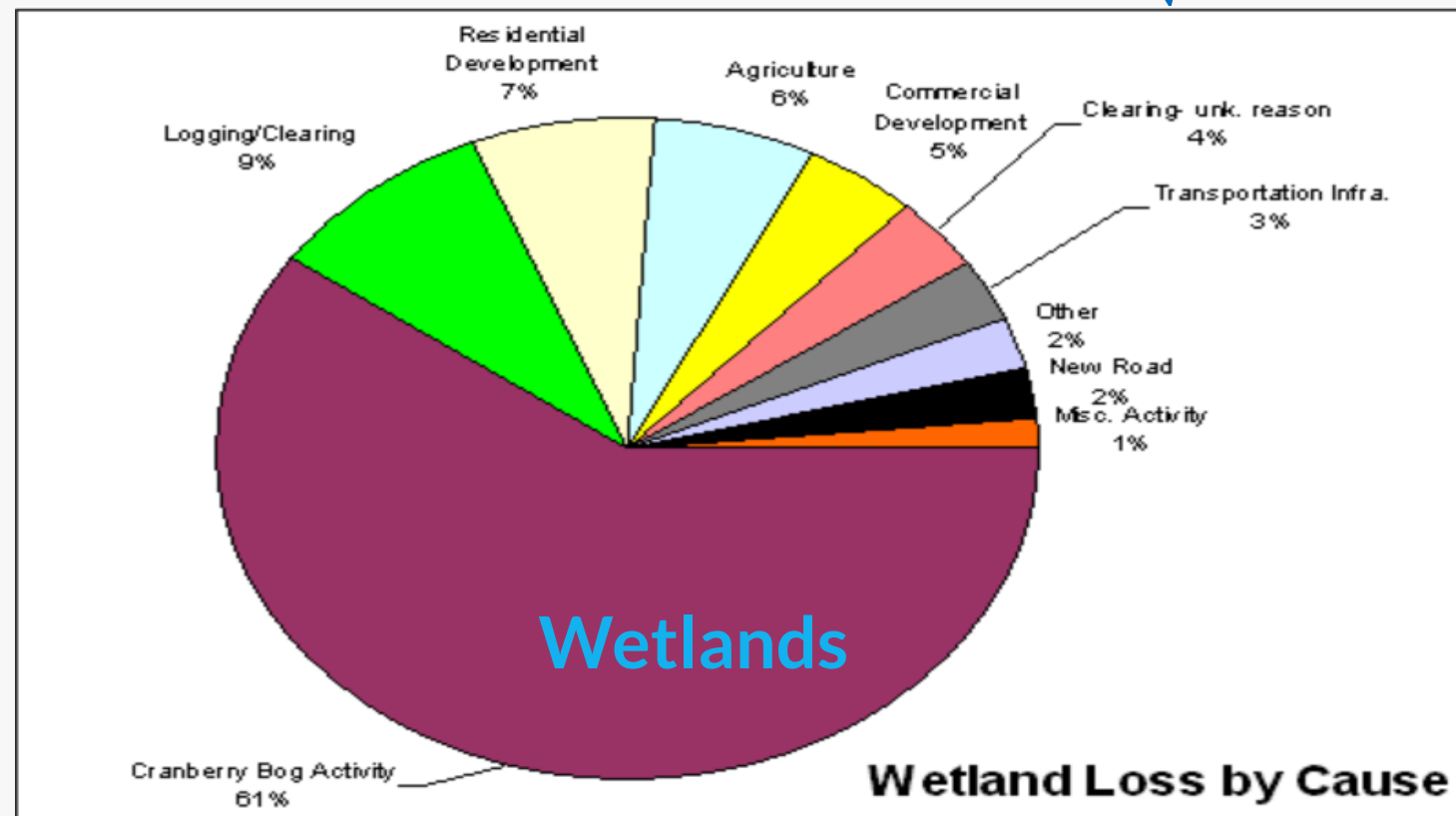
