

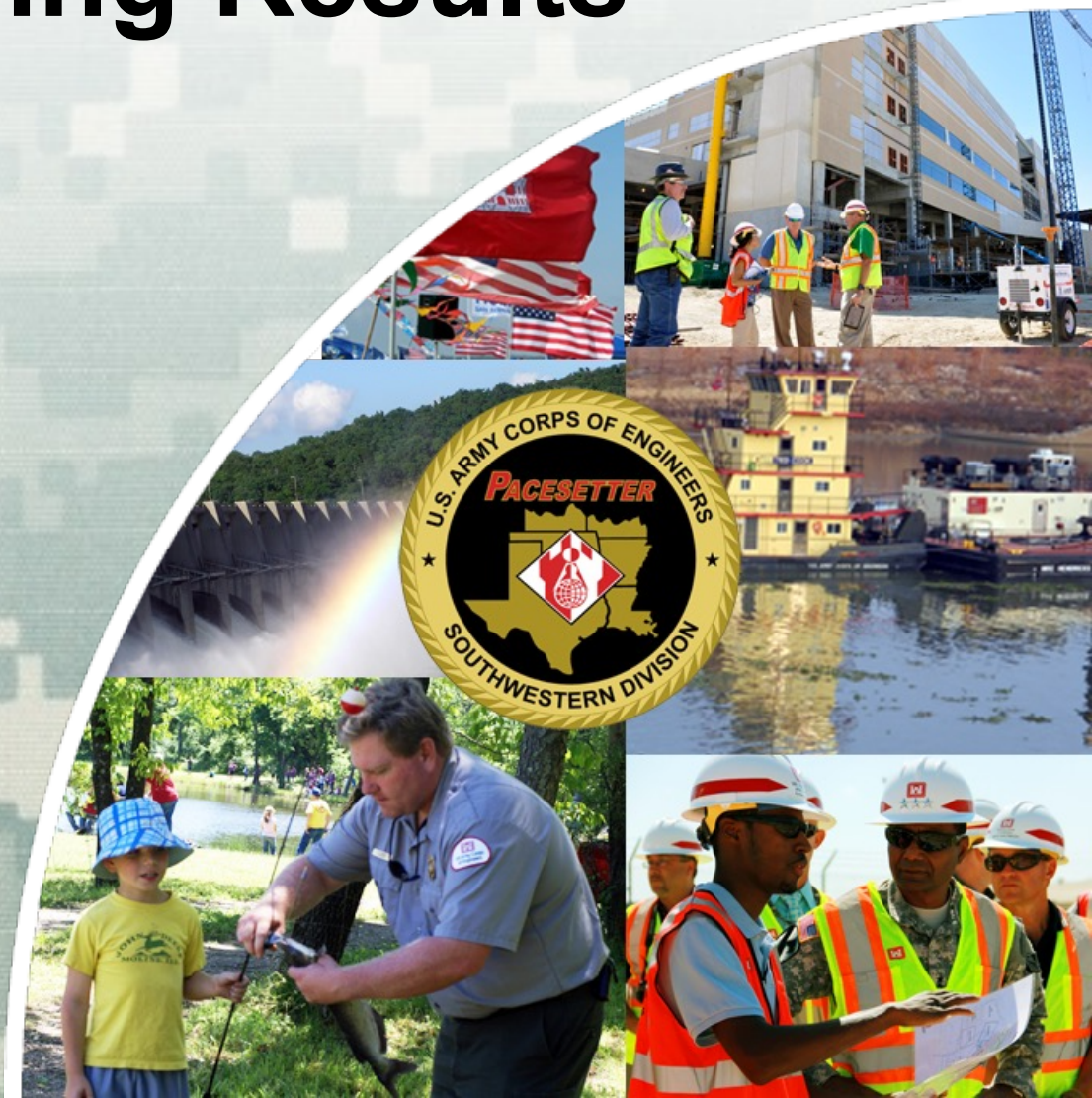
Sulphur River Backwater Habitat Modeling Results

Danny Allen
Wildlife Biologist
CESWF-PEC-TN

15 November 2016



US Army Corps of Engineers
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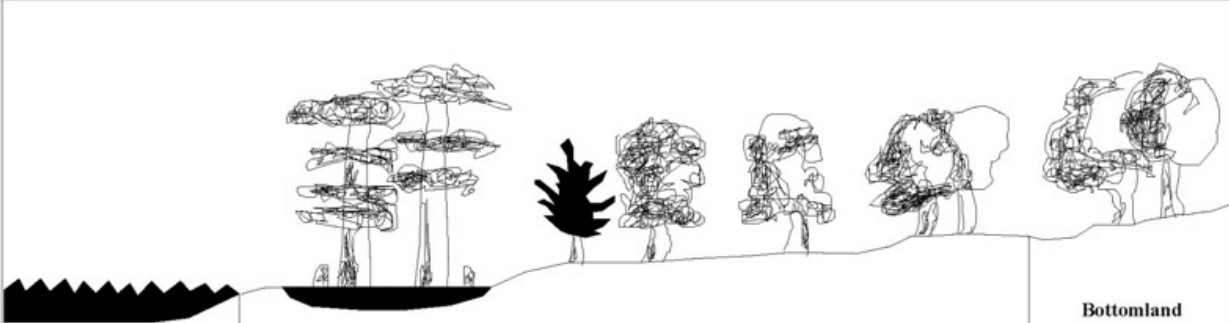


Sulphur River Ecological Functions Model Development Overview

- Develop ecological relationships between bottomland communities and hydrology
- Model ecological relationships with historic gauge data and period of record with HEC-EFM
- Identify flow/stage metrics for bottomland communities for existing and each proposed pool elevation
- Validate model utilizing GSRC and TPWD spatial vegetation data
- Model spatial extent of bottomland communities with RAS-Mapper



