Salt marsh restoration following the Deepwater Horizon Oil Spill

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Remediation

Raking, removing plant matter:

- decreases mass
- lowers elevation
- increases exposure to tides
- causes decomposition

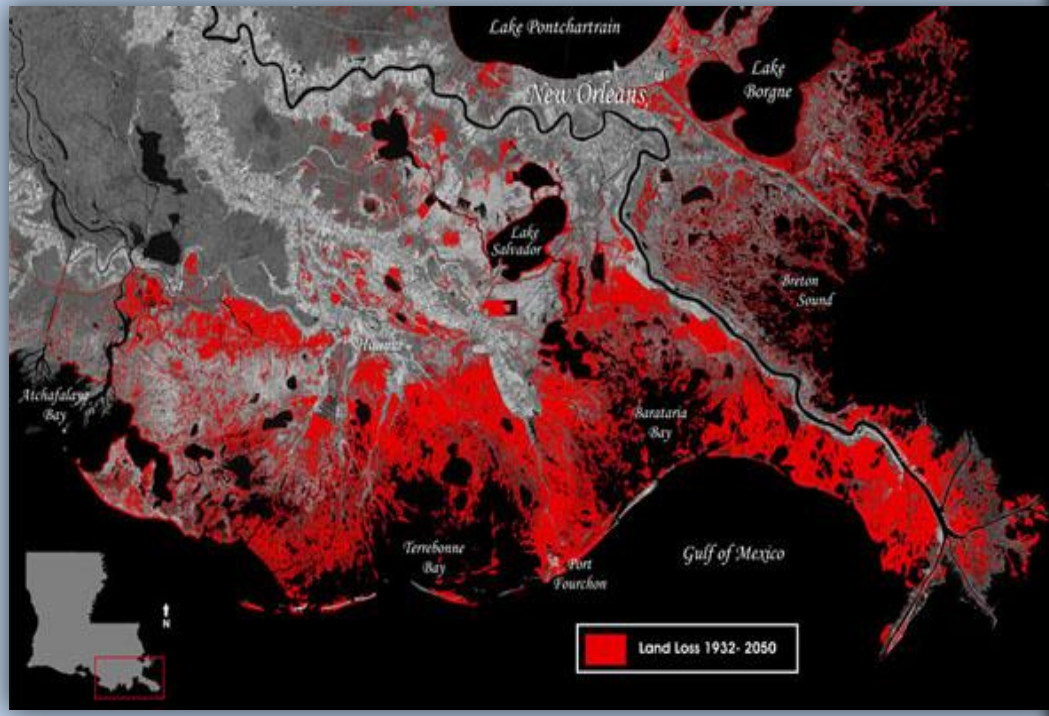
Exacerbated land loss

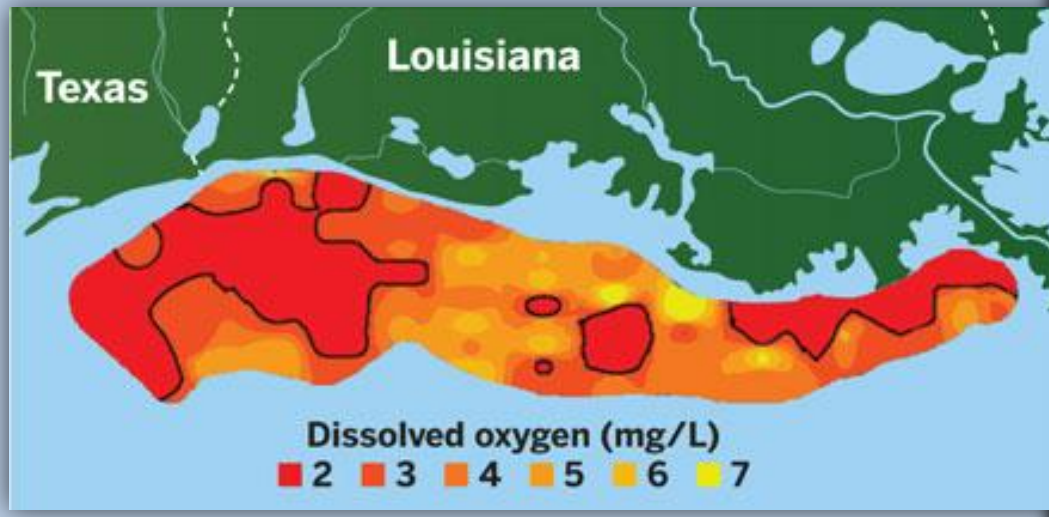
Salt marshes already suffer extensive erosion