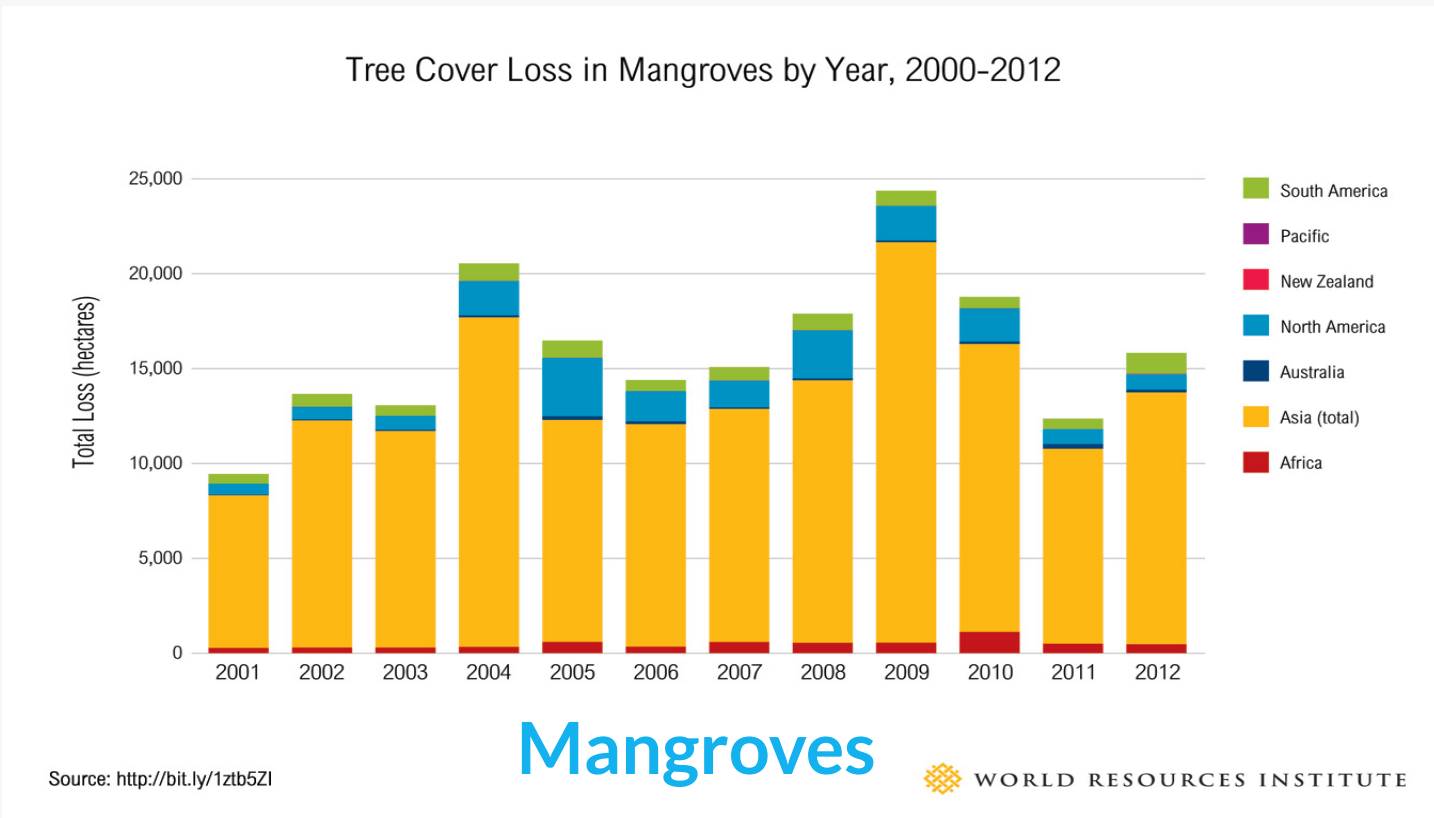


