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**Scientific Assessment  
of  
Coastal Wetland Loss,  
Restoration and Management  
in Louisiana**



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by

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# Past, Present and Future Perspectives from the W. Alton Jones Report

# Findings

## **Processes of Wetland Loss**

Wetland loss is caused by soil accumulation insufficient to offset sinking of the land.

## **Human Contributions to Wetland Loss**

Human activities (canals, hydrologic modifications, failed reclamation, flood control measures) have caused wetland loss to accelerate. Without restoration high rates of wetland loss will continue.

## **Management and Restoration**

Reintroduction of water and sediments from the Mississippi and Atchafalaya rivers is technically feasible approach. Activities on this scale are required to avoid loss of communities and natural resources.

# Panel and Approach

D. Boesch, Chair

(marine ecology)

M. Josselyn

(wetland restoration)

A. Mehta

(coastal engineering)

J. Morris

(wetland ecology)

W. Nuttle

(hydrology)

C. Simenstad

(estuarine ecology)

D. Swift

(marine geology)

## **Listen:**

Sep 93 – Orientation

Oct 93 – Wetland Loss

Nov 93 – Restoration

## **Report:**

Spring 94 - Report

# Charge to the panel

Examine **scales** over which the fundamental processes of land loss operate and on which appropriate restoration strategies should be based.

Identify issues on which there is scientific **consensus or controversy**.

Identify **actions that will reduce the net loss** of lands and sustain coastal resources for Louisiana over the long-term (decades to centuries).

Identify **research, modeling, and monitoring** needed to evaluate the risks posed by foreseeable changes to Louisiana's coast and the opportunities to mitigate these risks through restoration.

# Challenge of restoration...

“The obstacles to a sustainable society are hard and heavy, and the levers short and frail.”

Lee, 1993. *Compass and Gyroscope*

“You are like a mouse who wishes to impregnate a tiger, and the tiger is not even in heat.”

Turner, 2005. *Restoration Ecology* 13:165-173

# CWPPRA

## **Coastal Wetland Planning, Protection and Restoration Act**

1990 Budget authorization

1993 Louisiana Coastal Wetlands Restoration Plan (\$1.3 B in projects over 20 years)

1997 Louisiana State Wetlands Conservation Plan

# Marsh Management

“The effectiveness of water-level control for wetland preservation is questionable, and ... are unlikely to contribute to a long-term increase in wetlands.”

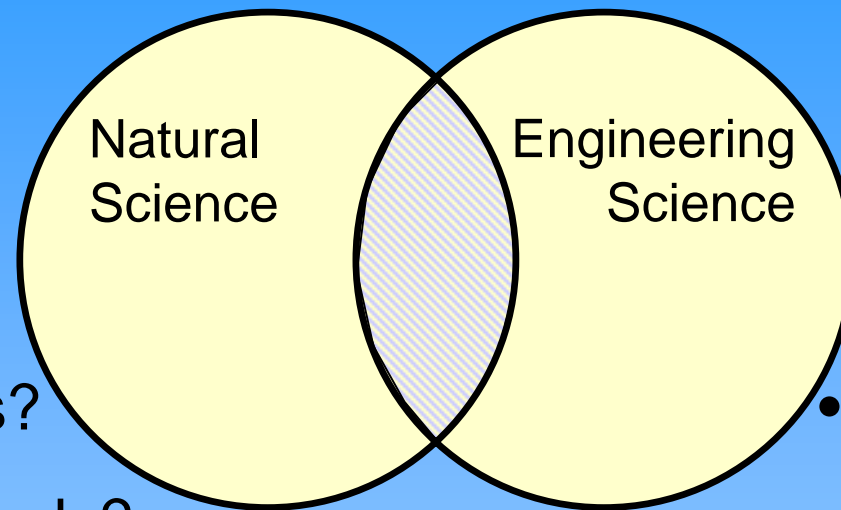
# CWPPRA Critique

Comprehensive,  
region-wide strategy

Backbone of large-  
scale reintroductions  
of freshwater and  
sediments

| Strategies                            | Spatial Scale |                  |          |
|---------------------------------------|---------------|------------------|----------|
|                                       | Marsh         | Hydrologic Basin | Province |
| 1. Vegetation planting                |               |                  |          |
| 2. Shore fences/barriers              |               |                  |          |
| 3. Weirs/berms                        |               |                  |          |
| 4. Terracing                          |               |                  |          |
| 5. Marsh impoundments                 |               |                  |          |
| 6. Hydrologic restoration             |               |                  |          |
| 7. Dredged material disposal          |               |                  |          |
| 8. Shoreline modification             |               |                  |          |
| 9. Herbivore control                  |               |                  |          |
| 10. Sediment transport by pipelines   |               |                  |          |
| 11. Siphons                           |               |                  |          |
| 12. Crevasse formation                |               |                  |          |
| 13. Major water/sediment diversion    |               |                  |          |
| 14. New channels                      |               |                  |          |
| 15. Critical land bridges             |               |                  |          |
| 16. Reoccupation of existing channels |               |                  |          |
| 17. Major river modifications         |               |                  |          |
| 18. Barrier island restoration        |               |                  |          |

