

MEASUREMENT OF GREENHOUSE GAS EMISSIONS IN LOUISIANA COASTAL FRESHWATER FORESTED WETLANDS

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Comite Resources

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GOAL

- Quantify net ecosystem carbon balance (NECB) of freshwater forested wetlands ranging from relatively healthy to degrading to emergent wetland and/or open water.

OBJECTIVES

- Download and analyze available data for forested wetland CRMS sites
- Select 12 CRMS sites representative of three health classes (4 sites/class)
- Collect CH₄, CO₂ and N₂O emissions quarterly for two years
- Calculate gas fluxes
- Calculate NECB - Annual NECB at the wetlands is calculated as the difference between carbon accumulation in vegetation and soils minus greenhouse gas emissions

CRMS DATA

- CRMS sites are established and have data necessary for calculating NECB: vegetation productivity, soil organic matter content
- 56 forested CRMS sites: Atchafalaya, Barataria, Pearl River, Pontchartrain, Teche/Vermillion, and Terrebonne
- Forested Floristic Quality Indicator (FFQI): Uses vegetation parameters (tree basal area, species composition, and canopy cover) to evaluate forested wetlands sites (Severely degraded to healthy)
- Hydrologic index, accretion rate, basal area, annual percent time flooded, water salinity



CRMS5373



CRMS0061

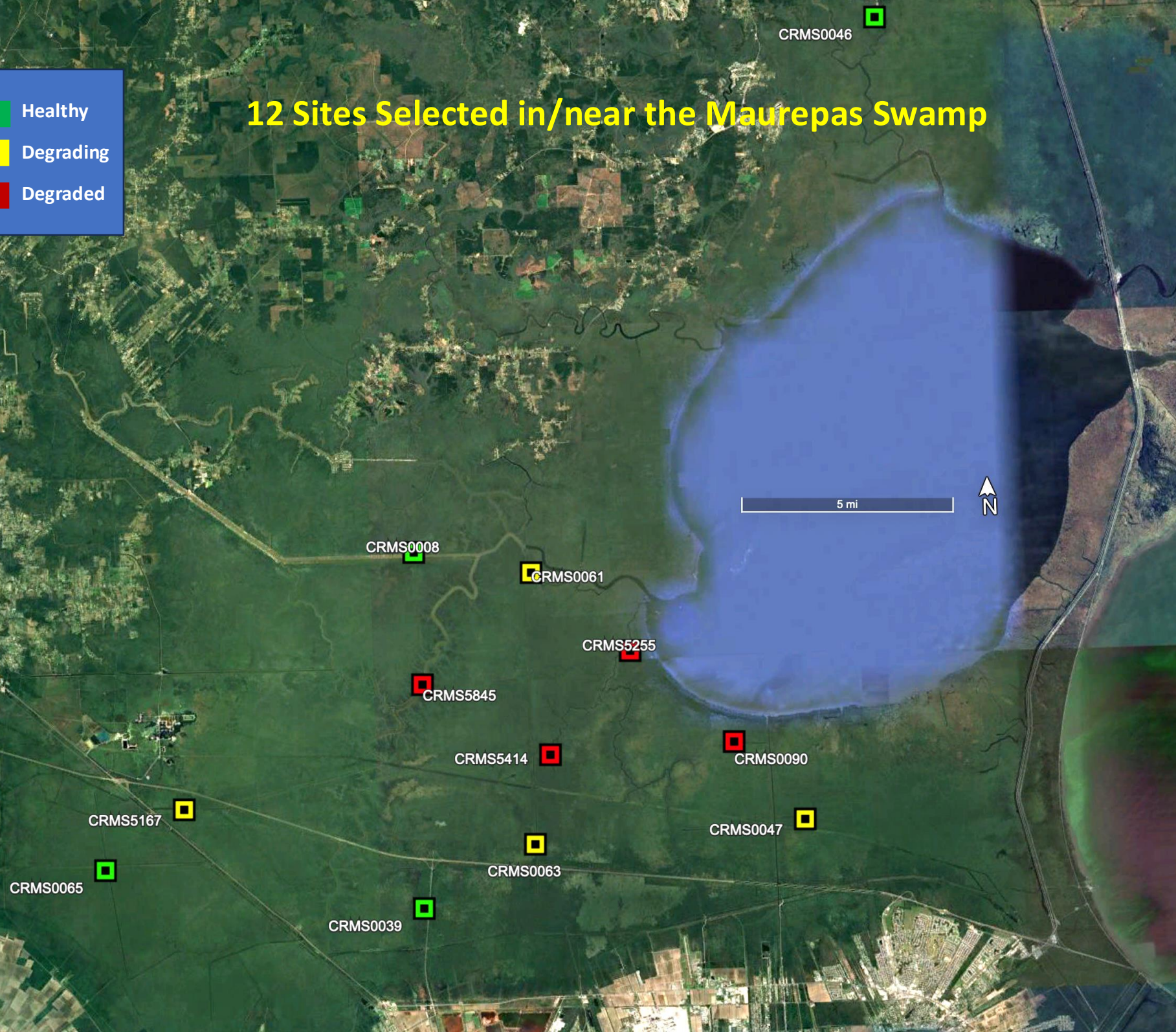


