



NORTH AND CENTRAL WATERSHEDS

UPDATE

FOR: 319 CLEAN WATER ACT NPS PROGRAM

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STUDY AREA

- Primary Waterways:

- Hidalgo Willacy Main Drain
- Raymondville Drain
- IBWC North Floodway

- Unique Characteristics

- Clay Soils:
 - Impermeability
- Flat elevation
- 1 foot per mile
- Man -made channels

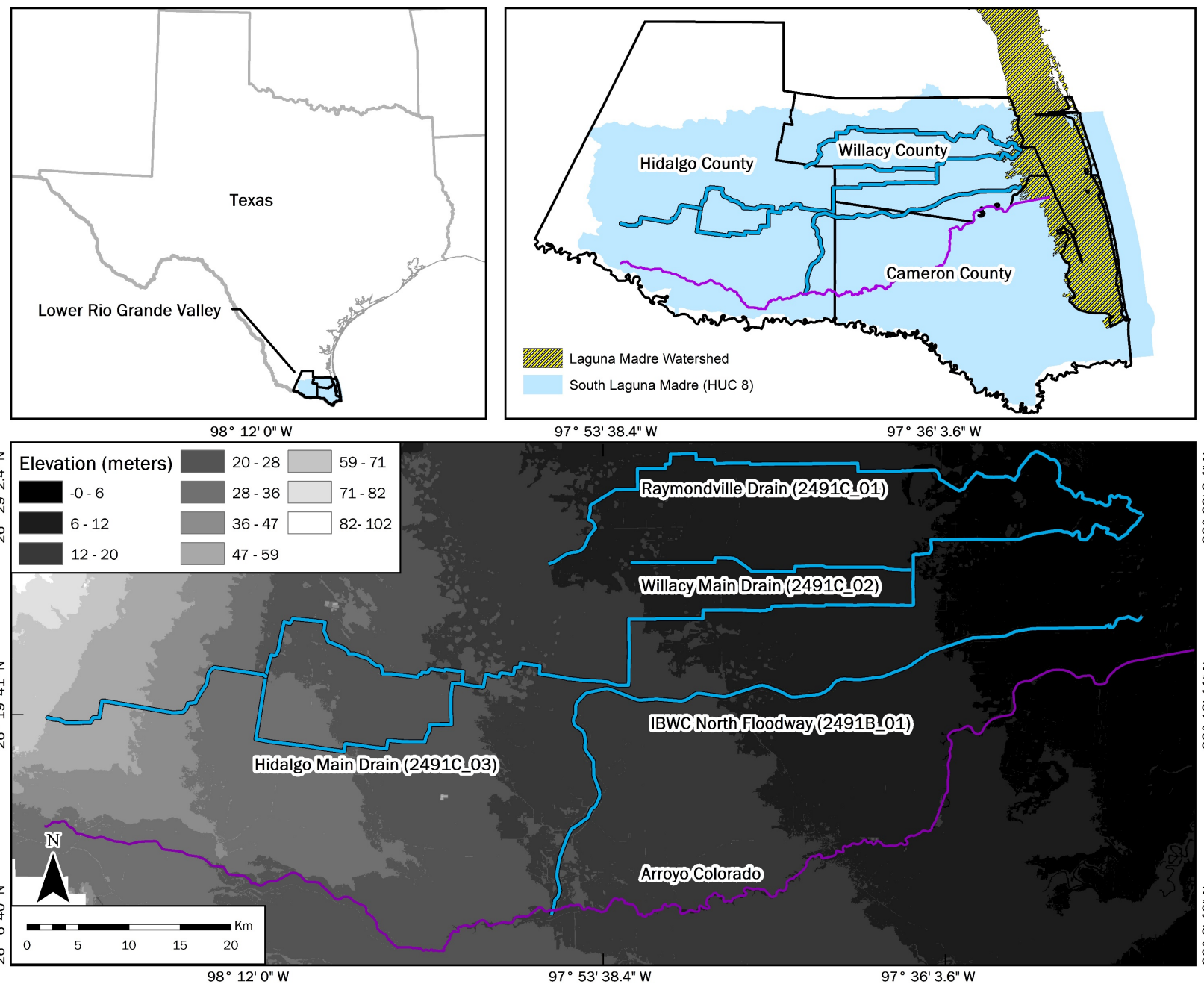


Figure 1 : North and Central Watersheds

WHY IS THIS IMPORTANT?