Ecological/Hydrological Relationships



	Aquatic ecosystem	Bottomland hardwood ecosystem				Bottomland upland transition
Zone	I	II	III	IV	V	VI
Name	Open water	Swamp	Lower hardwood wetlands	Medium hardwood wetlands	Higher hardwood wetlands	Transition to uplands
Water modifier	Continuously flooded	Intermittently flooded	Semipermanently flooded	Seasonally flooded	Temporarily flooded	Intermittently flooded
Flooding frequency, % of year	100	~100	51 - 100	51 - 100	11 - 51	1 - 10
Flooding duration, % of growing season	100	~100	> 25	12.5 - 25	2 - 12.5	< 2



EFM Relationships

Floodplain Zone	Flood Frequency
Open Water	90%
Swamp	60%
Bottomland Hardwood	40%
Seasonally Flooded	12.5%
Temporarily Flooded	2%
Upland	1%



EFM Results – 225' @ 238045

Summary

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Evaluated at: 04/14/2015 07:36

Summary

Relationship	Conf.	POR_WP_225 - 238045			POR_WP_232.5 - 238045			POR_WP_238 - 238045			POR_WP_242.5 - 238045			POR_WP_252.5 - 238045		
		Stage, ft	Flow, cfs	Chg.	Stage, ft	Flow, cfs	Chg.	Stage, ft	Flow, cfs	Chg.	Stage, ft	Flow, cfs	Chg.	Stage, ft	Flow, cfs	
Zone 1 - Open Water	n/a	246.1	1,185	n/a	246.5	1,185	n/a	247.3	1,275	n/a	247.8	1,192	n/a	252.3	1,193	
Zone 2 - Bald Cypress Swamp	n/a	248.7	1,591	n/a	248.4	1,591	n/a	248.6	1,541	n/a	249.6	1,629	n/a	253.5	1,633	
Zone 3 - Bottomland Hardwood	n/a	248.6	1,631	n/a	248.9	1,631	n/a	249.2	1,734	n/a	249.9	1,675	n/a	253.8	1,677	
Zone 4 - Seasonally Flooded Forest	n/a	255.6	4,603	n/a	255.6	4,603	n/a	255.4	4,623	n/a	255.5	4,764	n/a	255.9	4,765	
Zone 5 - Temporarily Flooded Forest	n/a	259.5	13,575	n/a	259.5	13,576	n/a	259.7	14,277	n/a	259.5	13,969	n/a	259.7	13,923	
Zone 6 - Uplands	n/a	260.6	17,982	n/a	260.6	17,981	n/a	260.4	19,526	n/a	260.7	18,403	n/a	263.9	18,356	

No reverse lookup flow frequency data sets were analyzed.

No reverse lookup flow duration data sets were analyzed.



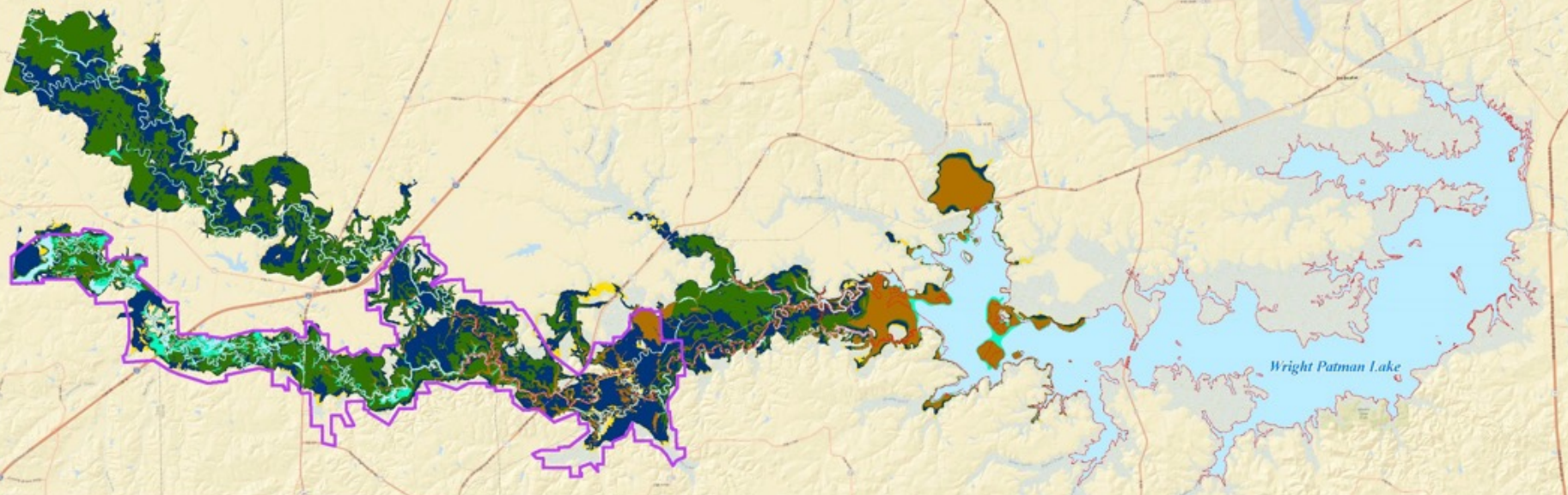
Sulphur Basin Segments

- ▶ White Oak Creek Wildlife Management Area (WOCWMA)
- ▶ WOCWMA to upper Wright Patman
- ▶ Wright Patman Pool