CRMS5255

Decreasing FFQI

12 Sites Selected in/near the Maurepas Swamp

- Healthy
- Degrading
- Degraded

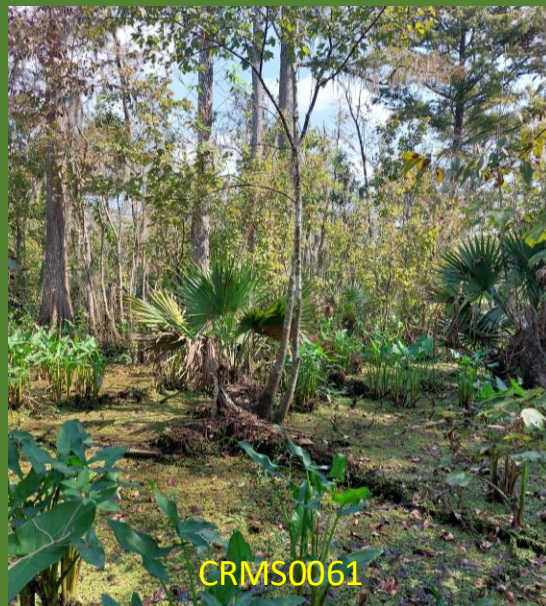


FORESTED WETLAND CATEGORIES

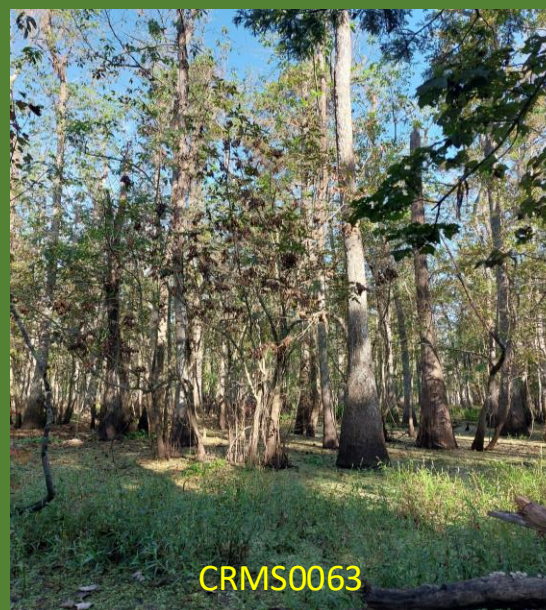
HEALTHY



DEGRADING



DEGRADED





CRMS5414



CRMS0039



CRMS0046

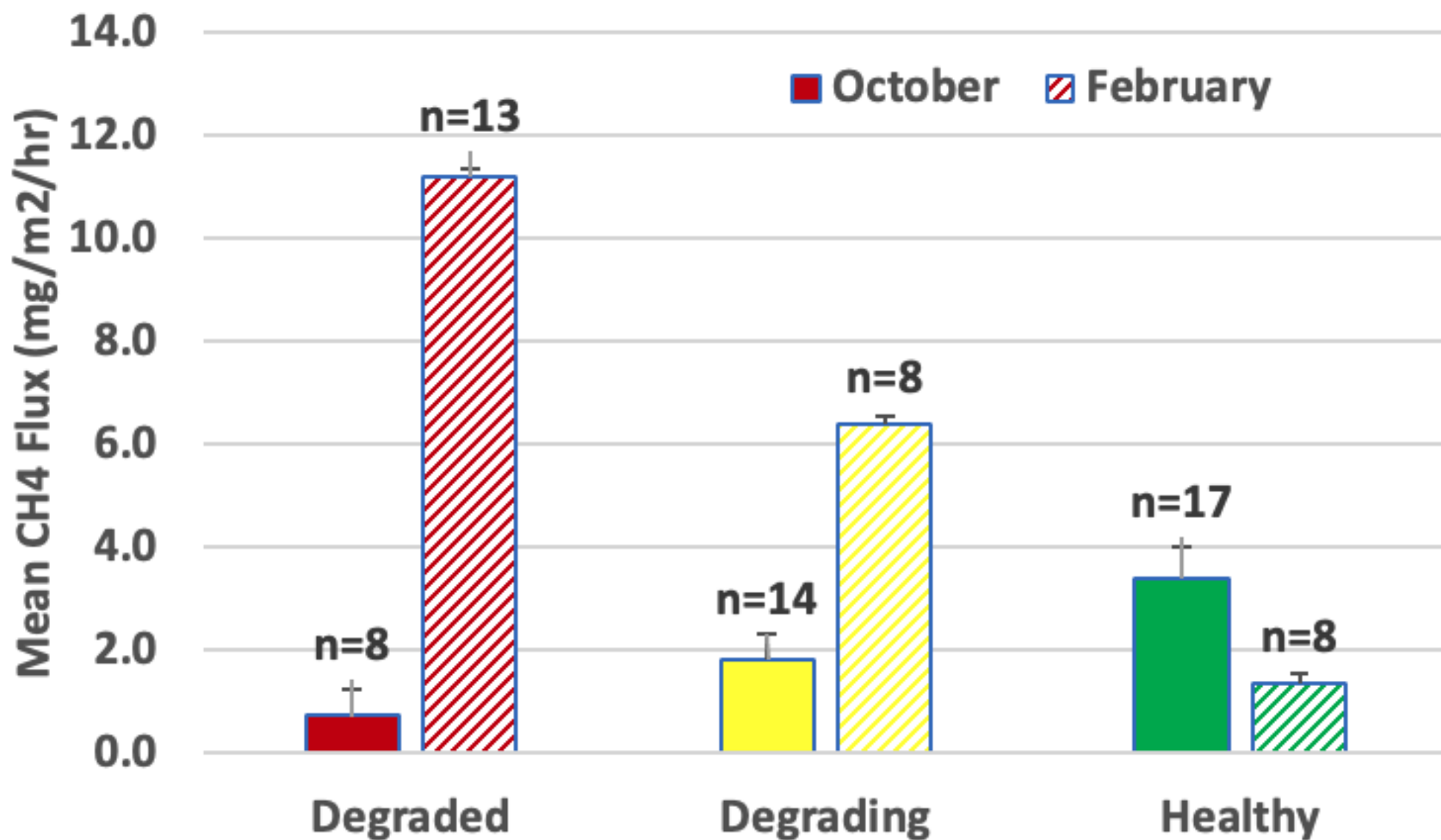


CRMS0047



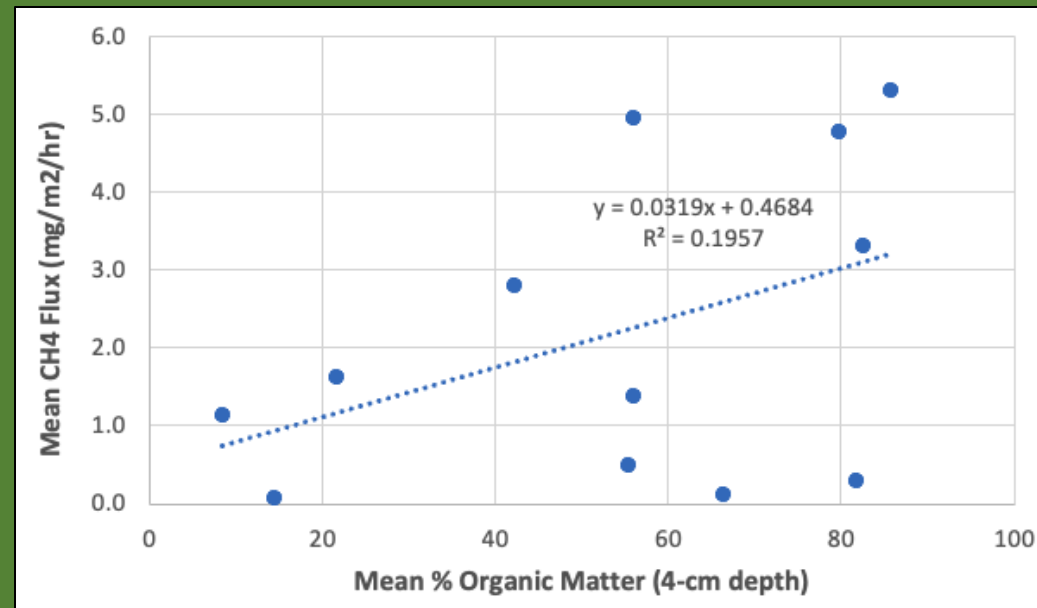
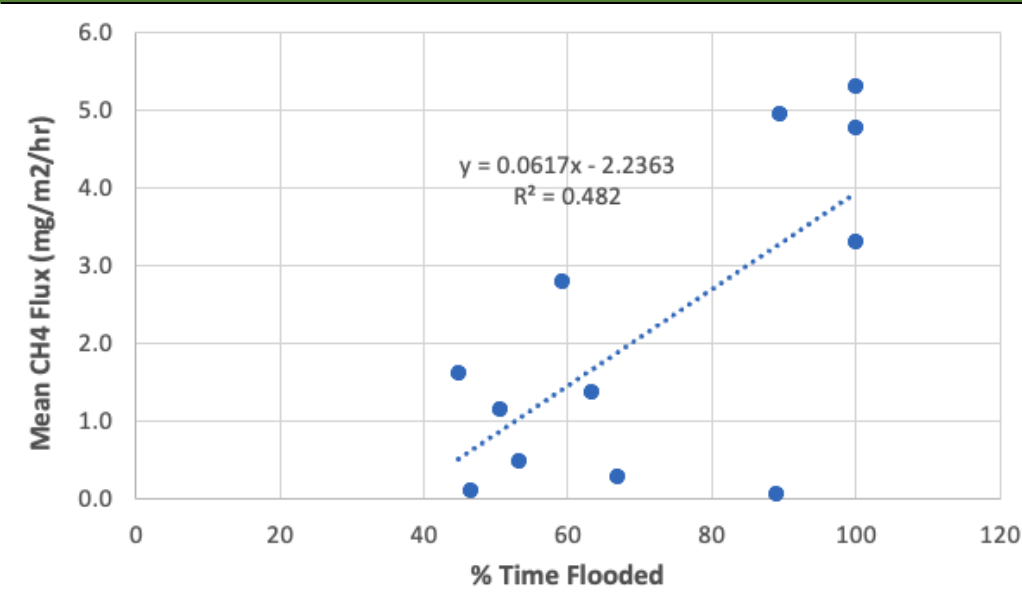
CRMS0063

