



Committed to Our Coast

Louisiana's 2012 Coastal Master Plan

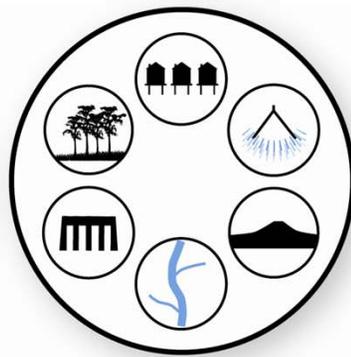
Coastal Protection and Restoration Authority
November 16, 2011



Leading the Way: Developing the 2012 Coastal Master Plan



Step 1:
Set Goals &
Identify
Potential
Projects



Step 2:
Evaluate
Projects



Step 3:
Compare
Projects &
Develop
Alternatives



Step 4:
Select Plan

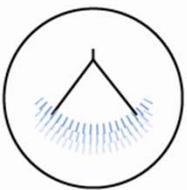


Step 5:
Implement
Plan

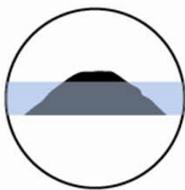


Step 1: Set Goals & Identify Potential Projects

- Build on previous planning efforts
- Set goals and objectives
- Identify previously proposed projects for evaluation



Diversions



Barrier Island
Restoration



Non-Structural
Protection



Flood Gates



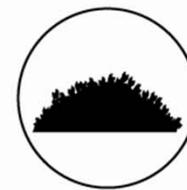
Protective
Levees



Marsh
Creation



Conveyance
Channel

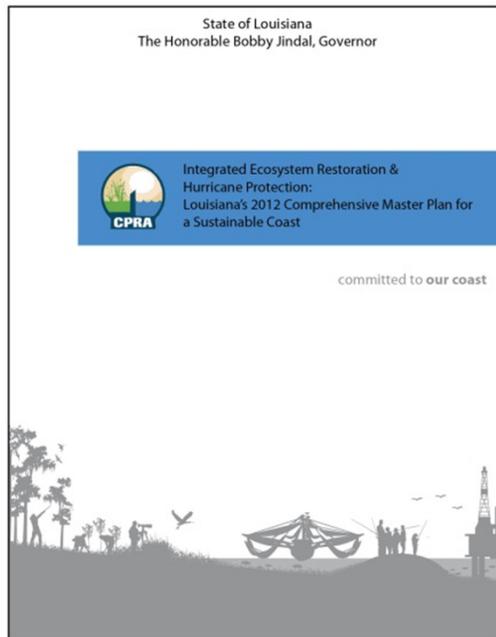


Oyster
Barrier
Reef



Ridge
Restoration

Our Objectives



1. Reduce economic losses from storm-based flooding
2. Promote a sustainable coastal ecosystem by harnessing natural system processes
3. Provide habitats suitable to support an array of commercial and recreational activities coast-wide
4. Sustain Louisiana's unique heritage and culture
5. **Provide a viable working coast to support industry.**

Potential Funding for the Future

Current estimates show potential available funding in the range of \$20 to \$50 billion over the next 50 years

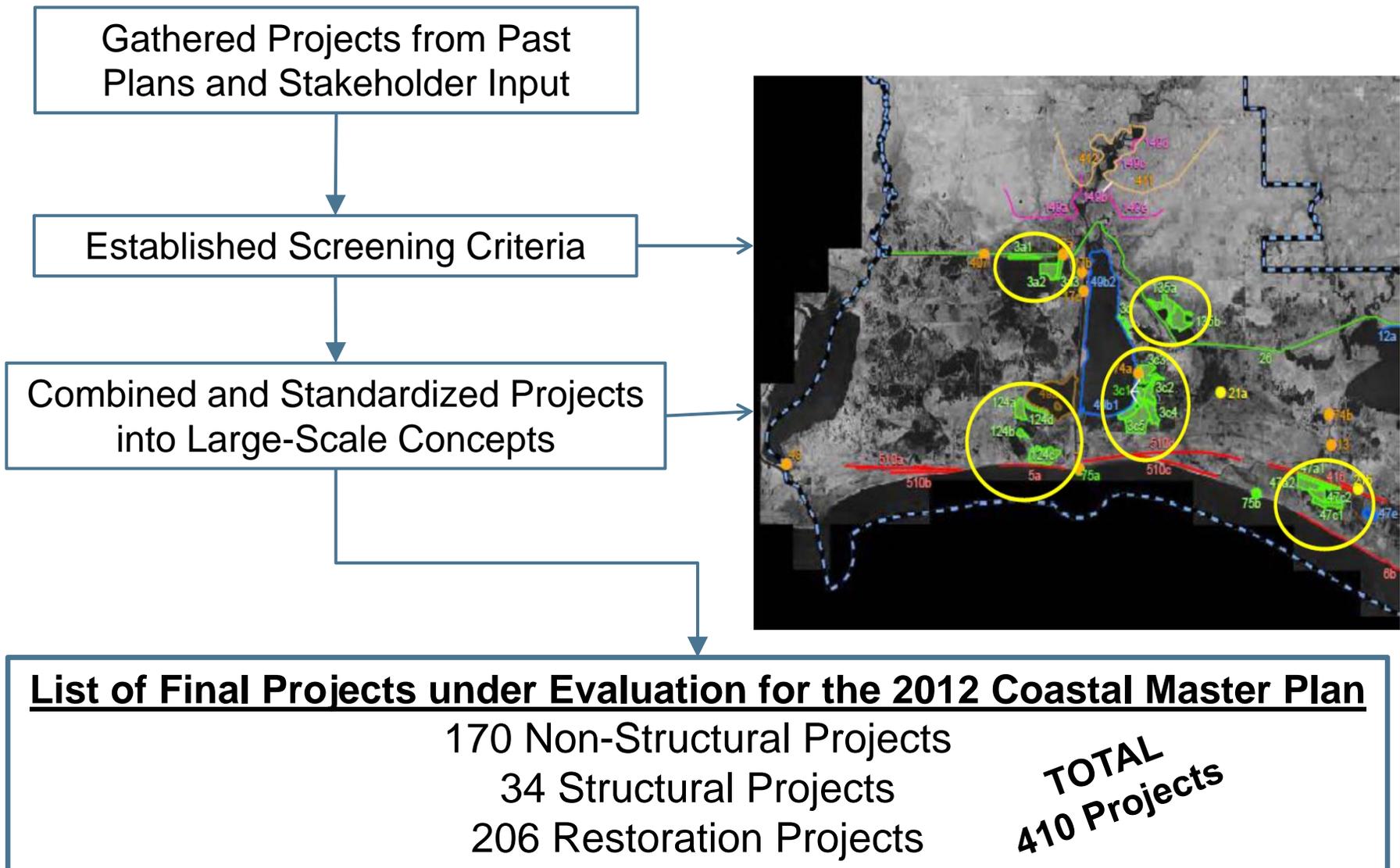
- ❖ For the plan, we estimate an average of \$400 million to \$1 billion every year for the next 50 years
- ❖ This funding level is not guaranteed
- ❖ Funding will be spaced out over 50 year period, so projects will not all be built at once

Total implementation costs of all projects under analysis is approximately \$250 billion

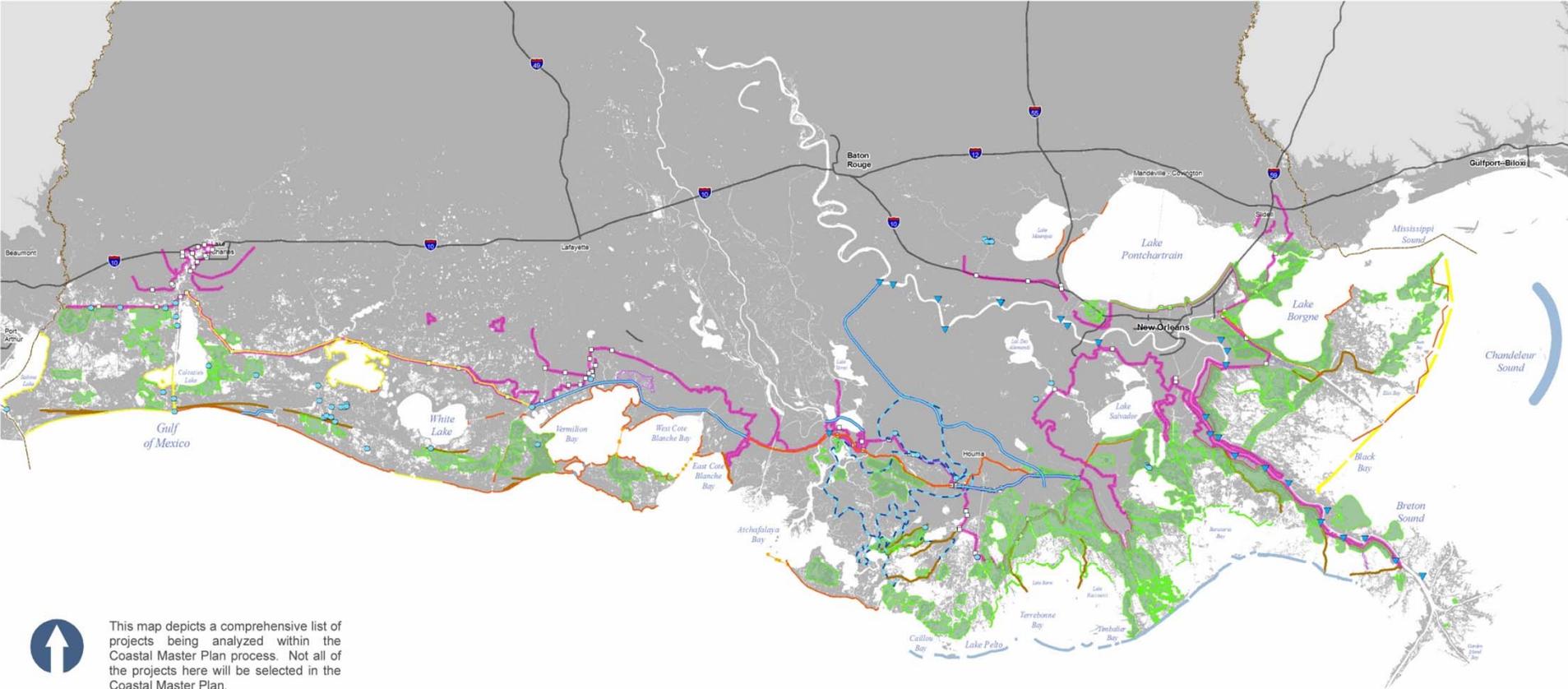
Sources of Project Concepts

- Coast 2050
- MLODS
- LPBF
Comprehensive Plan
- MRSNFR
- CWPPRA PPL
Finalists
- CIAP Tier II Projects
- Parish Master Plans
- LCA Comprehensive
Study
- MRGO Ecosystem
Restoration Study
- Southwest Coastal
Study
- CSS Concepts
- Envisioning the Future
of the Gulf Coast
- Dutch Perspective
- 2007 Master Plan
- LACPR
- BTNEP CCMP

Projects Under Evaluation



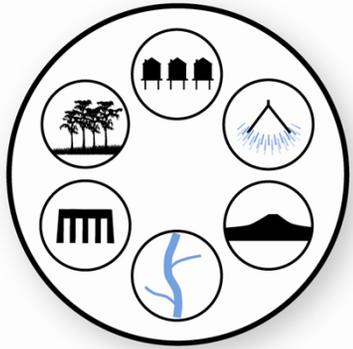
Projects Under Evaluation



This map depicts a comprehensive list of projects being analyzed within the Coastal Master Plan process. Not all of the projects here will be selected in the Coastal Master Plan.

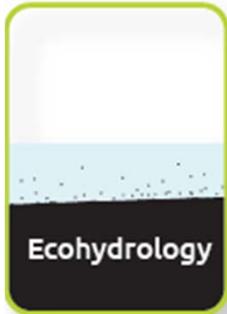
<p>0 5 10 20 30 40 Kilometers</p> <p>0 5 10 20 30 40 Miles</p>		<p>Coastal Restoration 206 Projects</p> <ul style="list-style-type: none"> Barrier Island/Headland Bank Stabilization Complex Marsh Creation Oyster Barrier Reef Ridge Restoration Shoreline Protection Hydrologic Restoration Hydrologic Structures 	<p>Structural Protection 34 Projects</p> <ul style="list-style-type: none"> Diversions Conveyance Channel Flood Gates Protection Levees 	<p>Non-structural Protection 170 Projects</p> <p>Non-structural protection projects are not depicted on the map. A total of 170 non-structural projects are being analyzed and incorporate all inhabited areas of the coast.</p>	
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Note: Map does not include Non-Structural Projects or Programs



Step 2: Evaluate Projects

- Use systems-based models to show effects on:
 - Landscape
 - Ecosystem services
 - Protection services
- Determine what a future with no action will look like
- Analyze each project's benefits and drawbacks



- **Eco-Hydrology**

- 3 mass-balance box models
- Output – 16 variables
 - *stage, salinity, sediment, water quality (N-uptake potential – V.H. Rivera)*



- **Wetland Morphology**

- 4 submodels - *changes in the landscape*
- Output – land change, fragmentation, elevation, SOC



- **Barrier Shoreline Morphology**

- Changes in tidal inlet area, location, area, & elev.



- **Vegetation**

- Probability of death / establishment of 21 vegetation classes, per salinity, inundation



- **Upper Trophic Level**
 - Habitat Suitability Indices
 - 14 species and 1 functional group



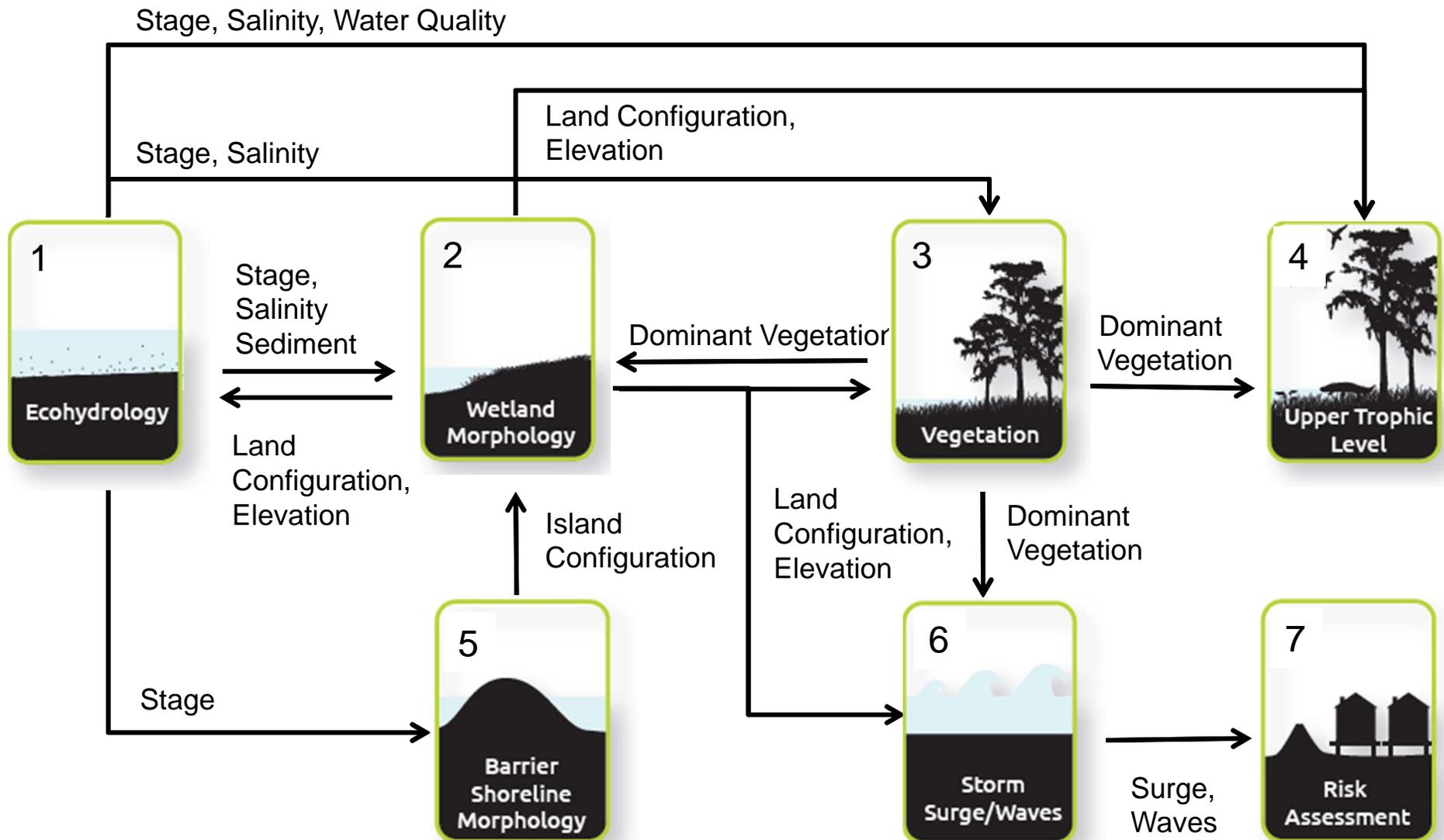
- **Storm Surge and Wave**
 - Coarsened SL-18 AdCirc grid (used by USACE)
 - Use output from wetland /barrier morphology and vegetation to modify grid points
 - Output – storm surge and wave elevation



