



ENHANCE ★ PROTECT ★ CONSERVE

# Western Mississippi Sound Hydrodynamics and Lower Pearl River Discharge

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# Western Sound Freshwater Inputs

- Pearl River
- Jourdan River
- Wolf River
- Bonnet Carré
- Other MS River Diversions?



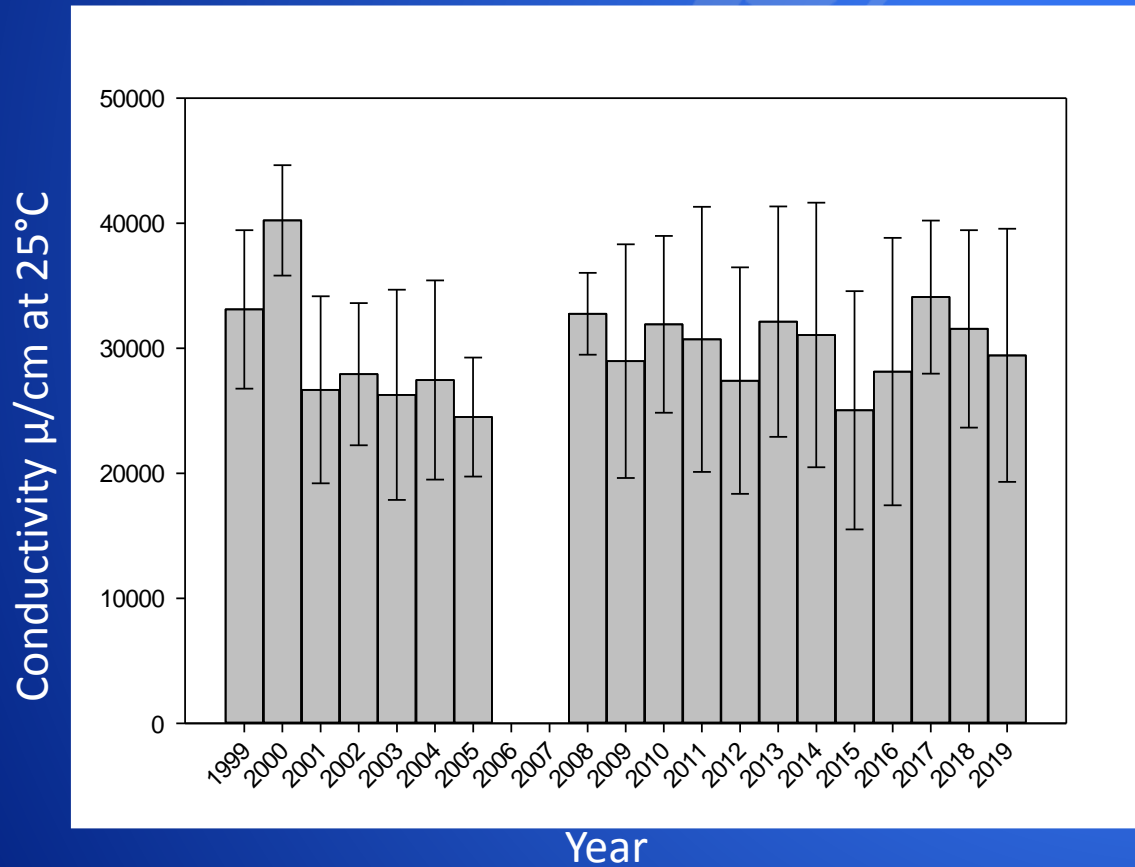
# Evidence of Water Quality Changes

- Land loss
- Spatial loss of oyster reefs
- Increased WQ variability
  - CVs for most USGS gauges have increased over last 25 years