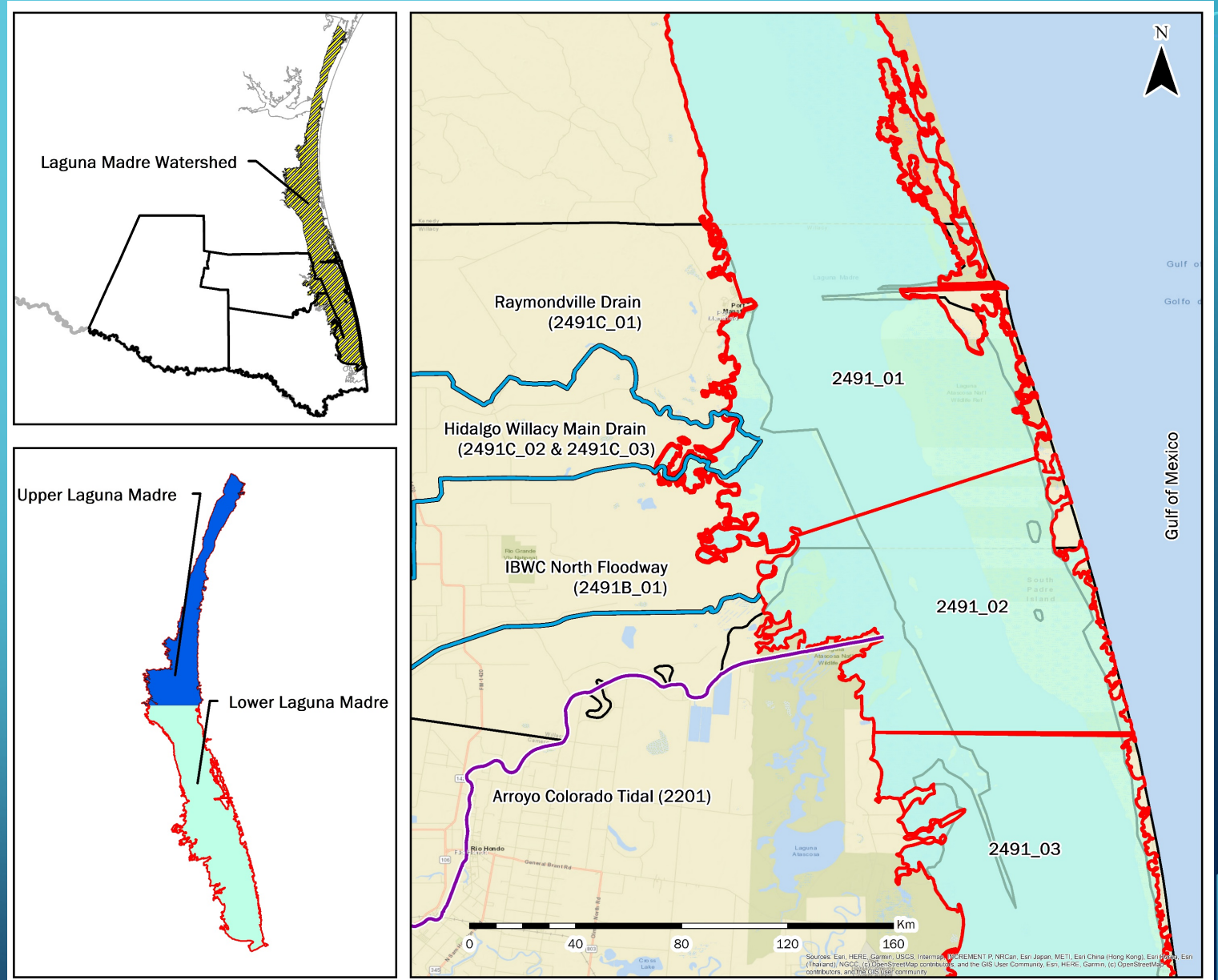


Figure 2 : Laguna Madre Watershed

CURRENT DATA

TCEQ Status for Impairments

- **Draft Texas Integrated Report 2022**
- **Texas Integrated Report 2020**

GIS

- **North and Central Watershed Delineation**

Clean River Program; Surface Water Quality Monitoring (SWQMIS) (TCEQ)

- **Flow Data and Water Quality (2017- 2019)**
- **8 Samples**

TWDB- Freshwater Flows Program (FWF)

- **Flow and Water Quality Data (2021-2022)**
- **2 samples**

TWDB Flood Infrastructure Fund (FIF)

- **Hydrologic and Hydraulic Efforts**

UPDATED WATERSHED DELINEATION

- ArcGIS and QGIS
 - Hydrology Tools
- Reconditioning
 - LIDAR Elevation 2018
 - 60 m resolution

