be around 20-40 years from now.

In Terrebonne Parish, we face a land loss rate of 10 square miles per year. We have one of the highest land loss rates in the Nation and our line in the sand is the Morganza to the Gulf Hurricane Protection project. The Morganza Project will provide hurricane protection for Terrebonne and Lafourche Parishes, their 200,000 residents and infrastructure. The Morganza to the Gulf Project is a leaky system, which sounds odd if you consider this strictly as a flood protection system; however, leaky is the ideal way to build such a project in this environment. The obvious concern with building a project of this magnitude in coastal Louisiana is the potential impacts to wetlands, wetlands we intend to protect and restore. The Morganza Project is sensitive to these environmental concerns. We are designing this project in the most environmentally friendly way practicable. We will achieve this by constructing our levees, floodgates and environmental structures along existing hydrologic barriers, such as drainage levees, and adjacent roads minimizing impacts to wetlands and enhancing the existing hydrologic regime.

In addition, the Morganza Project will provide flood protection capable of adaptively managing the wetlands within and around the system. The lynch pin of the whole project is the lock on the Houma Navigational Canal. The HNC Lock is the key feature necessary to protect, maintain, and restore wetlands within the Terrebonne Basin. This lock is considered a critical restoration component within the Coastal 2050 Plan, Louisiana Coastal Area Study, and by the Morganza Habitat Evaluation Team. These studies agree that the Houma Navigational Canal lock can effectively assist restoration efforts of adjacent wetlands in a systemic, comprehensive approach. The Houma Navigational Canal Lock is a case study of how a flood protection project feature can serve as an adaptive management tool.

Initially, the Houma Navigational Canal lock was considered only as a Morganza Project component, designed to: protect thousands of residents and businesses from a 100-year storm event, provide safe harbor for navigation, protect the local drinking water supply, and reduce salt-water intrusion. The lock has evolved into a significant environmental structure which can substantially reduce the devastating impacts of salt water intrusion, maximize and efficiently utilize available freshwater from the Atchafalaya River to enhance, restore, and reestablish fresh and brackish water marsh within this coastal environment and oh, by the way, can protect the citizens from a category 3 storm event. The HNC lock will work collaboratively with the 12 other environmental control structures along the Morganza alignment to protect and maintain wetlands within the Terrebonne Basin.

We are anxiously waiting WRDA Authorization for remaining portions of this project that must be authorized. The citizens of Terrebonne cannot continue to wait, nor are they relying solely on Federal and State financing. In fact, we are the first south Louisiana community to pass a local tax to support coastal restoration. Our citizens have assessed themselves a cents sales tax generating over $4 million per

year that can only be spent on the Morganza to the Gulf Project. Some may say that this is not coastal restoration but flood protection, but I can assure you that from where I come from we do not differentiate between the two. To us this project is coastal restoration.

The Morganza to the Gulf project can serve as a model for designing a system that can protect people, infrastructure, and the environment. The Morganza Habitat Evaluation Team composed primarily of State and Federal regulatory agencies, will adaptively manage this project by manipulating floodgates and environmental structures throughout the project life. This dynamic ecosystem can never be managed by a one size fits all solution.

We have a sufficient amount of information to begin putting restoration projects on the ground; the question is do we have the political will to get it done. To put into operation these large-scale projects included within the LCA study, it will require a trial and error approach, and we must understand that there will be failures. These efforts are necessary to achieve success. Unfortunately, someone's constituency or user group will be affected which could impact one's standing, government funding, and fear of legal prosecution. We must all have the courage and compassion to ensure that our efforts are successful. We are all too confident in the consequences of doing nothing; we cannot let the fear of uncertainty encourage inaction.

I appreciate the efforts of Senator Vitter, and our Congressional delegation for funding included within the Energy bill, and I respectfully request your support and passage of WRDA, which will enable us to protect our coast and our citizens. Help us to hang on to a unique national treasure, an area rich in diversity, culture and resources.

Benjamin Franklin said, "When the well's dry, we know the worth of water." Let us not have to lose this valuable resource before the Nation truly appreciates its worth.

STATEMENT OF ALEXIS DUVAL, CHAIRWOMEN OF THE BOARD, HOUMA-TERRBONNE CHAMBER OF COMMERCE

Good Morning. My name is Alexis Duval. I am the board chair of the Houma-Terrebonne Chamber of Commerce. Thank you for the opportunity to be here this morning speaking on a topic of critical importance to all citizens of Terrebonne Parish. My comments this morning will be directed to the coastal situation affecting the Houma-Terrebonne area. I live in Houma which is about 55 miles southwest of New Orleans, as the crow flies.

The plight of coastal Louisiana has been a topic of lengthy discussion and much concern for chamber members for many, many years. Coastal erosion crosses all barriers. It cuts through all spectrums of our society. It affects the economy, infrastructure, as well as the quality of our very lives. These effects are far reaching, they cross parish boundaries, they cross state boundaries, they effect the entire Nation.