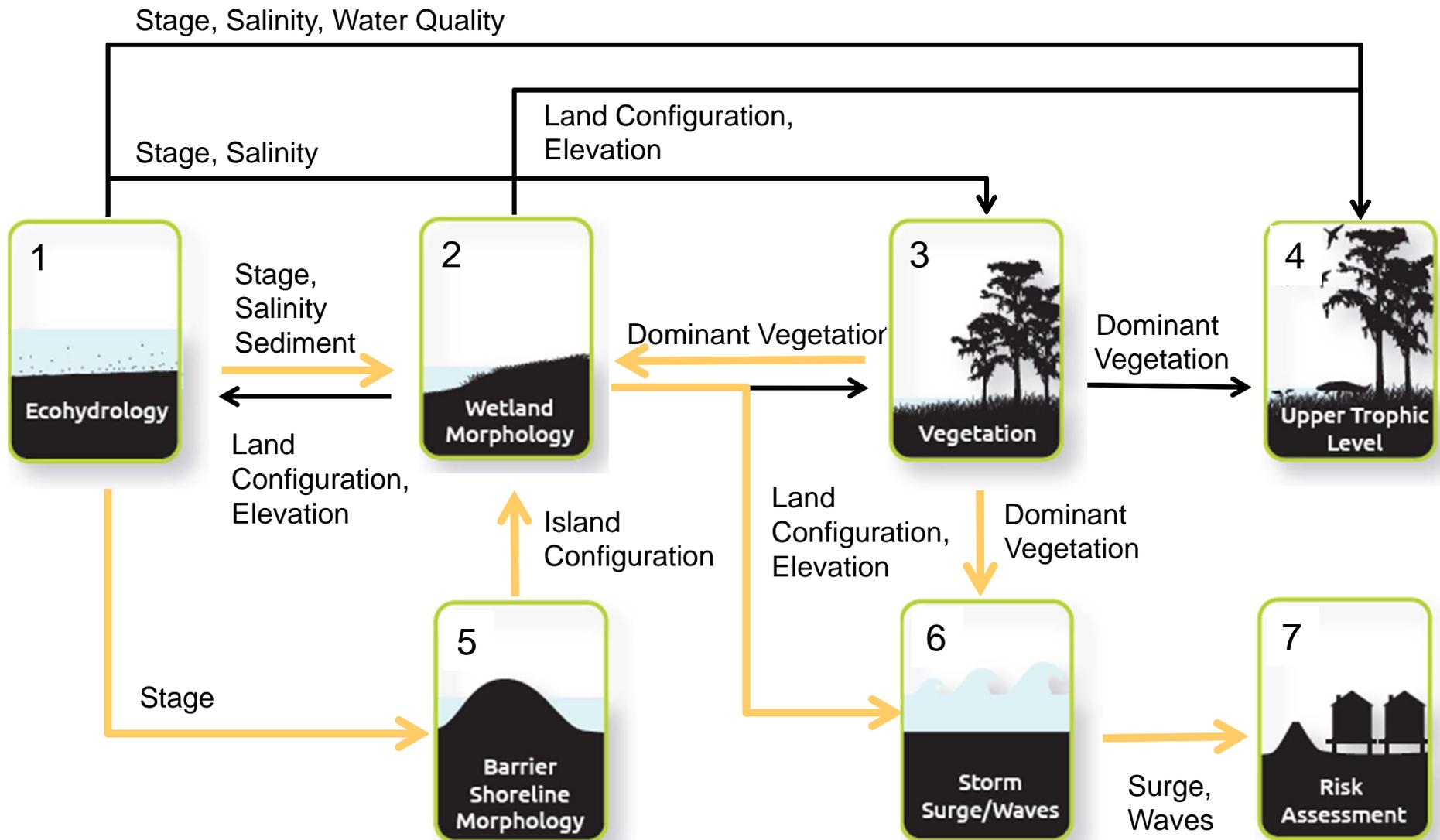
- **Risk Assessment (damage)**
 - Surge elevation, value of assets (*commercial, residential, infrastructure, strategic assets*)
 - Output – flood depths and resulting residual damages (\$)

Data Integration - file naming, automations, model linkages and data transfer

Modeling in a Systems Context



Modeling in a Systems Context



Modeling Team

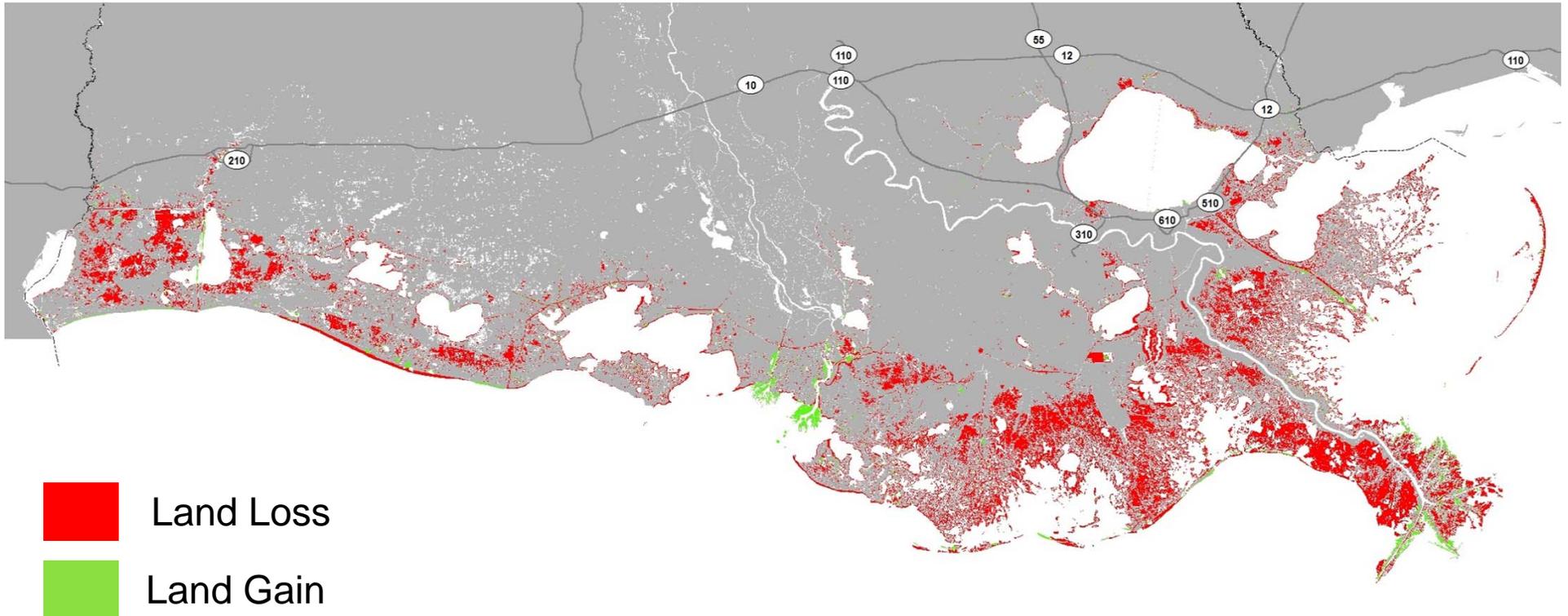
Modeling Team	Workgroup Leader
Eco-hydrology	Dr. Ehab Meselhe, ULL
Wetland Morphology	Dr. Greg Steyer, USGS
Barrier Island Morphology	Dr. Mark Kulp, UNO
Vegetation	Dr. Jenneke Visser, ULL
N-Uptake	Dr. Victor Rivera, LSU
Upper Trophic Level	Dr. Andy Nyman, LSU AgCenter
Storm Surge	Dr. Joe Suhayda / Arcadis
Storm Damage/Risk	Dr. Jordan Fischbach, RAND
Data Integration	Craig Conzelmann, USGS

What's At Stake



Photo credits: A. Jordan, Flickr; BBC World Service; LSU Coastal Sustainability Studio

Louisiana is Facing a Coastal Crisis



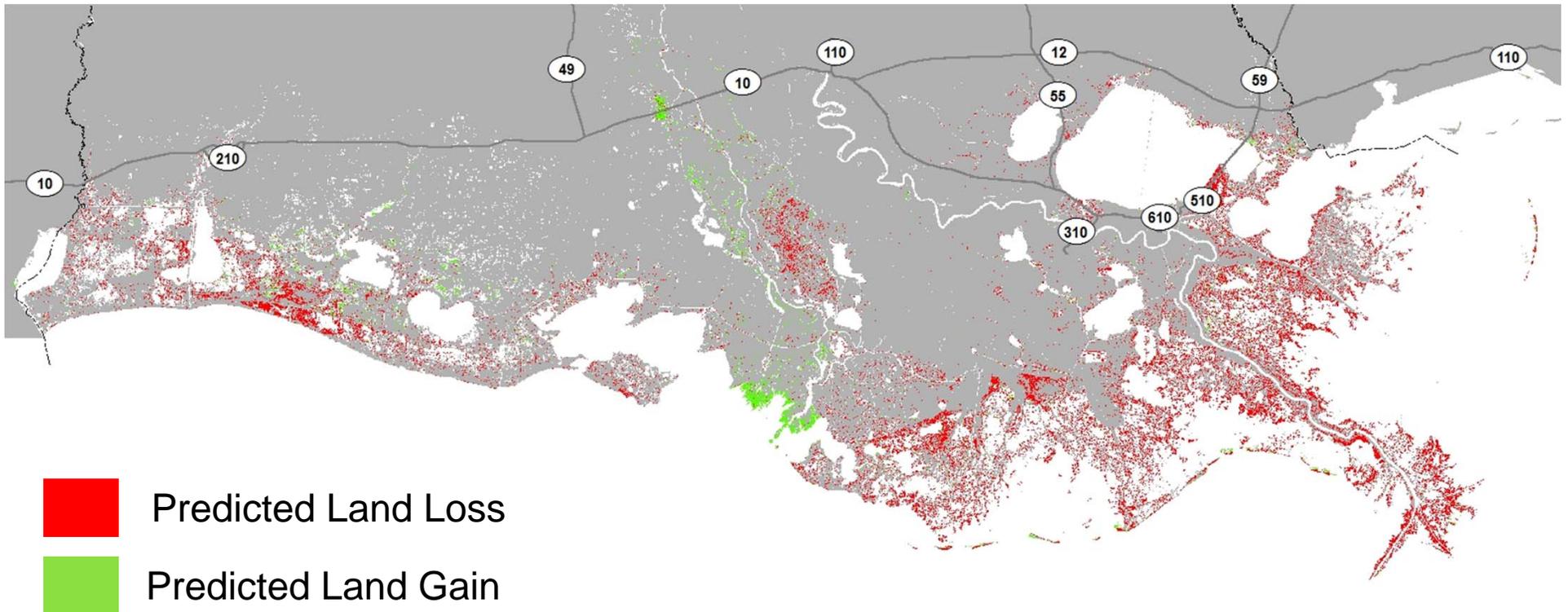
Historic Land-Water Change from 1932-2010

Couvillion et al (USGS), 2011

Future Uncertainty Scenarios

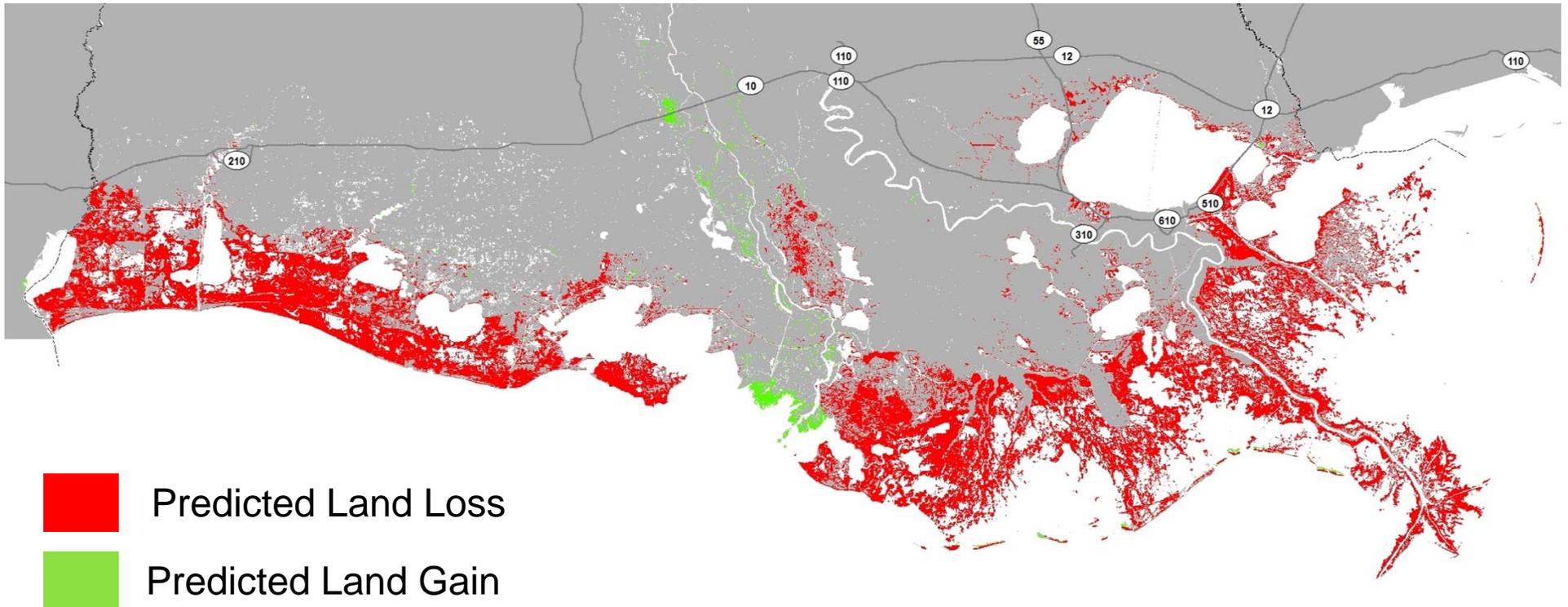
<u>Uncertainty</u>	<u>Scenario B</u>	<u>Scenario C</u>
Sea Level Rise	0.3m over 50 yrs	0.5m over 50 yrs
Subsidence	Spatially Variable	Spatially Variable
Storm Intensity	+10% of current	+20% of current
Storm Frequency	Current	+3% of current
River Discharge / Sediment Load	Current	-5% of current
River Nutrient Concentration	-12% of current	Current
Rainfall	Current	-4SD
Evapotranspiration	Current	+4SD
Marsh Collapse Threshold	Mid-range of salinity/inundation values	Lower 0.25 end of the salinity/inundation values