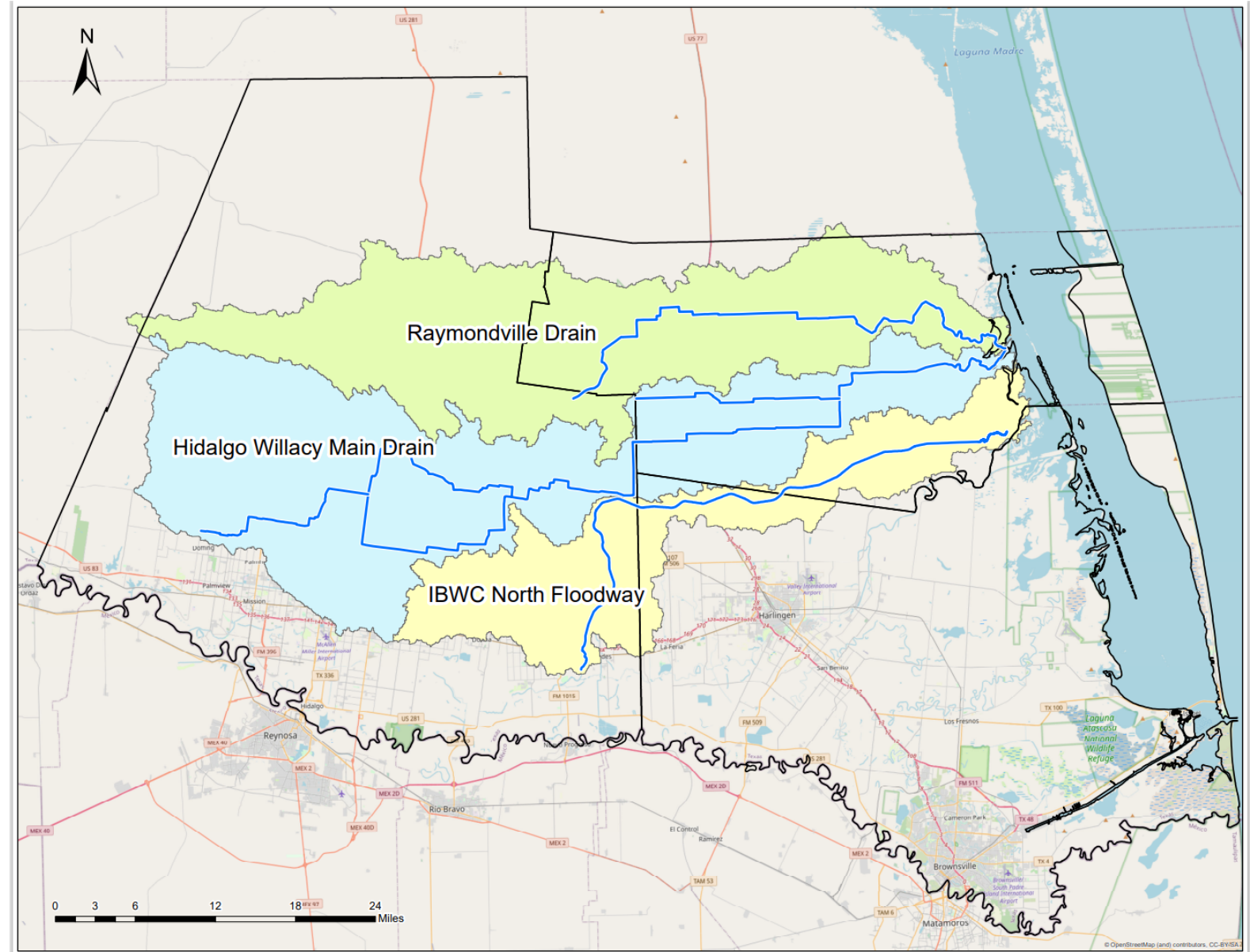


Figure 3 : North and Central Watersheds

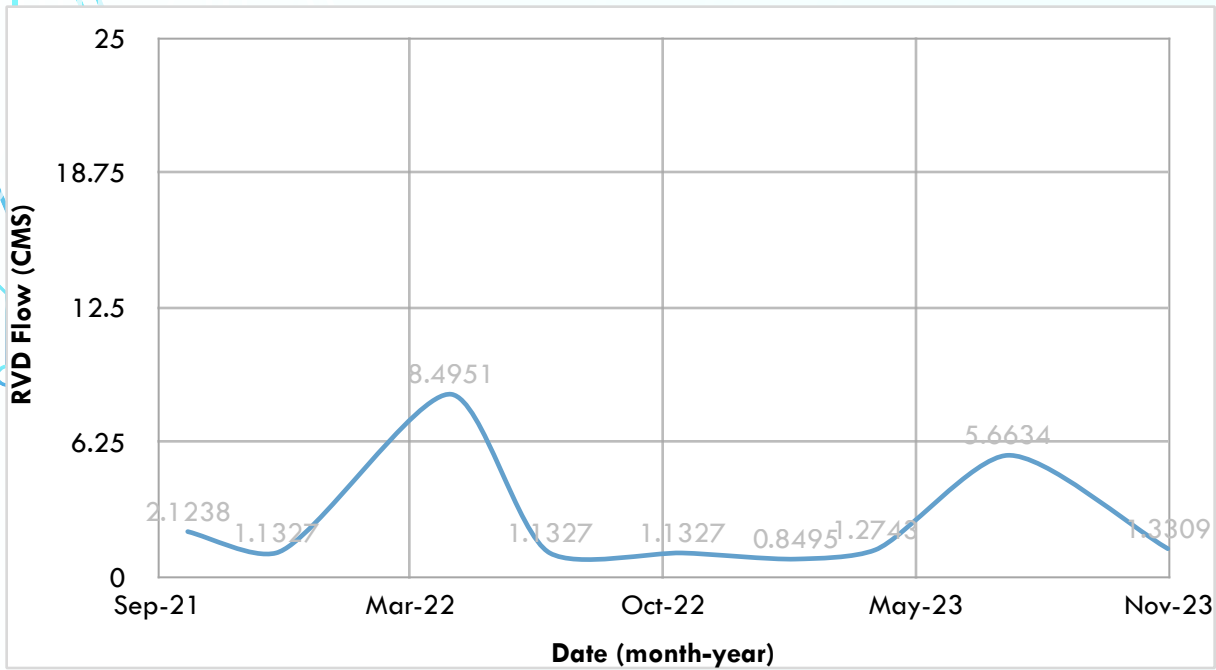


Figure 4 : Flow Data for Raymondville Drain Waterway