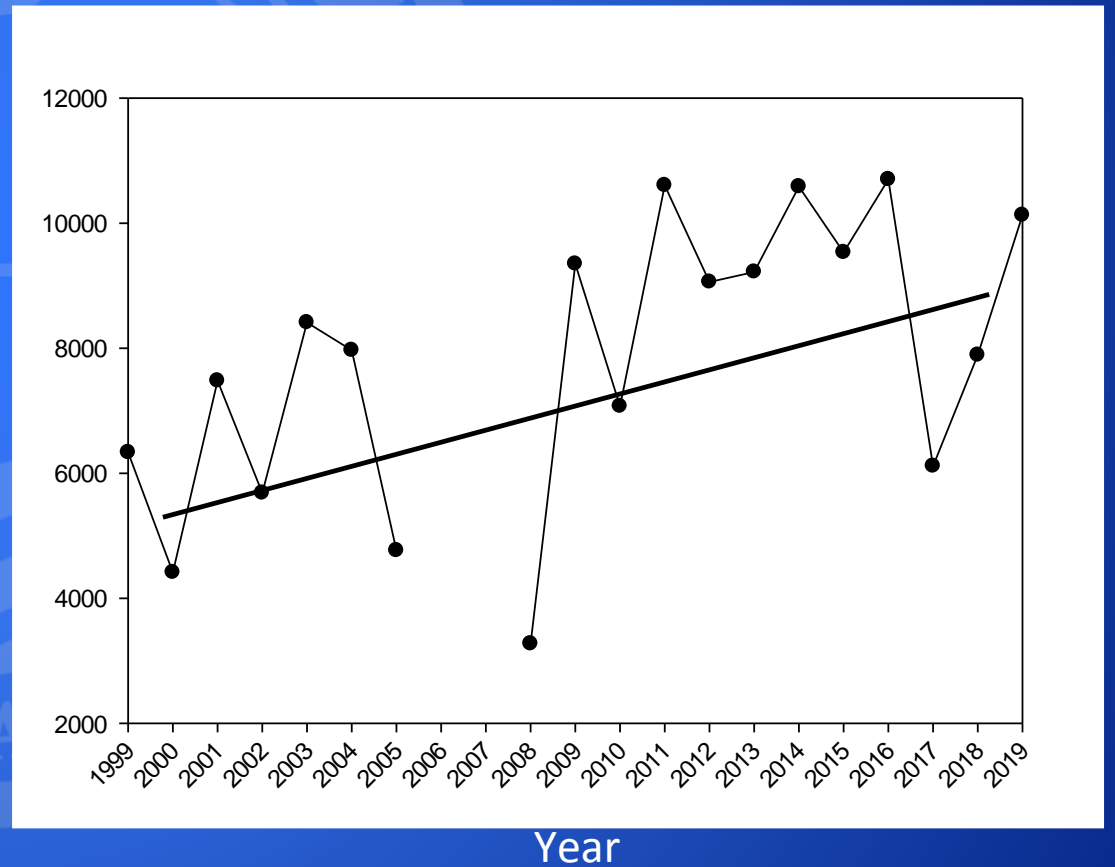


# Water Quality Variation

Data from: USGS 301429089145600 MISSISSIPPI SOUND AT USGS MERRILL SHELL BANK LIGHT

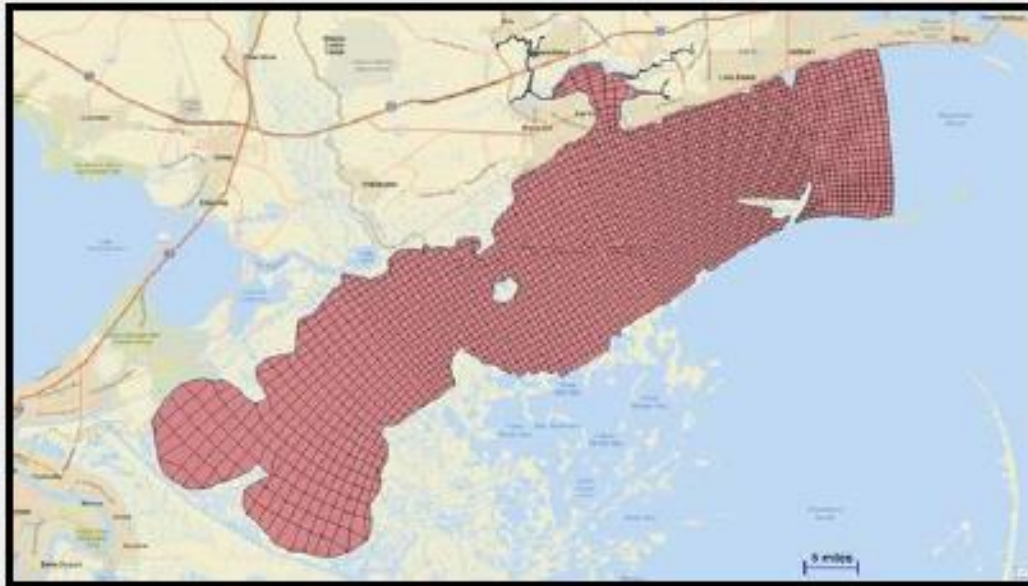


Standard Deviation of Conductivity