Future Without Action



Scenario B
Predicted Land-Water Change from 2010-2060

Future Without Action

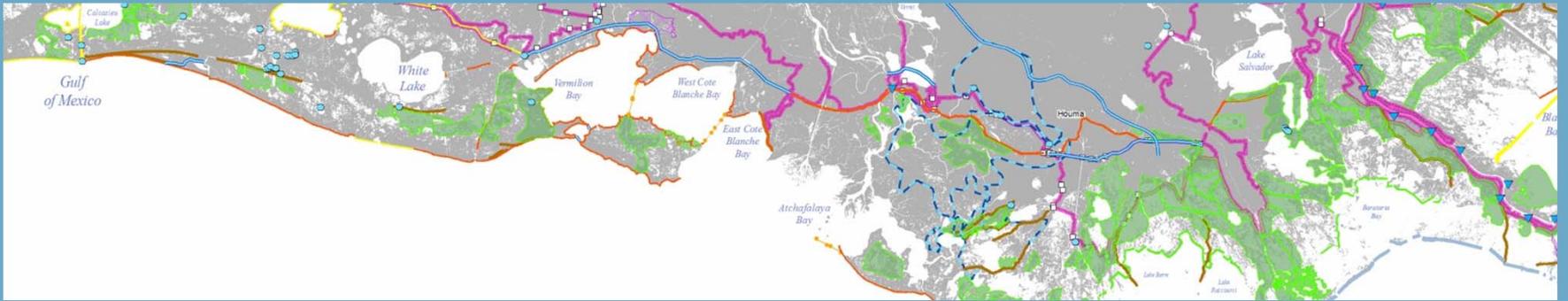


Scenario C
Predicted Land-Water Change from 2010-2060

Opportunities for Action

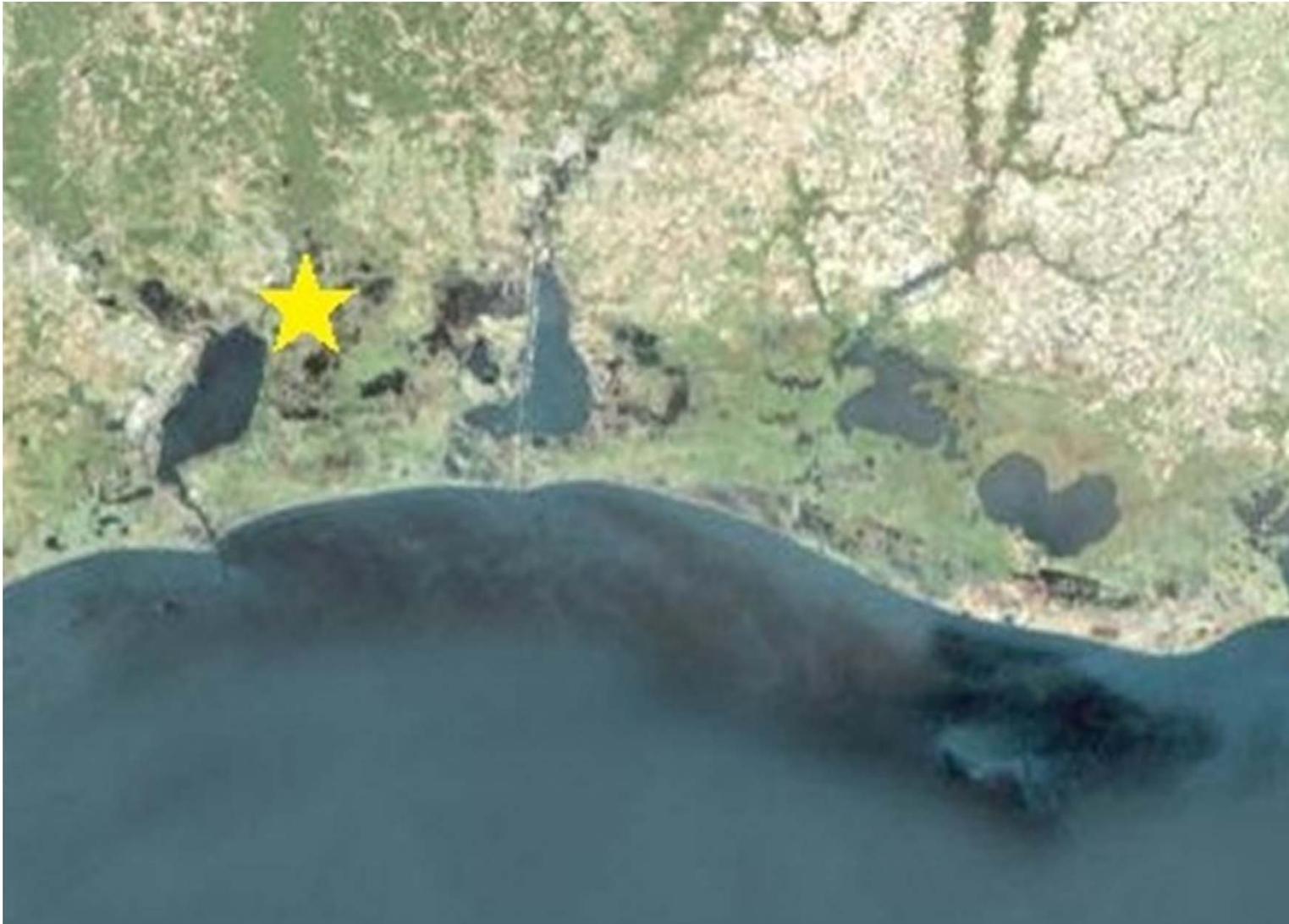


Image credits (top-bottom, left-right): Common Ground Relief; OCPR; US Army Corps of Engineers ; OCPR; US Army Corps of Engineers; Build Now NOLA

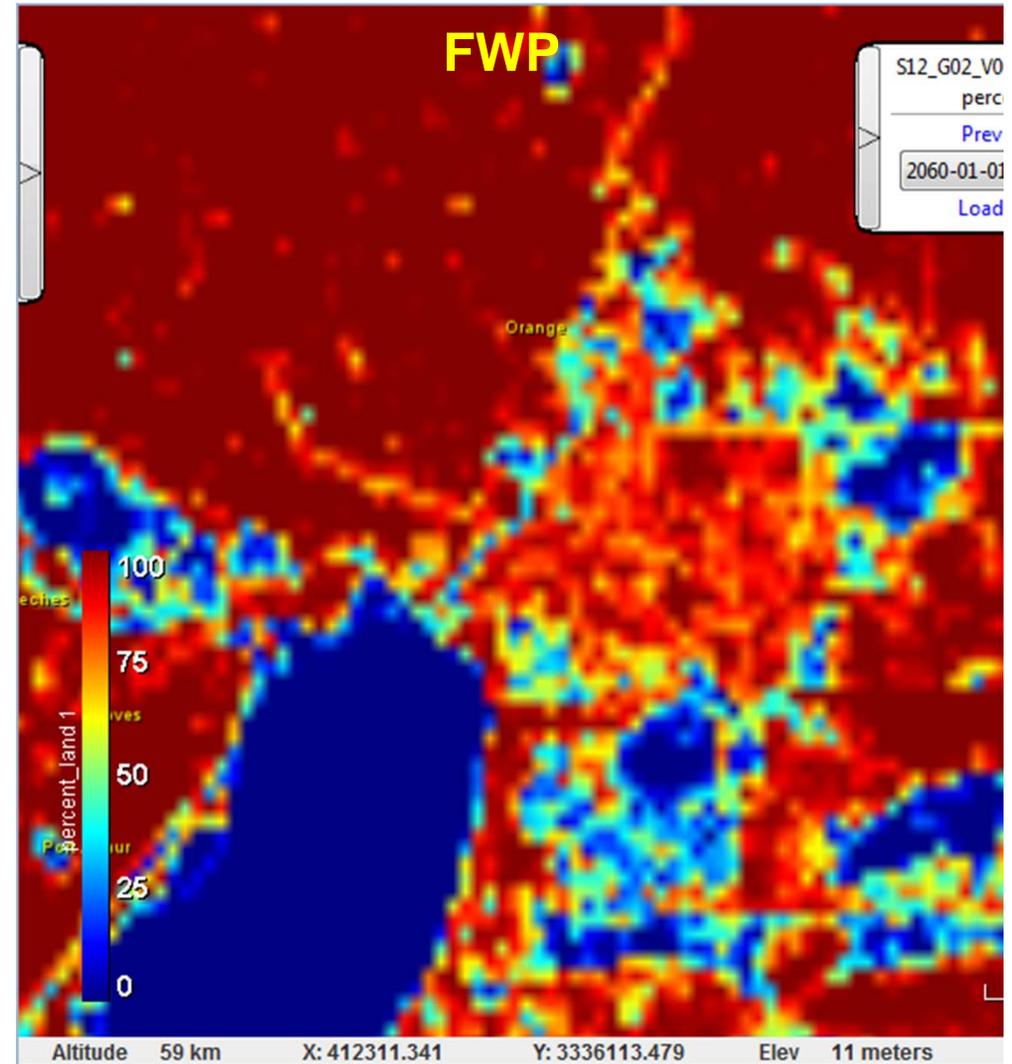
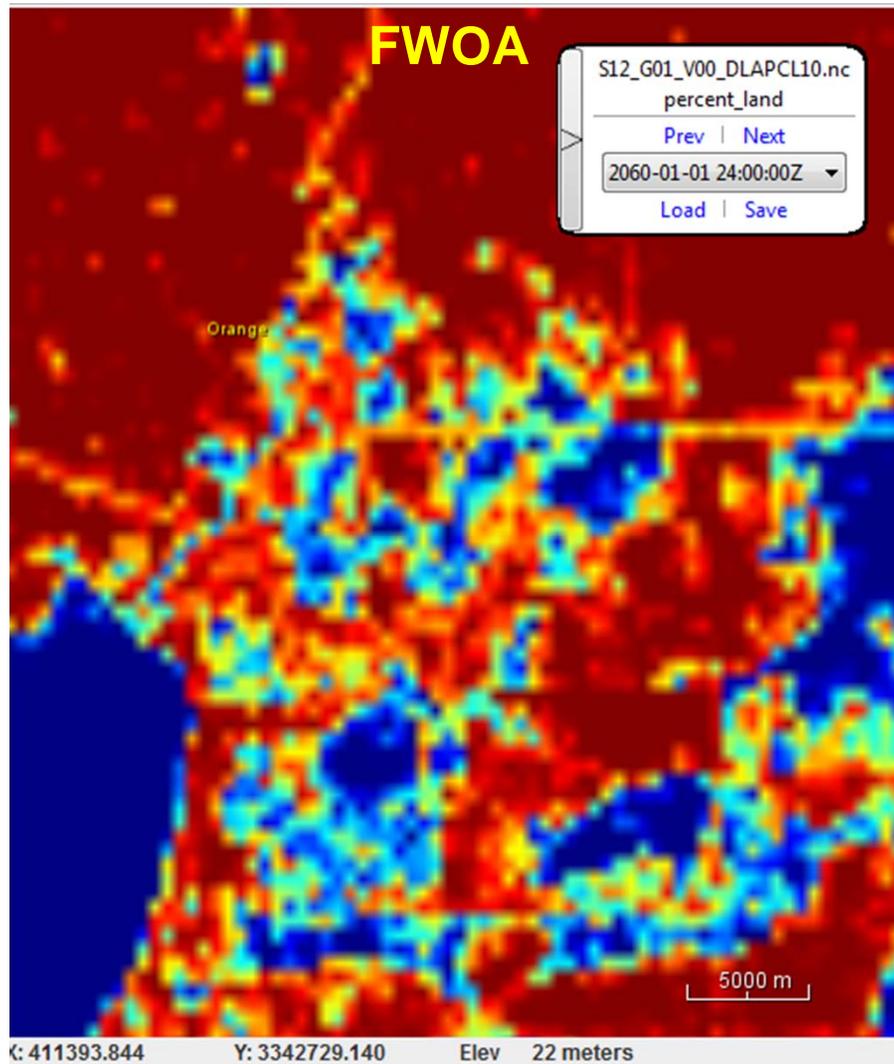


Project Evaluation

Black Bayou Marsh Creation (~5,000 acres)



Black Bayou Marsh Creation (~5,000 acres)



Scenario B: Years 2015, 2035 and 2060



Year 50

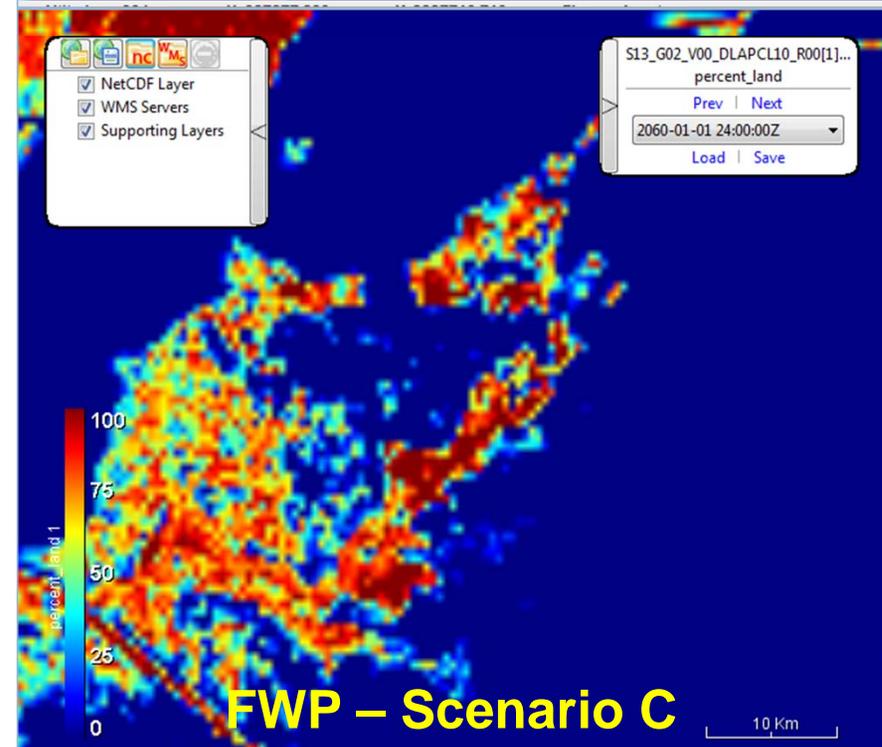
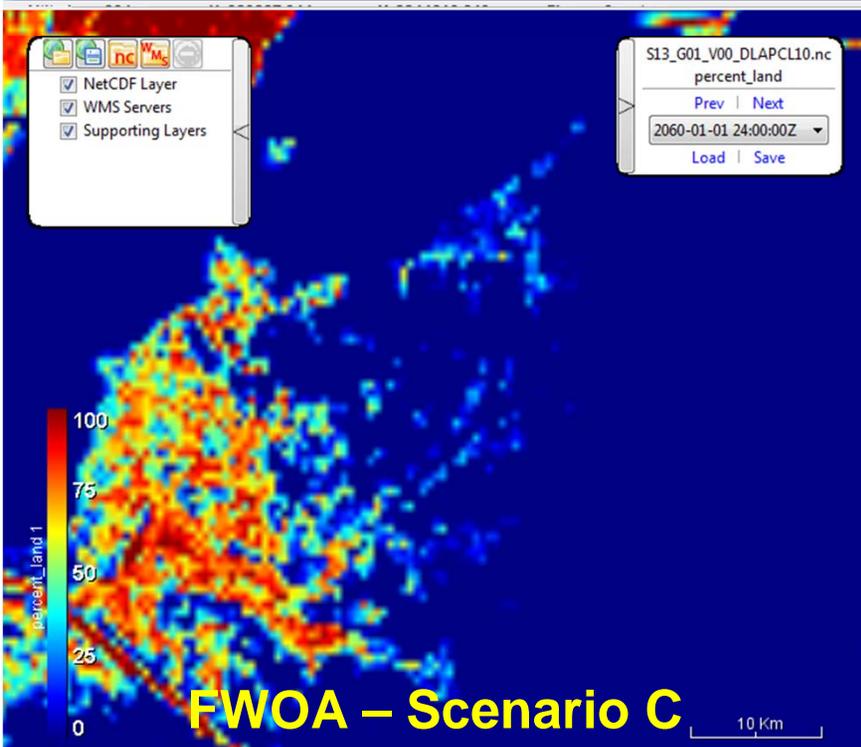
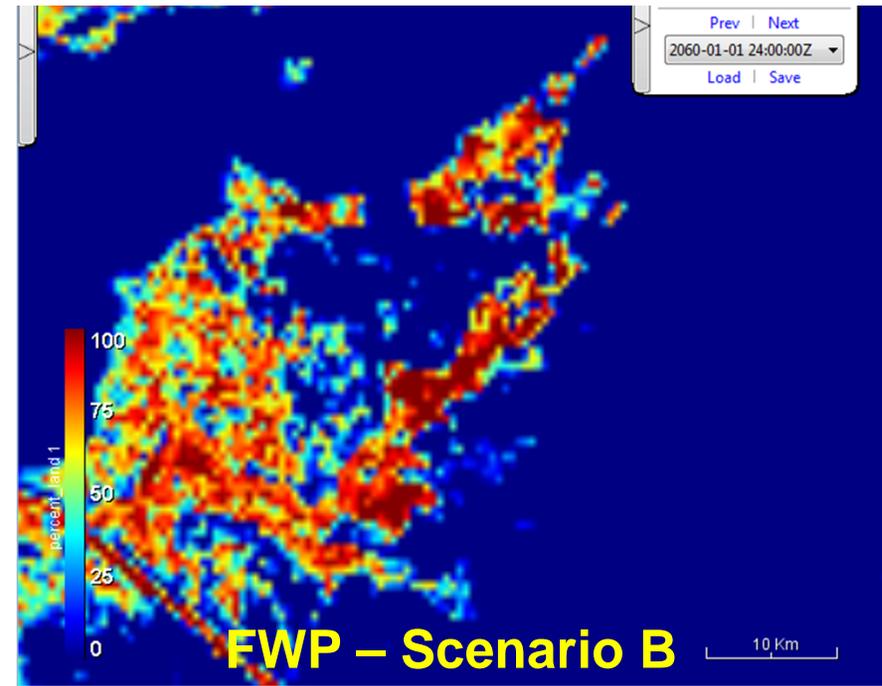
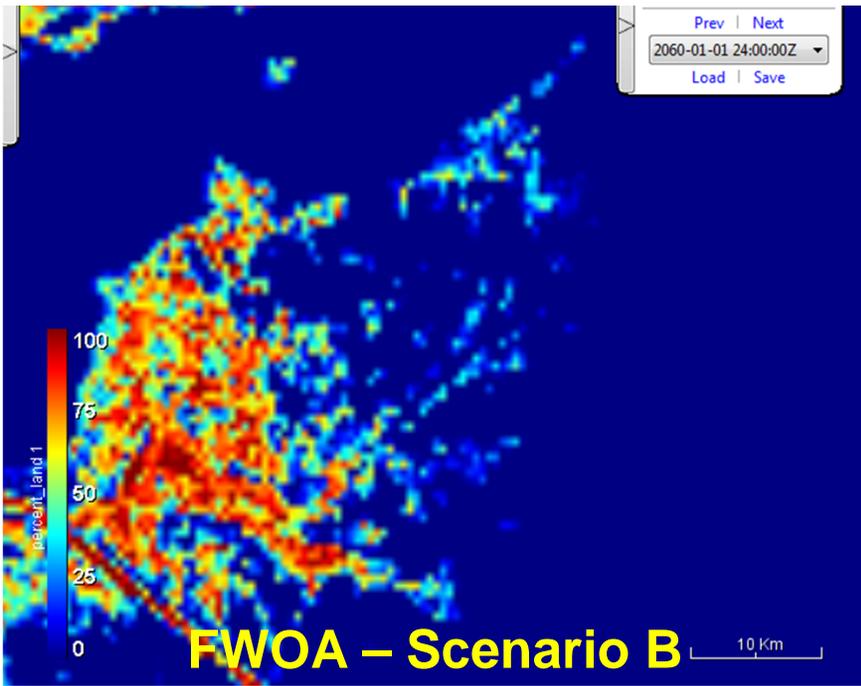
**Change in Percent
Land Compared to
FWOA**

