

An aerial photograph of a coastal landscape, likely in Louisiana, showing a winding river or canal system through a marshy area. The water is a light blue-green color, and the surrounding land is a darker green. The terrain appears to be a mix of natural wetlands and possibly some human-made structures or canals.

A New Framework for Planning the Future of Coastal Louisiana after the Hurricanes of 2005

**Working Group for Post-Hurricane
Planning for the Louisiana Coast**

January 2006

Who?

- Don Boesch, Univ. Maryland – Chair
- Len Shabman, RFF – Vice Chair
- 19 scientists
- Ecologists, geologists, coastal and river engineers, modelers, social scientists
- Most with a record of engagement on restoration in coastal Louisiana or other coastal management issues

How?

- Independently convened
- Support from USACE-IWR and NRC to hold a meeting in December, 2005
- Input from USACE and State
- Report produced in < 8 weeks
- Briefed to USACE-HQ & ASA prior to release, subsequently to State, Governor's Commission

Principal Messages - Protection

- **In the long term, hurricane protection for larger population centers, including the New Orleans region, can only be secured with a *combination of levees and a sustainable coastal landscape.***
- **Storm damage reduction should be achieved through a combination of *stronger inner defenses* around larger population centers; *broader, self-sustaining wetland landscapes* that reduce storm surge and wave fetch; *restrictions along artificial channels* to limit storm surge propagation; and maintaining *barrier islands* along selected areas of the coast.**

Principal Messages - Restoration

- **With presently observed subsidence rates and anticipated acceleration of sea-level rise, most—although not all—of the *coastal landscape could be maintained through the 21st century*. And with efficient management of the river's resources, this landscape could be expanded in some places.**
- **The near-term critical restoration features selected by Louisiana Coastal Area Ecosystem Restoration Study *should be reexamined and prioritized* to assure that they provide environmentally and economically sustainable approaches that advance both ecosystem restoration goals and support storm damage reduction.**

Principal Messages – Unified Approach

- **Federal and State governments should engage scientists, economists, engineers, government officials, communities and stakeholders to develop a *spatially explicit vision of a future coastal Louisiana* that incorporates longterm challenges, opportunities and overarching goals.**
- **No longer can coastal ecosystem management and restoration, flood protection, and navigation be planned, executed and maintained independently. We must *integrate planning, investment and management decisions under a new framework* in order to secure these multiple purposes**

Principal Messages – Integrated Process

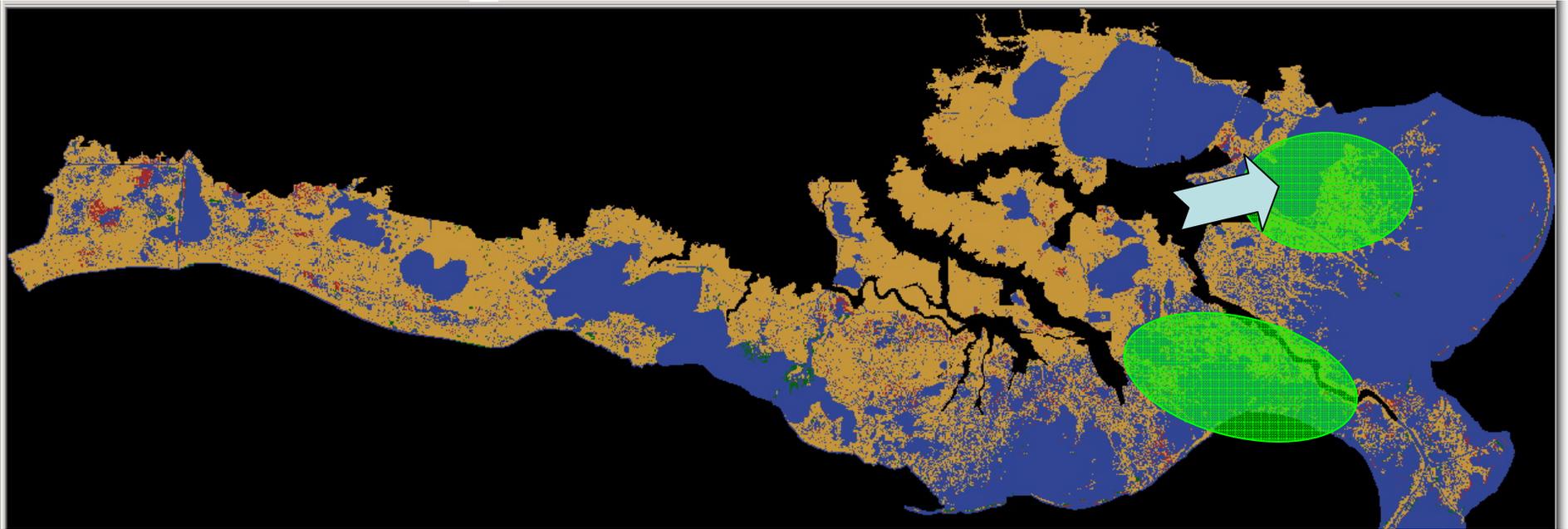
- **Future integrated planning and decision making should recognize, account for and mitigate the *disruption of coastal landscape dynamics* when formulating and evaluating *navigation channel* expansion, maintenance or abandonment.**
- **Project planning should rely on *innovative decision-support analyses* that engage stakeholders and responsible agencies in resolution of conflicts and in identifying and synergies among projects.**