# Understanding the Western Sound

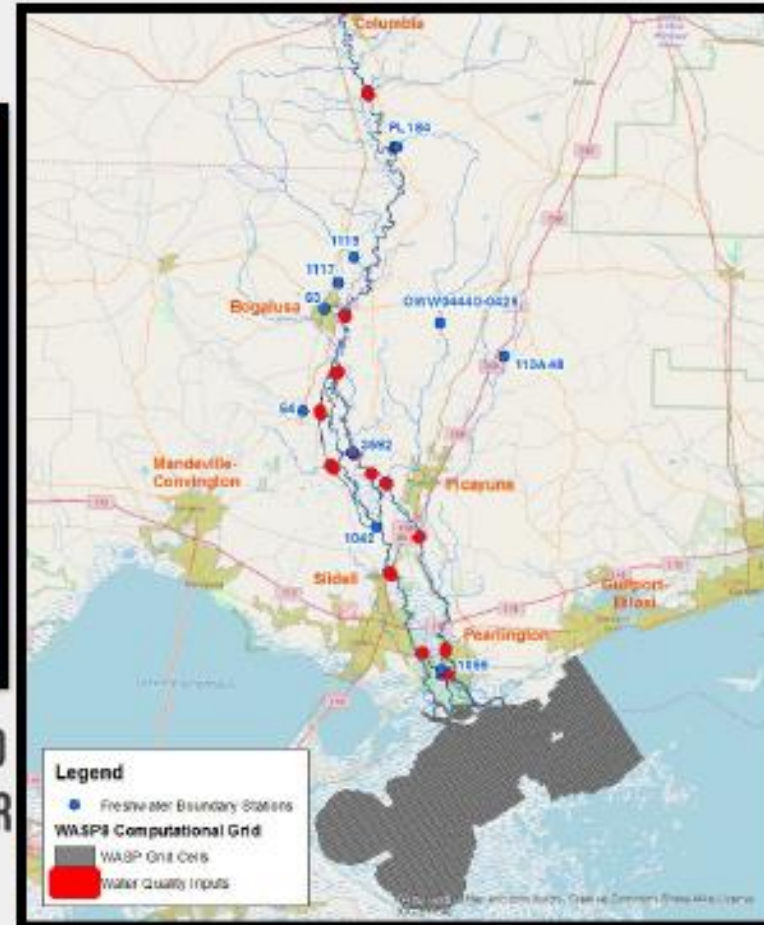
## BETTER UNDERSTANDING OF FLOWS



### HYDRODYNAMIC MODELLING OF WESTERN MS SOUND AND THE LOWER 65KM OF PEARL RIVER

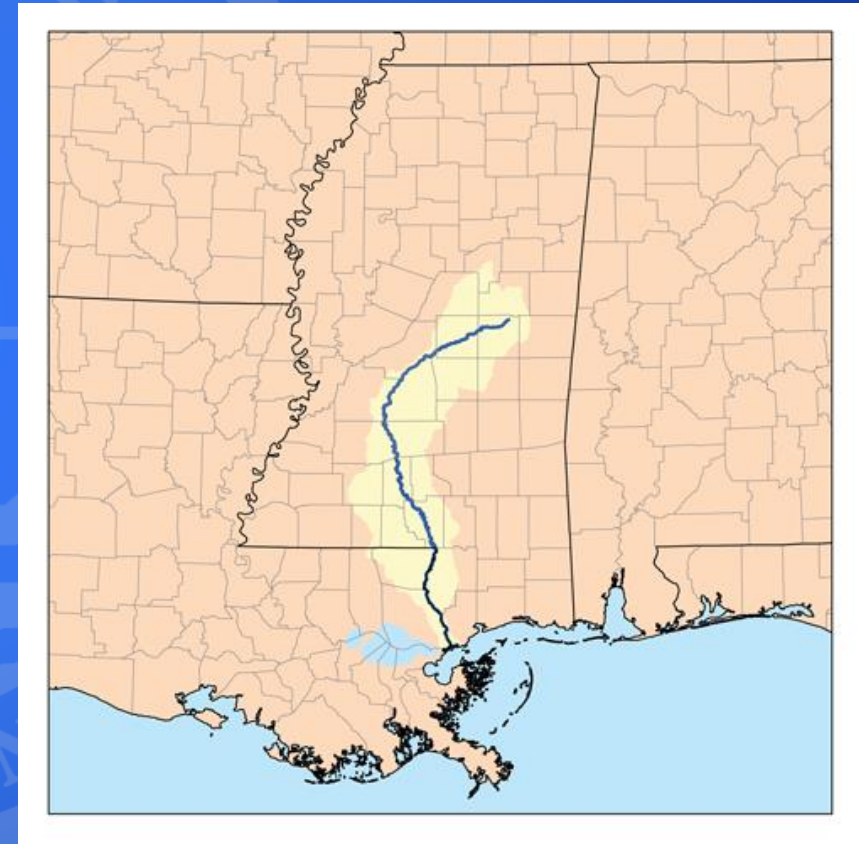


2017 RESTORATION SUMMIT