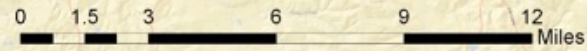


Ultimate Rule Curve Elevation Habitat Zones

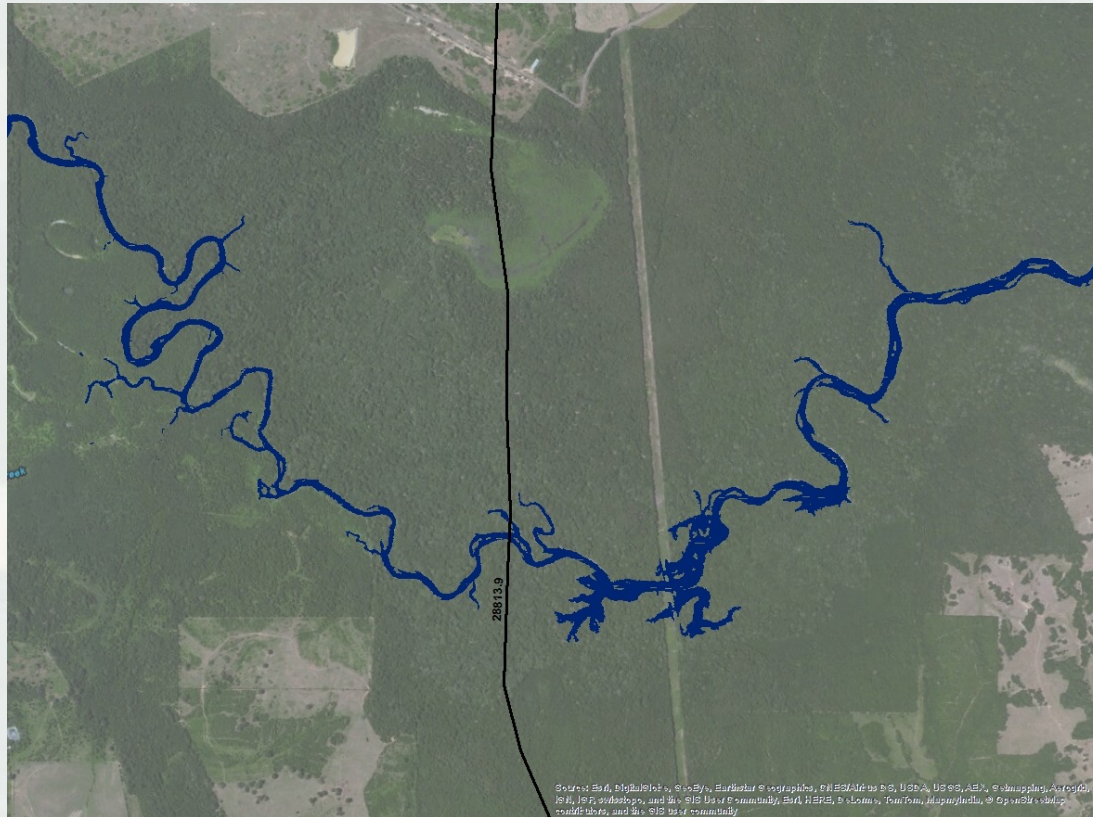


Legend

- White Oak Creek Wildlife Management Area
- URC Elevation
- Open Water
- Marsh
- Bottomland Hardwoods
- Temporarily Flooded
- Seasonally Flooded Forest
- Upland

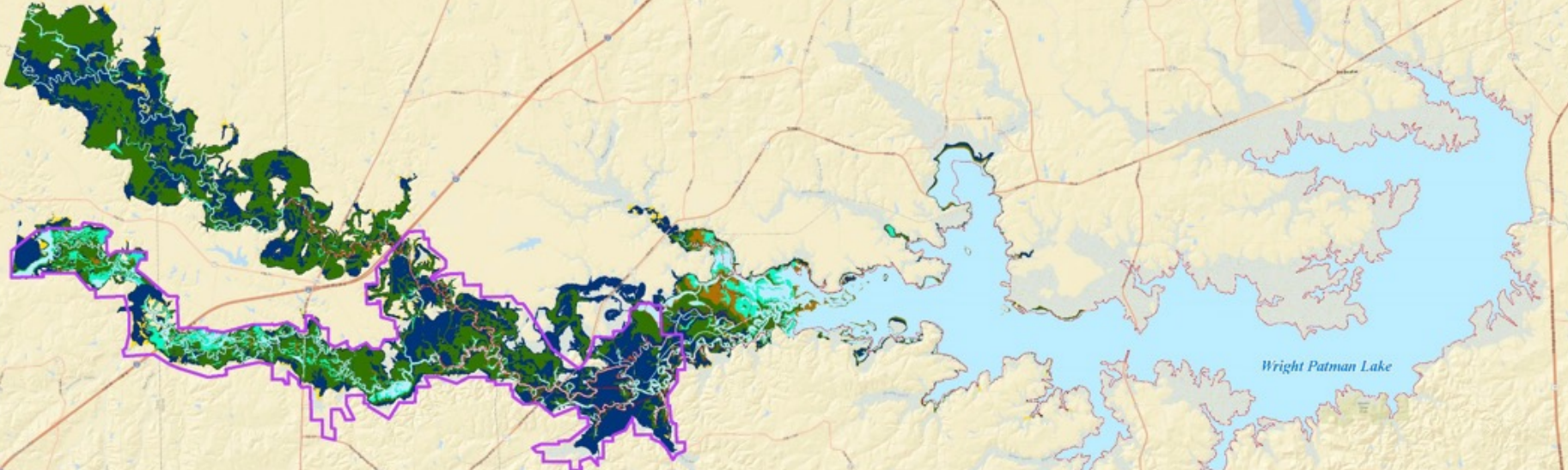


Open Water 225' – CS 28813.9



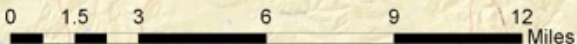
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232.5 Elevation Habitat Zones

