Public Workshop on Hypoxia in the Gulf of Mexico
University of Louisiana at Lafayette
October 19, 2015
9am-12 noon

Circular Irrigation in controlling Nonpoint Pollution and Nutrient Management EPA/GOM/NRCS/AgCenter

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Demographics - Vermilion Parish	
Population	57,999
Land Area	1174 sq. miles (751,273 acres)
Water Area	365 sq. miles (233,314 acres)
Agricultural Lands	297,679 acres
Major Lakes & Streams	7

Projective Objectives: Circular Irrigation Practices

- Nutrient Recycling in Rice and Soybean Fields
- Water Quality Improvement Through the Reuse of Irrigation Water
- Develop Technical Materials on Water Reuse and Minimize use of Ground Water
- Effective Reuse of Recycled Nutrients and Water
- Outreach to Producers and Public

Field and laboratory determination

a. Water : Total Suspended Solids (TSS),

BOD_5

NO_3/NO_2-N

Soluble Reactive Phosphate (SRP)
Total Phosphorus (TP)

Total Nitrogen (TN), pH

b. Soil & Sediment :

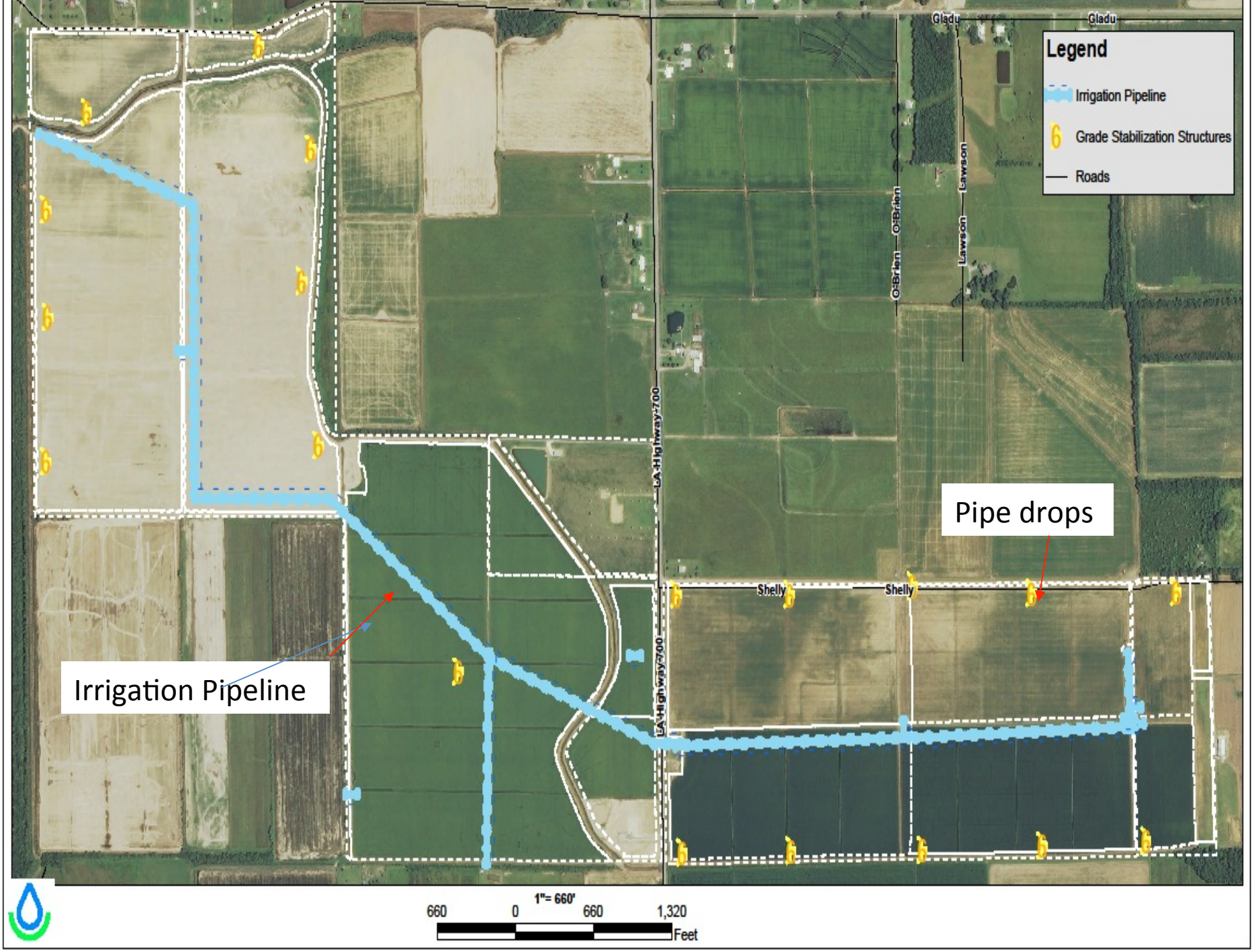
Total Nitrogen

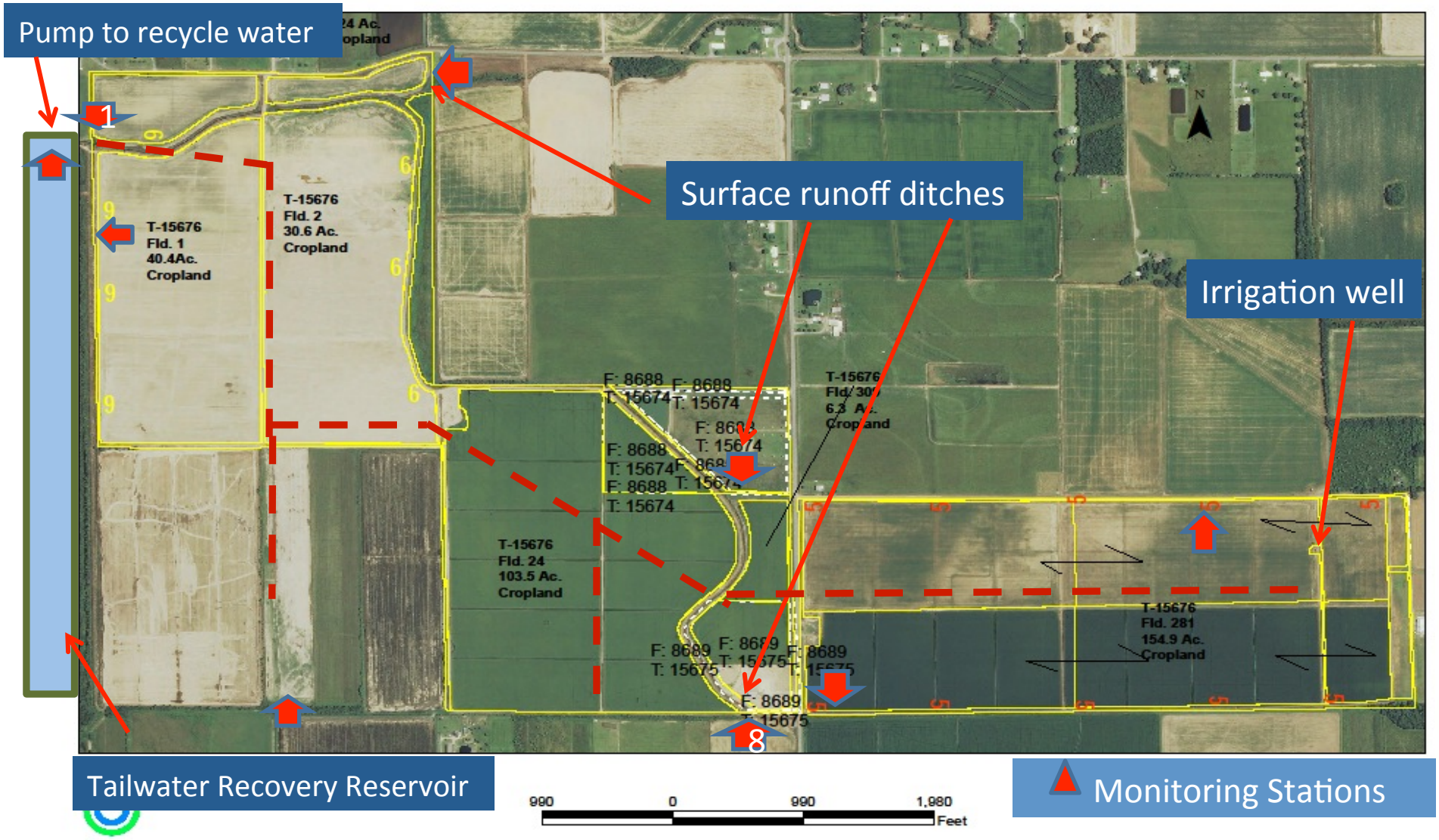
Total carbon (TC)

TP, SRP

Bulk density, pH

Texture, CEC


Legend
Irrigation Pipeline
Grade Stabilization Structures
Roads
Gladu
Gladu
O'Brien
O'Brien
Lawson
Lawson
LA Highway 700
LA Highway 700
Shelly
Shelly
Pipe drops
Irrigation Pipeline
1"= 660'
660
0
660
1,320
Feet


Pump to recycle water
Surface runoff ditches
Irrigation well
Tailwater Recovery Reservoir
Monitoring Stations
1
8
T-15676
Fld. 1
40.4Ac.
Cropland
T-15676
Fld. 2
30.6 Ac.
Cropland
T-15676
Fld. 24
103.5 Ac.
Cropland
T-15676
Fld. 281
154.9 Ac.
Cropland
F: 8688
T: 15674
F: 8689
T: 15675
990
0
990
1,980
Feet