Scenario B

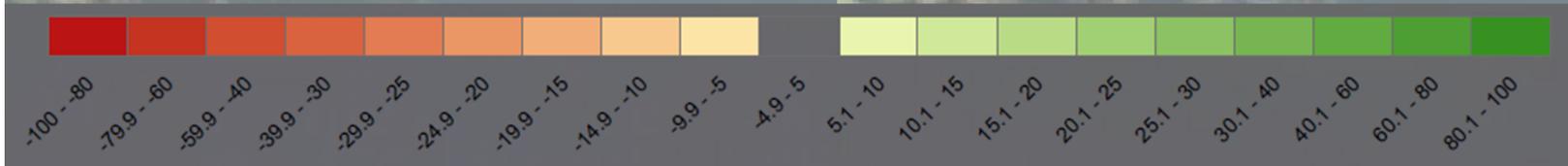
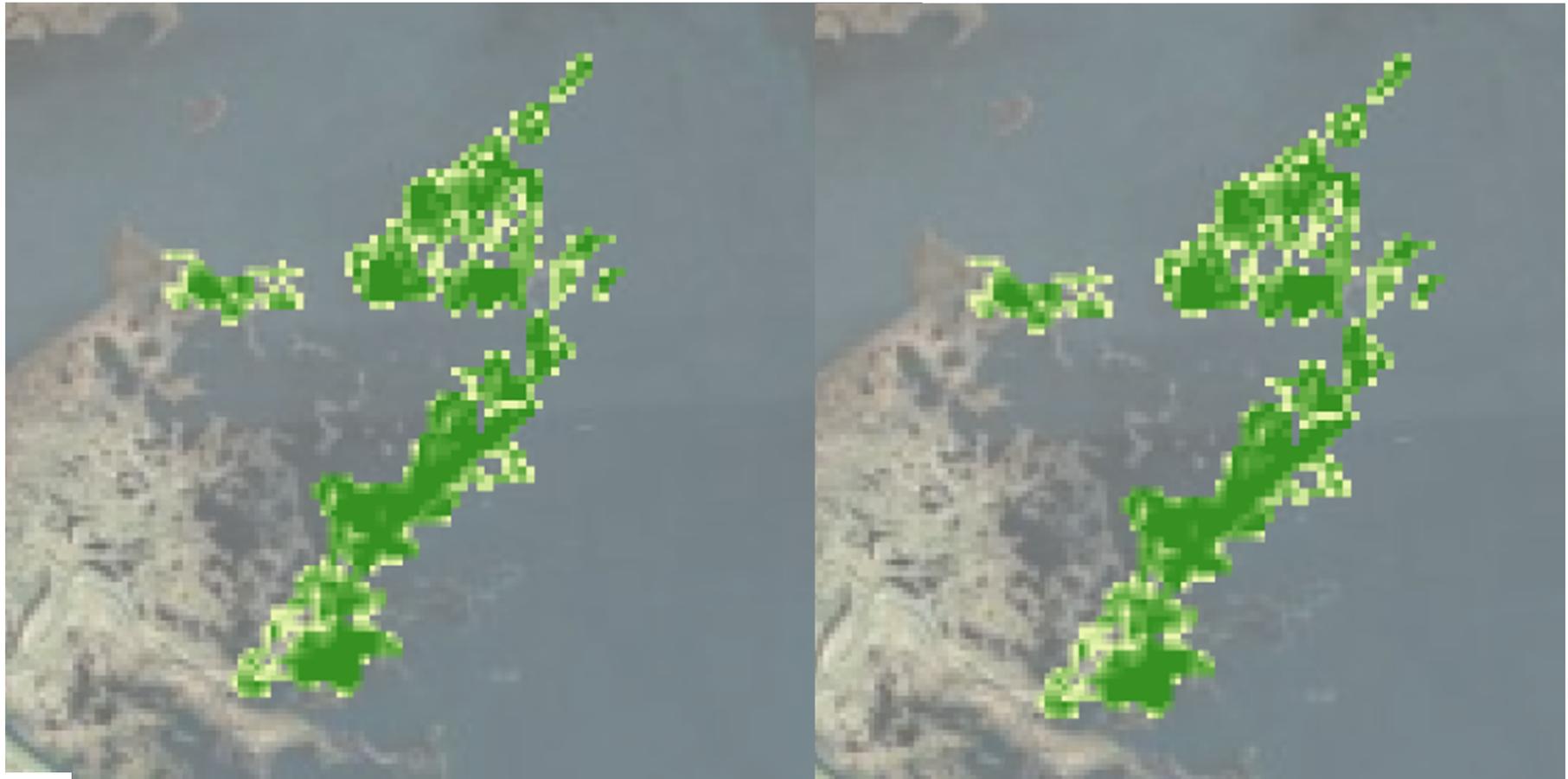


Biloxi Marsh Creation (~33,000 acres)



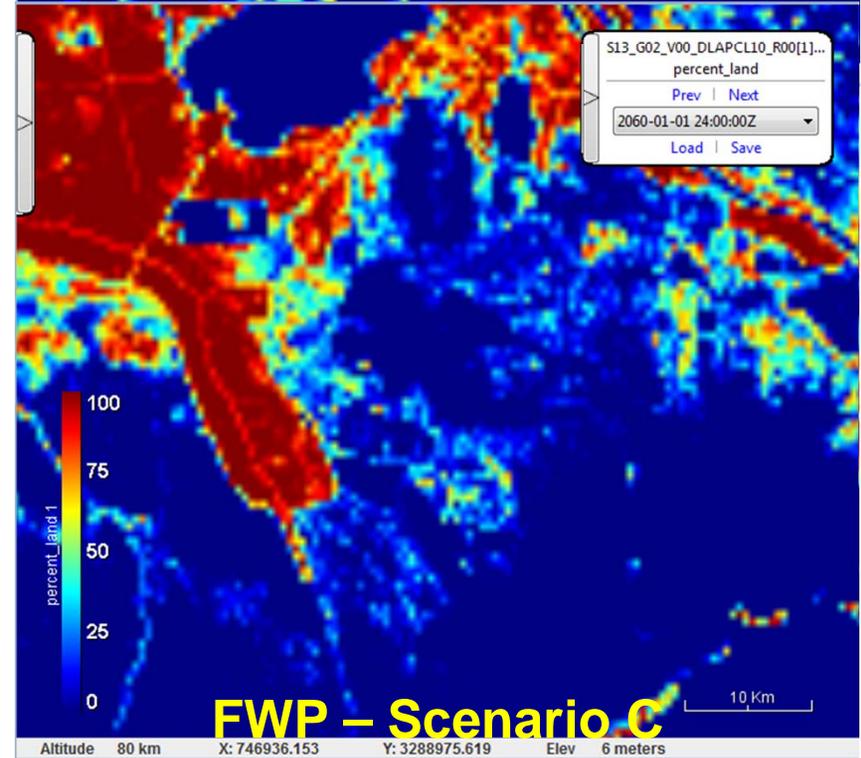
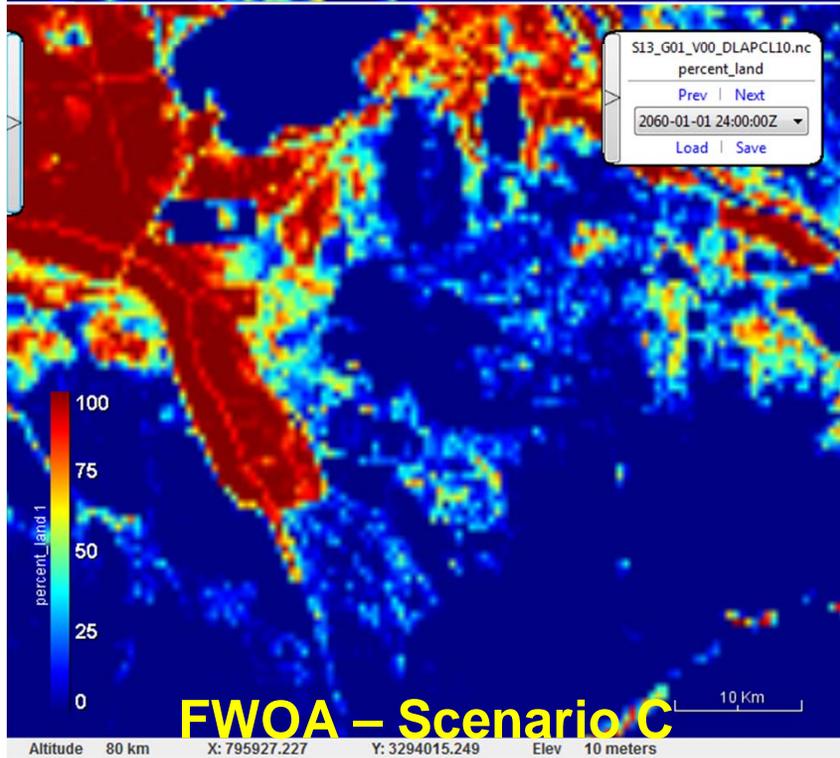
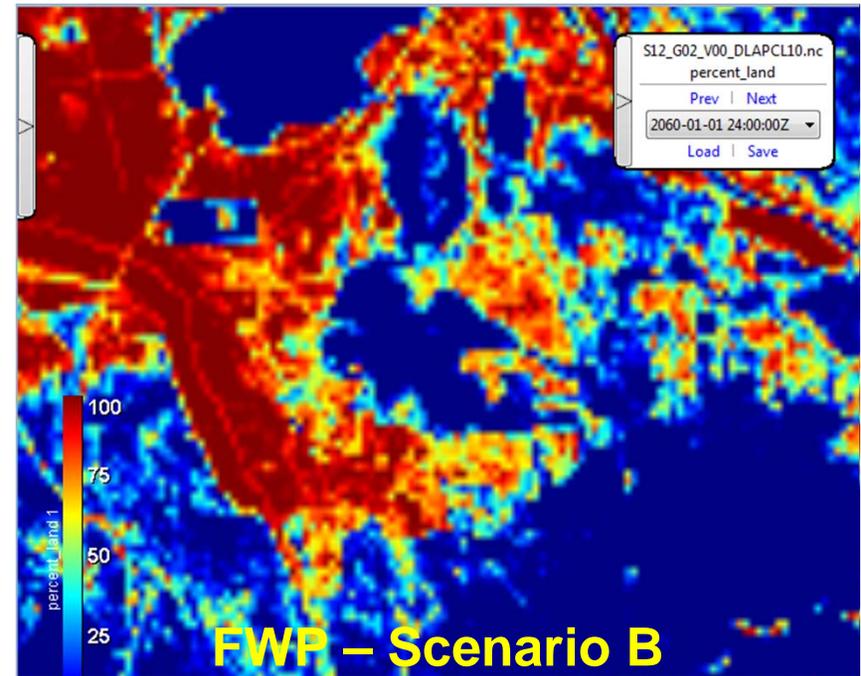
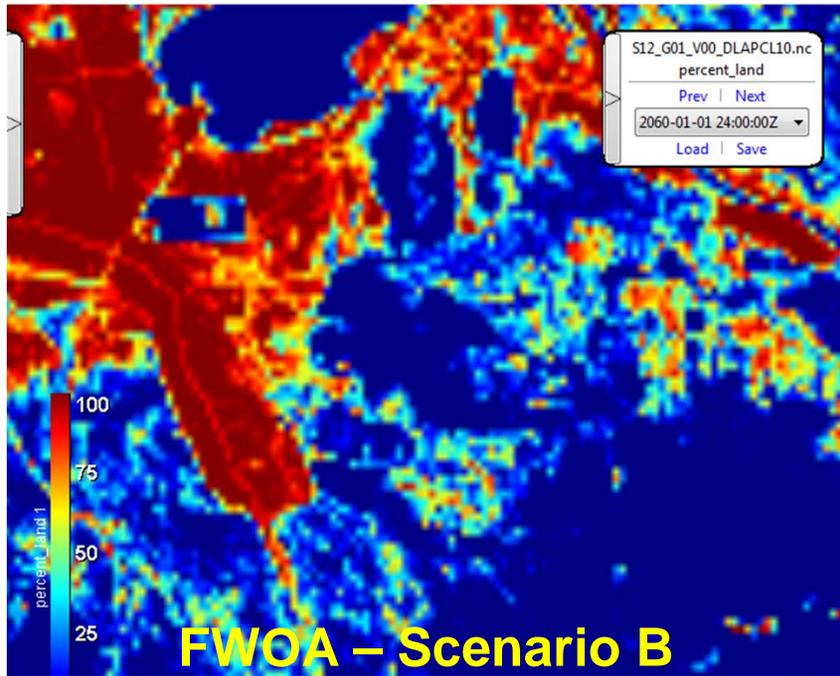


Year 50
Change in Percent Land Compared to FWOA
Scenario B Scenario C



Lower Barataria Strategic Marsh Creation (~32,500 acres)