We have all heard the statistics relating the amount of land lost over time, as well as that being lost as we sit here in this very room. There is no other area in this great country that is losing land as rapidly as the Barataria-Terrebonne National Estuary. Terrebonne Parish constitutes a large portion of that estuary system.

Terrebonne Parish is unique as to both the causes of its coastal erosion problem and the solutions needed to contain that very erosion. Please note I said contain. We are very aware that efforts need to be focused on maintaining the land mass we have in place and doing everything humanly possible to minimize, if not eliminate any future land loss.

The causes have been studied and are well known. Lack of sediment deposits from natural flooding events eliminated by the containment of the Mississippi River and the Atachafalya River, salt water intrusion, sea level rise, subsidence, the unintended affects from oil and gas exploration, to name a few.

Terrebonne Parish lies between the Mississippi River (to our east) and the Atachafalya River (to our west). Because we are so far removed from these two sediment sources, restoration efforts will be the most costly. It will take a large scale diversion project to help the eastern part of our parish, while smaller scale diversion projects have been studied for the western part of the parish.

Due to lost land, Terrebonne Parish residents are more at risk from storm surge because unlike our neighboring parishes we have no hurricane protection levee. The chamber fully supports the LCA Restoration Plan, however, we recognize that any comprehensive restoration plan will take years to build and implement. Therefore, our greatest priority is to ensure that a hurricane protection levee is built which offers the most instant protection to life and property. Authorization for a hurricane

protection levee, Morganza to the Gulf, is presently contained in the WRDA bill that will be considered by Congress in the next few months. It is vital to the safety and well being to the 100,000 plus citizens of Terrebonne Parish that the Morganza to the Gulf levee system is authorized and funded.

Efforts for coastal restoration in Terrebonne Parish will not be successful unless the effects of the Houma Navigational Canal ("HNC") are addressed. Running North-South the HNC cuts the lower half of our parish in two. The LCA near term plan does not authorize any major project for Terrebonne Parish. Major projects contained in the original LCA plan include major sediment diversion projects from the Mississippi traveling westward and the Atachfalya traveling eastward and a lock for the HNC. These large scale projects must be addressed and funded. The HNC lock is presently being designed.

My husband and I are both life long residents of Terrebonne Parish. We raised our family in Terrebonne Parish. If I convey anything to you today, it is a plea for our safety and well being. As a business woman who is concerned for the well being of the infrastructure and economy of our parish, and as a mother, who is concerned for the safety of her family, my goal is to impart to you the urgency of our situation.

Unlike a wildfire, earthquake, or tsunami, the disaster occurring in our parish is insidious. Since it is occurring gradually it has not drawn the attention of other natural disasters and we have let the problem fester until it has become malignant. Without a quick and decisive treatment this cancer will kill our community, and in the event of a major hurricane, will contribute to the death of many of our citizens.

Monday morning as I watched the Channel 4 Eyewitness Morning News, I was struck by comments made by President Bush. The comments were part of a taped segment commenting on the President's scheduled talk to the Veterans of Foreign War. I quote, "we must deal with threats before they fully materialize" While I understand the President's remarks were made in context of the War on Terror, I found they applied to our coastal plight as well. Terrebonne Parish and all of coastal Louisiana are at war with Mother Nature and she has weapons of mass destruction. We are currently losing that war. Without large scale Federal help, we are doomed.

I applaud the efforts of our congressional delegation, and especially Senator Vitter, for the passage of the Energy bill with the revenue sharing provision. I know you realize that that passage was only the first step. I, along with members of the Houma-Terrebonne Chamber of Commerce stand ready to help you in any way possible to ensure passage of a WRDA bill authorizing both the LCA and Morganza to the Gulf projects.

STATEMENT OF SHEA PENLAND, DIRECTOR AND PROFESSOR, PONTCHARTRAIN INSTITUTE OF ENVIRONMENTAL SCIENCES, AND CHAIRMAN, DEPARTMENT OF GEOLOGY AND GEOPHYSICS, UNIVERSITY OF NEW ORLEANS

THE LOUISIANA LAND LOSS CRISIS IN AMERICA'S COASTAL HEARTLAND

Coastal Louisiana lost more than 1500 square miles of land in the 20th century and the rate of loss has averaged 20 square miles per year since the 1990's. Coastal land loss threatens the existence of Louisiana's natural framework, its resource base and the human fabric of the United States in the Gulf of Mexico. Without the implementation of coastal restoration efforts in Louisiana proportional to the magnitude of loss, the largest river delta in America, the Mississippi, will erode and subside away beneath the waters of the Gulf. Without putting a massive program of land creation and ecological restoration into effect immediately, the existence of the Mississippi River's fertile crescent is threatened and endangered for generations to come.

THE CAUSES OF LOUISIANA'S COASTAL LAND LOSS

The causes of coastal land loss in Louisiana are complex. In order to implement a successful regional coastal restoration program in Louisiana we must understand the causes of land loss. Regionally, hundreds of years of flood control, hydrologic modification, subsidence and storms are the overriding causes for the environmental collapse and loss of land in coastal Louisiana. Locally, on the time-scale of decades, oil/gas activities, navigation, and hurricanes have had the most devastating impact on Louisiana's coast.

