

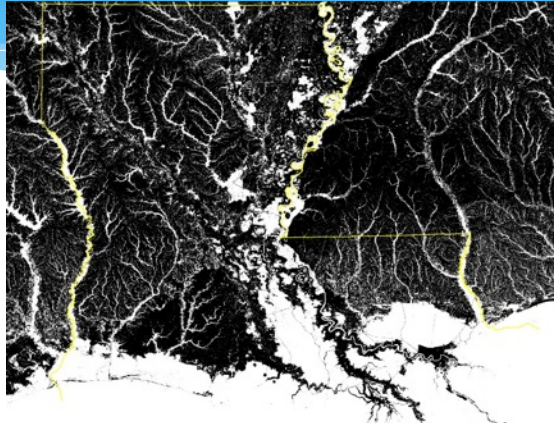
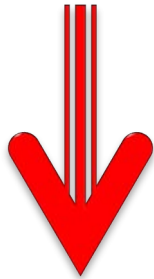
Coastal Land Loss

Sea Level Rise and Subsidence in Louisiana

How has coastal land loss
affected you?

Two-Part Problem in Louisiana

Subsidence



<https://medium.com/matter/louisiana-loses-its-boot-b55b3bd52d1e#.oa3x4jrpn>

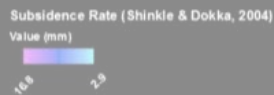
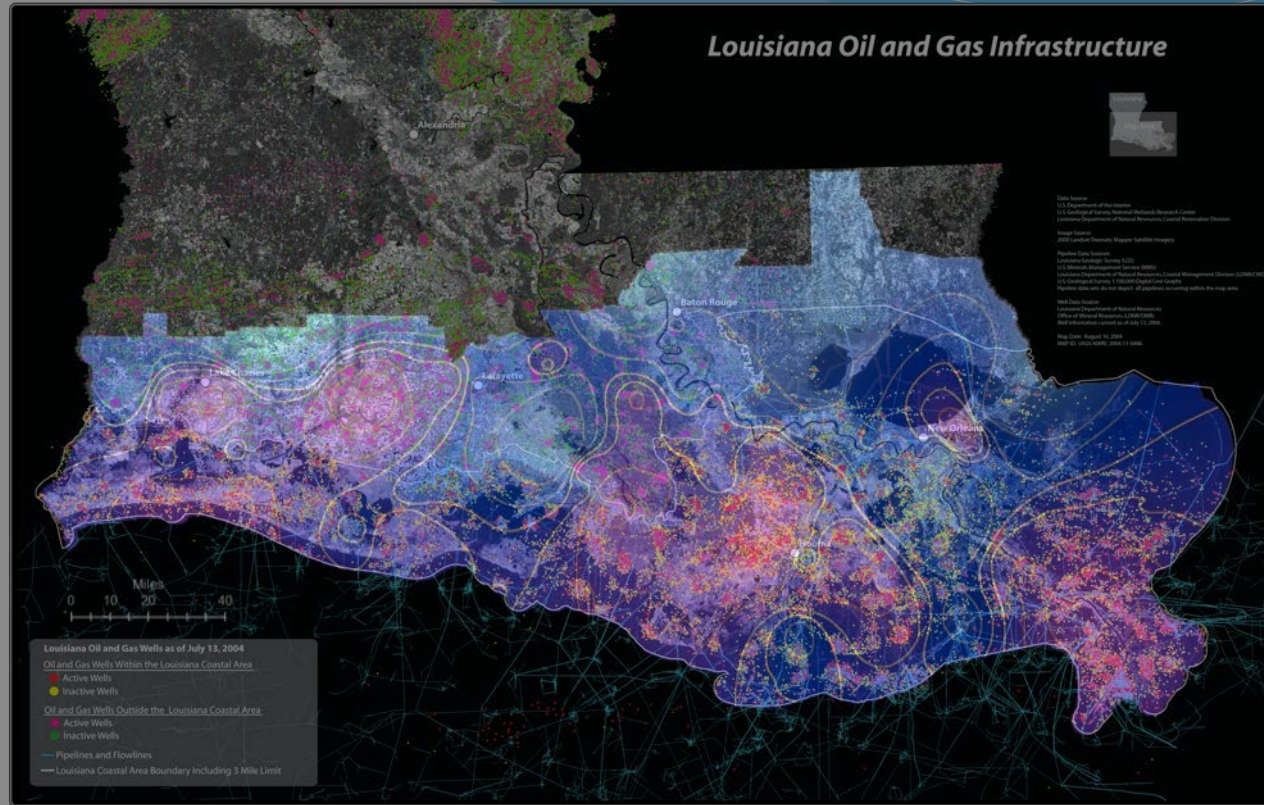