# Pearl River Strategy

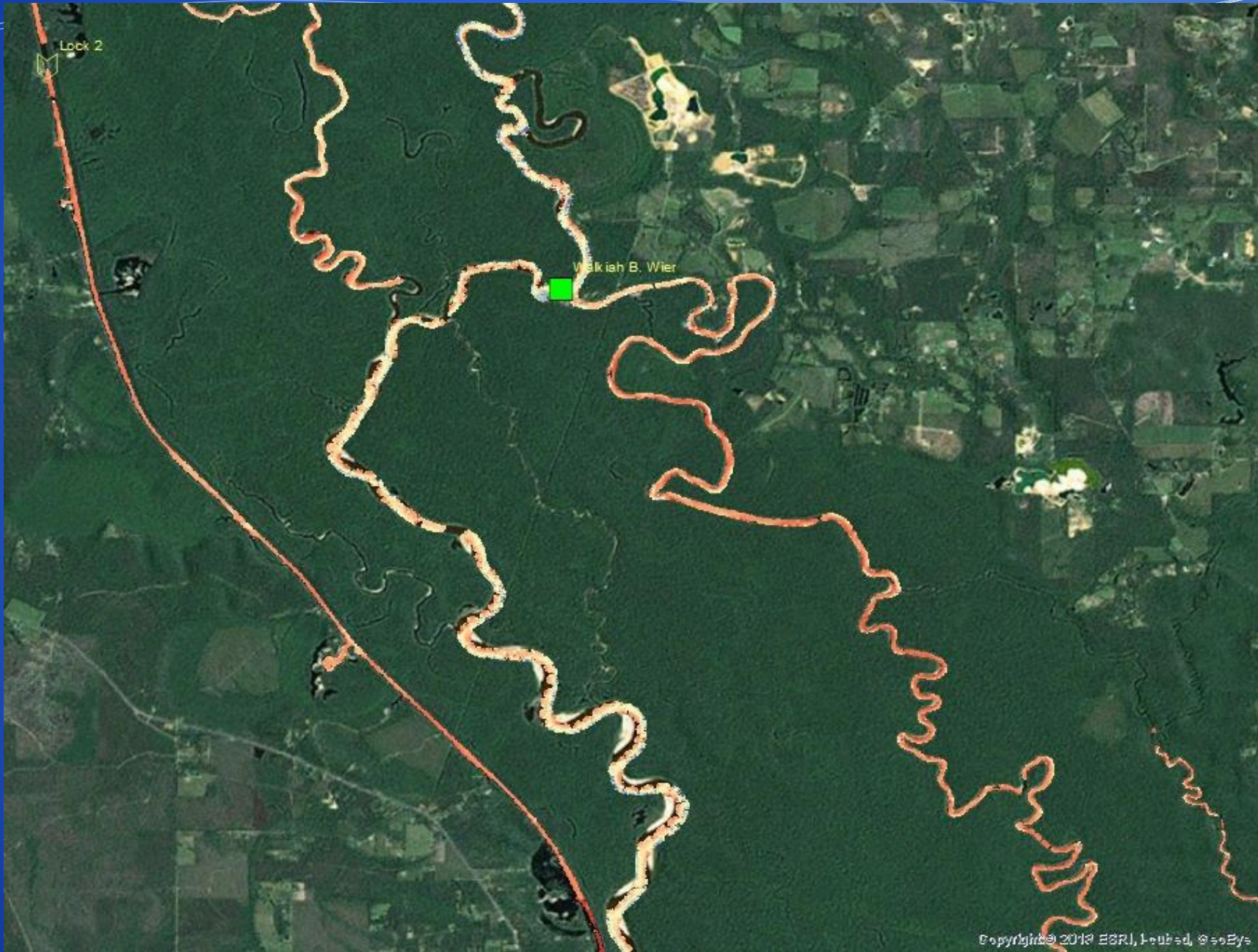
- Pearl River is largest River in the State (Excluding MS River)
- Discharges in to Lake Pontchartrain and Heron Bay
- Lower 1/3<sup>rd</sup> borders both MS and LA