COASTAL LAND LOSS SOLUTIONS

Since 1990 we have engaged in the use of a variety of restoration tools through the Coastal Wetland Planning, Protection, and Restoration Act (CWPPRA) of 1990. Concurrently, the State of Louisiana and other federal agencies have built site spe-

cific projects that have furthered our understanding and insight into our coastal restoration capabilities. From my perspective, we must practice Adaptive Management now as we move forward from coastal restoration projects of local-scale to a vision of regional coastal restoration in Louisiana.Our existing, future, and proposed coastal restoration programs must be integrated and synchronized. If the metric of our state's coastal crisis is land loss then our metric of success should be land gain. Between the 1980's and 1990's our federal partners measured the rate of coastal land loss at 20 square miles a year. After 15 years of CWPPRA and other Federal/State restoration projects, these agencies indicate the rate of land loss continues at a rate of 20 square miles per year.

Our restoration experience has demonstrated that some restoration tools were very effective and some did not perform as expected. An important lesson we learned from the implementation of these projects is that their social impacts cannot be ignored. Another important lesson learned is that the restoration tools we select must produce benefits on a generational or decadal time-scale. Diversions and other solutions using large-scale delta switching processes work on time-scales of multiple decades or centuries, just as the Mississippi River built it's delta naturally over the last several millenniums. Dedicated dredging and pipeline slurry offer us the capabilities to build land quickly on a decadal scale without the adverse effects of large volumes of freshwater. Small diversion iversions offer the opportunity to sustain newly created landscapes after they are built.

For the LCA ecosystem restoration plan proposed for authorization through the Water Resources Development Act of 2005, the Near-Term Critical Ecosystem Restoration Features provide the combined opportunity of dedicated dredging/pipeline slurry and diversions from the Mississippi River. Of particular interest is the LCA Barataria Basin Barrier Shoreline Restoration Feature NO. 3 which will provide our greatest opportunity to implement a regional pipeline slurry restoration project and to learn from this effort. The Fourchon Regional Restoration Initiative (FRRI), a consortium of the Wisner Land Donation, Chevron, Greater Lafourche Port Commission, Louisiana Offshore Oil Port, Barataria-Terrebonne National Estuary Program, Lafourche Parish, the City of New Orleans, and the University of New Orleans, has organized to support the implementation of this important project and to remove any scientific uncertainty that the LCA Barataria Barrier Shoreline Restoration Feature NO. 3 should be the first step in Louisiana's vision of regional ecosystem restoration through the WRDA of 2005.

UNIVERSITY OF NEW ORLEANS SCIENCE AND EDUCATION SUPPORT

UNO is supporting these State and Federal coastal restoration initiatives through the establishment of the Center for Hazards Assessment, Response, and Technology (CHART) and the Pontchartrain Institute for Environmental Sciences (PIES). CHART and PIES provide expert science support for planning, project assessment, and adaptive management. Through UNO's Academic Departments new focused degree programs are being implemented to provide the critically needed education and training for the professional work force necessary to restore coastal Louisiana.

STATEMENT OF RANDY LANCTOT, EXECUTIVE DIRECTOR OF THE LOUISIANA WILDLIFE FEDERATION

Mr. Chairman and Members of the committee:

Thank you for your interest in the daunting problem of coastal land loss that confronts our State and Nation, and for taking the time to learn more about ongoing and proposed efforts to halt that loss and restore some of it back to functioning, productive coastal barriers and wetlands. My name is Randy Lanctot. I have been privileged to serve as executive director of the Louisiana Wildlife Federation, the state's oldest and one of its largest organizations of sportsmen and citizen conservationists, for more than 25 years. During that time, a lot of progress has been made in understanding the causes of coastal land loss and implementing strategies to combat it. But mostly what we have learned is that we are losing ground despite effective efforts, and that more and larger efforts must be applied to reverse the loss.

If you have reviewed the Louisiana Coastal Area study (LCA), you know that much of the southern part of Louisiana was built by the deltas of the Mississippi River as it whipped back and forth over the continental shelf, and that land loss and land gain is normal for a delta system. But under natural conditions, loss is balanced by gain, and that loss and gain occurs slowly over hundreds and thousands of years—a time frame long enough to invite disregard for the future evolution and inevitable loss of delta lands. The immediate concern of the European explorers and immigrants to the region that is now South Louisiana was to keep floodwaters at

bay, exploit the region's natural resources and establish commerce to support a growing society. That familiar paradigm is common to communities across America. But the Delta's remarkable abundance and dynamic and challenging geology sets Louisiana apart from them all. I might add that we are more than happy to be different because of our lively and creative cultures, our great musical heritage, our wonderful cuisine, and carefree life view—all nurtured by our unique location on one of the world's great deltas, but we are not so pleased to be different because we are the victims of losing our land to the sea.