Coastal Erosion and Flooding

The effects of human activities on our coasts.

By: Arohi Singh and Neha Maddali

Nature's Defense System is Losing the War



Sand Dunes and Beaches
Erosion rates of 25 feet per year



Barrier Islands
Erosion Rates of 2-3 feet per year

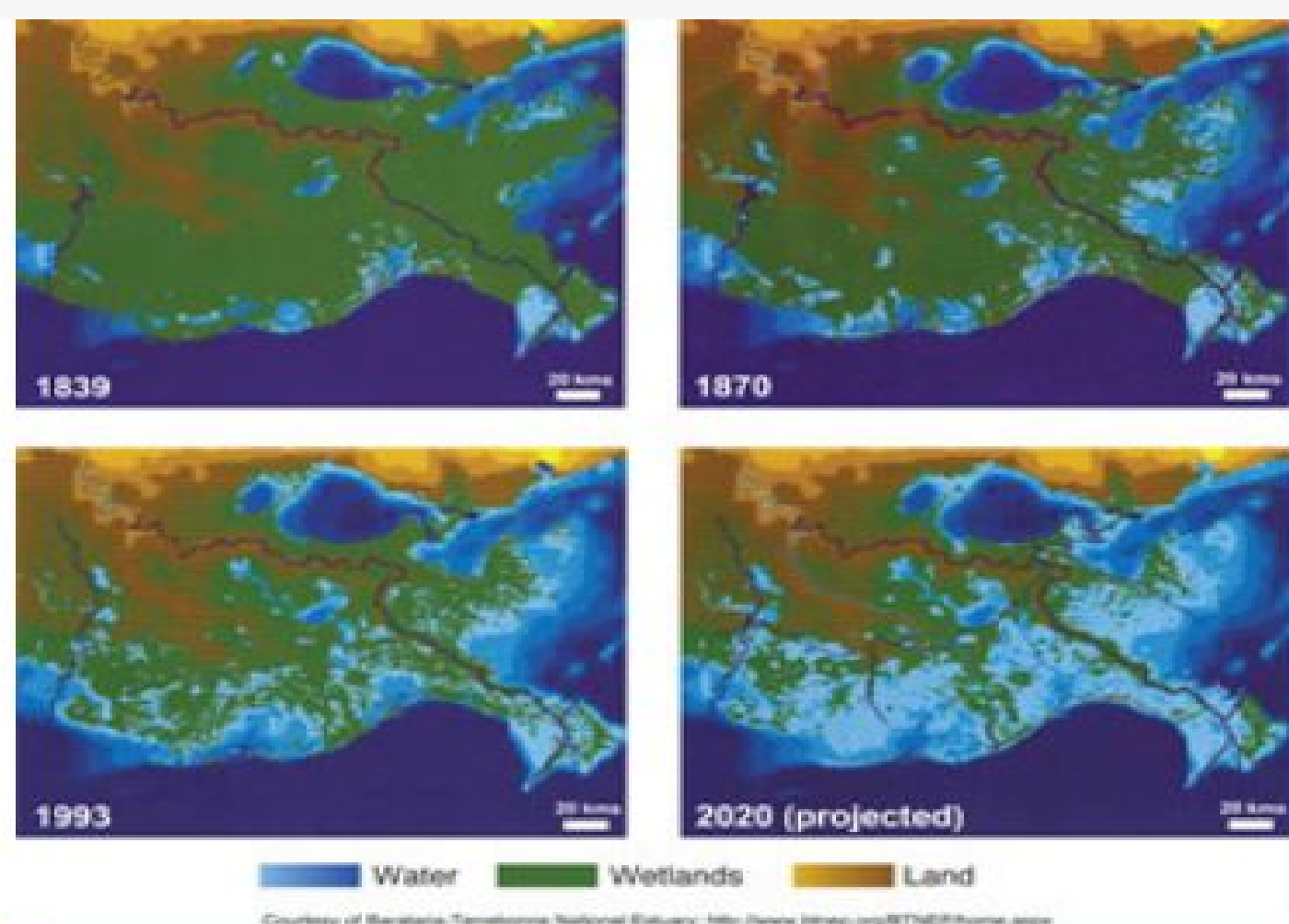
Disruptive Human Actions

Time Period	Net Loss of Wetlands	Net Annual Rate of Loss	Types Lost	Major Causes of Loss	Source
1950s to 1970s	9.1 million acres	458,000 acres per year	Majority of losses were freshwater wetlands	Agriculture (87%) Urban Development (8%) Other (5%)	Frayer <i>et al.</i> (1983)
Mid-1970s to mid-1980s	2.6 million acres	290,000 acres per year	98% of losses were freshwater wetlands	Agriculture (54%) Other* (41%) Urban Development (5%)	Dahl and Johnson (1991)
1986 to 1997	644,000 acres	58,500 acres per year	98% of losses were freshwater wetlands	Urban and Rural Development (51%) Agriculture (26%) Silviculture (23%)	Dahl (2000)
1998 to 2004	Net gain of 191,000 acres	Net gain of 32,000 acres	Net gain due to creation of 695,400 acres of ponds	Urban and Rural Development (61%) Agriculture (17% increase) Silviculture (8%)	Dahl (2006)

*Wetlands that have been cleared and drained but not yet put to a definable use

Mississippi River Delta

Wetlands in the Mississippi River Delta are rapidly disappearing because of human actions, such as the stabilization of the river and the construction of man-made levees.