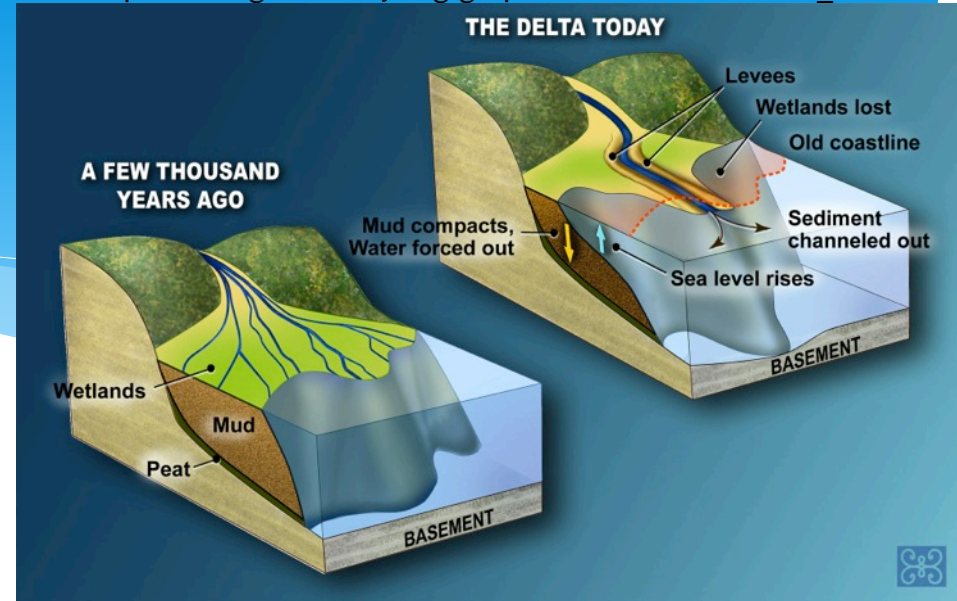
Sea Level Rise



Subsidence

http://www.lacoast.gov/new/Data/Maps/Oil_Map%202.png



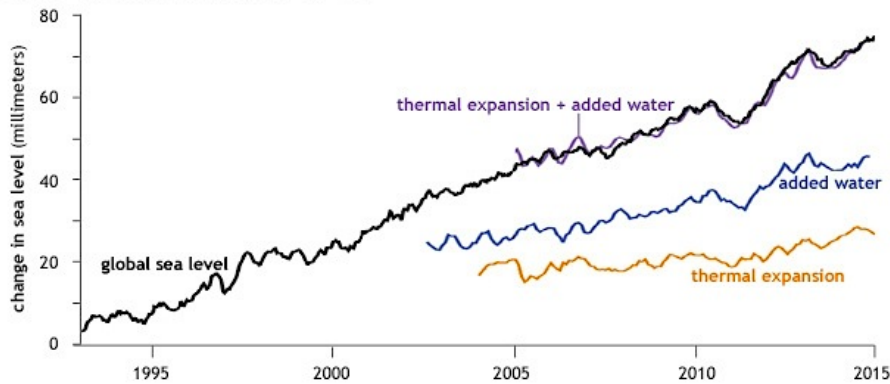


Old River Control Structure

River management prevents the Mississippi from depositing new sediment on floodplains

