

**US HOUSE OF REPRESENTATIVES
COMMITTEE ON SCIENCE
NASA MICHOUD FACILITY
NEW ORLEANS, LOUISIANA
JULY 6, 2006**

The protection of the people of South Louisiana from tidal flooding is dependent on a comprehensive plan of levee construction and coastal maintenance. Coastal maintenance is the reestablishment of a stable coastline from the Lake Ponchartrain Basin to southwest Louisiana. This work must be based in sound science and engineering. But over dependence on science will lead to continued paralysis, degradation, and loss of the land mass that is south Louisiana. That continued loss will have costly effects for both Louisiana and the nation in energy, fisheries, trade and agriculture.

[Quote from GENIUS...The Life and Science of Richard Feynman]

*Science is a way to teach how something gets to be known, what is not known, to what extent things **are** known (for nothing is known absolutely), how to handle doubt and uncertainty, what the rules of evidence are, how to think about things so that judgments can be made, how to distinguish truth from fraud, and from show.*

Natural coastal landscapes have reduced storm surges and storm intensity. The loss of this landscape has allowed greater effects from tropical systems further inland. Restoration of the landscape, which forms our estuarine systems in South Louisiana, will reestablish protection from storms, and in effect, push the Gulf away from our communities.

The critical components are the barrier islands, land bridges, swamps, forest and cheniers (oak ridges) which were prominent features more than 50 years ago. Man-made features like roads, spoil banks and railroads together with the natural features greatly enhance the performance of our levee systems.

Although marshes do not affect surge as much as other features, marsh systems play an important role in protecting the roads, ridges and levees from daily wave and tidal action. Together the natural and man-made barriers work to protect us.

To accomplish these goals, coordination and consistency at the federal, state and local levels is essential. Funding problems have led the Corps into using the law and accounting to determine work instead of engineering. The loss of the continuing contracts clause in Corps contracts has led to work stoppage and inefficiency.

On the local level, the state and local governments must appoint people to flood protection and restoration positions whose single purpose is the protection of the communities of south Louisiana. To do less, threatens our existence into the future.

The form of governance is not as important as the quality of the people. With the best people at the federal, state, and local levels, we will remain focused on the task. The locals must stay focused to insure that the state and federal partners are not distracted by the many responsibilities that the state and national governments have.

The breaches from Katrina give us real world documentation on the performance and failure of our flood protection system. The Interagency Performance Evaluation Task Force's draft report states that the great majority of the breaches were from overtopping, with four breaches from I-wall failures, not associated with overtopping.

The proposed solutions to I-walls are T-walls. Although more expensive, that solution is well based.

The failure of the levees due to overtopping is extremely significant. It supports the success of the basic design of the levees, but exposes the danger of not maintaining elevation. Levees are

designed to protect to certain elevations, but if overtopped, they are not designed to hold their integrity for a long period of overtopping. Armoring the levees is a good method of defending the levee's integrity for a longer period of overtopping.

Another important observation from the effects of Hurricane Katrina was the erosion of the levee at its transition with hard structures like walls and floodgates. Armoring these intersections is a good solution to protect those areas if there is overtopping. Due to the disaster, these solutions have become possible because of adequate funding. But basic levee construction continues to be a problem in our area due to lack of funding.

Since the storms, there has been criticism of the levees, walls, and lack of armoring the different components. But the truth of the matter is that funding the bare bones projects has been difficult. Since 1995, the Corps projects in St. Bernard and in South Lafourche have received little funding to complete these 1965 authorized projects. It is obvious that the Federal government has chosen not to consistently fund basic levee systems in these two areas.

Since the funding and construction have been sporadic, the South Lafourche Levee District has constructed many projects while waiting for the Corps levee to construct its levees. We have also constructed and funded levees to Corps design in conjunction with the Corps. In all cases these levees saved millions of dollars of damages which would have occurred while waiting for Federal funding. We were not confident that some of the temporary levees we constructed would stop flooding. But we were confident that these temporary levees were better than nothing. In each case, from Hurricane Andrew to Hurricane Lily, we were able to stop flooding or damage to the levee.

The Levee District has for years tried to provide the best protection for the community by observing the changes in the area and educating ourselves on the geologic, climatological and

economic changes that affect the Larose to Golden Meadow systems. The following conditions were observed:

1. Hurricane Juan was a weak category one hurricane which flooded areas 50 miles inland from the barrier islands.
2. The loss of the marsh around our levees was increasing.
3. The height of the storm surge was surprisingly high from Hurricane Lily which was a small diameter storm which hit southwestern Louisiana.
4. Federal benchmark recalibration conducted by Dr. Roy Dokka illustrated a one foot drop in elevation in twenty years.
5. The Golden Meadow floodgate had to be closed more often to stop water from covering LA 1.
6. Increased numbers of Hurricanes began around 1995.
7. In 1997 Hurricane Danny intensified after it crossed our barrier islands. The first time a tropical system intensified after crossing the barrier islands.

With all of these facts, years ago the Levee District began requesting the Corps to advise on ways to deal with loss of the natural protection for the base of the levee. We also began to discuss the need to raise the levee.

In 1995 we began the Comprehensive Hurricane Protection Committee within the Association of Levee Boards of Louisiana to assist all communities in southeast Louisiana. These were the issues we tried to incorporate into the state and federal government plans for the future flood protection needs:

1. Protect evacuation routes with a hurricane levee system or flood proofing.
2. Plan for freshwater and sediment diversion projects to regain natural protection from storm surges.

3. Coordinate on-going flood studies by the Corps of Engineers and others. State and local officials should decide when and where the flood protection should be directed.
4. Consolidate finances through local, state and federal funds. The state has to focus on tidal flooding along with its river flooding responsibilities.
5. Keep the public informed of the threat a hurricane poses to them and their property.
6. Increase level of already constructed hurricane protection levees to category 4 or 5 standards.
7. Plan for internal drainage from the upper reaches of the drainage basin to the barrier islands.
 - a. Gravity drainage through water control structures in the hurricane levee
 - b. Interior drainage levees
 - c. Pump systems
 - d. Channel improvements
8. Protection of infrastructure (highways, navigation channels)
9. Stress elevation in construction of buildings through education not regulation.

To proceed into the future, a consistent revenue source is necessary for efficiency. Yearly appropriations have led to compromises which have not served flood protection well.

The State and Federal government must commit to either defend or relocate the communities and industries of South Louisiana. There are no other alternatives to deal with the tidal flood issue.

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