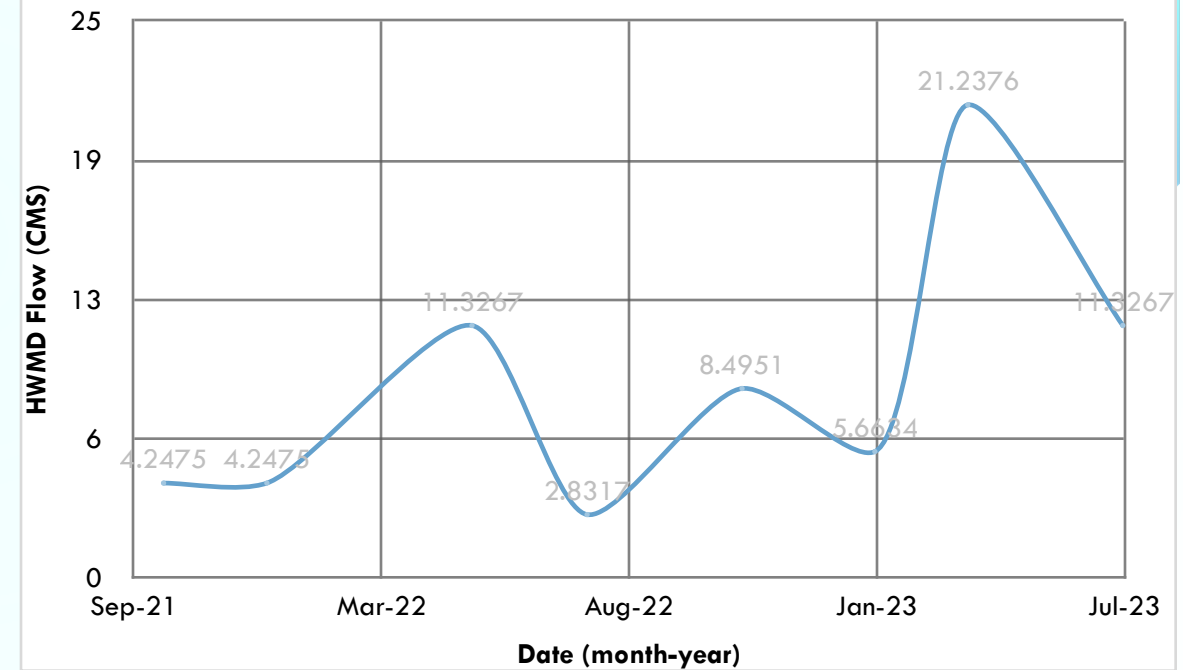


Figure 5: Flow Data for HWMD Waterway

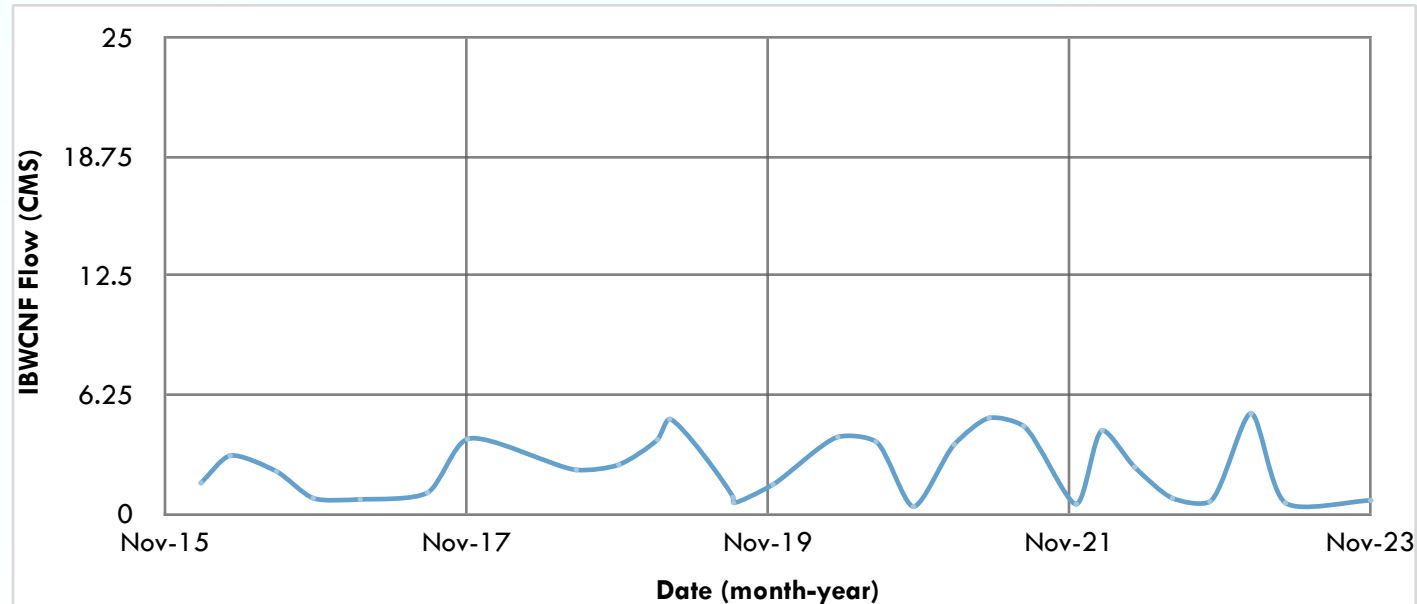
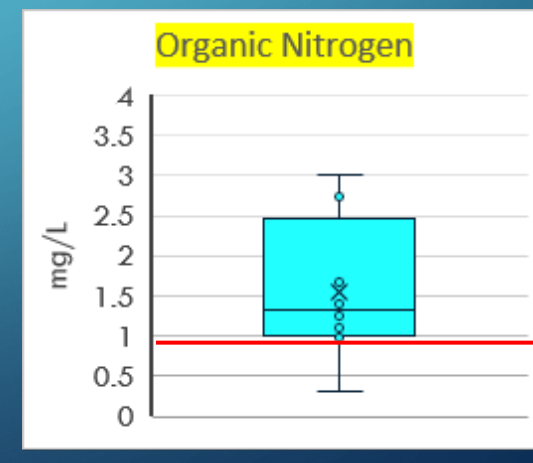
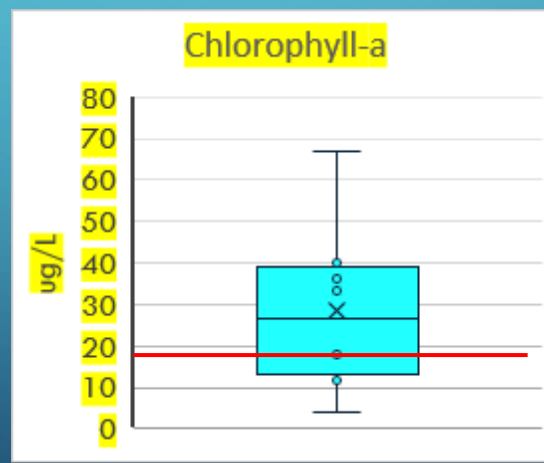