# W. Alton Jones in perspective



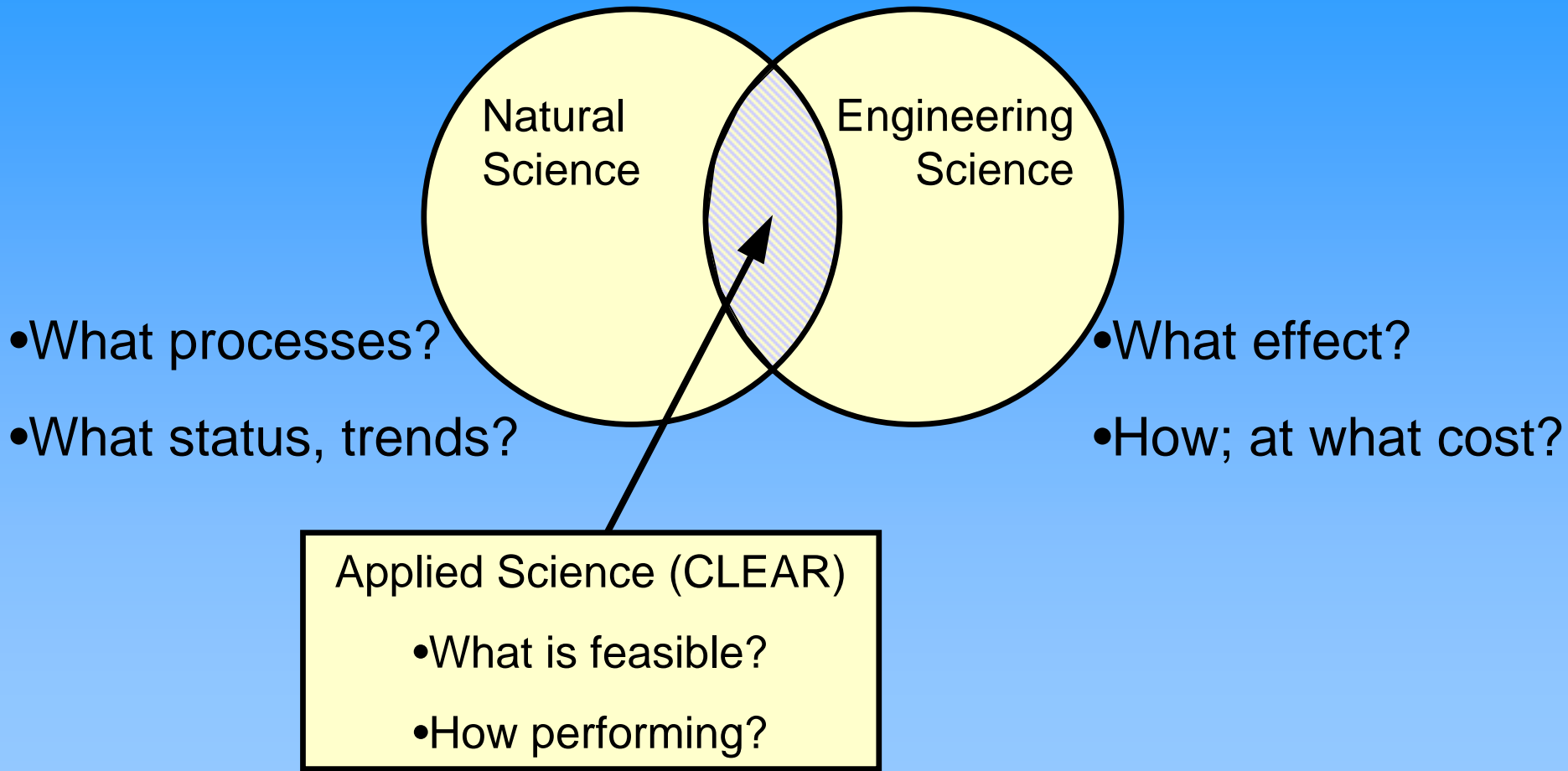
- What processes?