Sea Level Rise

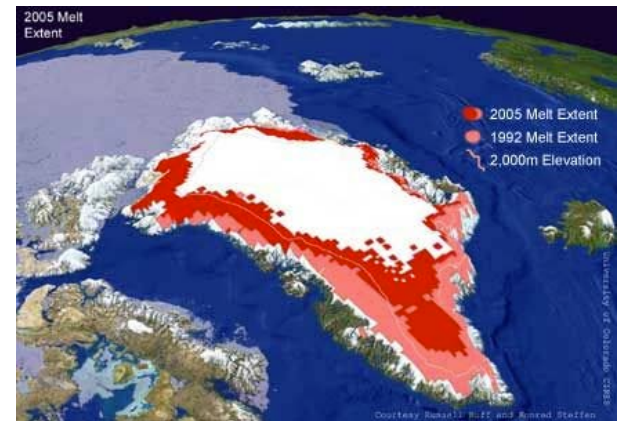
Global mean sea level budget since 1993



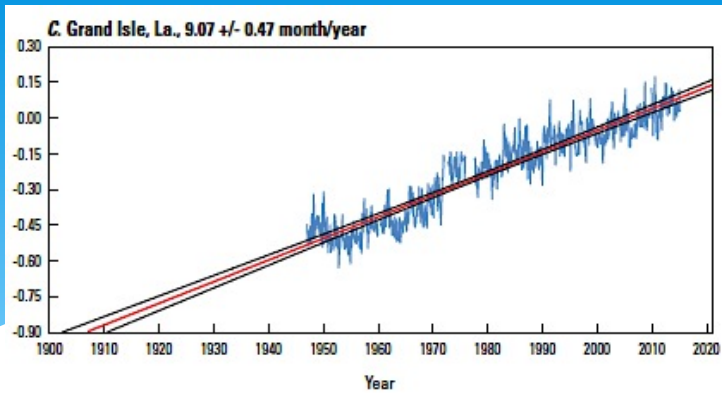
<https://www.climate.gov/news-features/understanding-climate/climate-change-global-sea-level>



<http://www.watts.com/pages/learnabout/thermalExpansion.asp>



<http://climatechange.ws/icecaps/>



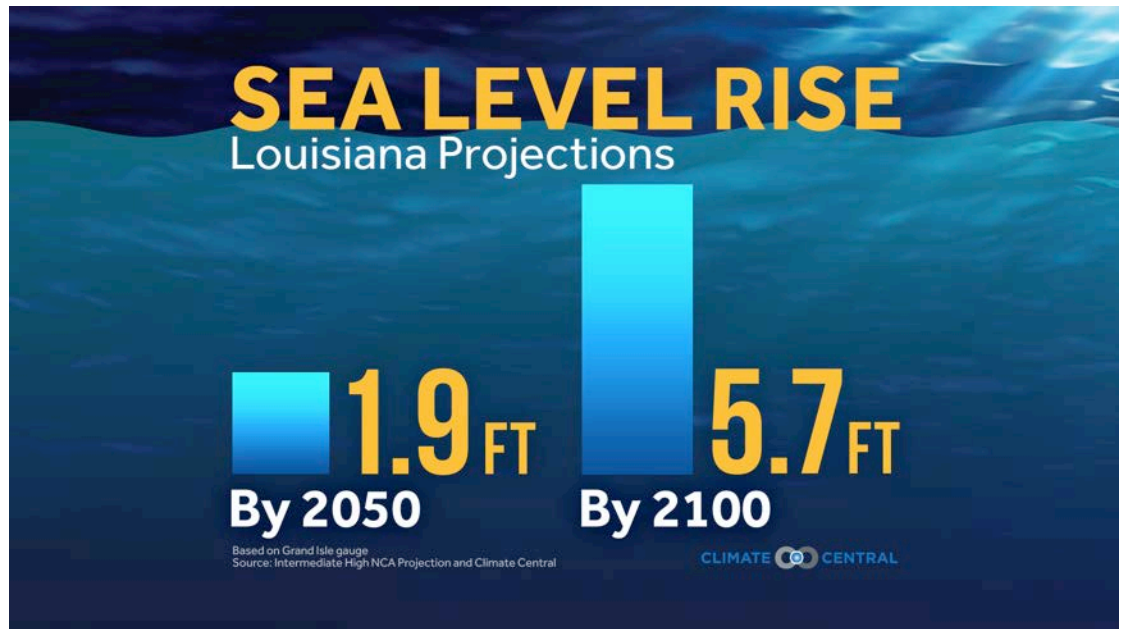
EXPLANATION

- Data with the average seasonal cycle removed
- Linear mean sea-level trend
- Higher 95 percent confidence interval
- Lower 95 percent confidence interval