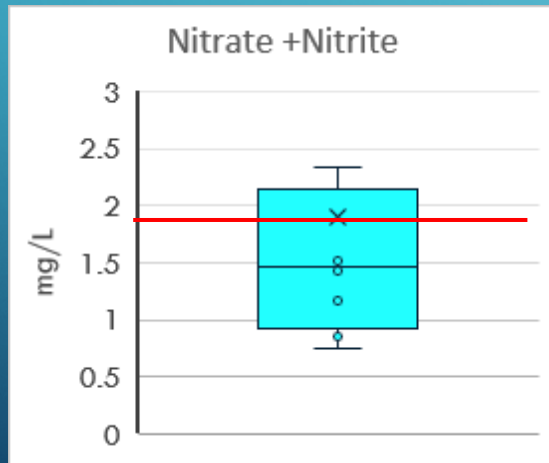
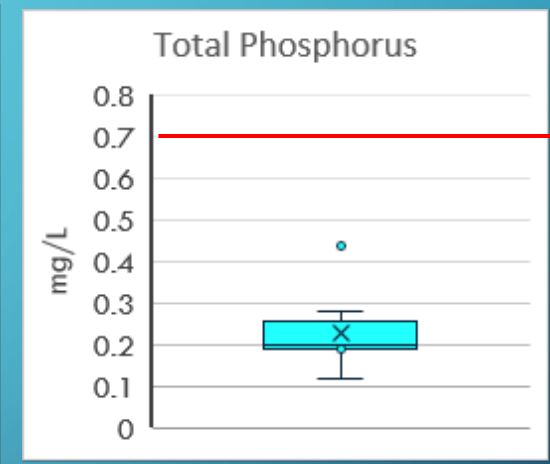
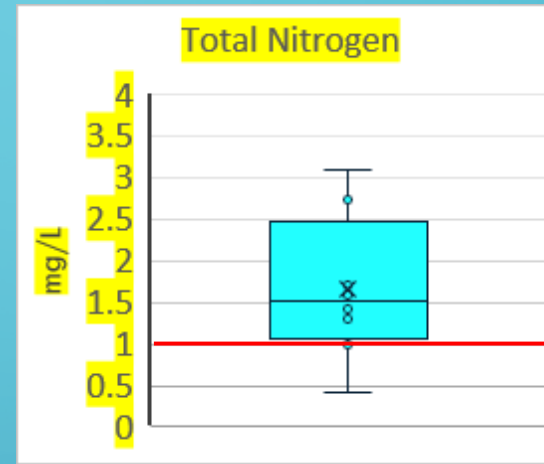
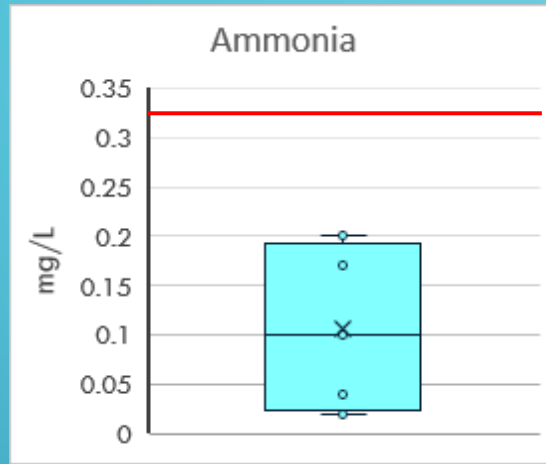
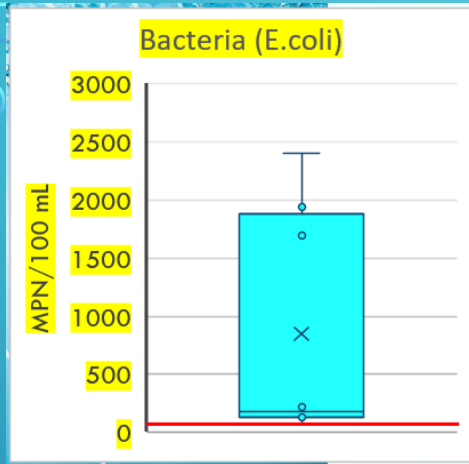