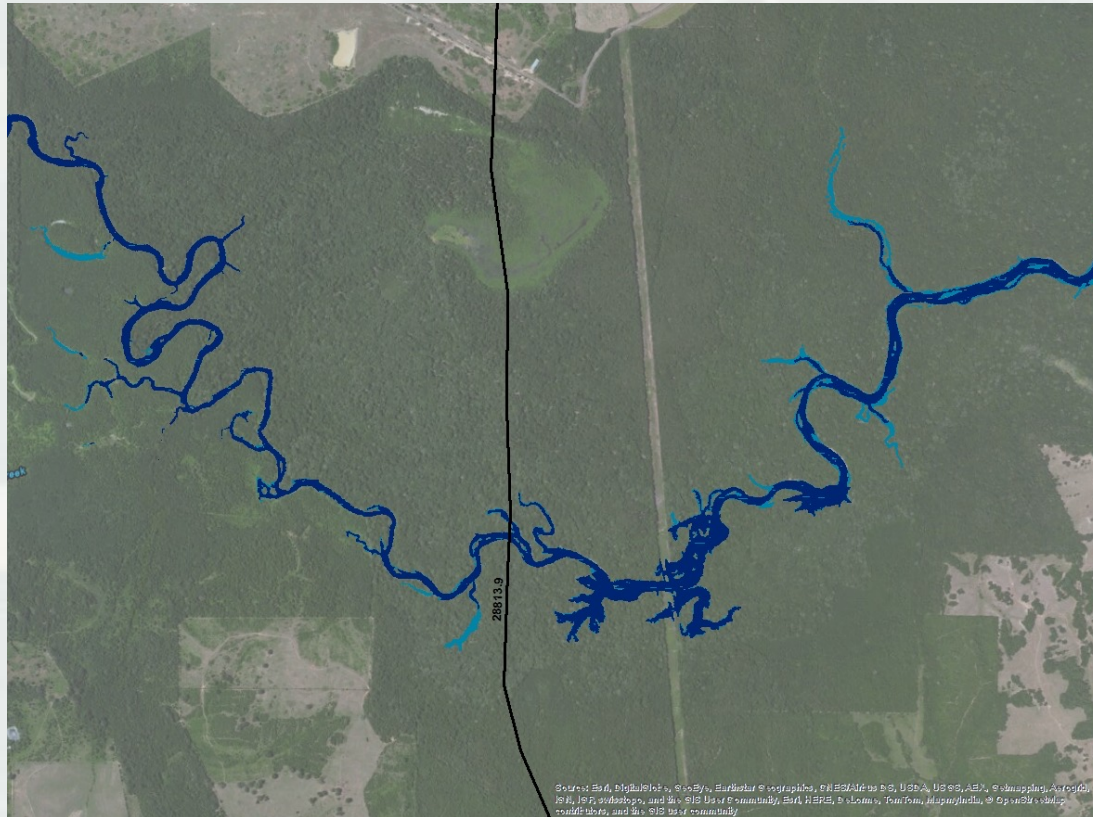


Legend

- White Oak Creek Wildlife Management Area
- 232.5 Elevation
- Open Water
- Marsh
- Bottomland Hardwoods
- Temporarily Flooded
- Seasonally Flooded Forest
- Upland

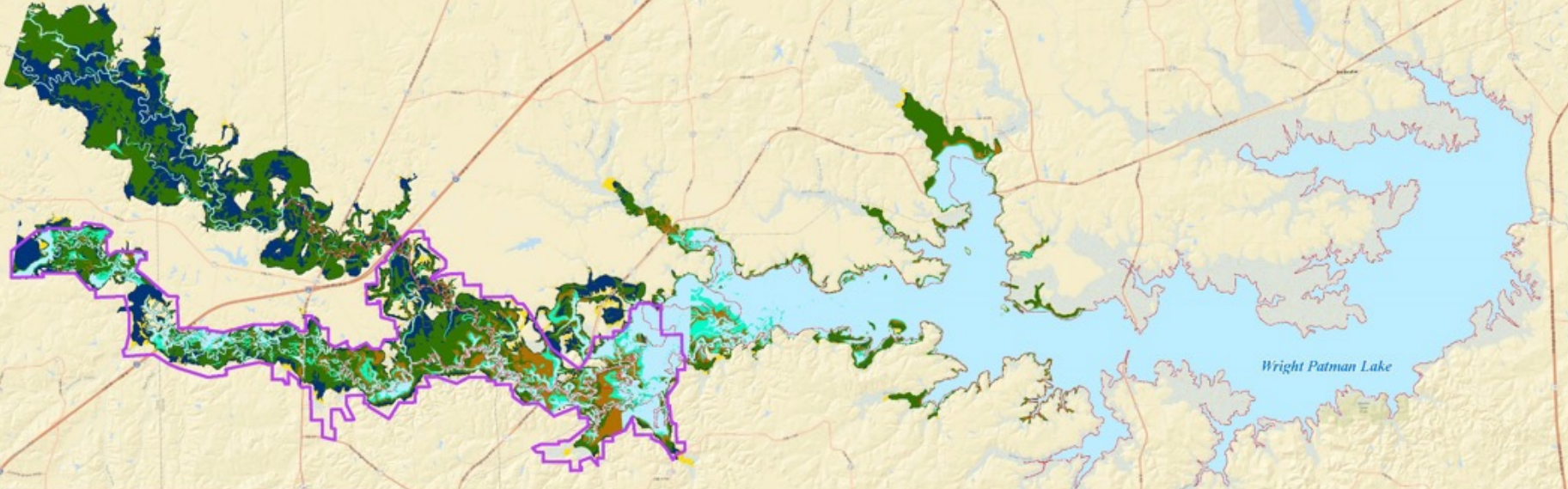


Open Water 232.5' – CS 28813.9



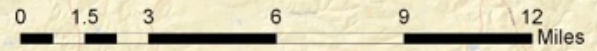
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235 Elevation Habitat Zones