Principal Messages - Organization

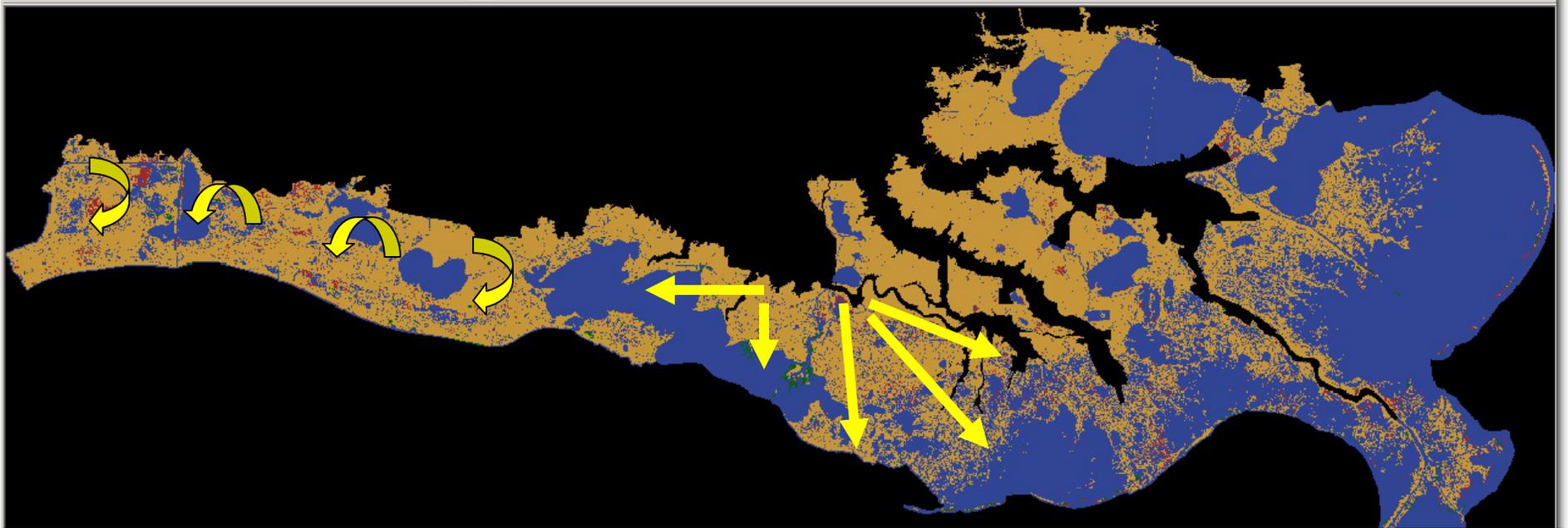
- **A joint Federal-State body should be given the responsibility and organizational and fiscal support for guiding the program. Authorization and financing should be separated from the WRDA process.**

The Concept of Foundation Features

Future planning must embrace protection, restoration and navigation



- Subprovince 1
 - a large, land building diversion into Lake Borgne that uses a shallower, decommissioned MRGO and Bayou LaLoutre as a means of distributing freshwater and sediment to nourish the Biloxi marshes.
- Subprovince 2
 - large-scale reintroduction of riverine freshwater and sediments to rebuild extensive wetlands to both sustain the ecosystem and provide storm damage reduction