Pump to recycle surface water to reservoir or to cropland

Surface Drainage from Project & Surrounding Area

Monitoring site 1


Site 7 Rice at Boot Stage

Rice Harvested

Clipped Rice Stubble

Site 7 Re-flooded August 2015


West to reservoir
North East Offsite Rain
West Research Area


Drainage to recycle pump to reservoir


September 2015 Site 1

Rain on Young Soybeans May 2015 (Site3)

Sept. 2015

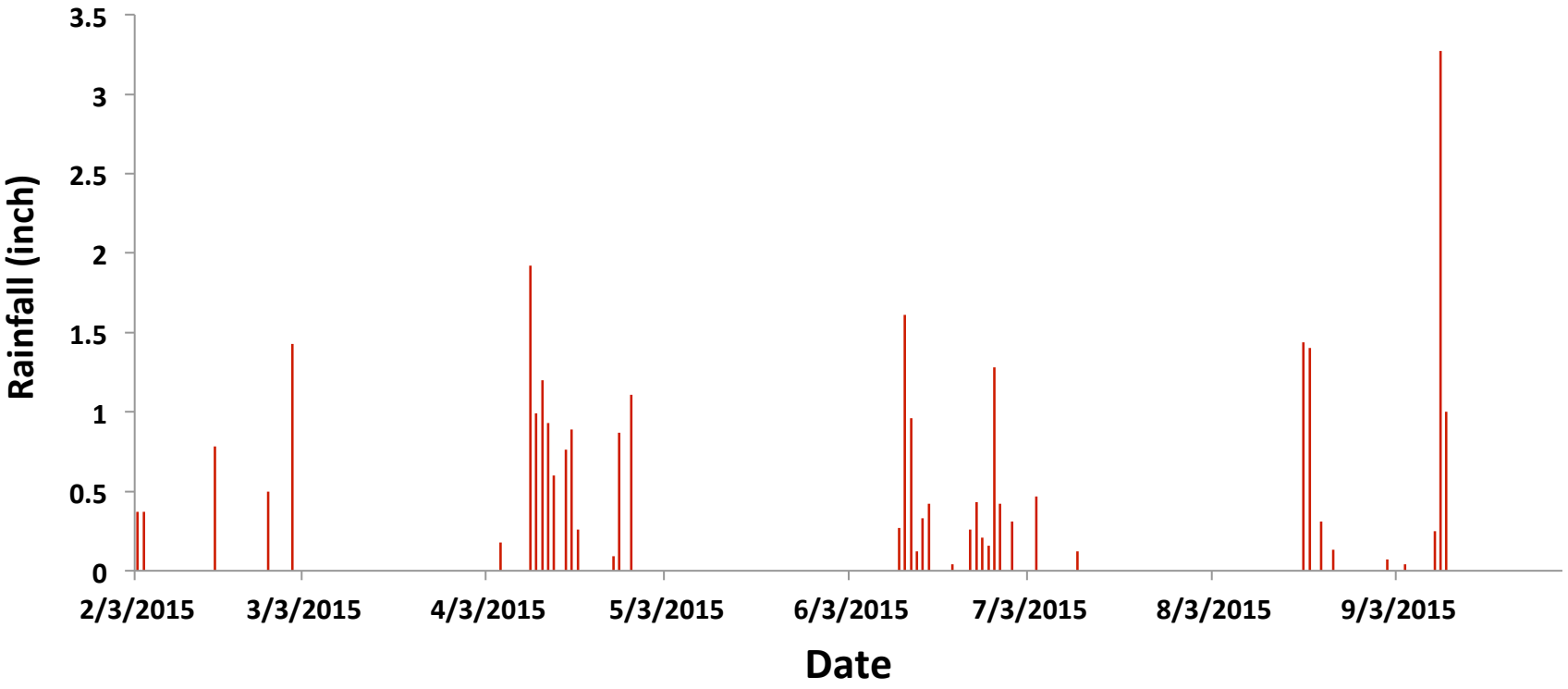
Rain on same Soybeans August 2015 (Site 3)


Pipe drop releasing rain water


Pipe drop releasing recycled water

Rice Water release before harvest - July 2015

Rainfall



Summary (Draft)

SRP(PO_4-P) and TP:

- **Concentration was decreased in released recycled water from reservoir and in water from rice fields compared to water in drainage system.**
- **However, concentration was higher at the soybean fields and surface drainage ditch from all sources.**
- **All drainage water is re-circulated into the reservoir unless it is full.**

Summary (Draft)

NO_3-N & TKN:

- Showed a similar trends with SRP (PO_4-P) & TP.
- Higher concentration at soybean sites and offsite surface drainage into project area.
- All surface drainage water will merge to the drainage 1 and constructed wetland.

TSS:

- Showed a lower concentration in the reservoir over time.

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Thanks - Questions