Doyle 2015

~1/3" per year average

1945-2015 = 70 years
 ~2 feet of sea level rise



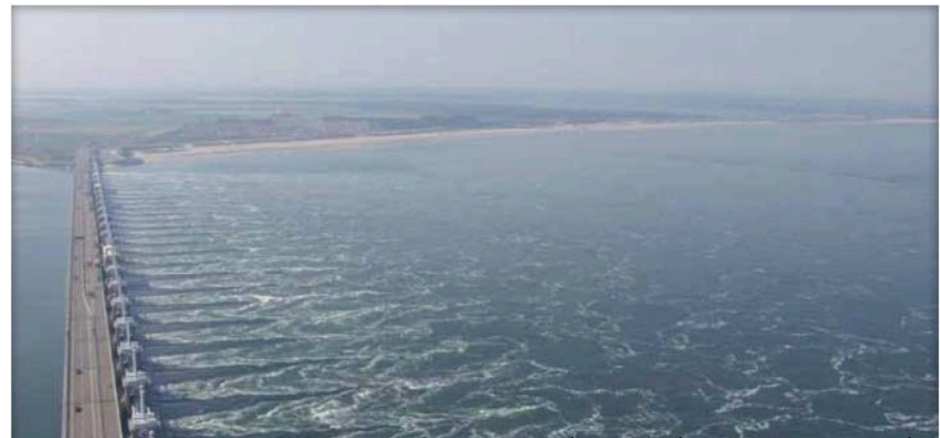
http://ccimsgs.s3.amazonaws.com/2015Katrina/2015KatrinaSLR_LA.jpg

Adaptation



www.climateproofareas.com/project/schouwen-duiveland

The Netherlands



www.newsletter.climateproofareas.com/reports/end%20products/C-PA-WP2-brochure%20oosterschelde_ENG_web.pdf



<http://phys.org/news/2013-10-venice-billion-euro-barriers.html>

How it works

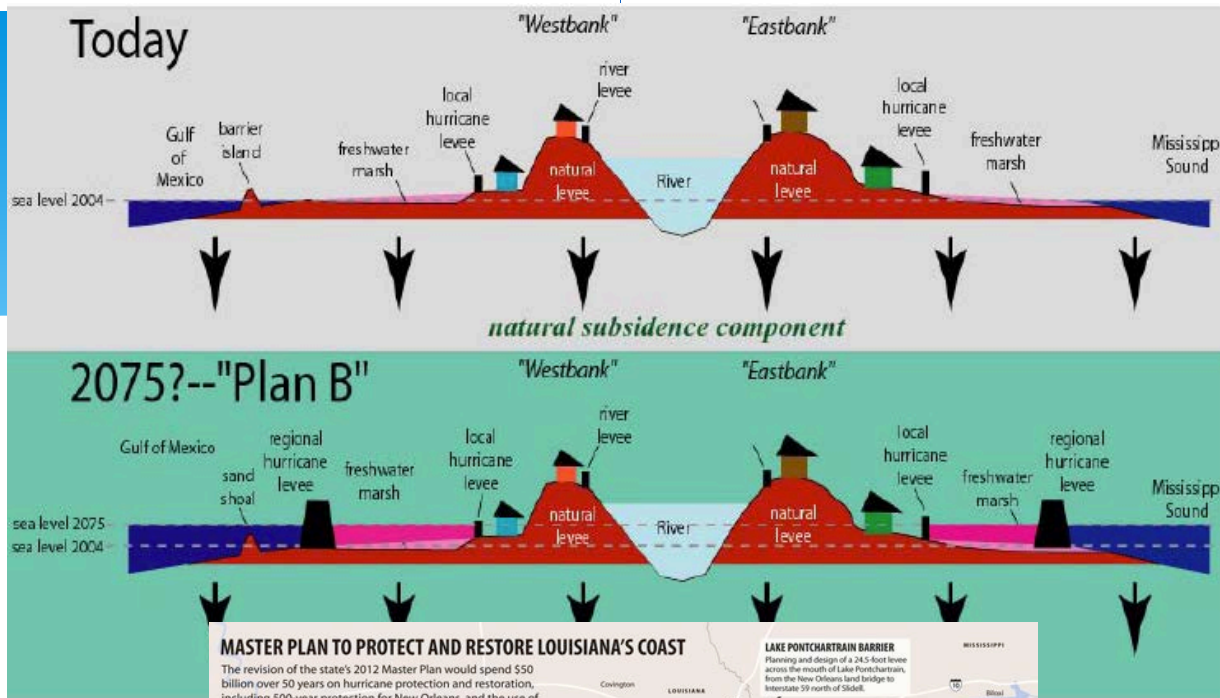
- Barrier will stay on the seabed until high tides and storms are forecast.
- Air is pumped into each hollow gate causing it to rise to the surface. It takes 30 minutes to rise and only 15 minutes to return.
- Each gate moves independently allowing the barrier to deal with rough seas. Lagoon level can be as much as 4 ft. below sea level.