Land loss on a deteriorating delta is a natural process caused by wind, wave, tide, compaction of organic soils, subsidence and geologic faults. That loss is dramatically accelerated by the "people effect"—dredging for access and navigation channels; removal of subsurface minerals; unenlightened engineering of bulkheads, channels and dredged spoil deposition; impoundments, leveeing that impairs natural, delta-sustaining hydrology and sediment delivery; sea level rise and vessel traffic—all of which are prominent contributors to coastal land loss. Many of these activities, of course, have kept us dry and generated products and wealth that have contributed to the local and national economies.

I mentioned a "deteriorating" delta. It is important to keep in mind that we have settled in a delta whose river by now would have shifted its channel to a new and shorter route to the Gulf were it not for levees and water control structures that, along with channel maintenance, have directed the sediments that built the delta into the deep waters off the continental shelf. Understanding that informs the thinking behind many of the projects and concepts in the LCA.

The impacts of coastal erosion are the loss of tens of thousands of acres of wetlands and headlands in a domino effect fashion; loss of real estate and its economic value; loss of wetland-based fish and wildlife habitat and its dependent wildlife and fisheries productivity, along with the related social and economic impacts of those losses (seafood, recreational hunting and fishing and other wildlife related recreation, tourism,) including employment opportunities; increased risk of flooding and associated costs of insurance and disaster relief; disruption and relocation of communities; outmigration of Louisiana citizens; increased costs to establish and maintain infrastructure, including infrastructure critical to energy production.

The toll is in dollars, of course, but it is much greater than that. The particular interest of the Louisiana Wildlife Federation in coastal land loss is the inevitable loss of the fish and wildlife as their habitats disappear. As an organization that represents folks who are out in the field using and enjoying the natural resources of the state, we have a big stake in halting land loss and restoring the productive ecosystem that has made Louisiana the "Sportsman's Paradise."

The LCA report presents a number of approaches to dealing with coastal land loss. One that has been rejected is GET OUT. Another is: Do nothing and take your chances. We concur with the LCA on that. But one consideration that deserves more emphasis is the need to rethink and reengage society's relationship with the Mississippi River Coastal Delta ecosystem to incorporate a larger measure of flexibility and uncertainty with respect to habitation and economic activity. We must adopt an attitude that will allow us to reconcile our expectations with the necessary changes we will have to make, as individuals and as a society, to achieve a sustainable coastal ecosystem. To put it bluntly, we have to be willing and prepared to get out of the way of the projects that will be needed to accomplish that task. In particular, as coastal restoration efforts impact coastal lands and waters, hunters, fishers, and other affected interests like landowners, will be called upon to cooperate and accept fair consideration for any disproportionate losses that they will sustain and that are inevitable as the kind of aggressive coastal restoration efforts that are needed are applied. So far, that road has been a little rocky, but hopefully, the lessons learned from the past will smooth the way for the future.

"Attitude is everything" as the saying goes, and assuming all attitudes are adjusted to be in sync with the coastal restoration program, the solutions proposed by the LCA and efforts to follow can be accomplished, especially if we follow the fundamental foundation of success: "First, do no harm." Activities that contribute to coastal land loss can be limited and or re/designed and re/engineered to reduce impacts. This applies particularly to dredging/navigation and levee work and activities that reduce stabilizing vegetative structure. Requiring that local, state, and federal activities/projects, including private activities that are regulated by Federal/State Government, are consistent with conserving and restoring the coast also falls under the "do no harm" category. The LCA report contains an impressive statement of objectives and principles in Section 3.2 that is consistent with that concept in most respects and we commend the Corps for making that commitment.

Other solutions are to remediate problems where feasible (backfilling/plugging canals, terracing and sediment accumulation [Christmas tree] projects to reduce ero-

sion and rebuild shoreline and marshland); armor shorelines as a temporary fix to buy time to implement a systemic solution; armor channel banks and regulate vessel traffic to prevent bank erosion; apply all material dredged to establish or maintain navigation in a beneficial way to restore eroded vegetated wetlands; enhance stabilization of newly restored or created land with plantings of suitable native species of grasses and shrubs; strategically preserve/restore (assuming the availability of a safe and an economic source of sand) barrier islands that serve as the scaffolding for interior marsh restoration; within the water and sediment budget of the Mississippi River sufficient to support river-borne commerce, divert as much river water and sediment as possible to establish vegetated wetlands in shallow coastal lakes and bays and sustain or restore freshwater flows in the most efficient manner (such as pulsing) to maintain wetlands along the isohaline line.

With a little informed contemplation, stating the solutions to coastal erosion is easy. Getting the political and financial support to do the work is a little more challenging. So, in an effort to inform and educate the people from all around the United States about Louisiana and our coastal land loss challenge, Governor Blanco and the America's WETLAND Campaign initiated a new outreach effort this week—"Save America's Wetland: Write Now" to encourage all of us to let our friends and colleagues throughout America know about what is at stake here and how we all are bonded to the outcome. So, here is our effort to engage the members of the committee and citizens throughout the country in the hope that you will pitch in and lend a hand. Thank you for the opportunity to make this presentation.

