

# Thin Layer Placement: History and U.S. Army Corps of Engineers Implementation

Thin Layer Placement: Permitting and Regulation Meeting

Jacksonville, FL 11-12 April, 2017

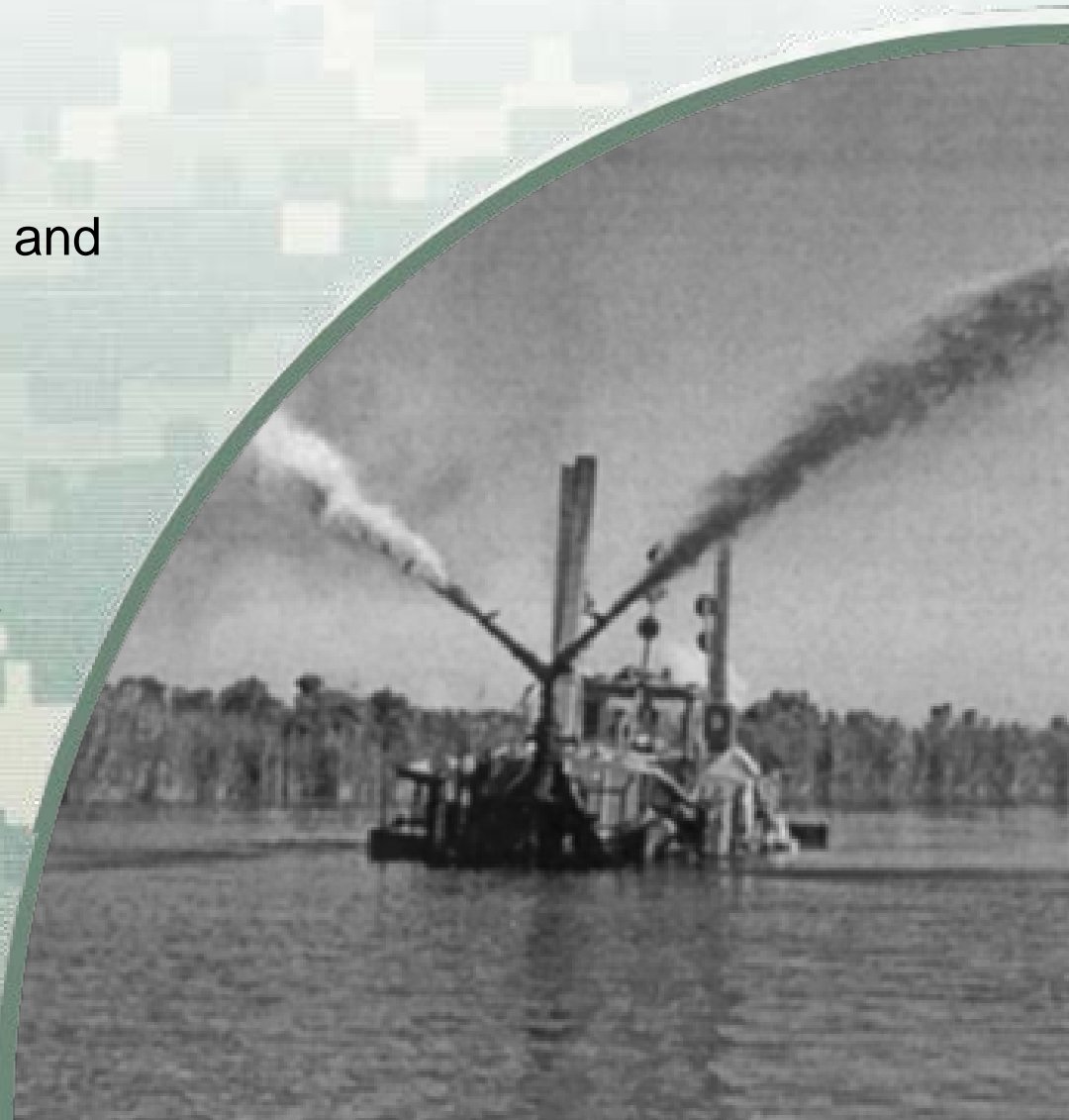
**Tim Welp**

**Jacob Berkowitz**

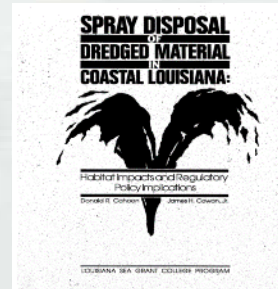
Engineer Research and Development Center



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# History – Thin Layer Placement