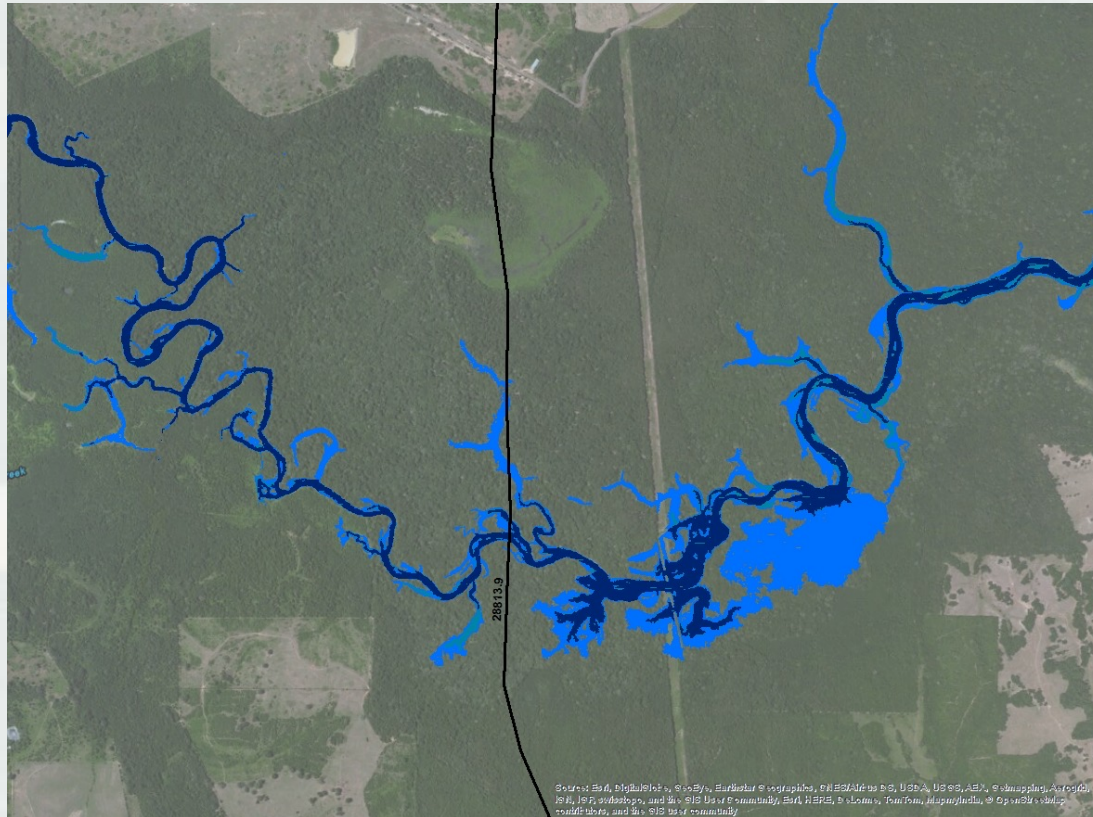


Legend

- White Oak Creek Wildlife Management Area
- 235 Elevation
- Open Water
- Marsh
- Bottomland Hardwoods
- Temporarily Flooded
- Seasonally Flooded Forest
- Upland

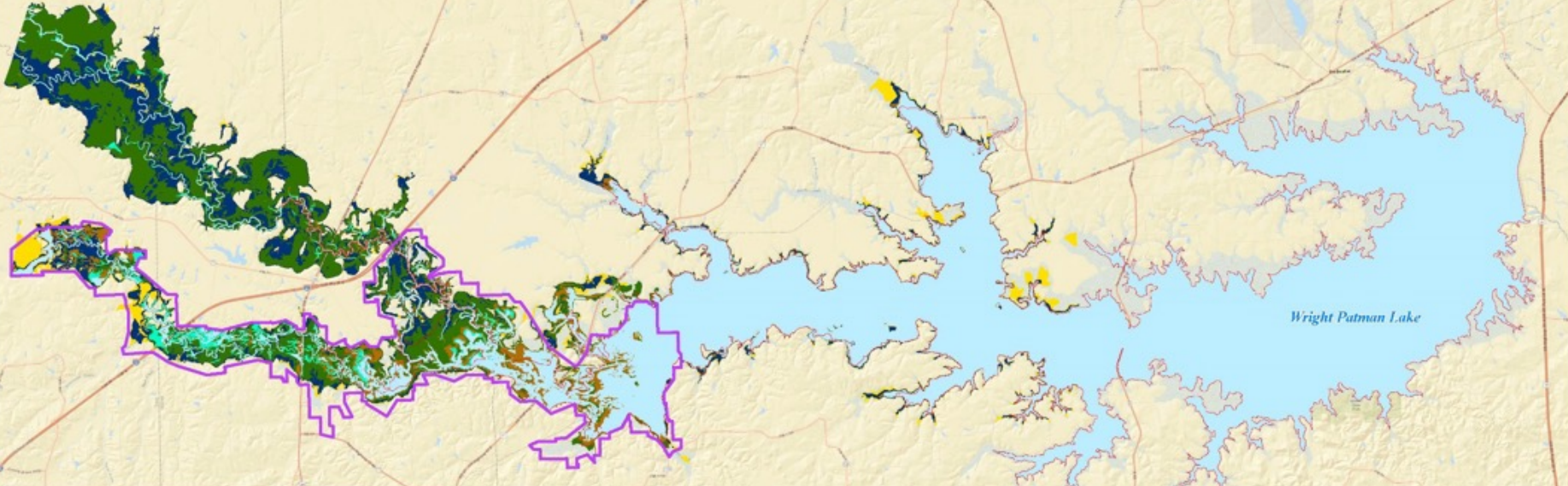


Open Water 238' – CS 28813.9



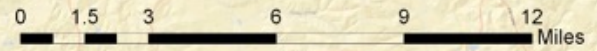
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242.5 Elevation Habitat Zones