Close your eyes and imagine this beautiful, wonderful country of—ours ocean to ocean, border to border. Imagine you are a drop of rain or flake of snow gathering a little bit of prairie soil, of Rocky Mountain granite, of piney woods' sand, or a tiny piece of golden leaf born deep in a hardwood cove at the foot of the Appalachians, caught in a torrent, rollercoastering down to the Ohio, the Tennessee, the Wisconsin, Illinois, Des Moines or Arkansas, the Missouri, the Red—on to the Big River as it bends and curls back on itself, down to the Gulf of Mexico.

When you arrive on the Delta you join pieces and parts of the rest of America, nourishing a landscape that is more waterscape, thronging with birds and fish and wetlands as far as you can see. Someone says Comment ca va, mon cher? (How are you, my friend?), and you are home—home to the coastal delta of the Mississippi River, an ecosystem so immense it is difficult to know and comprehend by experience so vast, productive, and unique in America that it only can be compared to itself.[1]

People have always come to the Delta to experience the bounty—the food, fun, revelry—to unwind. They know it by "Laissez les bon temps rouler", by the good times. It's no accident, or merely a consequence of aggressive tourism promotion. It's the cultural manifestation of the natural abundance served up by the River and the wetlands.

To experience this immense ecosystem, you have to get in a boat, maybe a pirogue, and get out in it; but it can be rough going. This is no "prairie pothole". It goes on for thousands of acres and scores of miles as far as you can see. The first thing you notice, after the aroma of flatsedge and marsh grass and mudflats and brine (depending on where in the complex you happen to be) is the life; the birds—rails, stilts, waterfowl, herons/egrets, seagulls, terns, pelicans and masses of other waders and shorebirds. There's gators aplenty in the fresh and intermediate wetlands, more than anywhere else in the world. And bugs, of course—the food chain has to have its underclass. And, in season, there's solitude, serenity, sunrise and sunset punctuated with the often silent trading of the delta's dependent creatures.

When its extent and biological productivity is considered, it is very apparent that this is an ecological engine of enormous proportions, a "bread and butter ecosystem with no match in the "Lower 48"—and it's fading away—inexorably, insidiously, sometimes radically when the gulf gets nasty.

The continuing loss of MRCD wetlands presents a severe threat to the infrastructure necessary to develop and transport energy resources. Pipelines traversing the wetlands supply 30 percent of the Nation's refining capacity and serve as the onshore base that provides logistical support for 75 percent of the oil/gas prospects in the Gulf of Mexico. Roads, domestic water supplies and communities that are home to two million people are threatened by the loss of MRCD wetlands.

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[1]The Mississippi River has created and supports more coastal wetlands than occur anywhere else in the contiguous 48 States. World rank of the Mississippi River/tributaries in volume of discharge-6th, sediment discharge-3rd, length-2nd, aerial extent of drainage basin-3rd (receiving surface water runoff from 31 States and 3 Canadian provinces or 41 percent of contiguous United States).

The navigation capacity of waterways currently carrying 16 percent of the Nation's waterborne commerce and the viability of four ports that, combined, handle more tonnage than any single port in the world is jeopardized by the loss of MRCD wetlands.

There are over 500,000 acres of State and national wildlife refuges in Louisiana's coastal zone; five million migratory waterfowl winter in Louisiana —50 percent of the waterfowl using the Mississippi Flyway and 20 percent of waterfowl using all flyways. (In past years, up to 84 percent of Mississippi Flyway migratory waterfowl have wintered in Louisiana.) The ongoing massive disintegration of MRCD wetlands threatens this world class habitat for migratory birds and the nursery for coastal and Gulf of Mexico fish that supports the entire Gulf region. Estimates of the value of the natural resources that will be lost over the next 50 years due to coastal wetland loss range up to $100 billion.

The loss of Mississippi River coastal delta wetlands is due primarily to the alteration of the natural geology and hydrodynamics that created the ecosystem. Channels and levees for navigation and flood protection have disrupted the capability of the system to maintain itself. The River, which once overflowed its banks on a routine basis, now is confined to a channel all the way to the deep water at the edge of the continental shelf where its load is discharged and lost to the fathoms of the Gulf and therefore, the freshwater and sediment that built the MRCD wetlands are no longer available to sustain them, to offset their natural erosion and subsidence. These facts make coastal restoration using the River and its freshwater and sediment doable.

That's the plan. Will you help?

STATEMENT OF ROY FRANCIS, EXECUTIVE DIRECTOR LA1 COALITION

Mr. Chairman and members of the committee, my name is Roy Francis, and I am the Executive Director of the LA1 Coalition, Inc. The Coalition is a non-profit organization created in 1997, by community leaders with one goal—improve the infrastructure servicing Port Fourchon, LA. The founding members realized the threat to this critical energy infrastructure due to coastal land loss.

I have worked in coastal zone management, flood protection and coastal infrastructure since I obtained my degree in geology in 1992. I feel I have come to understand the ripple effect of coastal land loss to infrastructure and the industries associated with oil and gas production. Coastal land loss is not only threatening our environment, but our very existence as a community.