October 2024 and February 2025 Results – Methane Flux

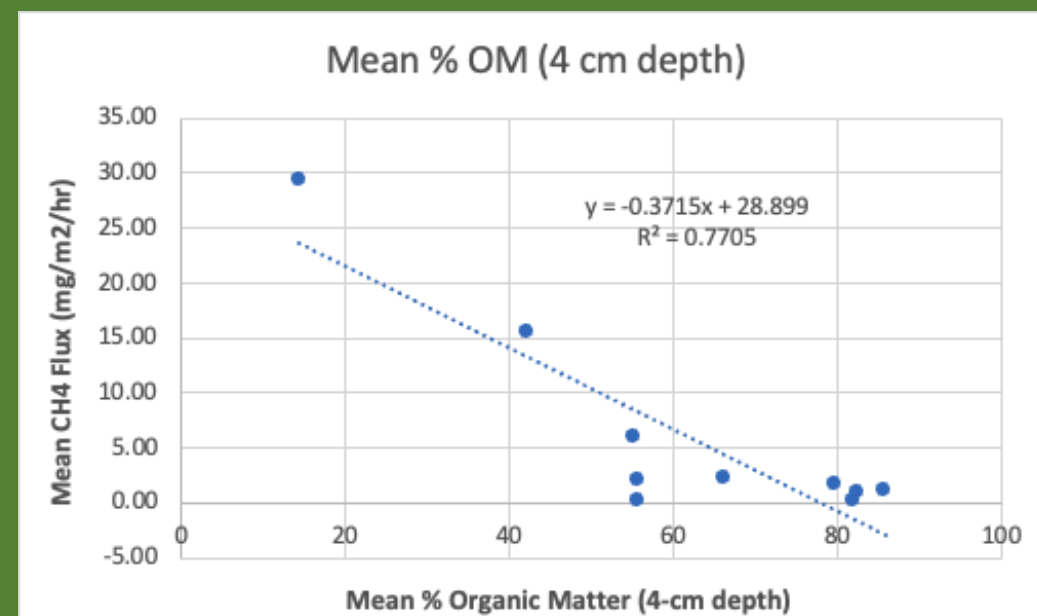
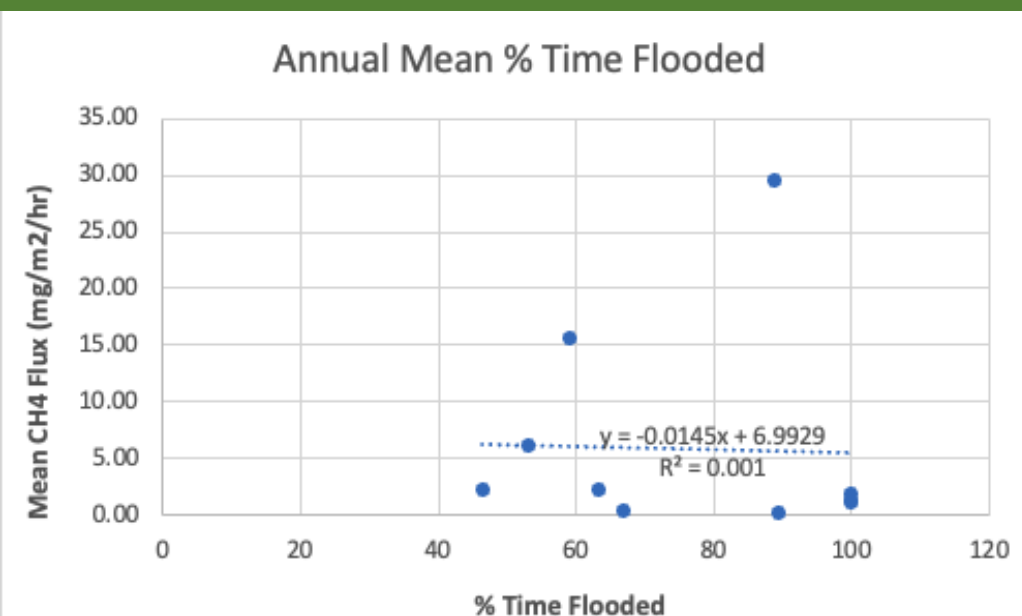


Relationship of Hydrology and Organic Matter to Methane Flux

October 2024

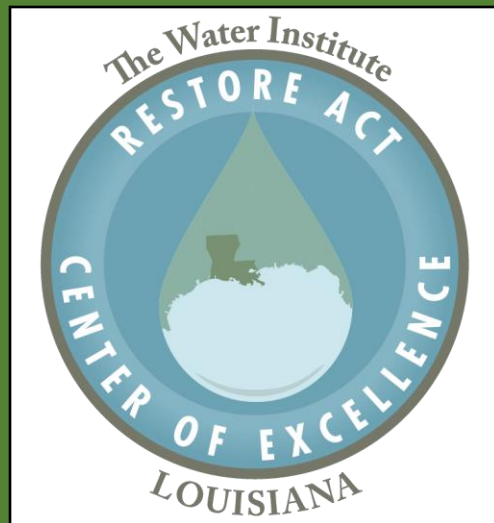


February 2025



ACKNOWLEDGEMENTS

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Questions?