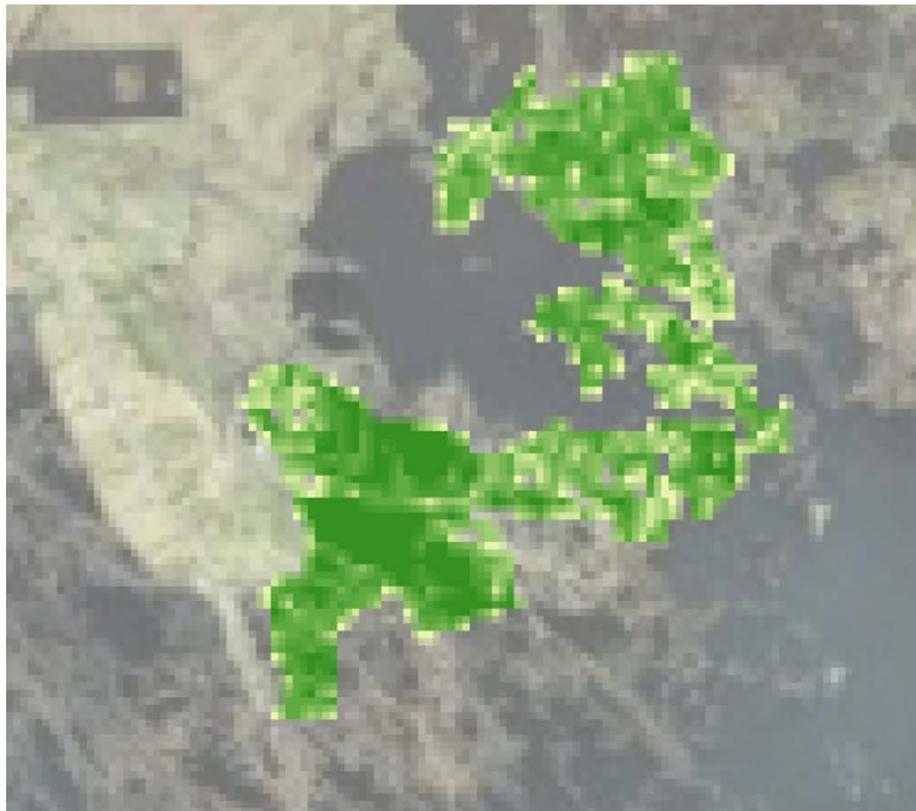




Year 50 Change in Percent Land Compared to FWOA

Scenario B

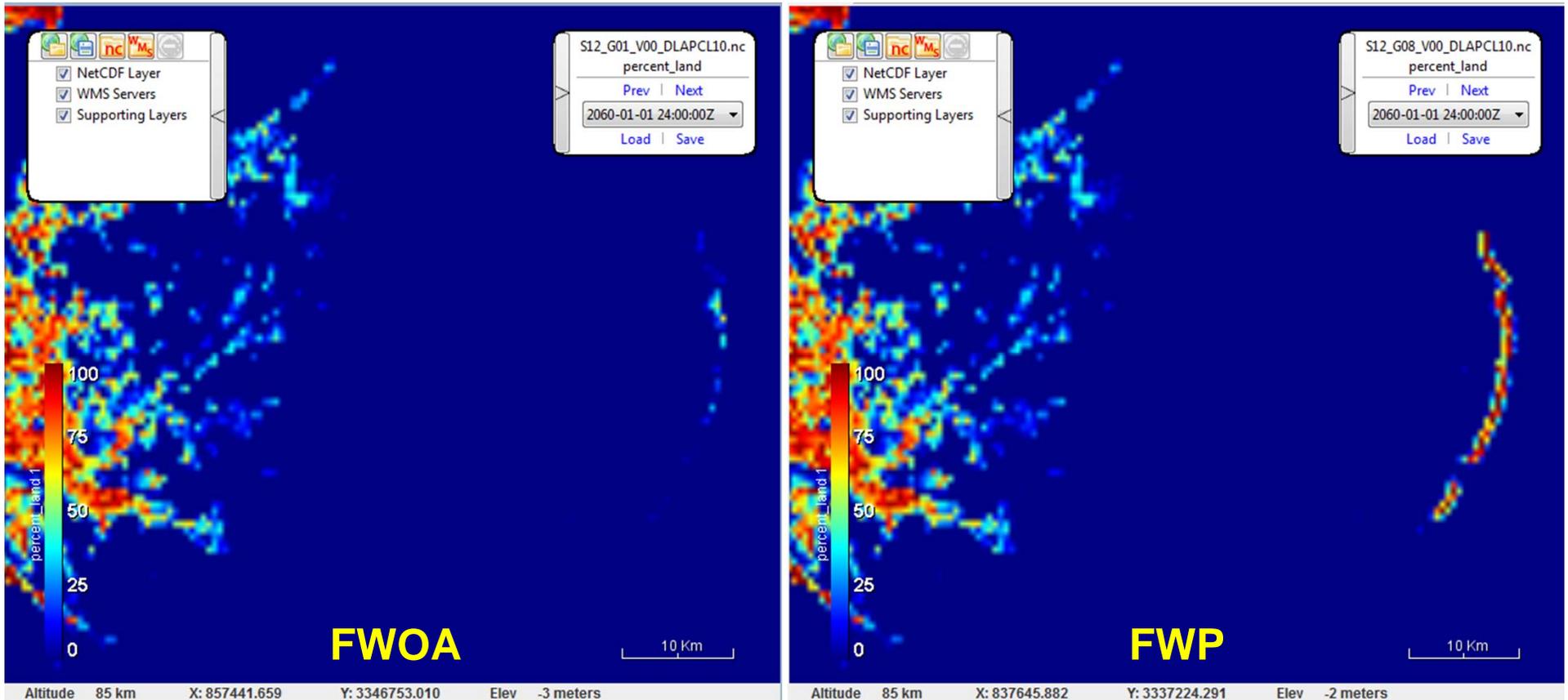
Scenario C



Chandeleur Island Restoration (~12,000 acres)



Chandeleur Island Restoration (~12,000 acres)