One of the greatest threats to infrastructure is to Louisiana Highway One, a two-lane winding road that is the only means of land access to Port Fourchon, which currently services approximately 16 percent of this Nations energy supply. LA1 is only three feet above sea-level and is subject to 8 to 10 foot storm surges. The highway provides access for 6,000 offshore workers and their equipment to support 75 percent of Federal OCS activities in the Gulf of Mexico.

The Leeville Bridge, the weakest link of LA1, was built in 10 feet of water. It now exists in 40 feet of water. It is the most scoured bridge in the State due to the water exchange between the Barateria and Terrebonne basins. All the land that surrounded the bridge has disappeared.

There is now a real threat to the oil and gas structures built on land that is no more. Hundreds of structures producing energy everyday and thousands of miles of pipeline buried underground are now exposed in open water. The pipelines are threatened by wave energy and impact from marine vessels everyday.

One of the major oil and gas companies that operates at Port Fourchon, transports over 600,000 barrels of oil through pipelines in coastal Louisiana. They spend nearly $5 million per year reacting to coastal erosion; repairing bulkheads, relocating pipelines and marking pipeline crossings. Another company's main offshore support base is in Leeville, an area that has sank 14 inches in the last 20 years.

Not only is the country's domestic supply threatened, but 13 percent of this nation's imported crude oil is offloaded at Louisiana Offshore Oil Port (LOOP) located in the coastal area of Lafourche Parish. The 48 inch pipelines are connected to 35 percent of United States' refinery capacity. Remember, a refinery has not been built in this country in decades and today are operating at 96 percent capacity.

The impact to LA1 affects more then the Nation's energy production. This highway was built on the Bayou Lafourche Ridge and is the now the dividing line between the Nation's two most productive estuaries—the Barataria and the Terrebonne basins. About 20 percent of the state's total catch goes to market by way of LA1—in a State that leads the lower 48 in fisheries production. The loss of these wetlands is a loss to fisheries production.

Another impact is to our water supply. In 2000, saltwater intruded into Lafourche Parish's water pumping system 50 miles inland via a channel in a neighboring parish. For the first time, the people of South Louisiana had a taste of coastal land loss. The paper mill had to shut down, and the oil and gas industry which uses over 20 percent of the parish's water supply for drilling activities was affected. We couldn't drink the water, and the children bathed in saltwater. All of this could have been avoided with a lock/floodgate on this channel.

Our flood protection levee systems are also at risk. Historically, the marshes would act as buffers for wave energy against the base of the levees. Today, open water surrounds parts of the levees, and daily wave action is eroding the earthen ring levees. The flood gates on the levees have to be closed earlier and more often, trapping marine vessels outside of levee systems.

The Louisiana coast is a blue collar coast. It is not a place we visit. It is the place were we live, work and play. It is no longer just about the birds and the plants. Coastal land loss is now affecting every aspect of our lives.

STATEMENT OF JOHN LOPEZ, DIRECTOR OF COASTAL SUSTAINABILITY, LAKE PONTCHARTRAIN BASIN FOUNDATION, METAIRIE, LOUISIANA

Good Morning and thank you for the opportunity to provide testimony to this esteemed committee. My name is Dr. John Lopez and I'm director of coastal Sustainability for the Lake Pontchartrain Basin Foundation. The Lake Pontchartrain Basin Foundation is a private, non-profit organization whose mission is to restore and protect the Lake Pontchartrain Basin in Southeastern Louisiana. My comments today are a summary of our draft Comprehensive Habitat Management Plan for the Pontchartrain Basin.

The greater Pontchartrain Basin includes a watershed extending southward from central Mississippi to the distant wetlands at the mouth of the Mississippi River in southern Louisiana. The Pontchartrain Basin in Louisiana was analyzed to establish the habitat baseline conditions, historical impairments and future restoration needs. The objective of the Comprehensive-Habitat Management Plan is to present a blueprint for restoration that will direct progress toward restoring the historic form and function of the Pontchartrain Basin habitats in Louisiana.

The Pontchartrain Basin ecology is dominated by an estuarine system that is essential to the future of southeast Louisiana. The Pontchartrain Basin is 19 percent (9,700 square miles) of Louisiana's area and has within it 46 percent of the State's population (or 2.1 million people). Based on imagery from 1992 to 1995, the entire basin was estimated to hold 2,100 square miles of marshes and swamps (including the Pearl River alluvial swamps) (Handley and others, 2001). If you include open water lakes with the wetlands that altogether compose the Pontchartrain Basin estuary, the extent of the estuary is 5,800 square miles. From 1932 to 2001, 415 square miles of these wetlands were converted to open water or upland habitat, and we have discovered that the rate of loss has dramatically increased in the last decade (1990-2001). Because the Pontchartrain Basin contains the great port cities of New Orleans and Baton Rouge, the fate of the Pontchartrain Basin is of national significance. Decades of poor stewardship of the region's natural resources triggered the founding of the Lake Pontchartrain Basin Foundation (LPBF) in 1989, which was given the mission to restore and preserve the Pontchartrain Basin.