Figure 6: Flow Data for IBWC North Floodway

RAYMONDVILLE DRAIN 2017-2019

WATER QUALITY



HIDALGO WILLACY MAIN DRAIN 2017-2019

WATER QUALITY

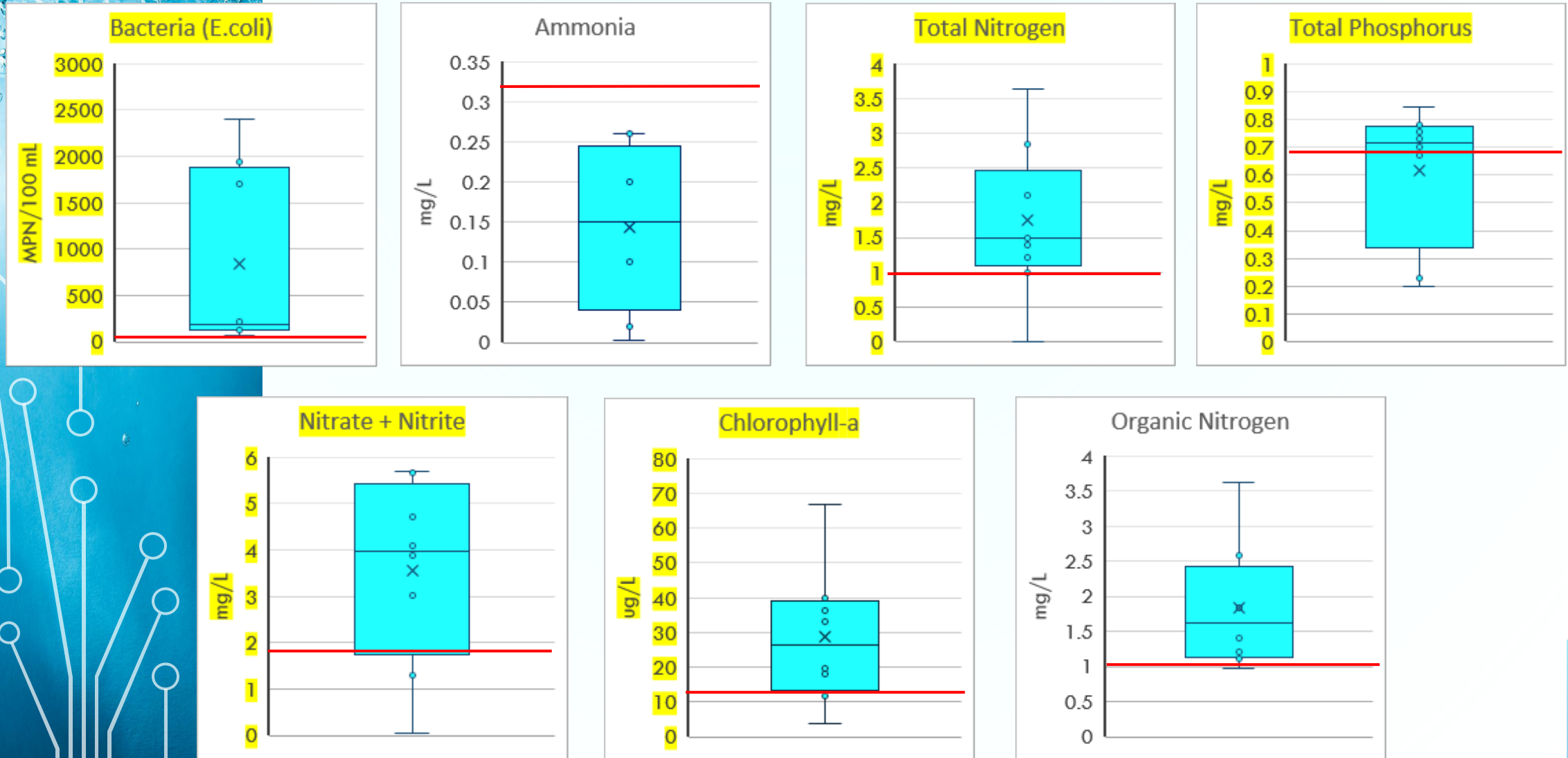
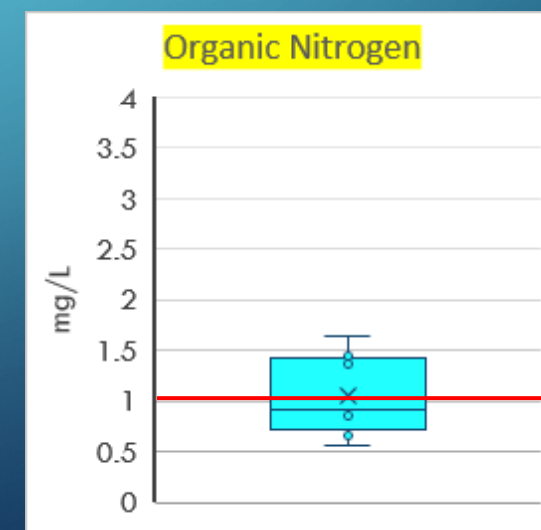
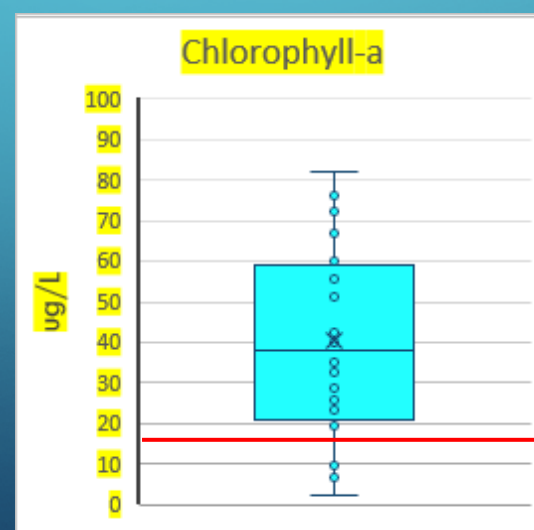
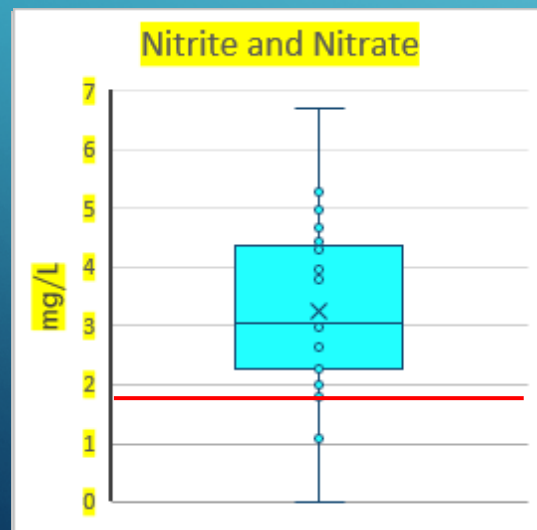
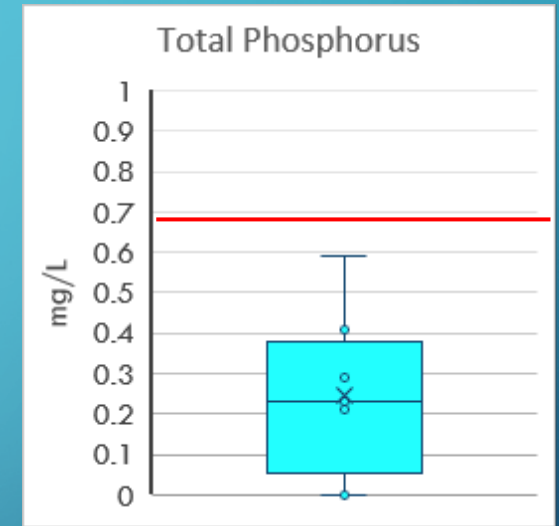
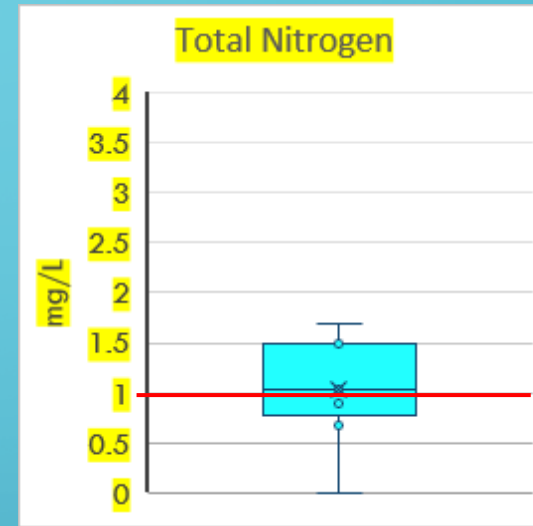
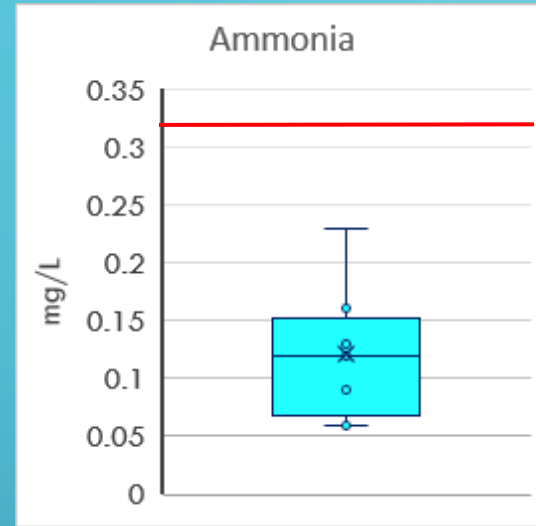
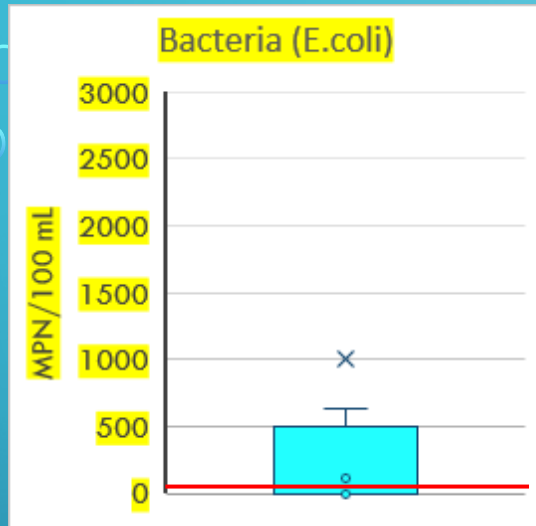