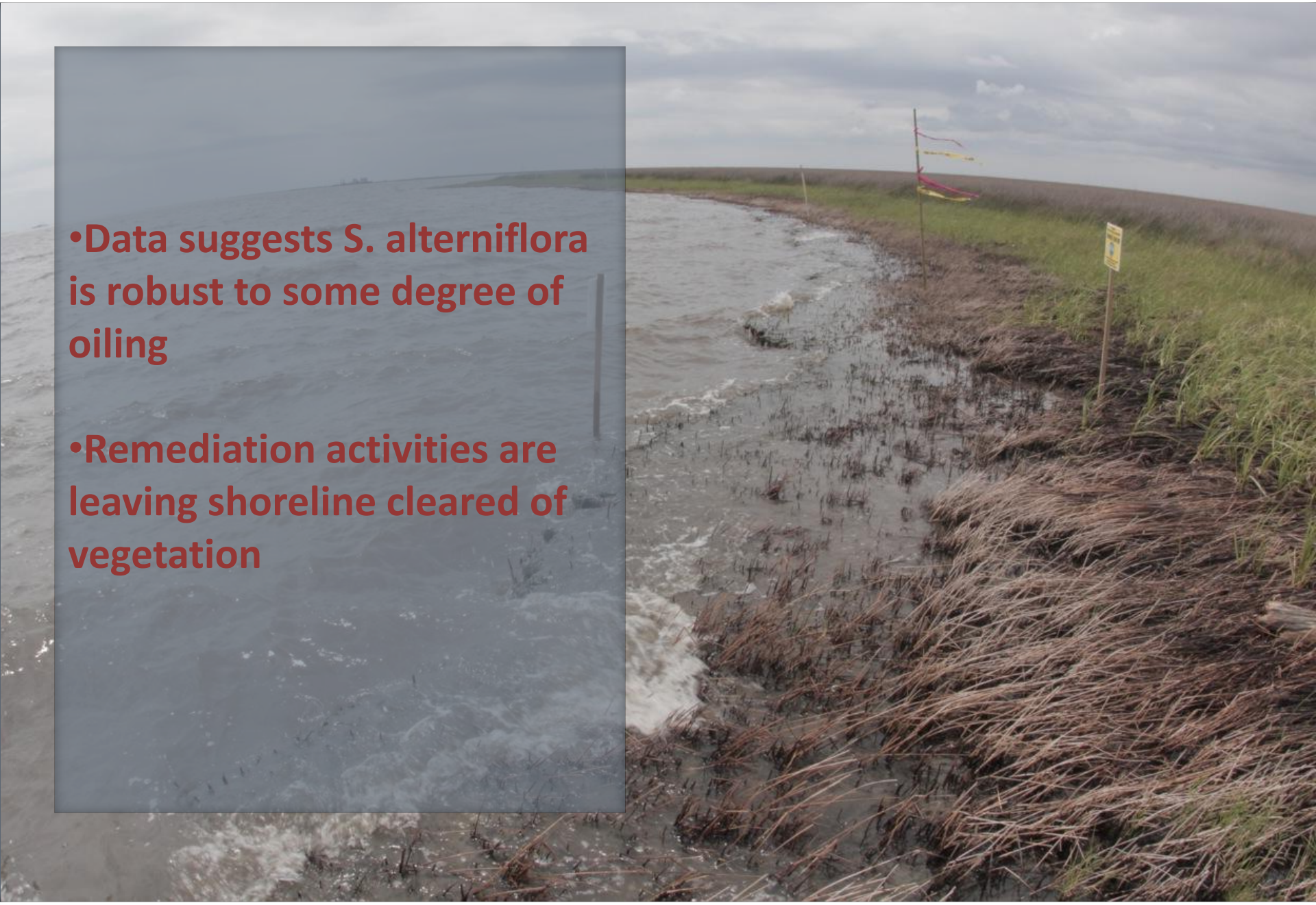
Ecosystem service damages; economic impacts