In 2004, a Comprehensive Habitat Management Plan (CHMP)-Draft Committee was created to evaluate impairments and restoration alternatives for habitats in the Pontchartrain Basin. This included representation from the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, Environmental Protection Agency, LSU Ag Center, University of New Orleans, Southeastern Louisiana University and Louisiana Department of Natural Resources along with the Foundation.

The committee began deliberations in January 2004 and submitted a draft report to 11 expert 3rd party reviewers in July 2005. The reviewers individually reviewed the CHMP draft report or appropriate sections related to their expertise. Their comments were reviewed and appropriate changes were made by the CHMP Draft Committee. Public meetings are to be held, in which the draft report will be presented.

The Pontchartrain Basin habitats range from pine upland to estuarine to marine. For purposes of CHMP plan development, the Basin was divided into four Sub-basins including: Upland Sub-basin (north of Interstate 12), Upper Sub-basin (Lake Maurepas region), Middle Sub-basin (Lake Pontchartrain region) and Lower Sub-basin (St. Bernard and Plaquemines Parishes). The following section summarizes the proposed restoration for each of the four Sub-basins.

UPLAND SUB-BASIN FOREST RECOMMENDATIONS (NORTH OF INTERSTATE 12)

The overall goal in the Upland Sub-basin is to expand the current range of longleaf pine upland forests, flatwood savannahs and associated habitats while expanding the awareness of these lost habitats to a public which has never known the park-like virgin pine forests. Specific goals call for expansion of existing conservation areas to a minimum of 5,000 acres each and creation of one or two large conservation areas (ca. 50,000 acres each) where landscape-scale, fire-dependent ecosystems can be re-established with indigenous flora and fauna. Establishment of a prescribed fire council is recommended as a key means to facilitate and expand effective use of prescribed fire. The red-cockaded woodpecker and other rare, threatened or endangered species warrant additional efforts to reestablish long leaf pine and associated habitat and expand their populations.

UPLAND SUB-BASIN RIVERINE RECOMMENDATIONS (NORTH OF INTERSTATE 12)

The rivers and streams of the north shore are highly degraded and their history of environmental impacts is poorly documented. A primary recommendation is to document historical and ongoing impacts from mining activities in particular. Many mine sites (sand and gravel dredging) should be targeted for remediation to improve riverine habitats and water quality. Freshwater mussels have been significantly reduced and further protection and habitat restoration is necessary to re-establish the range of mussels including the endangered inflated heelsplitter mussel (Potamilus inflatus). In addition to mining, the Bogue Chitto and Pearl Rivers have been impacted by the Pearl River Navigation project. Hydrologic restoration is recommended to re-establish the natural migration of fish, including the threatened Gulf sturgeon (Acipenser oxyrinchus desotoi).

UPPER SUB-BASIN (LAKE MAUREPAS AND ADJACENT WETLANDS)

It is recommended that the area of wetlands in the Upper Sub-basin, which lies on or adjacent to the natural levee of the Mississippi River, be reestablished with its natural connection to the river by spring reintroductions into the wetlands. These alluvial river swamps would be sustained by several small diversions recommended between Baton Rouge and Garyville where the Hope Canal project is to be constructed. The reintroductions are intended to increase plant growth (primary productivity) and rebuild a mature Bald cypress—Tupelo (Taxodium distichum-Nyssa aquatica) swamp. The benefited areas should be in conservation. Breaching of the bank of the Amite River Diversion Canal is recommended to increase circulation into the adjacent swamp. It is recommended that the wetlands north of lake Maurepas be optimally managed using treated sewage or stormwater runoff, where appropriate, to introduce nutrients and freshwater.

Several position statements are also included for the Upper Sub-basin. Key statements are the continued ban on shell dredging and any commercial dredging within Lake Maurepas. The continued use of pipeline/powerline corridors is supported. The policies recommended by the state's Science Working Group for Coast Wetland Forests are supported, but it is also recommended that through acquisitions or other means cypress logging is discontinued in non-sustainable "relic" forests and that a moratorium is placed on other areas of cypress logging in the Pontchartrain Basin until BMP's are implemented assuring sustainable harvest of cypress forests. Avoidance, BMP's and local mitigation are recommended to prevent further loss of wetland habitat by urbanization.

MIDDLE SUB-BASIN (LAKE PONTCHARTRAIN AND ADJACENT WETLANDS)

The wetlands positioned between Lake Pontchartrain and the Mississippi River are considered vital to sustaining the ecology of lake Pontchartrain because it is through these wetlands that river reintroductions may occur most beneficially to Lake Pontchartrain. Re-establishment of the detrital food base for Lake Pontchartrain can be accomplished by freshwater reintroductions into these wetlands to stimulate primary productivity and detrital export. As a result, the Lake is expected to increase in secondary productivity and fisheries. Several small diversions are recommended, including three local wetland reintroductions, which use the Bonnet Carre' Spillway corridor.