Scenario B
Years 2015, 2035 and 2060

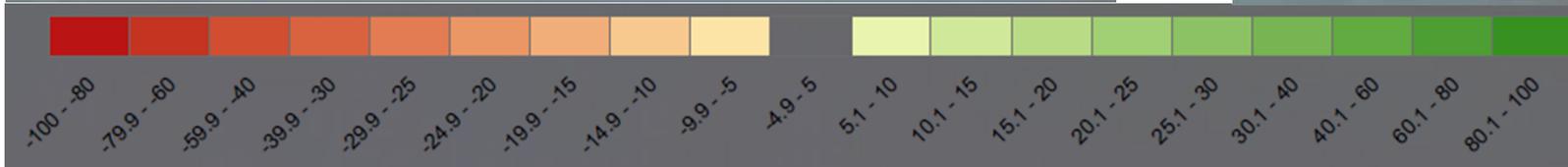
Year 50

Change in Percent Land Compared to FWOA

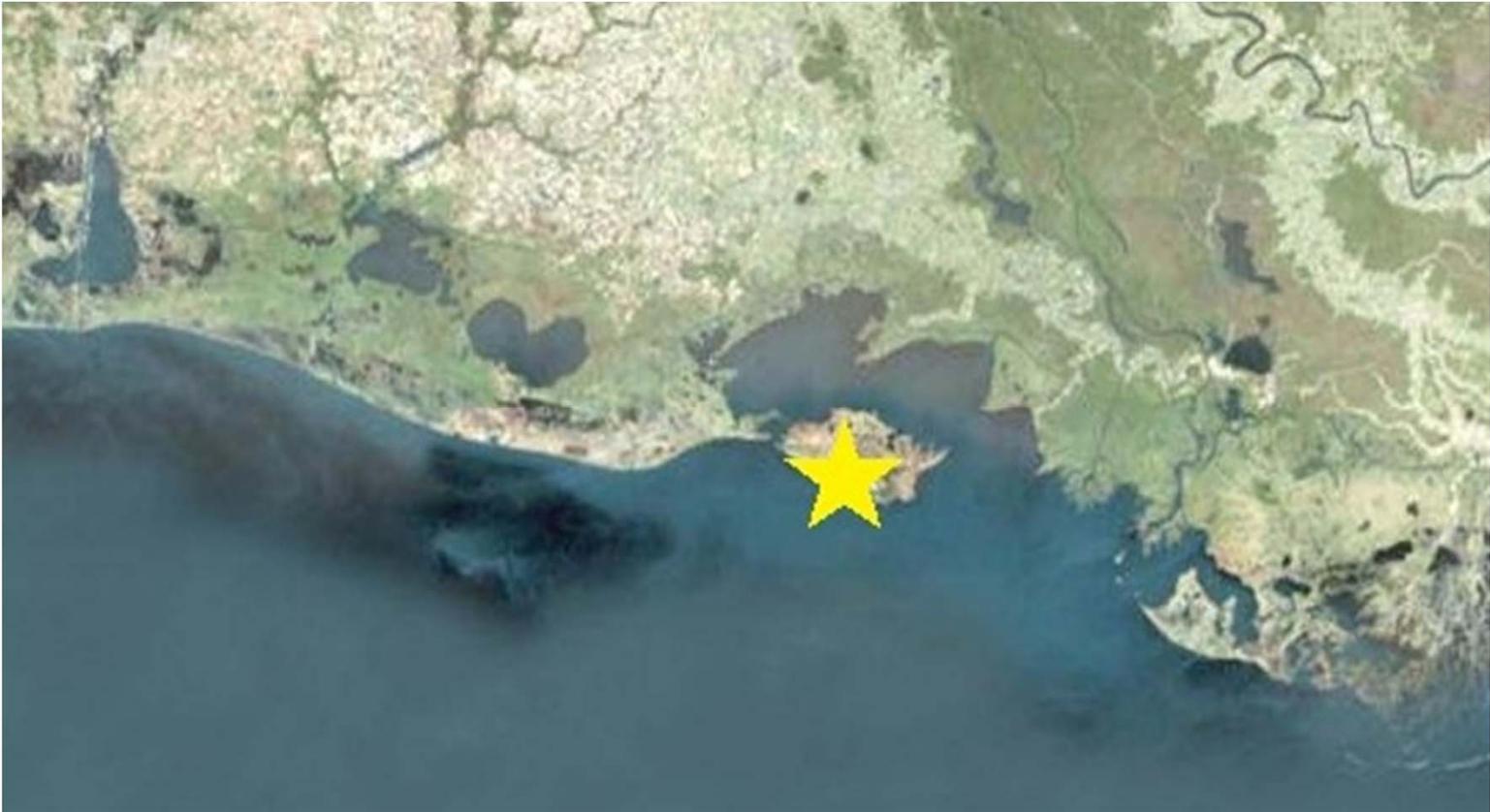
Scenario B



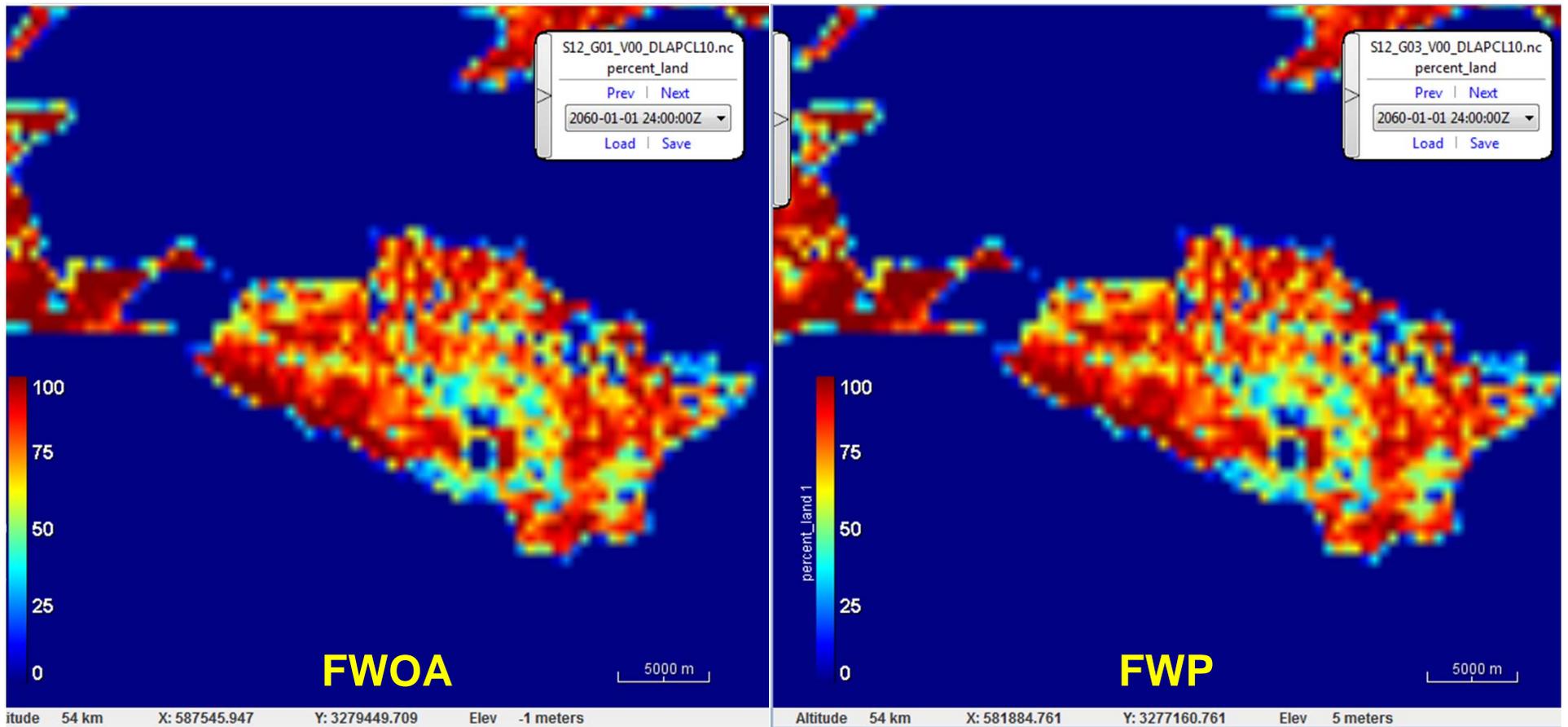
Scenario C



Marsh Island Shoreline Protection



Marsh Island Shoreline Protection



Scenario B
Years 2015, 2035 and 2060

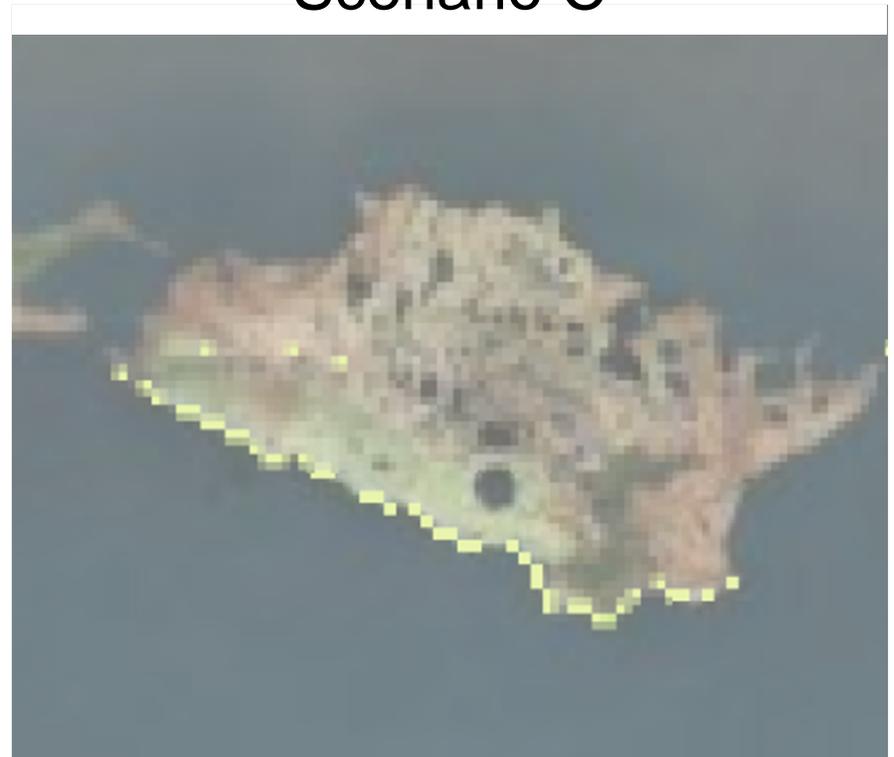
Year 50

Change in Percent Land Compared to FWOA

Scenario B

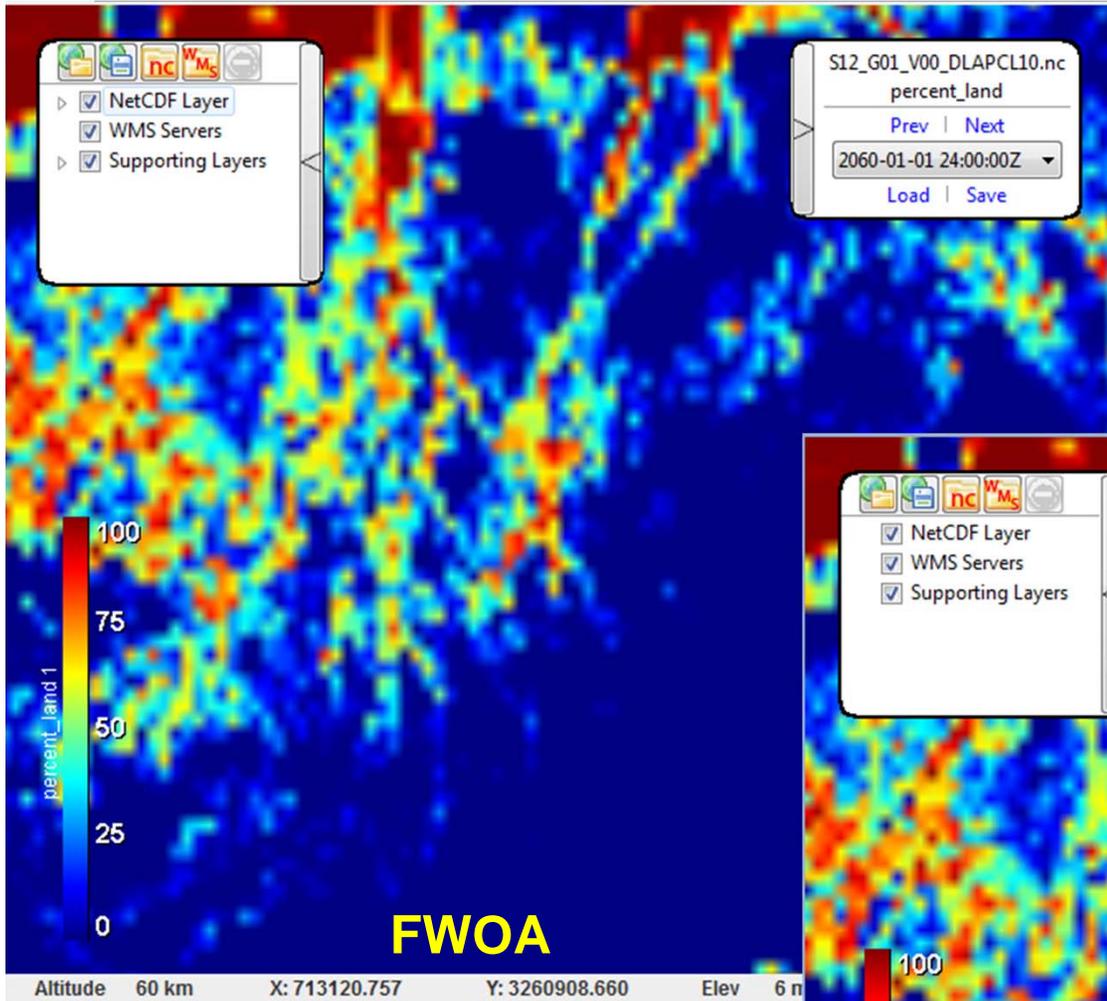


Scenario C

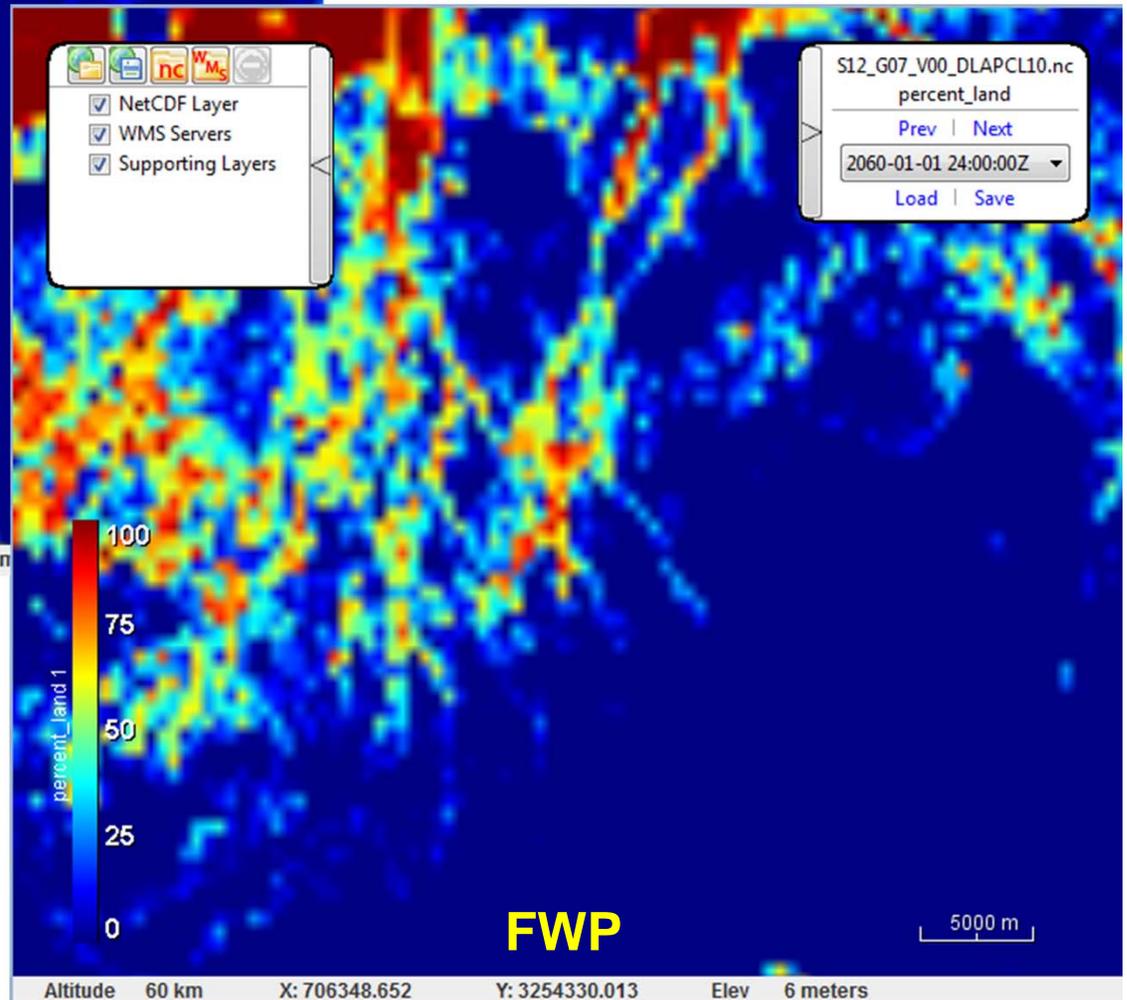


Bayou Terrebonne Ridge Restoration (126 acres)





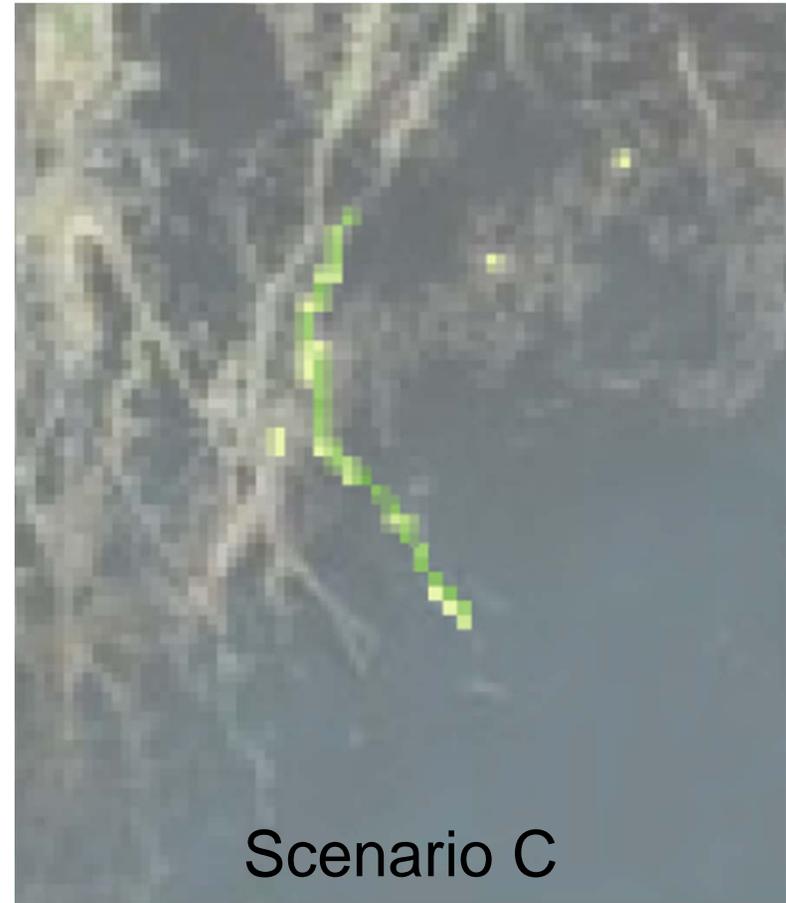
Bayou Terrebonne Ridge Creation (126 acres)



Scenario B
Years 2015, 2035 and
2060

Year 50

Change in Percent Land Compared to FWOA

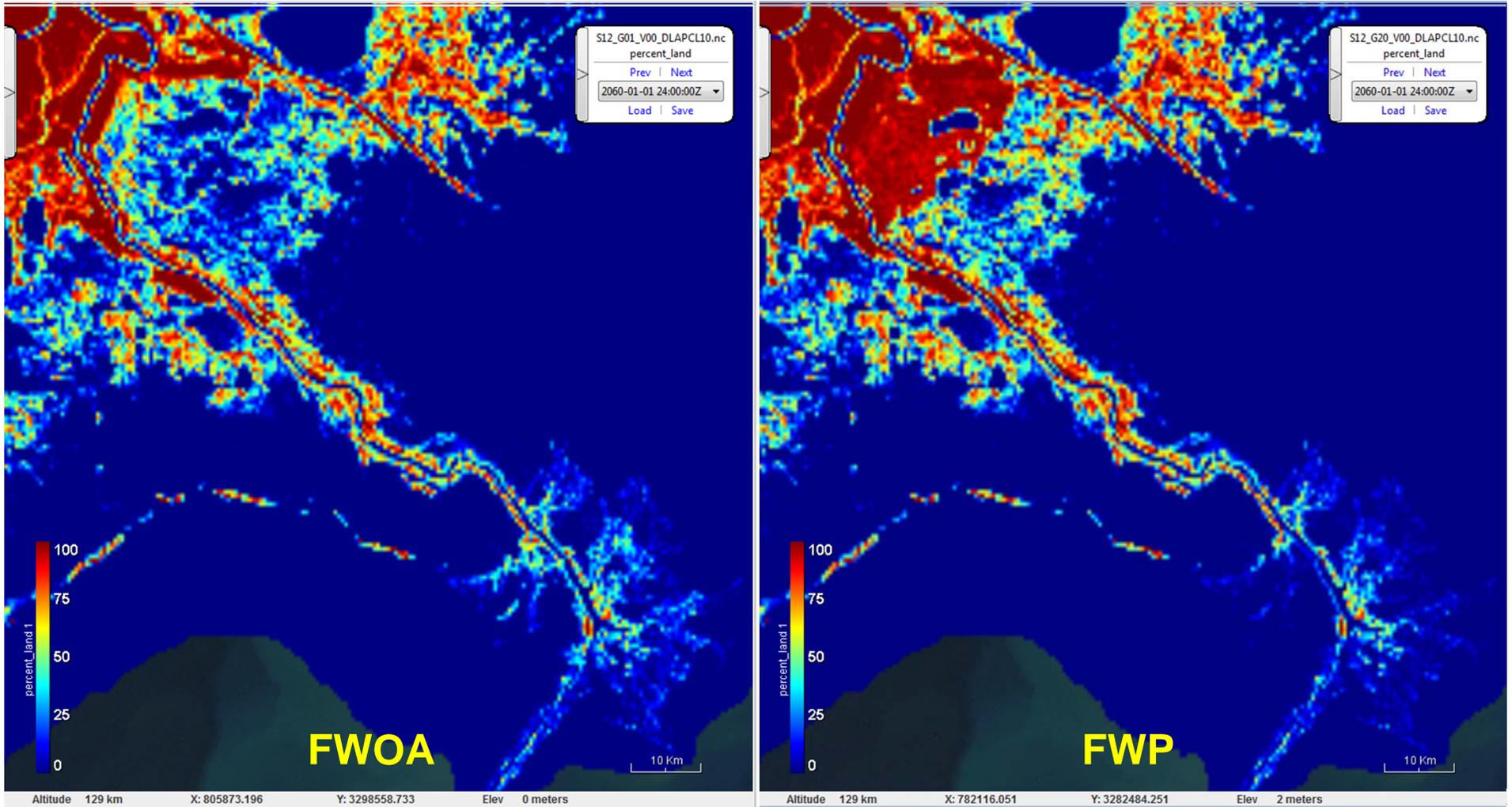


Caernarvon Diversion (250,000 cfs)



Operation at capacity when Mississippi River exceeds 900,000 cfs; operation at 50,000 for flows from 900,000 cfs to 600,000 cfs; operation at 8% of river flow for river flows from 600,000 cfs down to 200,000 cfs, no operation below 200,000 cfs. River flow maintained at 70% Mississippi/30% Atchafalaya.

Caernarvon Diversion (250,000 cfs)



Scenario B

Years 2015, 2035 and 2060

Caernarvon Diversion (250,000 cfs)



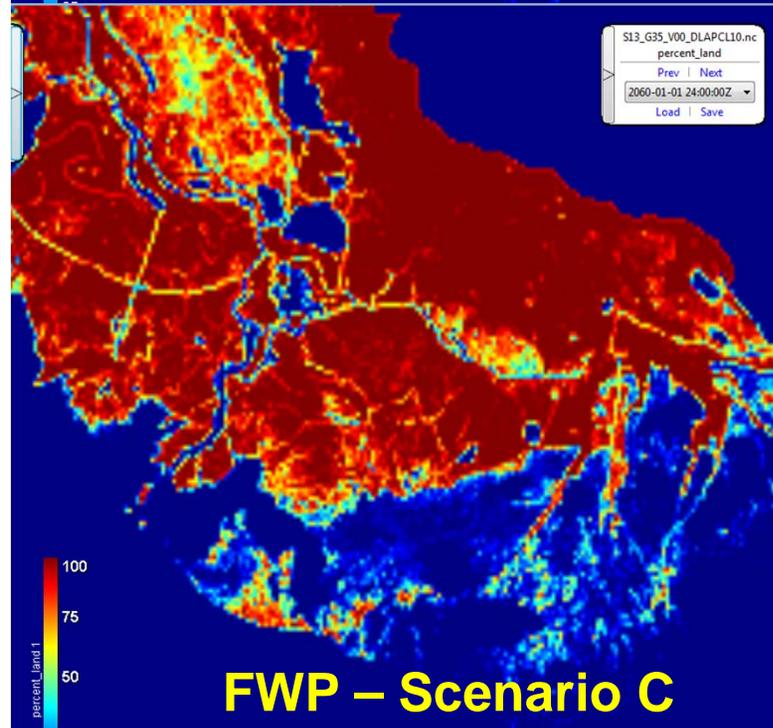
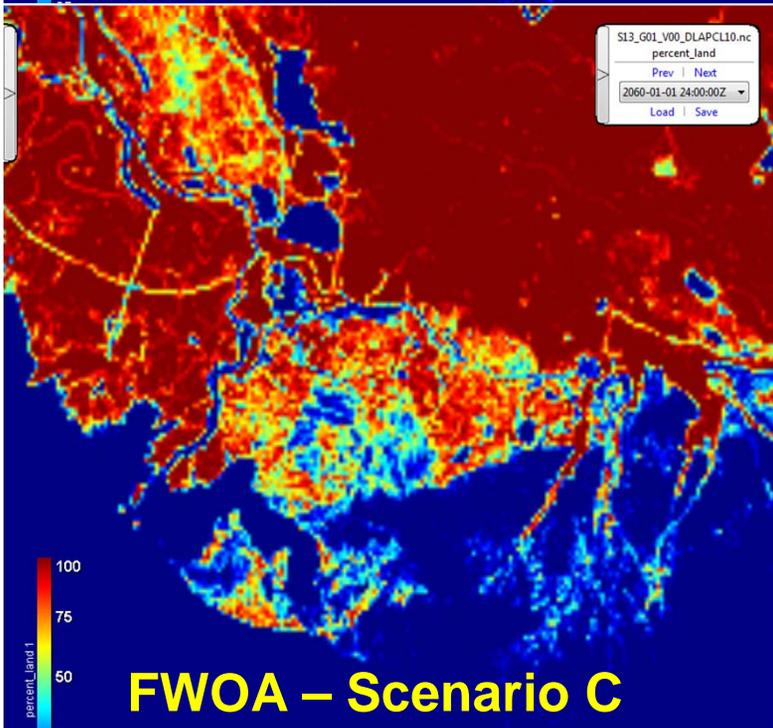
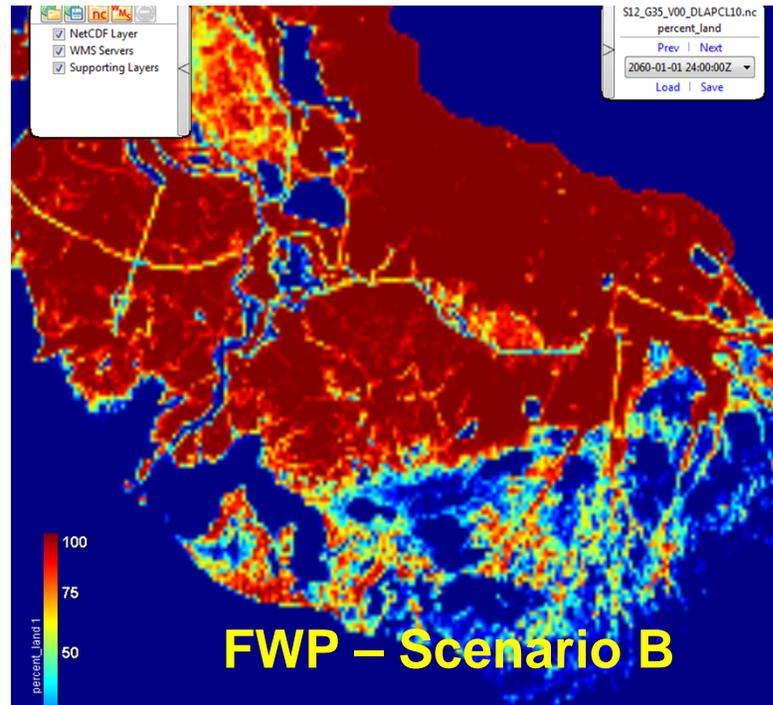
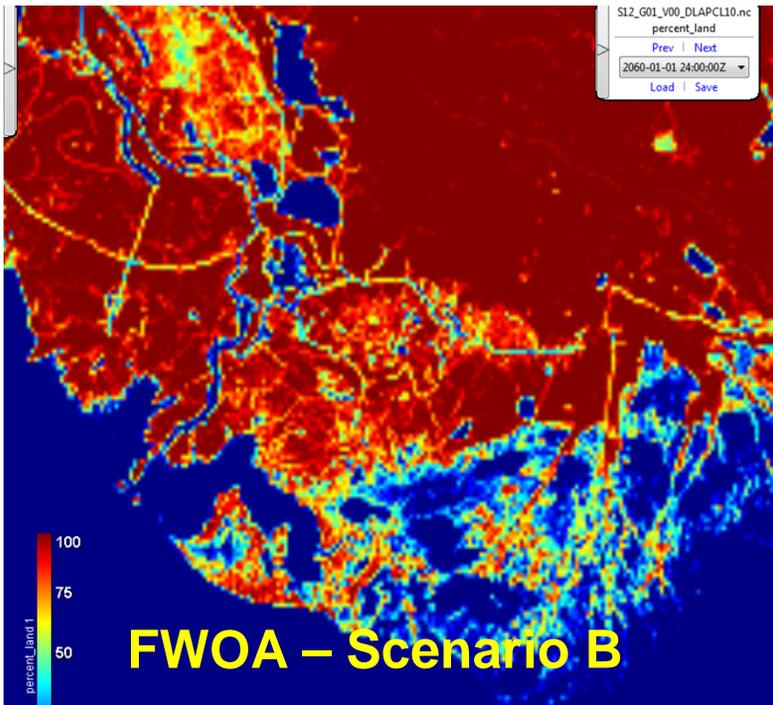
**Year 50
Change in Percent
Land Compared to
FWOA**