Barrier locations
Three entrances to Venice Lagoon

Project name: MOSE
Cost: \$5.5-10.4 billion
In operation by: 2014

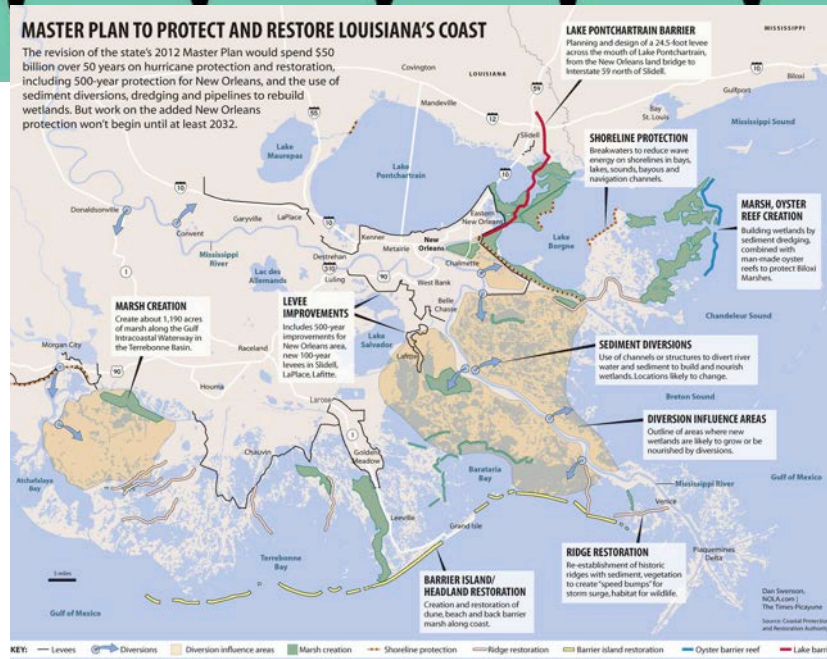
SOURCES:
www.engineering.lsu.edu/
www.salve.it
 © 2009 MCT

Venice



MASTER PLAN TO PROTECT AND RESTORE LOUISIANA'S COAST

The revision of the state's 2012 Master Plan would spend \$50 billion over 50 years on hurricane protection and restoration, including 500-year protection for New Orleans, and the use of sediment diversions, dredging and pipelines to rebuild wetlands. But work on the added New Orleans protection won't begin until at least 2032.



Dokka 2006



http://gallery.usgs.gov/images/05_25_2011/glc4FRq11Y_05_25_2011/medium/Flood_Pictures_204.jpg



<http://archive.earth.org/print/8670>



<http://indiancountrytodaymedianetwork.com/2015/01/30/louisiana-tribes-battle-rising-gulf-waters-158965>



<http://archive.earth.org/gallery/photos-sinking-louisiana-communities>

Migration?



Isle de Jean Charles

2/3 of tribe has left
\$48 million to relocate

Other Examples



Yup'ik tribe – Alaska

Dozens of coastal villages
threatened by climate change

Village for migration created
upriver



COURTESY STANLEY TOM

<http://www.cnn.com/2009/TECH/science/04/24/climate.change.eskimos/index.html?eref=rssus#cnnSTCText>



<http://www.abc.net.au/news/2014-09-05/pacific-islanders-reject-calls-for-27climate-refugee27-status/5723078>

Pacific Islands

Complex issue: many migrating for variety of reasons

Those that stay adapting communities



http://www.abc.net.au/news/2013-03-04/tokelau_warriors_protest_against_climate_change/45512