- Subprovince 3
 - more effective use of freshwater and sediment resources of the Atchafalaya that can support sustainable coastal landscapes.
- Subprovince 4
 - improved water management, e.g., structures on major navigation channels, improved use of seasonally available freshwater supplies and existing waterways

Integrated coastal planning

Avoid unintended consequences

Maximize synergies among projects

- Identify environmental consequences and opportunities associated with flood protection plans
- Strategically place restoration features so that they contribute to the protection of vulnerable areas

Measure	Affects Large Area of Ecosystem	Affects Tidal Processes	Other Considerations
Rigolets/Chef Menteur Pass flood gates	Yes	Yes, if they affect x-section	Potential improved freshwater management
Heightened levees around Greater NO communities	No	None	Footprint impact
Outer defense barrier in St. Bernard-Orleans Parish	Moderate	Yes, unless permeable	Opportunity for treated sewage effluents to promote swamp in interior
Hwy 90 barrier in Barataria basin	Yes	Yes	Could be designed to improve exchange
GIWW alignment Barataria basin	Yes	Yes	Multiple exchange points & overflows required, decreased tidal exchange over extensive interior wetlands
Morganza-to-Gulf in Terrebonne basin	Yes	No	Operation of environmental structures needs definition
Houma Canal lock	Yes	Yes	Potential for fresh water distribution
Houma-Morgan City barrier	No	Minor	Follows existing barrier
GIWW barrier west of Wax Lake Outlet	No	Minor	Must provide exchange to contained wetland areas and streams

Feature	Decreases water depth over large area	Limits fetch (e.g., ridge)	Buffers wind-wave (e.g., forest)	Location re. important infrastructure	Other considerations
Near-Term Critical Ecosystem Restoration Features Included in Plan Authorization					
Small Bayou Lafourche reintroduction	Only in isolated areas	No	No	Distant	Net wetland benefits are minor and distributed
MRGO environmental restoration	For a small area	No	No	Greater New Orleans	Stopping the breach to Lake Borgne would not significantly affect storm surge.
Small diversion at Hope Canal	No	No	Potentially	Distant and up-estuary	Depends on diversion size
Barataria basin shoreline restoration	No	Yes	No	Plaquemines and Westbank	Only one section proposed
Medium diversion at Myrtle Grove	Yes	No	No	Plaquemines and Westbank	Depends on diversion size and operation

Feature	Dec. water depth	Limits fetch	Buffers wind-wave	Location re. infrastructure	Other considerations
Additional Near-Term Restoration Features for Further Investigation					
Multi-purpose HNC lock					Primarily for flood protection
Terrebonne basin barrier-shoreline	No	Yes	No	Terrebonne	
Landbridge at Caillou Lake	Moderate area	No	No	Distant from Terrebonne pop.	Seaward of existing marshes
Small diversion at Convent	No	No	Possibly	Distant and up-estuary	Depends on div. size
Amite River diversion canal	No	No	Possibly	Distant and up-estuary	Depends on div. size
Medium diversion at White's Ditch	Yes	No	No	Greater New Orleans	
Shoreline at Point au Fer	No	No	No	Distant	
Modification of Caernarvon	Yes	No	No	Greater New Orleans	Depends on diversion size and operation
Modification of Davis Pond	Yes	No	No	Westbank	Depends on diversion size and operation

Towards Integrated Planning

- Conduct integrated assessment to assure that each proposed project investment in storm protection, navigation and coastal restoration takes advantage of synergies and avoids and mitigates conflicts among purposes.
- Based on natural science, social science, economics, and engineering
- Coastal Assessment Group & Coastal Engineering and Science Program

Coastal Louisiana Authority

Recommends system-scale projects

- sets priorities among objectives
- establishes investment criteria

Makes funding requests for large scale projects (>25M)

Allocates programmatic funds

Reports annually



Coastal Assessment Group

Provide decision support to CLA, including *system-level analysis* to provide integrated assessment of projects

Coordinate and focus CESP to address decision-critical uncertainties both for planning new investments and carrying out successful adaptive management.