Scenario B



Upper Penchant Diversion (150,000 cfs)







Year 50 Change in Percent Land Compared to FWOA

Scenario B

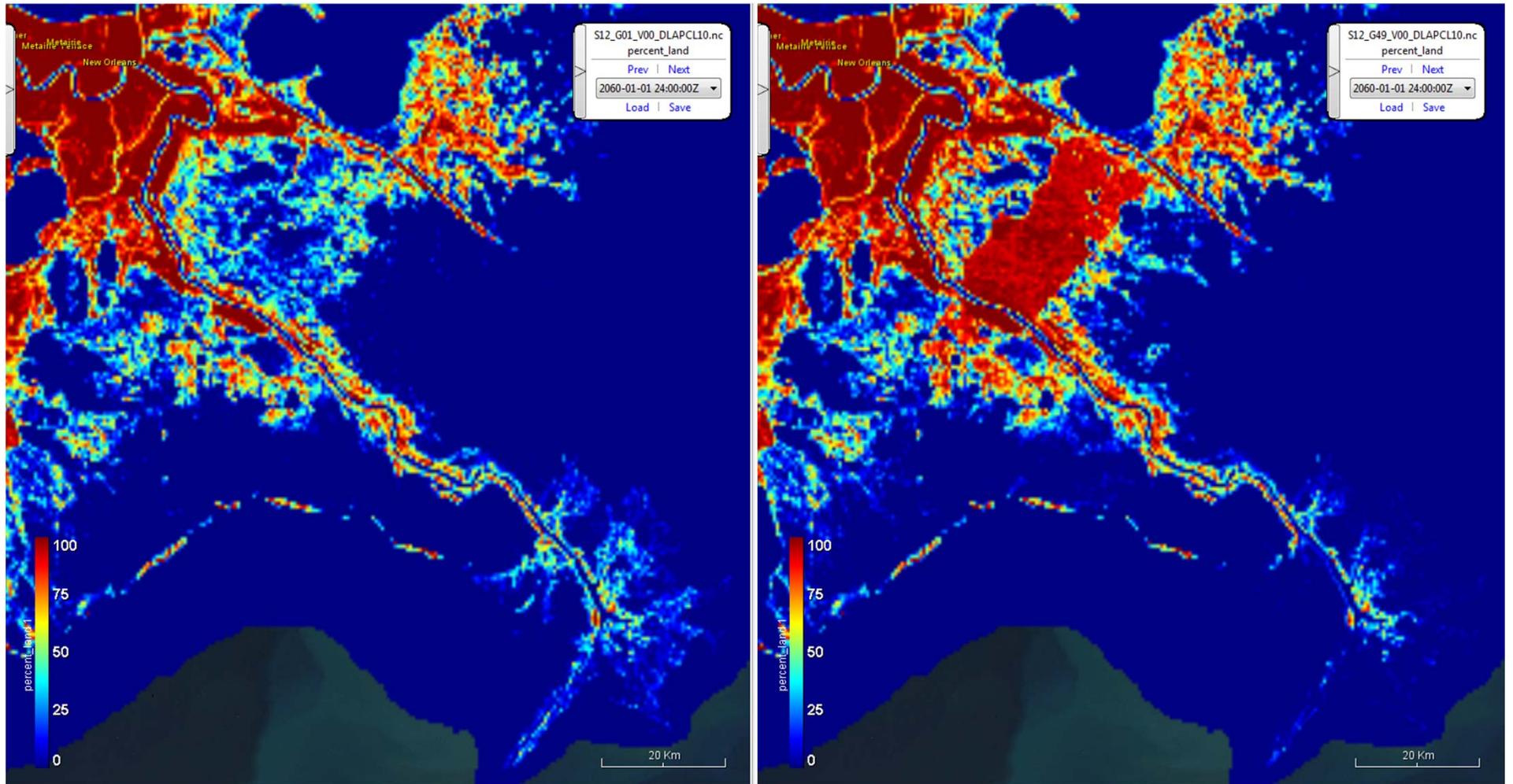


Up River Channel Reallocation 80/20



80% of river flow into Barataria Basin
20% of river flow into Mid-Breton Sound

Up River Channel Reallocation 80/20



Scenario B
Years 2015, 2035 and 2060

Up River Channel Reallocation 80/20



Year 50
Change in Percent
Land Compared to
FWOA

Scenario B

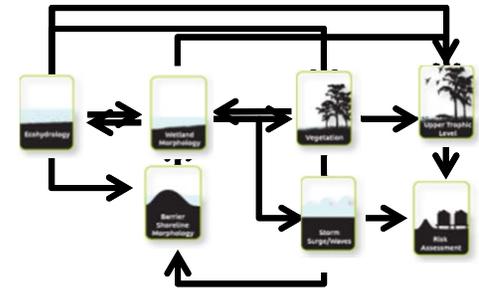


Input to Planning Tool

Risk reduction metrics

Residual damage

- 50, 100, 500 yr



Ecosystem metrics



**Agriculture/
Aquaculture**



Alligators



**Freshwater
Availability**



**Freshwater
Fisheries**



**Nature Based
Tourism**



Oysters



**Carbon
Sequestration**



**Coastal
Wildlife**



**Saltwater
Fisheries**



Shrimp



**Storm Surge/
Wave Reduction**



**Waterfowl
Hunting**

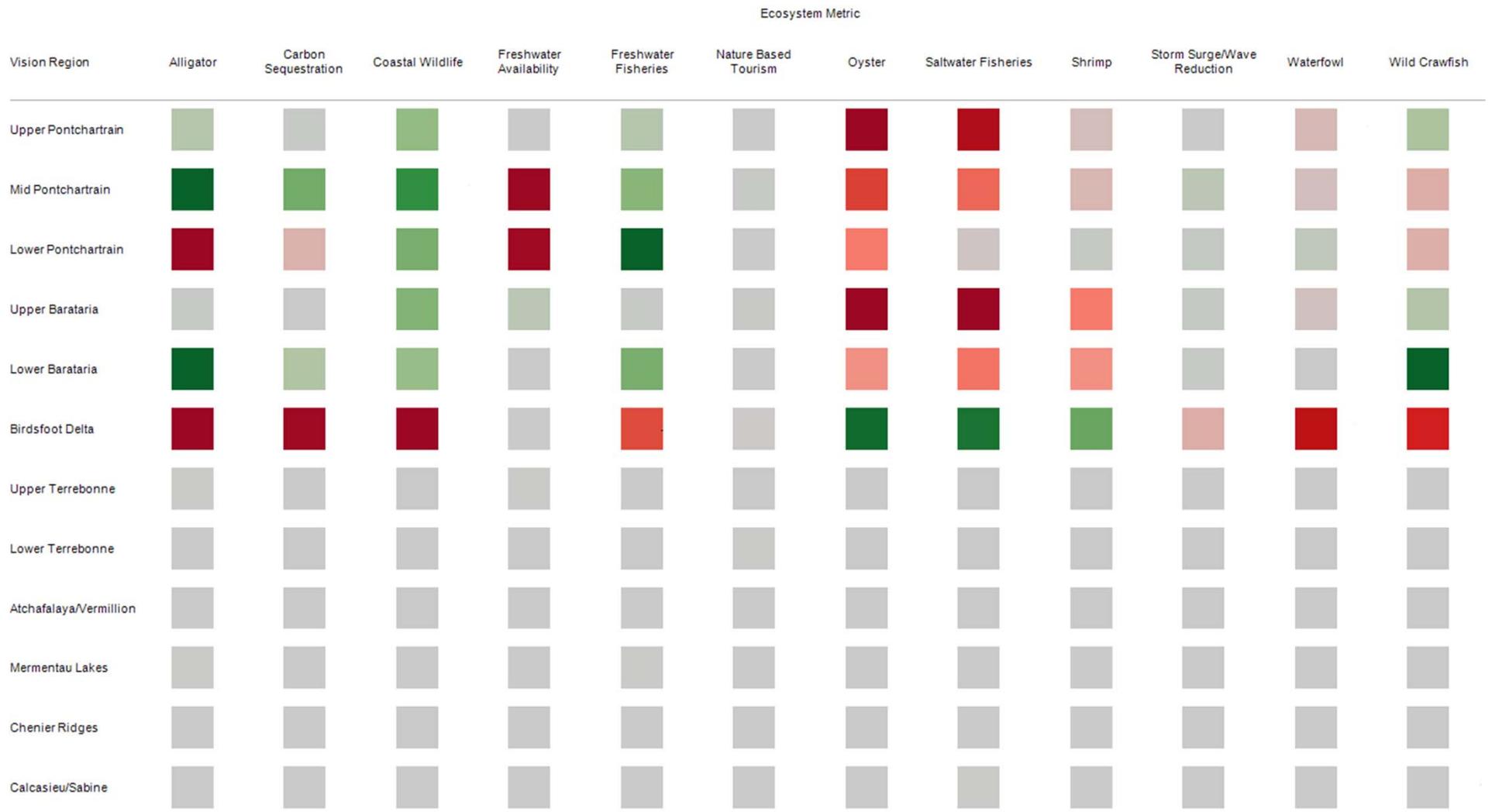


Wild Crawfish

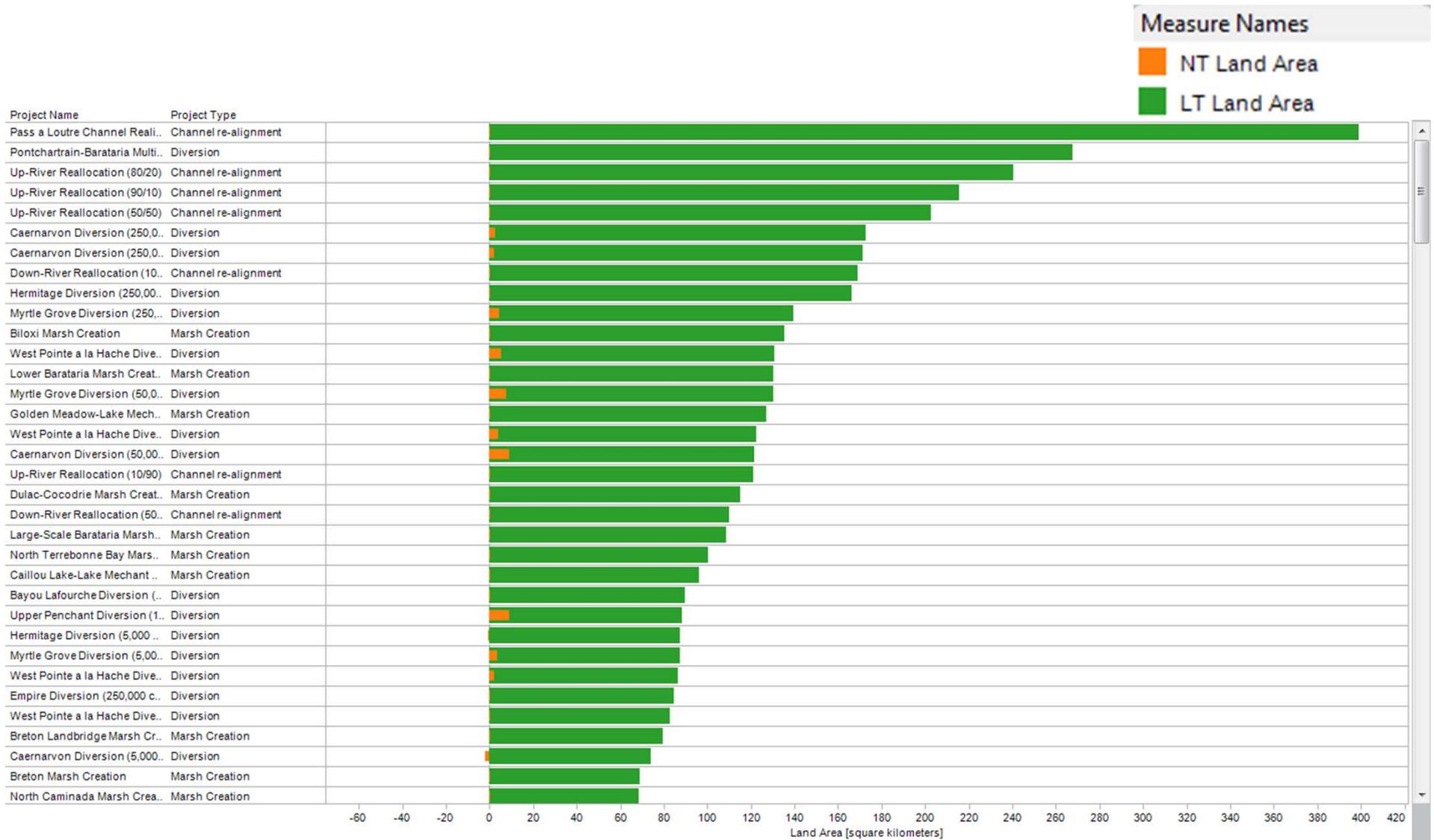


**Nitrogen
Uptake**

Up River Channel Reallocation 80/20



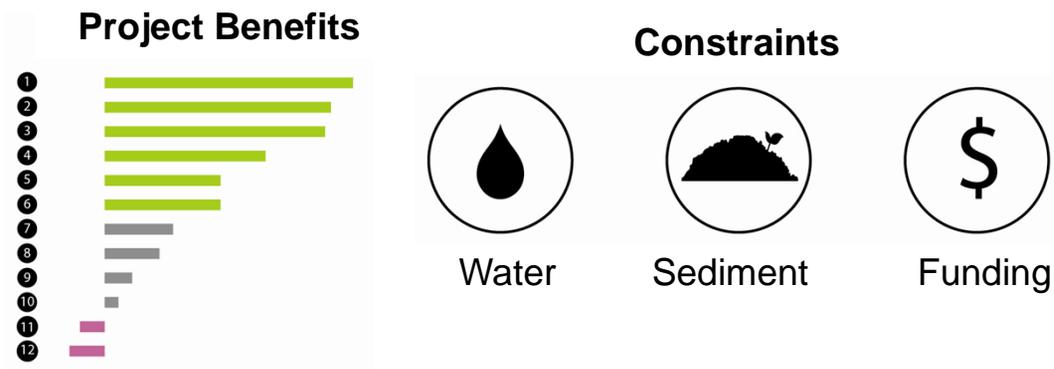
Near and Long Term Land Building





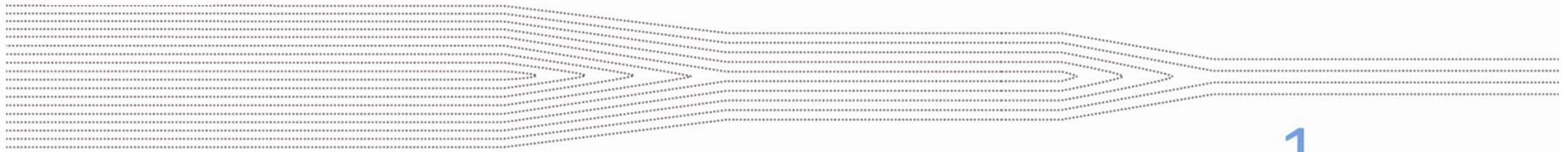
Step 3: Compare Projects & Develop Alternatives

- Account for constraints
 - Water, sediment, funding
- Use Planning Tool to compare project benefits
- Develop project groupings that reflect the limits of our resources and diversity of possible choices



Moving Toward a Final Plan

410 projects



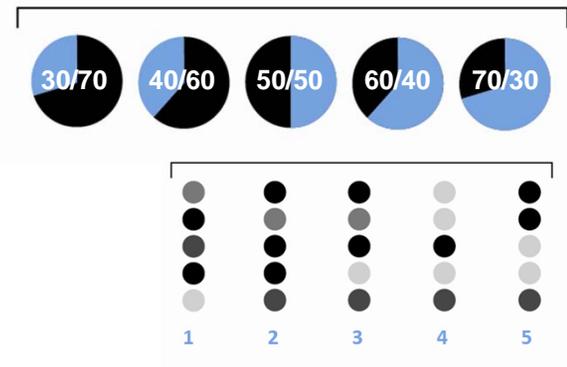
1 preferred alternative

Why We're Using Tools

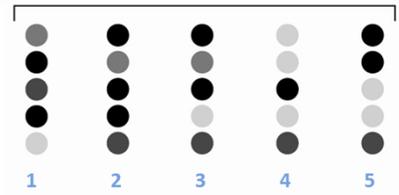
- Models provide gigabytes of data about project effects and coastal conditions.
- The Planning Tool helps us use these data to consider a range of options.
- The tools' results inform our decisions. The hard choices are up to us.