Coastal marshes provide:

- *critical habitat*
- *fisheries*
- *water treatment*
- *flood protection*
- *tourism and jobs*

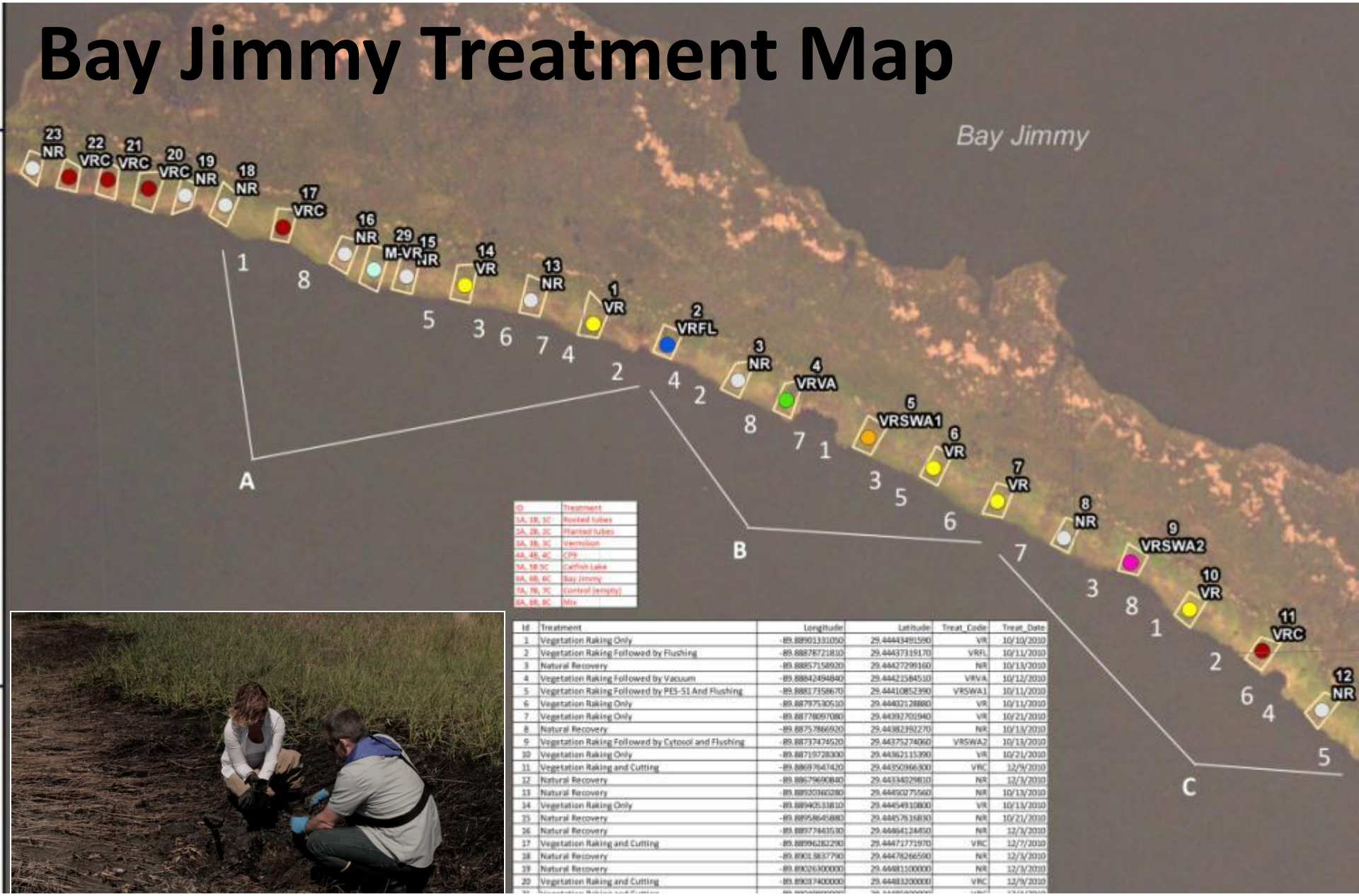






- Data suggests S. alterniflora is robust to some degree of oiling
- Remediation activities are leaving shoreline cleared of vegetation

Bay Jimmy Treatment Map



ID	Treatment
1A, 1B, 1C	Rooted tubes
2A, 2B, 2C	Planted tubes
3A, 3B, 3C	Vermilion
4A, 4B, 4C	CP9
5A, 5B 5C	Catfish Lake
6A, 6B, 6C	Bay Jimmy
7A, 7B, 7C	Control (empty)
8A, 8B, 8C	Mix

Id	Treatment	Longitude	Latitude	Treat_Code	Treat_Date
1	Vegetation Raking Only	-89.88901331050	29.44443491590	VR	10/10/2010
2	Vegetation Raking Followed by Flushing	-89.88878721810	29.44437319170	VRFL	10/11/2010
3	Natural Recovery	-89.88857158920	29.44427299160	NR	10/13/2010
4	Vegetation Raking Followed by Vacuum	-89.88842494840	29.44421584510	VRVA	10/12/2010
5	Vegetation Raking Followed by PES-51 And Flushing	-89.88817358670	29.44410852390	VRSWA1	10/11/2010
6	Vegetation Raking Only	-89.88797530510	29.44402128880	VR	10/11/2010
7	Vegetation Raking Only	-89.88778097080	29.44392701940	VR	10/21/2010
8	Natural Recovery	-89.88757866920	29.44382392270	NR	10/13/2010
9	Vegetation Raking Followed by Cytosol and Flushing	-89.88737474520	29.44375274060	VRSWA2	10/13/2010
10	Vegetation Raking Only	-89.88719728300	29.44362115390	VR	10/21/2010
11	Vegetation Raking and Cutting	-89.88697647420	29.44350366300	VRC	12/9/2010
12	Natural Recovery	-89.88679690840	29.44334029810	NR	12/3/2010