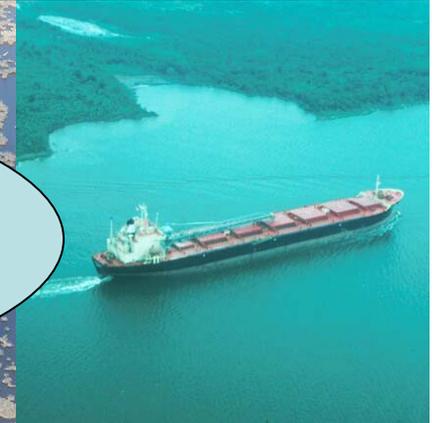
Coastal Engineering and Science Program

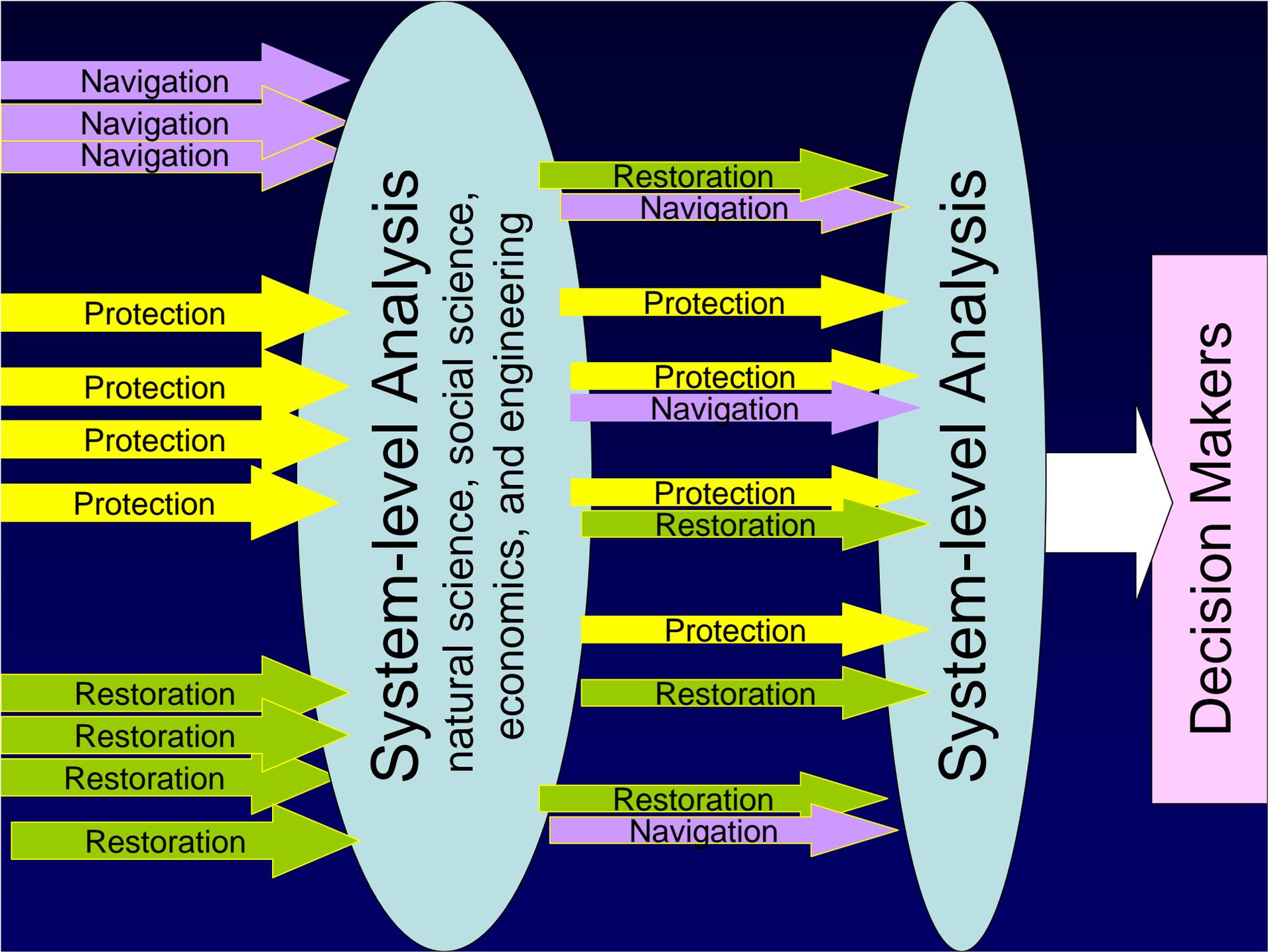
Program for models development, externally funded research, pilot projects, ex post monitoring and assessment programs .

Coordinates with federal and state agencies and other research units



System-level Analysis
natural science, social science,
economics, and engineering





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<http://www.umces.edu/la-restore/>