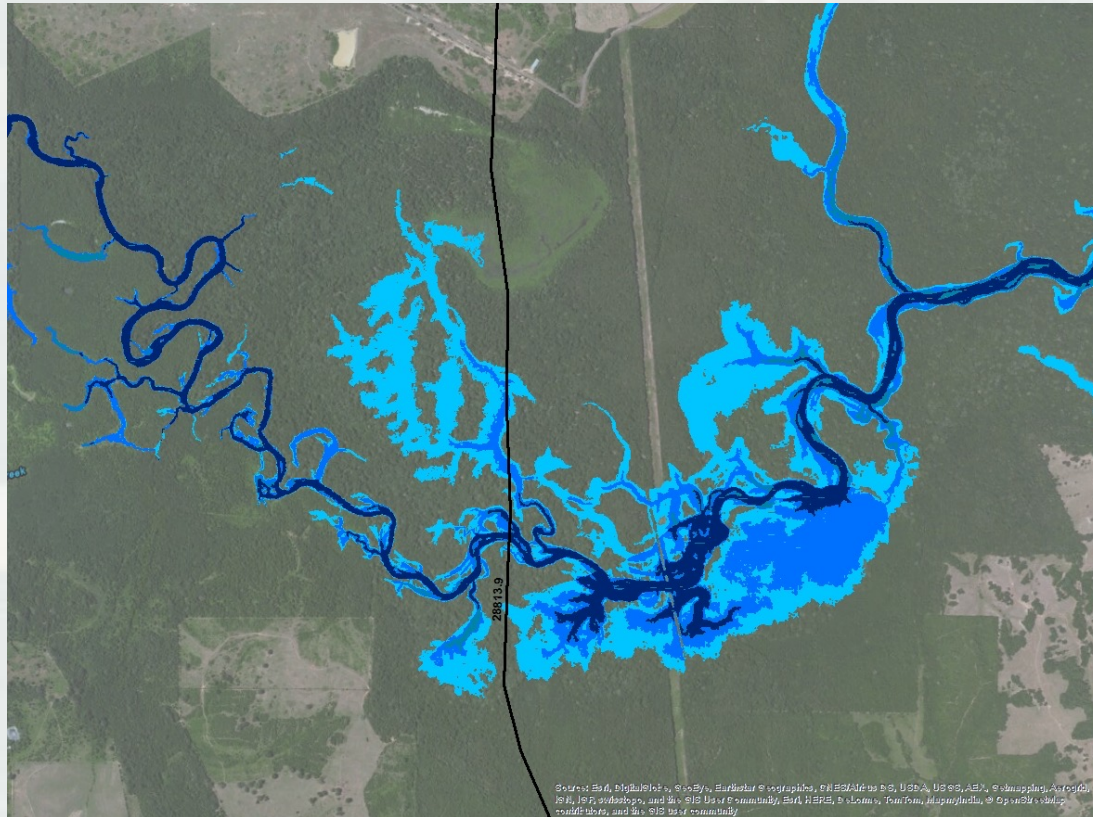


Legend

- White Oak Creek Wildlife Management Area
- 242.5 Elevation
- Open Water
- Marsh
- Bottomland Hardwoods
- Temporarily Flooded
- Seasonally Flooded Forest
- Upland