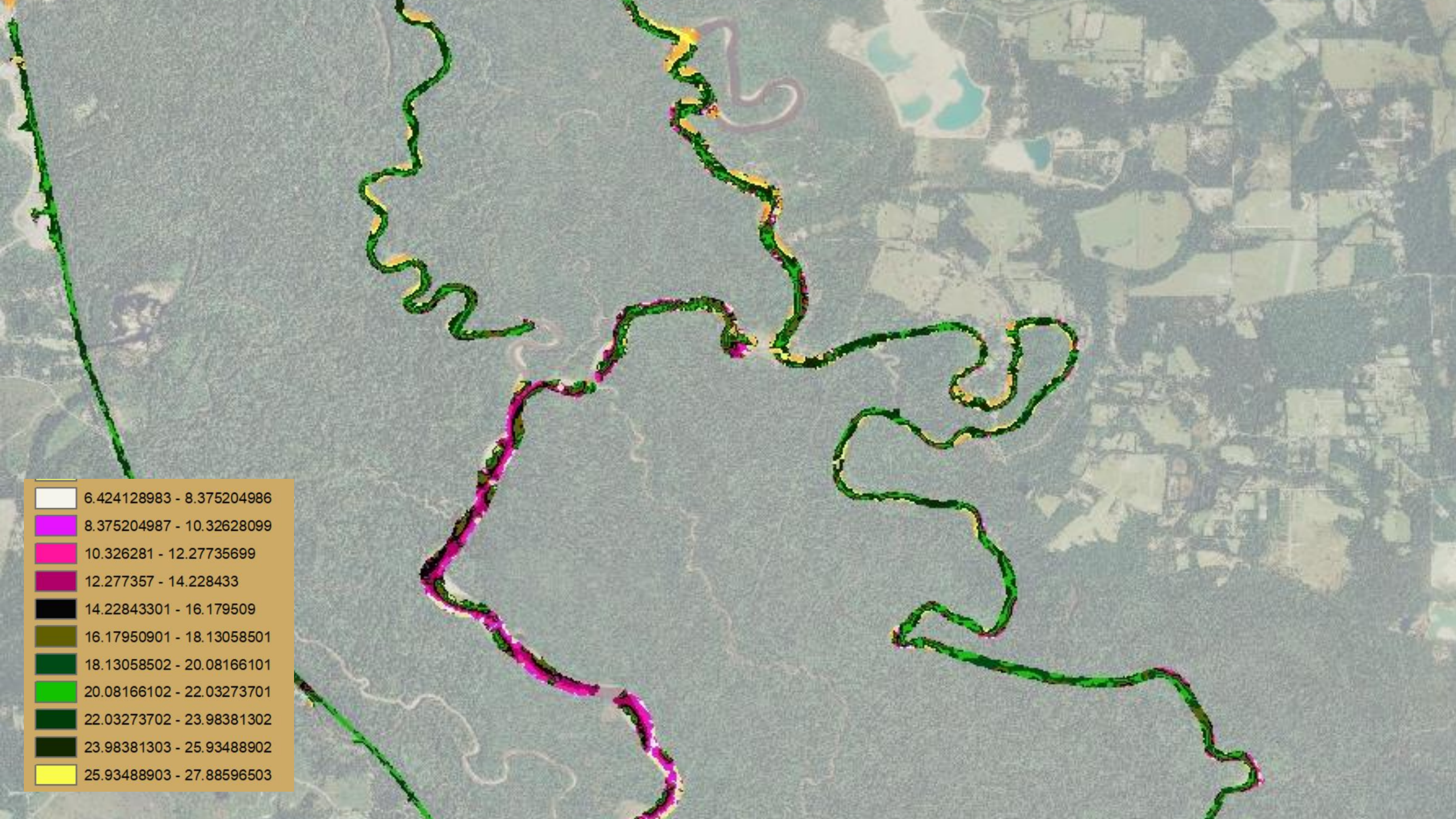


# Many Flow Changes

- Navigation
- Flood Control
- Industry
- Access
- Agriculture



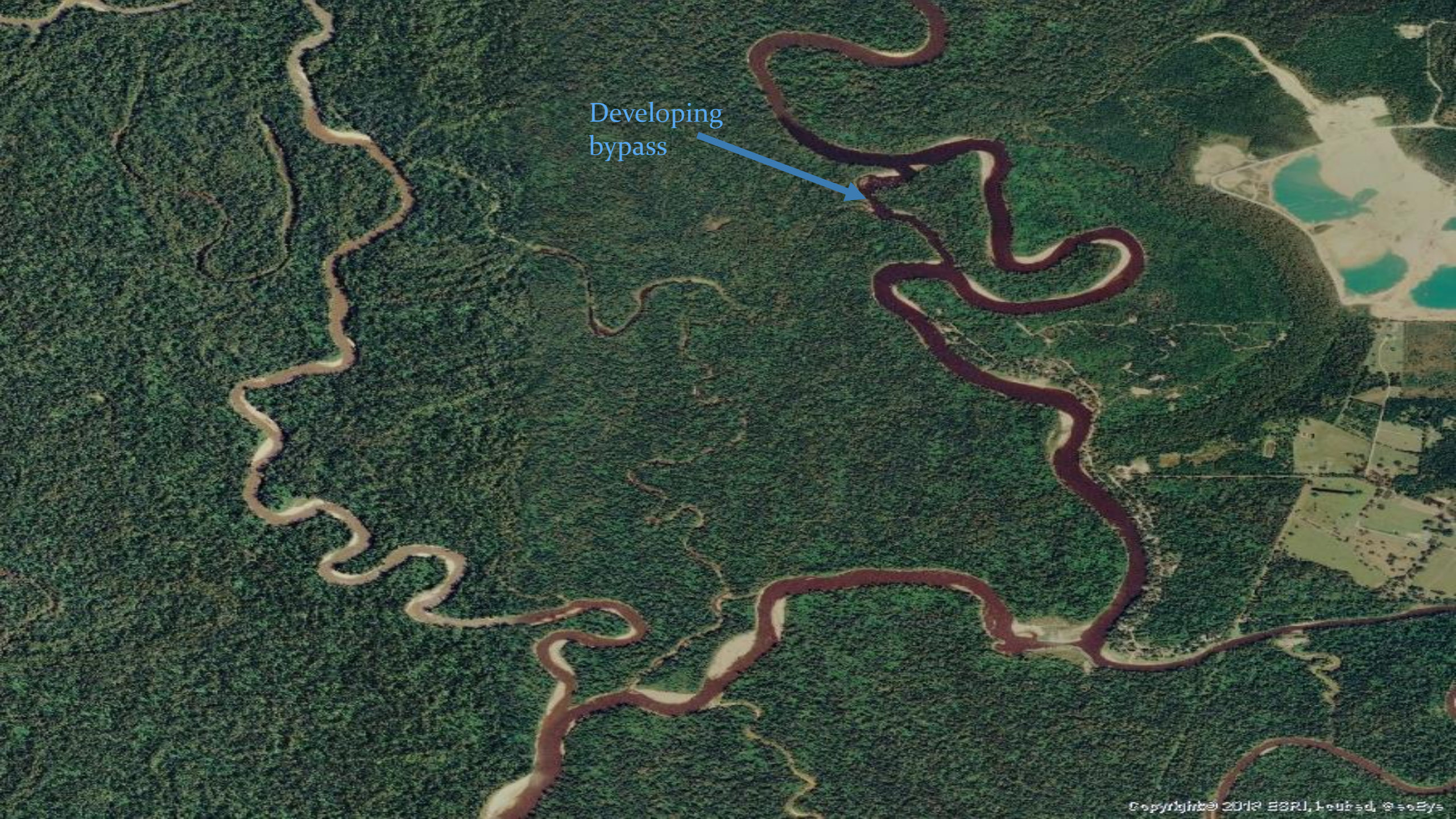




White	6.424128983 - 8.375204986
Magenta	8.375204987 - 10.32628099
Pink	10.326281 - 12.27735699
Dark Red	12.277357 - 14.228433
Black	14.22843301 - 16.179509
Olive	16.17950901 - 18.13058501
Green	18.13058502 - 20.08166101
Dark Green	20.08166102 - 22.03273701
Black	22.03273702 - 23.98381302
Black	23.98381303 - 25.93488902
Yellow	25.93488903 - 27.88596503