Figure 3: Water Quality Data for Hidalgo Willacy Main Drain (HWMD) Waterway (Station 22003)

IBWC NORTH FLOODWAY 2017-2019 WATER QUALITY



FWF PROJECT MONITORING EFFORTS

- RTHS-Stage Heights: REON websites
- Two Quarterly Monitoring Campaigns
 - 2021-2022
 - Water quality samples
 - Flow measurements
- Future: Developing Rating Curves for Design

FIF PROJECT MODELLING EFFORTS

- Hydrologic and Hydraulic
 - Ultimate Operational Hydrologic Model
 - WRF-Hydro Model
 - Preliminary Model for HEC-RAS Development
 - HEC-HMS
 - Hydraulic Model HEC-RAS
- Hydrologic Model
 - Precipitation Data: NOAA Frequency Storm Events
 - 10- year
 - 50- year
 - Land Cover Data from Texas Natural Resources Information System (TNRIS)
- Hydraulic Model HEC-RAS
 - LiDAR elevation data from 2018- (TNRIS)
 - Roughness Coefficient

RVD MODEL

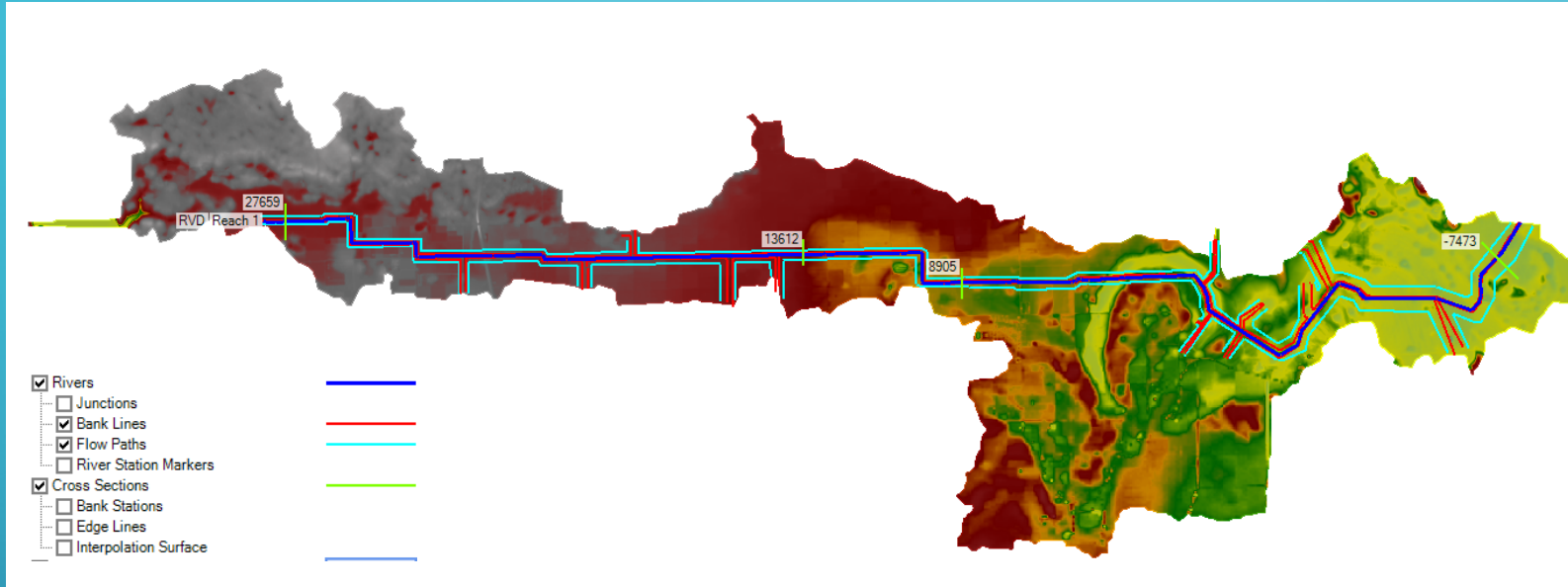


Figure 7: RVD RAS Mapper

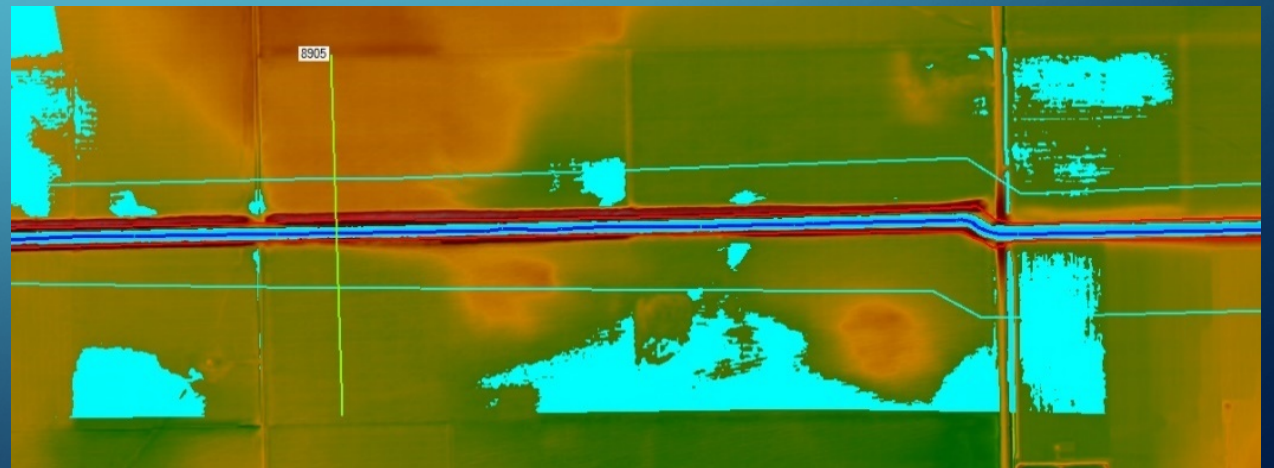


Figure 8: Near TWDB 1 Station

HWMD MODEL

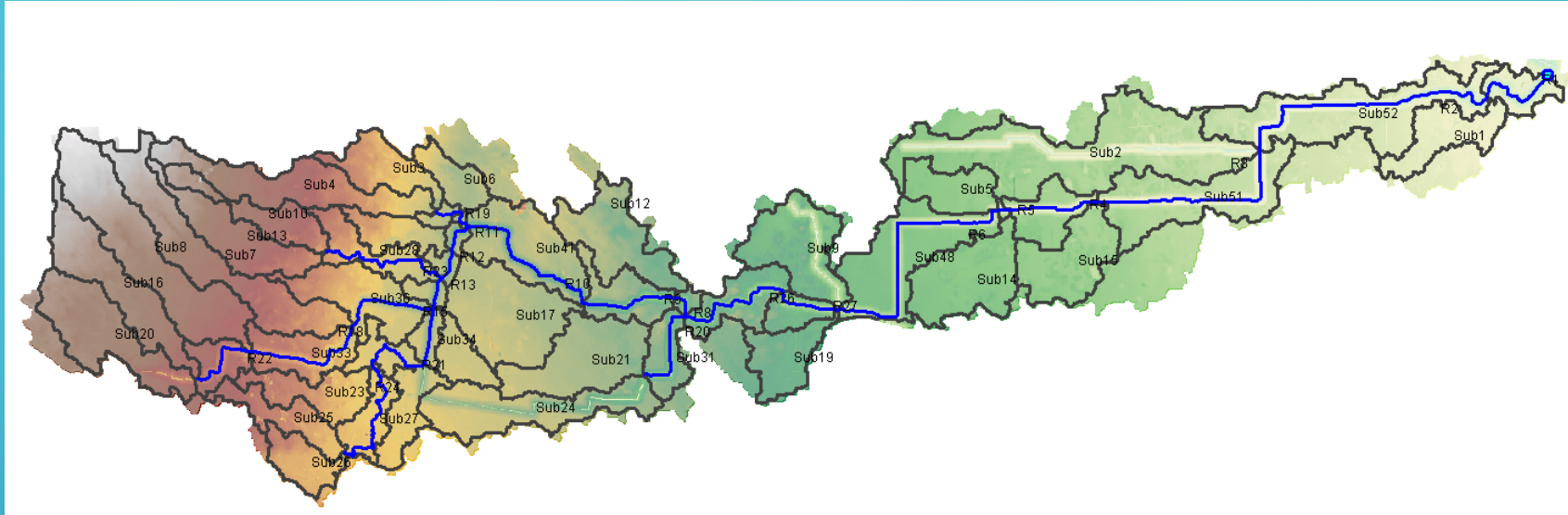


Figure 9: RVD HEC-HMS

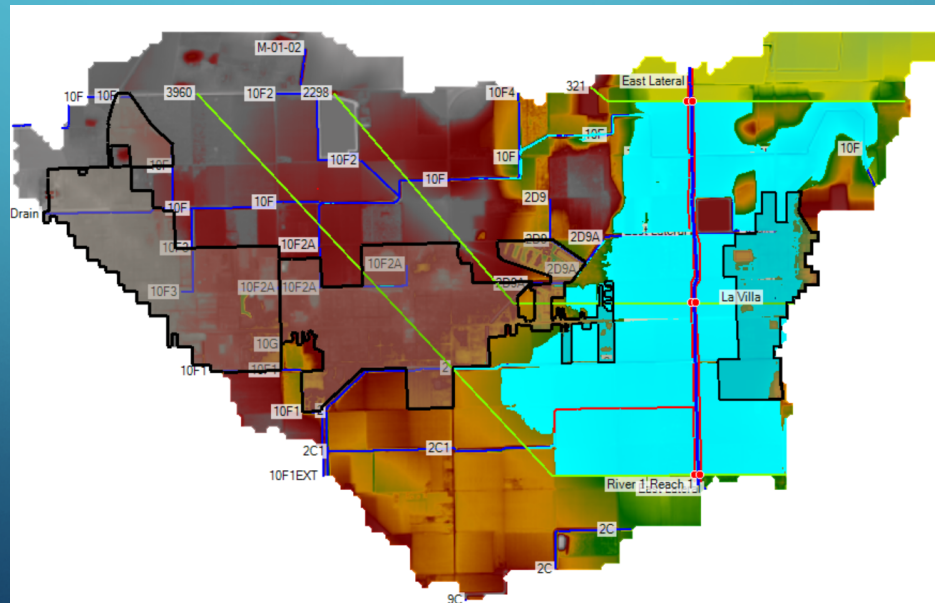


Figure 10: East Lateral Drain



CURRENT AND FUTURE EFFORTS

- 319 Project
 - Watershed Characterization Report.
- FWF
 - 3rd Sampling Event July
- FIF
 - Modelling Effort for IBWC North Floodway
 - Deploying RTHS Stations