- What status, trends?

- What effect?

- How; at what cost?

# W. Alton Jones in perspective



# The Present Moment...

LCA comprehensive plan - \$14 Billion

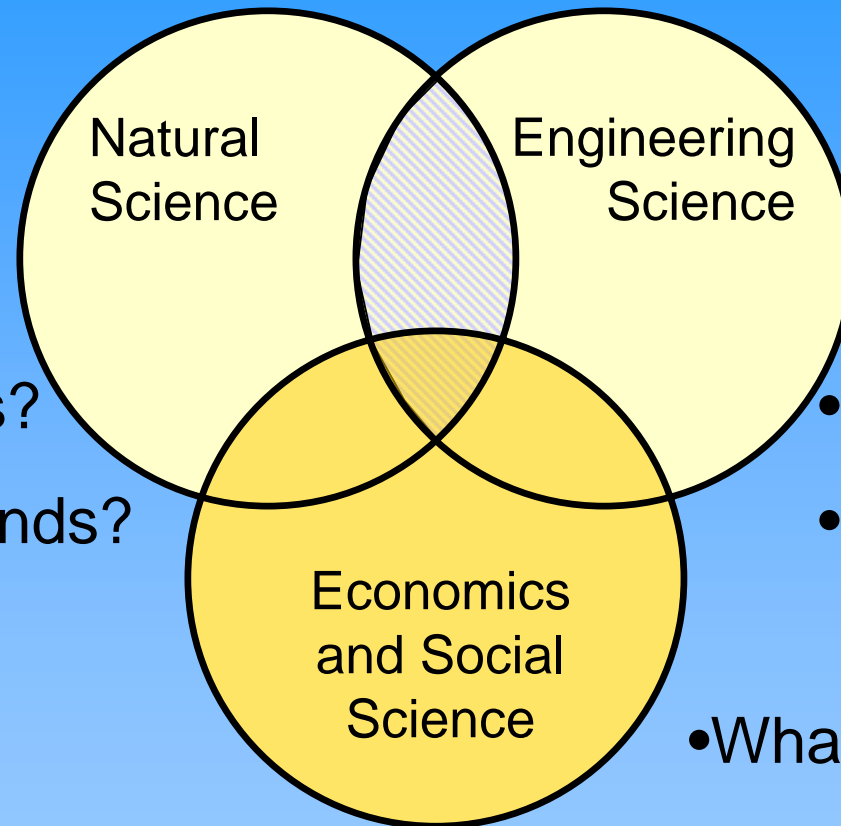
Oyster leaseholders' suit - \$1 Billion

Hurricane Ivan and New Orleans “death watch”

Dead zone

Popular accounts of land loss problem

# Broadened Perspective



- What processes?
- What status, trends?

- What effect?
- How; at what cost?

- What is at stake?
- What opportunities?

# Challenge for coastal science

“You are like a mouse who wishes to impregnate a tiger, and the tiger is not even in heat.”

Turner, 2005. *Restoration Ecology* 13:165-173

# Essayons!

The mouse smiled broadly as with great vigor  
he confidently mounted the tiger.

By the end of their ride  
the brave mouse was inside,  
and the smile on the face of the tiger.

# Abstract

Setting the scene: past, present and future perspectives from the W. Alton Jones report

W.K. Nuttle, [www.eco-hydrology.com](http://www.eco-hydrology.com)

(presentation at the the second CREST science conference "Progress in Understanding Coastal Land Loss and Restoration in Louisiana: The W. Alton Jones Foundation Report Revisited." Lafayette, Louisiana, 11 April 2005.)

From our present, enlightened perspective the report sponsored by the W. Alton Jones Foundation on the scientific basis for the restoration of Louisiana's appears fairly mundane. Even at the time it was written, ten years ago, the report offered little more than a somewhat conservative statement of consensus. Yet this was enough to hasten a shift in perspective on what techniques should be employed to slow degradation of Louisiana's coastal wetlands. Good science is fundamentally a subversive activity, and that is how the W. Alton Jones report was initially received. Recommendations in the report anticipated a further shift in perspective that is still occurring at present. This is that restoration projects must be conceived on a coast-wide scale to be effective, and this requires new analytical tools to support planning and evaluation of restoration activities. Today, we have a much better appreciation than was possible ten years ago for the implications of climate change and the impacts of human activities both on the coast and in the Mississippi watershed. Using the W. Alton Jones report as a benchmark, it is possible to anticipate a further change in perspective about what is really at stake in the restoration of Louisiana's coastal resources.