\*Cahoon and Cowan 1988

- Oil and gas exploration in Louisiana wetlands soils usually unstable - used board roads for drill rigs
- Submersible barge drilling platform built in 1934 – just need to get it to drill site
- 1938 - dredging of access canals (barge-mounted dredges)
- Opened up entire Louisiana coast to oil exploration and production
- Use of canals to reach drilling sites became industry norm



# History – Thin Layer Placement

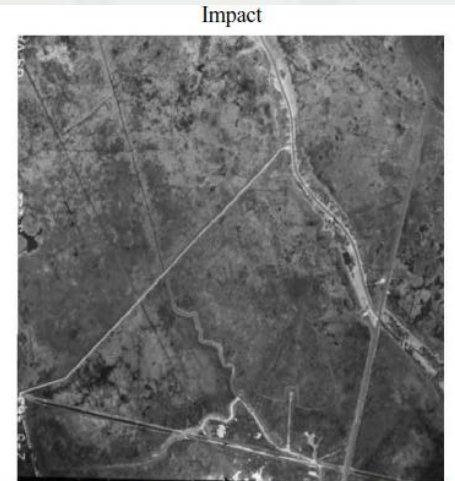


- Early dredges land-based dragline buckets mounted on barges
- Too small for canal width/sloughing material
- Hydraulic cutterhead dredges used (low pressure spray)
- 1930s-1940s both dredge types applied, even on same project
- 1950s mechanical dredges were improved (longer reaches, more power, less manpower)

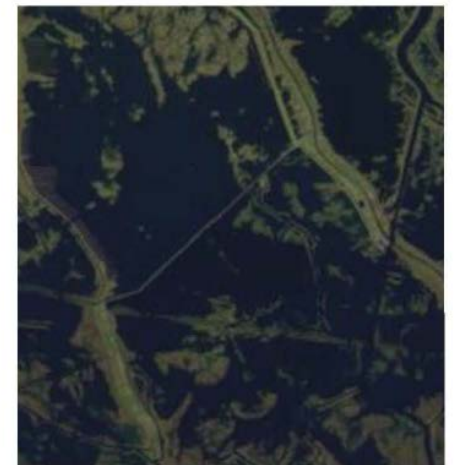
# History – Thin Layer Placement



- Late 1960s early 1970s “spoil banks” 2 ft to 6 ft range determined enviro-bad
  - Alter hydrologic regime
  - Contribute to land loss & upland conversion
- Regulatory and environmental concern
- Regulatory Policy LDNR/USACE & commenting agencies USFWS & NMFS two objectives:
  - minimize conversion of wetlands to non-wetland habitat
  - maintain wetland habitat quality



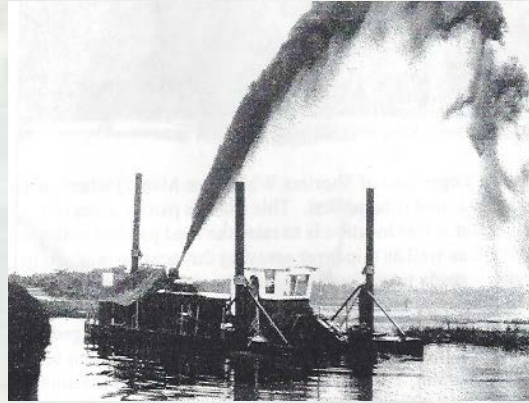
Pointe aux Chenes 1963, before oil production (over 90% wetland)



Pointe aux Chenes 2014, after oil production (over 90% water)



# History – Thin Layer Placement



- High pressure spray placement first applied southern Louisiana 1979
- Swinging ladder cutterhead with cutting knife and jetting nozzle on stern
- Slurry sprayed & spread across marsh 250 ft
- Layer thickness of a couple inches
- Spray directionality used to avoid placement into sensitive areas

# History – Thin Layer Placement Deposition Thickness



Bucket Dredge

“Spoil bank of about three feet”



Low Pressure Spray

“Spoil bank of about one foot”



High Pressure Spray

“Wider area of only a few inches”



# History – Thin Layer Placement

In 1987 cost of high pressure spray greater than bucket dredge (2x-14x) looked at TLP with potential to preserve desirable habitat if:

- Original vegetation capable of surviving TLP
- Erosion of canal banks doesn't occur
- Local hydrologic patterns not disturbed
- Natural drainage streams and ponds not filled

So TLP was originally designed to dredge access canals in a more environmentally friendly manner!

# Thin Layer Placement U.S. Army Corps of Engineers Implementation

- Reason we are assembled today
- R&D and TLP projects conducted since 1988 summarized in following presentations
- Still working to define what the contemporary definition of TLP is
- Following presentations illustrate TLP diversity

