2017 Model Improvement Plan

*Integrated Compartment Models (ICMs)*

Eco-Hydrology  
Barrier Island Morphology  
Wetland Morphology  
Vegetation  
Ecosystem Outcomes

Storm Surge/Waves  
Risk Assessment
Geospatial Improvements

Developing a New Spatial Unit

- CLARA v2.0 includes ~114,000 grid points
  - Note: ~90K points in LA, ~14K in MS, ~10K in TX
Socio-Economic Analyses

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February 12, 2015
BASINWIDE SOCIO-ECONOMIC ANALYSIS

[Past - Present - Future]

GOALS: Further analyze the potential effects to communities, fisheries, and the economy from continued land loss and the implementation of sediment diversion projects recommended in the 2012 Coastal Master Plan.

SCALE: Regional

TIMEFRAME:

<table>
<thead>
<tr>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer</td>
<td>Historic Coastal Atlas</td>
<td>Summer</td>
</tr>
<tr>
<td>Fall</td>
<td>Review of Commercial Fisheries</td>
<td>Fall</td>
</tr>
<tr>
<td>Winter</td>
<td>LSU/RAND Economic Study</td>
<td>Winter</td>
</tr>
</tbody>
</table>
The Historic Coastal Atlas
[past-present]


Examine past trends (1950-2010) at parish level.

Examine current trends (1990-2010) at census block level.

Areas Investigated:

- **Storm/flood events** affecting coastal parishes (1950-2010)
- **Long-term shifts** - industry, fisheries, agriculture, housing values, and jobs
- **Population and employment** - past trends including demographic analysis such as race, population density, elderly
- **Recovery factors** - population return, percent of vacant homes, and unemployment rates

Scale: Coastal Louisiana

Long-Term Shifts in Population and Socio-Economic Trends

[Graph showing trends over time from 1950 to 2010]
Commercial Fishing in LA
[past-present]

- Summarize historic patterns of areas fished (1999-2013).
- Summarize geographic patterns in landings and land-based operations of commercial fishers across coast.
- Analyze and synthesize relationship between place of business and area fished, and determine any changes over time.

Areas Investigated:

- **Trip Tickets** - LDWF trip tickets for broad species groups (crab, oyster, shrimp, freshwater/ saltwater finfish).
- **Landing Data** - coastwide or higher level of detail if possible.
- **Additional Fishing Data** - include additional data on commercial fishing licenses and boat registrations.
- **Land Based Operations** - at parish or higher level of detail if possible.

Scale: Coastal Louisiana

Long-Term Trends Between Areas Fished and Places of Business
### Economics of Coastal Land Loss

**[future without action]**

- Monitizes the direct, indirect, and induced economic costs of storms and coastal erosion in Louisiana.
- Explores far-reaching fiscal impact on the State of Louisiana, other states, and the nation.
- Sums the value of economic activities and replacement costs of infrastructure that will be affected by coastal land loss or increased storm risk.
- Quantifies impacts in terms of output, employment, and wages.

### Areas Investigated:

#### Homes & Businesses
- Housing stock
- Historic districts
- Private businesses
- Shopping centers

#### Institutions
- Schools
- Hospitals
- Community facilities
- Government & military

#### Fisheries Habitat
- Coastal fishing/harvesting areas
- Offshore fisheries habitat areas

#### Ecosystem Services
- Freshwater availability
- Flood control
- Carbon sequestration
- Wildlife habitat
- Clean Water Act credits

#### Recreation
- Recreational fishing
- Tourism / eco-tourism
- National / state parks
- Historic sites

#### Infrastructure
- Transportation
- Water / wastewater / drainage
- Oil & gas (on/off shore, extraction, production, transportation)
- Gasoline prices

#### Future Growth
- Currently undeveloped land suitable for future homes & businesses

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**Scale:** Coastal Louisiana, Gulf, & Nation
Diversion Modeling
[future with projects]

- Examines sediment diversion impacts on land building and fisheries.
- Compares a “Future Without Action” to a “Future With Projects” over next 50 years.
- Investigate impacts on land building and maintenance, flood risk, fisheries’ abundance and distribution, and other coastal habitats.

Effects of Sediment Diversion Projects

- Water & Salinity Levels
- Land Building
- Habitats
- Fisheries Abundance & Distribution

Scale: Local

Lower Barataria  Lower Breton  Mid-Barataria  Mid-Breton
Basinwide Socio-Economic Analysis
Overview of Tasks

Historic Analysis
- Economy
  - Land/Water
  - Community

Future Analysis
- Fisheries
  - Land/Water

New Tasks
- Economy
  - Community
- Fisheries