Using our Tools to Make Choices for Louisiana's Coast

A: Decide on a Funding Split



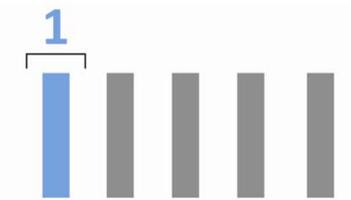
B: Examine Preferences



C: Identify Short List of Alternatives



D: Choose a Single Alternative



D: Choose a Single Alternative

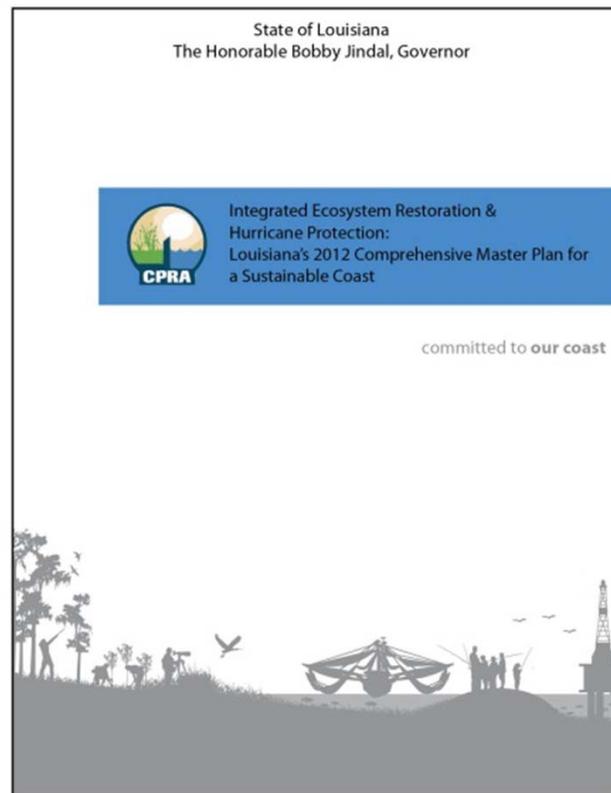
- We will refine the preliminary alternative based on new information gained from models and the public.
- The final alternative will:
 - be the centerpiece of 2012 Coastal Master Plan
 - guide state investment in Louisiana's coast
 - have a specific action plan for the next 10 years
 - be updated in 5 years



Step IV:
Select Plan



Step 4: Select Plan



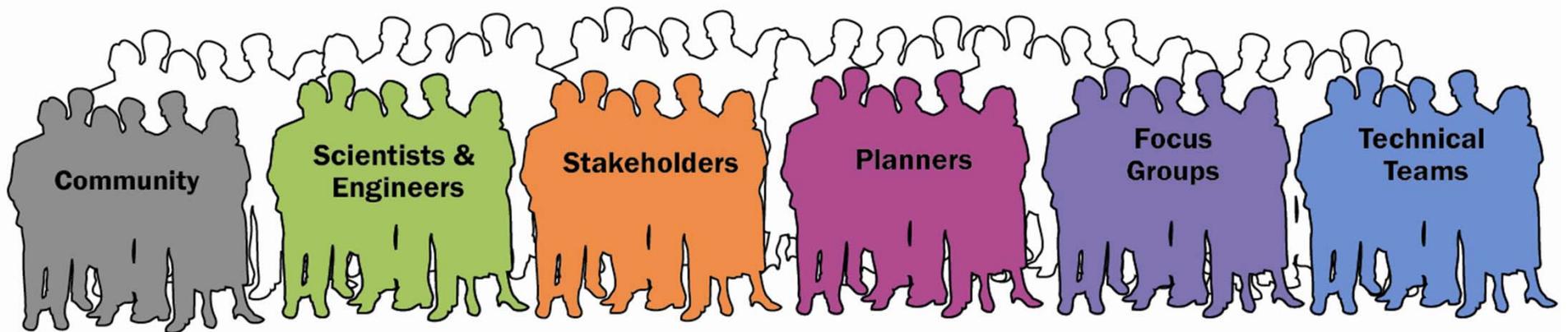


Step 5: Implement Plan

- The Master Plan will guide future state investments as dollars become available.
- Adaptively manage long-term implementation.



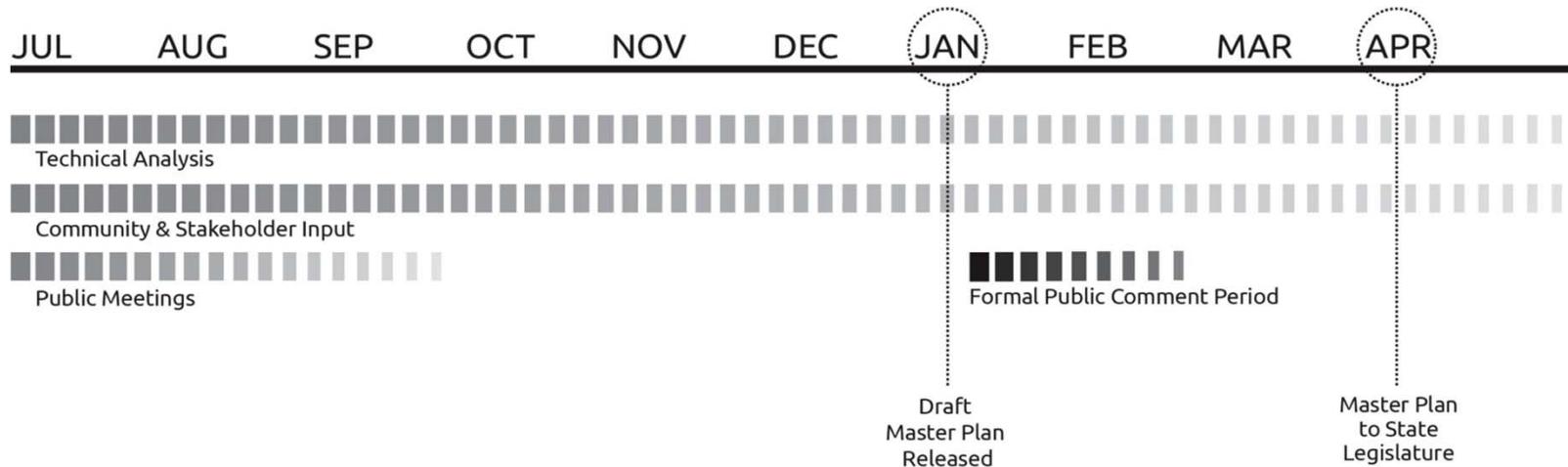
Working Together to Develop the Master Plan



“Committed to Our Coast”



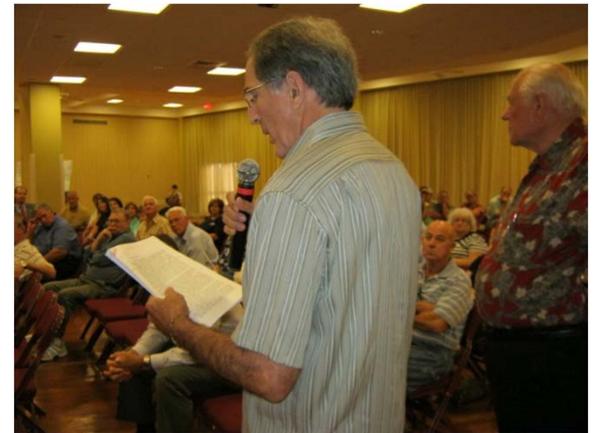
Master Plan Timeline



- **January 10, 2012 – Draft Plan Released for Public Review**
- January 23, 2012 – Public Meeting in New Orleans
- January 24, 2012 – Public Meeting in Houma
- January 25, 2012 – Public Meeting in Lake Charles
- February 25, 2012 – Public Comment Period Ends
- **March 12, 2012 – Legislative Session Convenes**
- **March 21, 2012 – CPRA Reviews Final Plan**
- **Late March/Early April 2012 – Plan Submitted to Legislature**
- June 4, 2012 – Legislative Session Adjourns

Active Community Engagement

- Recently completed 10 regional community meetings across the State
 - Held in Chalmette, Slidell, Belle Chasse, Harvey, Larose, Chauvin, Morgan City, Abbeville, Lake Charles, and New Orleans
 - Attended by over 550 citizens and 40 public officials



Framework Development Team

Over 30 Federal, State, NGO, Academic, Community, and Industry Organizations



Focus Groups

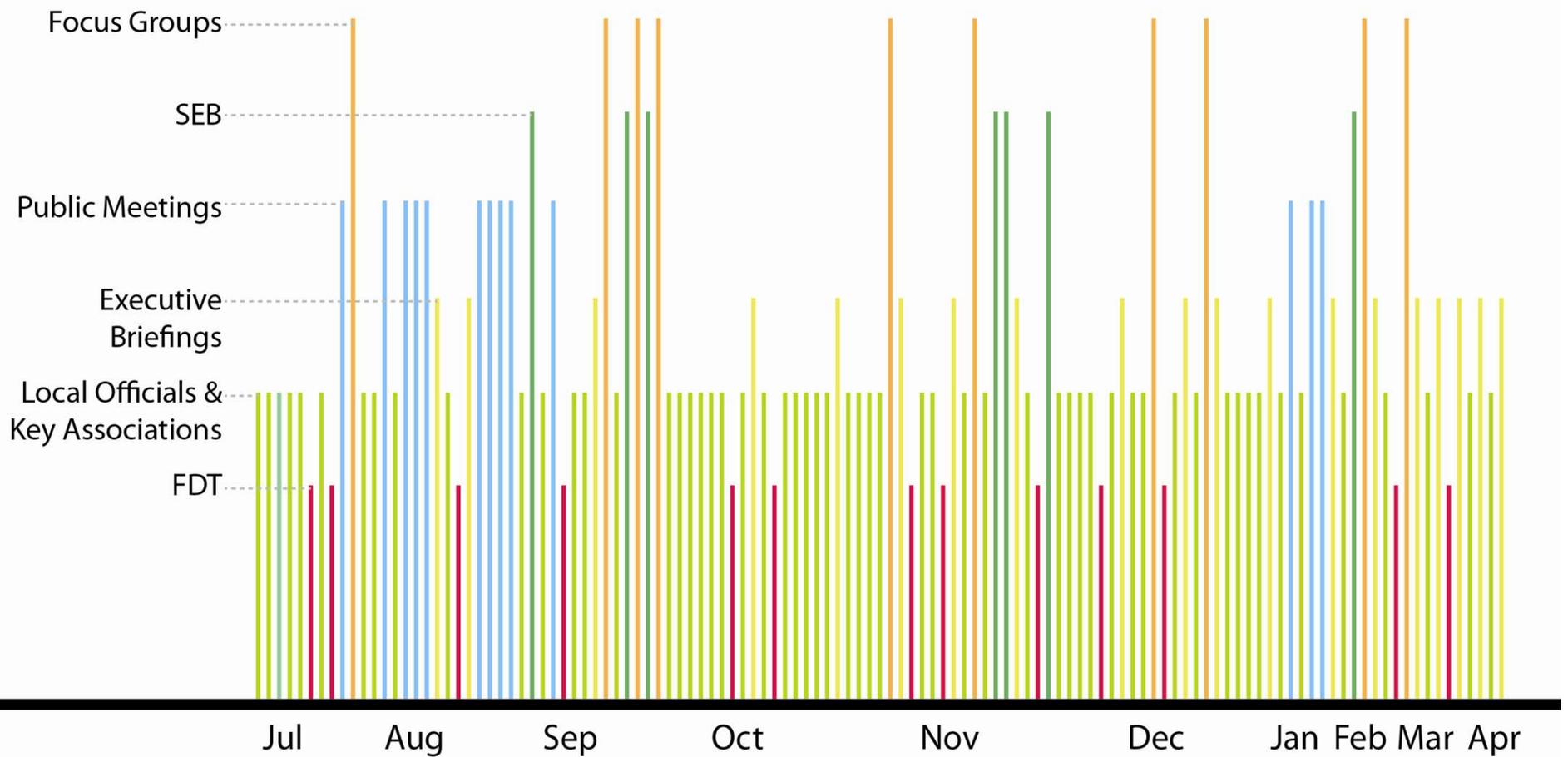
- Large-scale coastal protection and restoration will affect businesses and industry in south Louisiana.
- In order to integrate the perspectives of those in key business sectors we have created three focus groups:
 - Navigation
 - Fisheries
 - Oil and Gas
- Leaders in each sector are being asked to meet with us regularly over the next year to explore productive paths forward.

Outreach Completed to Date

- 40** Meetings with State Legislators and Parish Presidents
- 38** Presentations to Civic or Professional Groups
- 25** Meetings with the Framework Development Team
- 10** Meetings with Fisheries, Oil and Gas, and Navigation Focus Groups
- 5** Updates to Levee Boards/Districts
- 4** Briefings to the Governor's Advisory Commission
- 2** Coastal Zone Manager Quarterly Briefings

Ongoing Outreach

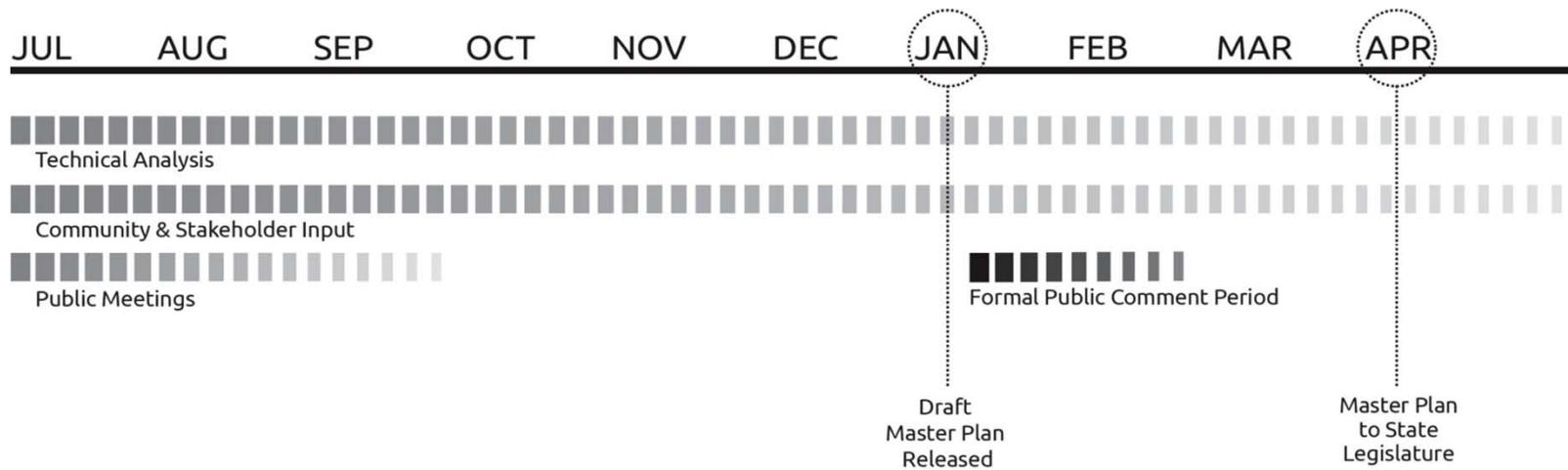
120+
meetings with
citizens, focus groups
elected officials,
stakeholders, &
review teams



CPRA Involvement



- July 25, 2011 – CPRA Planning Working Group
- November 3, 2011 – CPRA Planning Working Group
- November 16, 2011 – CPRA Meeting
- January 4, 2012 – CPRA Planning Working Group
- January 18, 2012 – CPRA Meeting
- March 21, 2012 – CPRA Meeting (Final Plan)



New Website: *coastalmasterplan.la.gov*



Louisiana's 2012 Coastal Master Plan

Committed to our coast.

Home

2012 Master Plan

Making Hard Choices

What's at Stake

Working Together

Connect

Resources



Committed to Our Coast >



Committed to Our Coast

No matter where we live or how the coast affects our lives, we know one thing: if we work together to build a common future, we can continue our state's great tradition of abundant living in south Louisiana. We look forward to working with you as we find ways to make this vibrant future a reality. For information on community outreach efforts, [CLICK HERE.](#)



The 2012 Master Plan is the Way Forward

Louisiana's 2012 Coastal Master Plan, developed by the Coastal Protection and Restoration Authority, will build on the many plans and projects that have come before, looking at the big picture and taking the needs of the entire coast into account. In keeping with this approach, the

What's New

CPRA Welcomes Two New Members to the Master Plan Team

Thank You!