Solutions

Structural

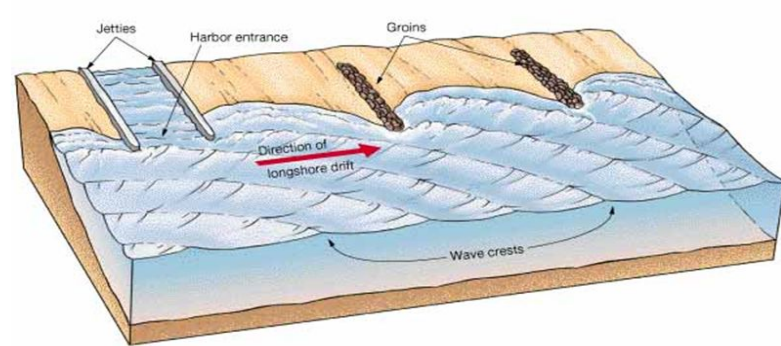
Expensive, Ineffective, Unsustainable

Dams: trap sediments



Jetties and Groins:

JETTIES AND GROINS



Jetties and groins trap sand that would otherwise be moved along the shore by wave action.

Non-Structural

Sustainable, Effective, Non-destructive

Beach Replenishment: replace lost sediment with natural sediment of the same type.

Sand Dune Stabilization: use plants to anchor sand.

Wetland Restoration: return eroded or destroyed wetlands to a close version of the original.



Resources
<http://www.wri.org/blog/2015/02/satellite-data-reveals-state-erosion-rates-of-worlds-mangrove-forests>
<http://hazardbay.org/living-resources/wetlands/wetland-loss/>
<https://sites.google.com/site/islandecologyuncw2015/coastland-barrier-island-ecosystem-factors/template/barrier-islandmigration>
<https://www.pinterest.com/juliedman/ind/>
<https://www.aerthol.com/education/training-media/resources/article/impact%20urbanization%20wetland%20quality.pdf>
<https://www.bicycle.net/2011/10/19/valuing-ecosystem-services/>
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<http://slideplayer.com/slide/9250367/>
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<https://cwp.tamu.edu/wetland-restoration/sheldon-lake-prairie-wetland-restoration-project/#.WjC4EqnE2x>