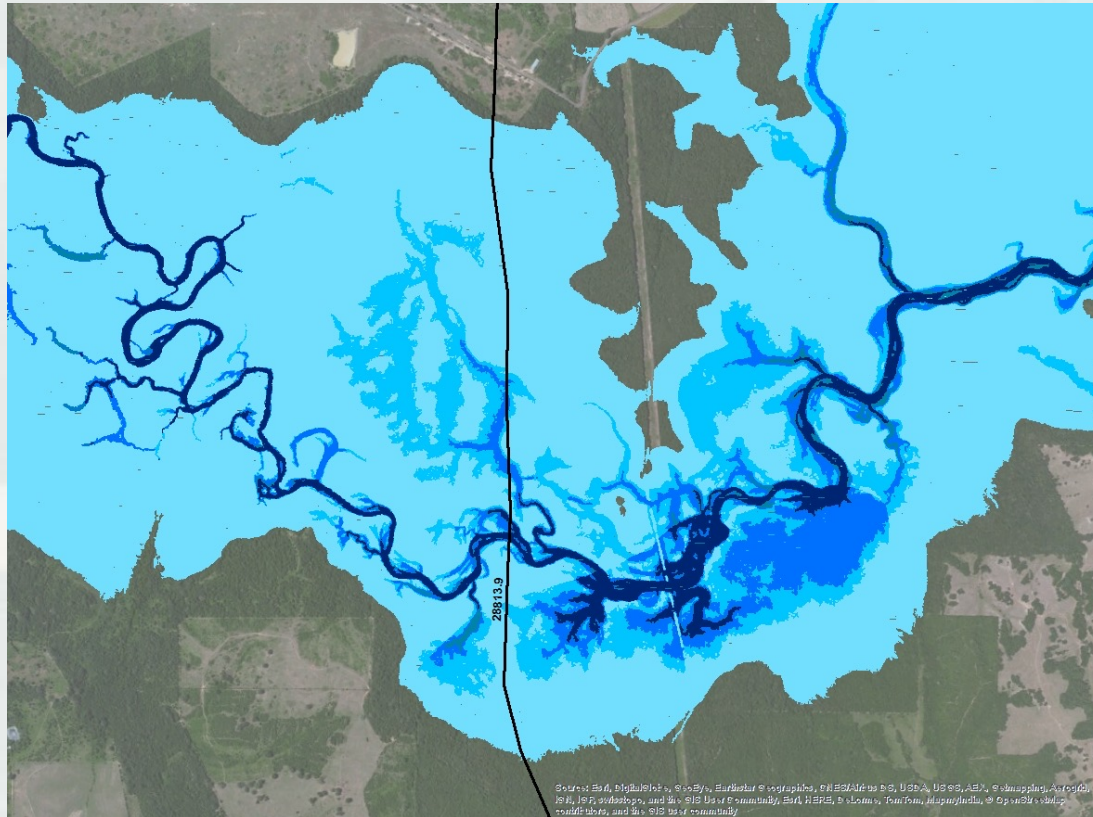


Open Water 242.5' – CS 28813.9



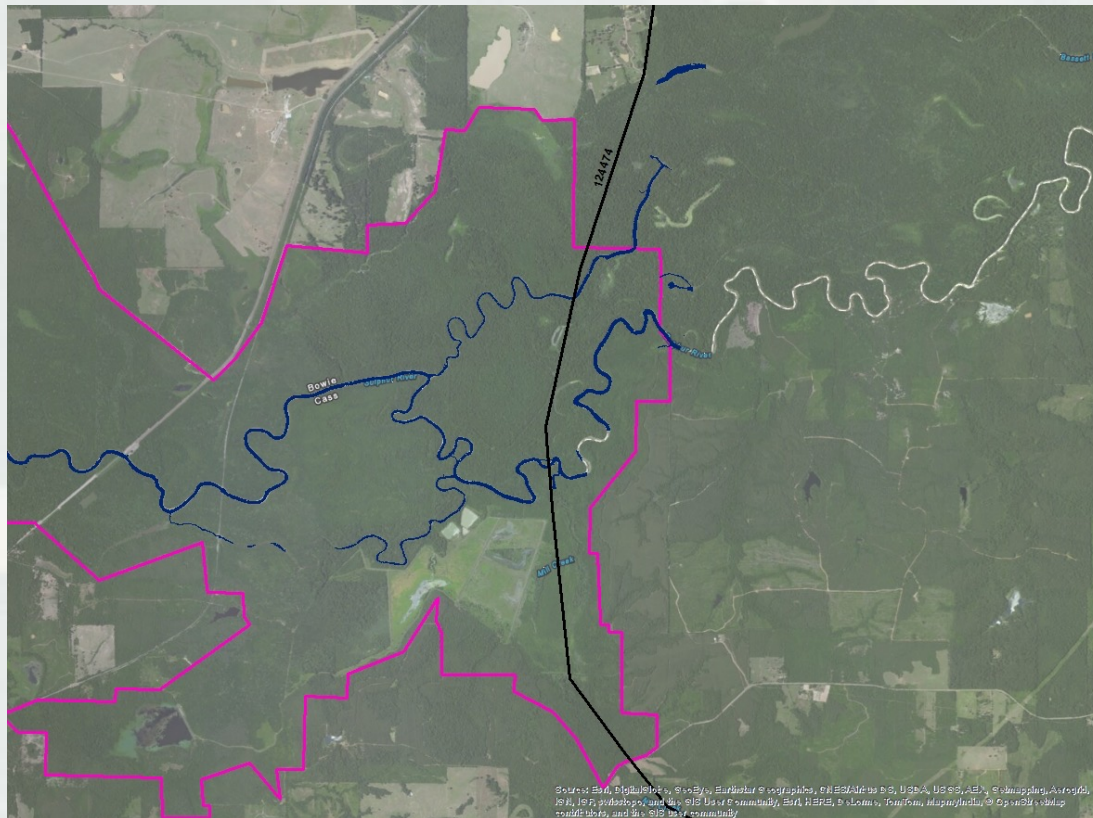
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Open Water 252.5' – CS 28813.9



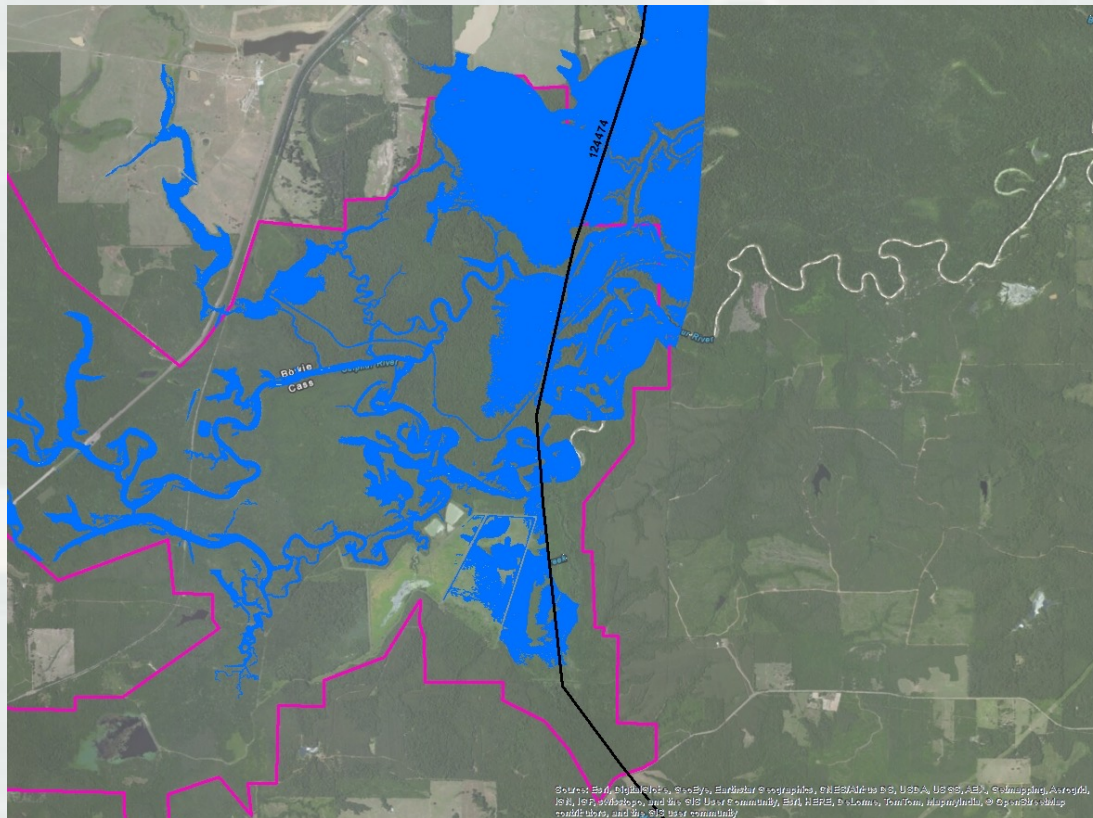
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WOC East Boundary 225