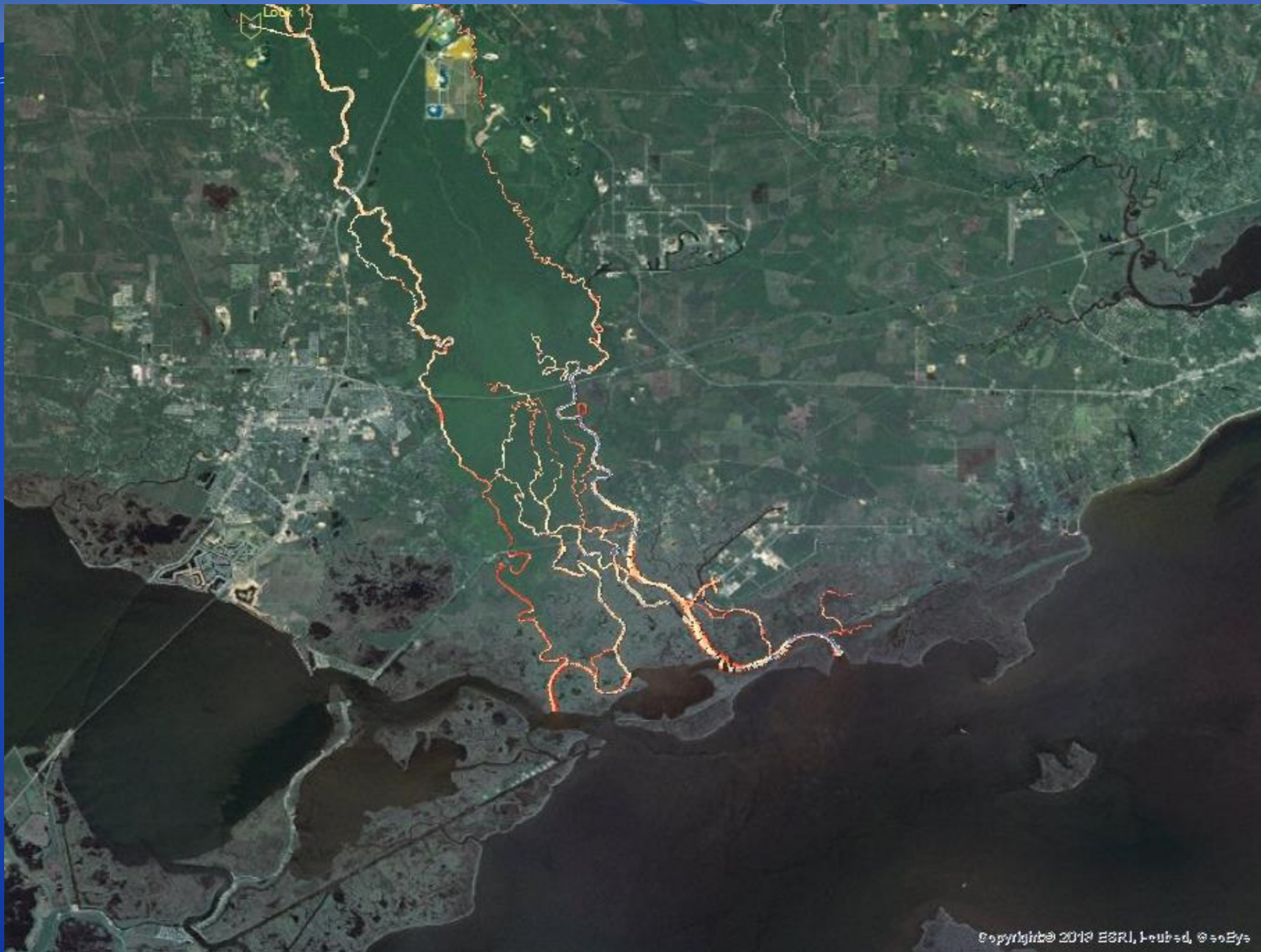
Developing  
bypass





Developing  
bypass





# Potential Paths Forward

- Identifying the WQ based HSI for:
  - Oysters
  - Crab
  - Brown Shrimp
  - Finfish?
- Allow the spatial HSI for each species drive the project support for the state of MS