13	Natural Recovery	-89.88920360280	29.44490275560	NR	10/13/2010
14	Vegetation Raking Only	-89.88940531810	29.44454910800	VR	10/13/2010
15	Natural Recovery	-89.88958645880	29.44457616830	NR	10/21/2010
16	Natural Recovery	-89.88977443530	29.44464124450	NR	12/3/2010
17	Vegetation Raking and Cutting	-89.88996282290	29.44471771970	VRC	12/7/2010
18	Natural Recovery	-89.89013837790	29.44478266590	NR	12/3/2010
19	Natural Recovery	-89.89026300000	29.44481000000	NR	12/3/2010
20	Vegetation Raking and Cutting	-89.89037400000	29.44483200000	VRC	12/9/2010


6B

Results

- Transplantated plants have a high rate of survival
- Plots exhibit 50-90% cover at beginning of subsequent growing season

Remaining Questions

- Long-term development, subsidence/erosion
- Ecosystem consequences across genetic variation

Ecosystem consequences of genotypic identity and diversity

Ecological performance of *S. alterniflora* cultivars (Connahs, Bernik et al.)

- *S. alterniflora* genotypes are being identified and cultivated for aerial seeding of Louisiana marshes by LSU AgCenter

- Promising strategy for coastal restoration, but need for further information on ecological viability of cultivars

***S. alterniflora* clones at LSU Rice Research Station (www.lsuagcenter.com)**

Conclusions

- Transplantation is successful post-remediation
- Could be a cost-effective remediation tool, conducted in concert with other remediation activities
- Could exchange aggravated loss for improved restoration

Acknowledgements