Segments of Lake Pontchartrain's natural shoreline (littoral) habitat should be restored along the south, southeast and northwest shorelines. This recommendation includes marsh creation and re-expansion of SAV extent. Some other key local projects are the restoration of estuarine fisheries in Bayou St. John and an interim project to construct a sill in the Inner Harbor Navigation Canal (IHNC) or Lake Pontchartrain, which would reduce the 100 square-mile dead zone and restore envi-

ronmental benefit provided by clams. Avoidance of wetlands, BMP's to reduce wetland impact, and local mitigation when wetlands are impacted are the recommended order of priority to prevent further loss of wetland habitat by urbanization.

Several position statements are also included for the Middle Sub-basin. Key statements are the continued ban on shell dredging and any commercial dredging within Lake Pontchartrain. The continued use of existing pipeline/powerline corridors is supported for justified expansion of these facilities. The continued ban on new oil and gas leasing in Lake Pontchartrain is supported as is the limited use of gill nets as currently legislated. Continued improvements to sewage treatment and stormwater systems are strongly endorsed for both the north and south shores of Lake Pontchartrain. Beneficial use of treated sewage and stormwater should be pursued wherever wetlands and water quality may be enhanced. The Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) has a successful nutria bounty program and is supported. However, more vigorous efforts are recommended to reduce other invasive species such as the Chinese tallow (Sapium sebiferum).

LOWER SUB-BASIN (ST. BERNARD AND PLAQUEMINES PARISHES)

The single greatest man-induced impact to the Pontchartrain Basin estuary was the construction of the federally authorized and operated, deep-draft navigation channel known as the Mississippi River Gulf Outlet (MRGO). The MRGO has triggered major shifts in habitats and fisheries, caused wetland loss, increased salinity intrusion and created a 100 sqare mile dead zone in Lake Pontchartrain. The total area affected by the MRGO is estimated to be 618,000 acres.

Therefore, the paramount restoration feature of the Lower Sub-basin is to restore the integrity of the Bayou la Loutre ridge by reducing the Mississippi River Gulf Outlet (MRGO) navigation channel dimensions to Intracoastal Waterway width and depth at the Bayou la Loutre ridge. Contraction of the MRGO channel would directly improve the environment by reducing ship wakes and reducing the dead zone in Lake Pontchartrain, but also allows the essential opportunity to manage the marshes east of the MRGO with river reintroductions. A larger river diversion is recommended at Violet which, along with the contraction of the MRGO channel, will be designed to reestablish historic habitats of Lake Borgne, Biloxi marsh and, (if supported by Mississippi) Mississippi Sound. Discharge from the Caernarvon freshwater diversion may be increased slightly to achieve habitat goals. All reintroductions are recommended to mimic the natural spring flooding with maximum flow from April to June.

The ecologic function of the Chandeleur-Breton barrier island chain should be maintained. The role of these islands in reducing wave energy and protecting interior marsh, such as the Biloxi marsh, from wave erosion should be considered in the need and design of barrier island restoration.

The delta region of the Lower Sub-basin should be restored through natural and cost effective projects due to the historic and ongoing high rates of wetland loss. Crevasse projects and sediment diversions are recommended. The proposed Sediment Trap project (CWPPRA) in the Mississippi River should be moved upriver to target areas of need and to be where the soil foundation is superior. If a large scale study of the delta is undertaken to examine alternatives such as "hang-a-left" or "hang-a-right", which would remove navigation from the lower river by a new dredged channel located east or west of the Mississippi River, the alternative of selectively closing passes should be evaluated.

RESEARCH AND DATA NEEDS

Critical research and data needs have been identified for the Pontchartrain Basin. This list of 23 items is not meant to be all inclusive but contains significant apparent deficiencies that were identified during discussions and analyses by the draft committee. This list is intended to guide research to further the understanding of the nature of the Pontchartrain Basin habitats and how these habitats might be restored and sustained. The list includes: Annual mapping of the Lake Pontchartrain dead zone; Economics of coastal wetland forests; Fish assemblage research; Acquisition of bathymetry of lakes and passes; Barrier island ecology; Rangia clams in St. Bernard and Plaquemines Parishes; Natural oyster reefs; MRGO habitat quality; Analysis of accelerated wetland loss; Non-commercial species in St. Bernard and Plaquemines Parishes; blue crab (Callinectes sapidus) in Lake Pontchartrain; West Indian Manatee (Trichechits manatus); Rio Grande Cichlid (Cichlasoma cyanoguttatum) threat, Striped Bass (Morone saxatilis) and Gulf sturgeon (Acipenser oxyrinchus), Sea turtles on barrier islands; Hydrologic modeling for habitat restoration; Impact of poorly planned growth; Identification of biotic hotspots; Copper contamination in Lake Pontchartrain; Sand and gravel mine impact; Subsid-

ence and relative sea-level rise; Mississippi River Delta management study: and a 10-year reoccurring comprehensive habitat inventory.

Thank You. That completes my formal comments.

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