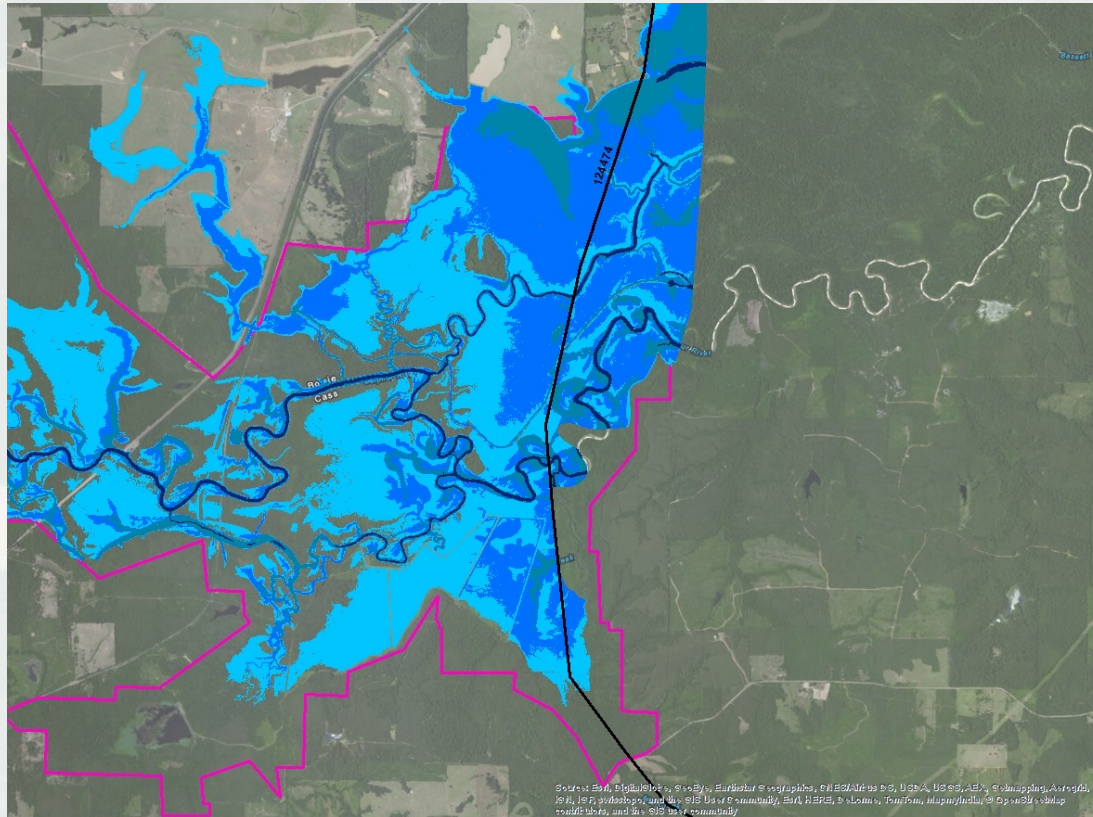
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WOC East Boundary 238



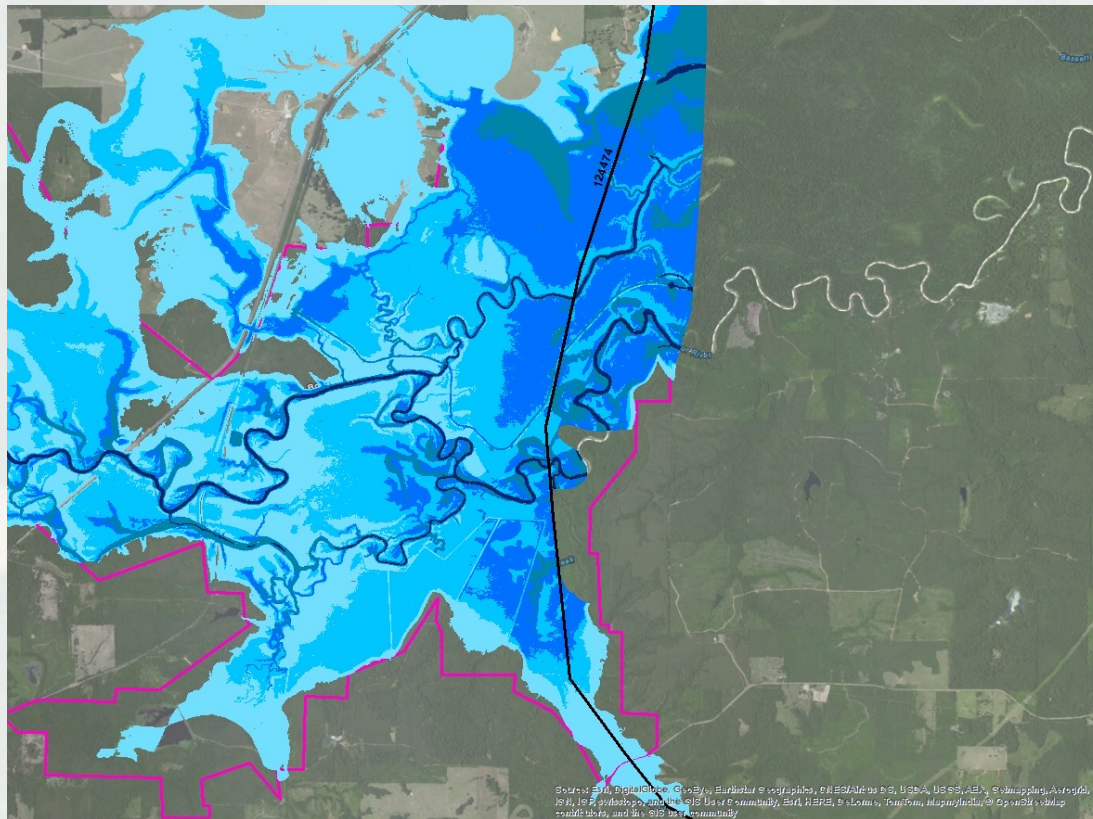
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WOC East Boundary 242.5



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WOC East Boundary 252.5



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Questions



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