Northern & Central Watershed Protection Plan Project

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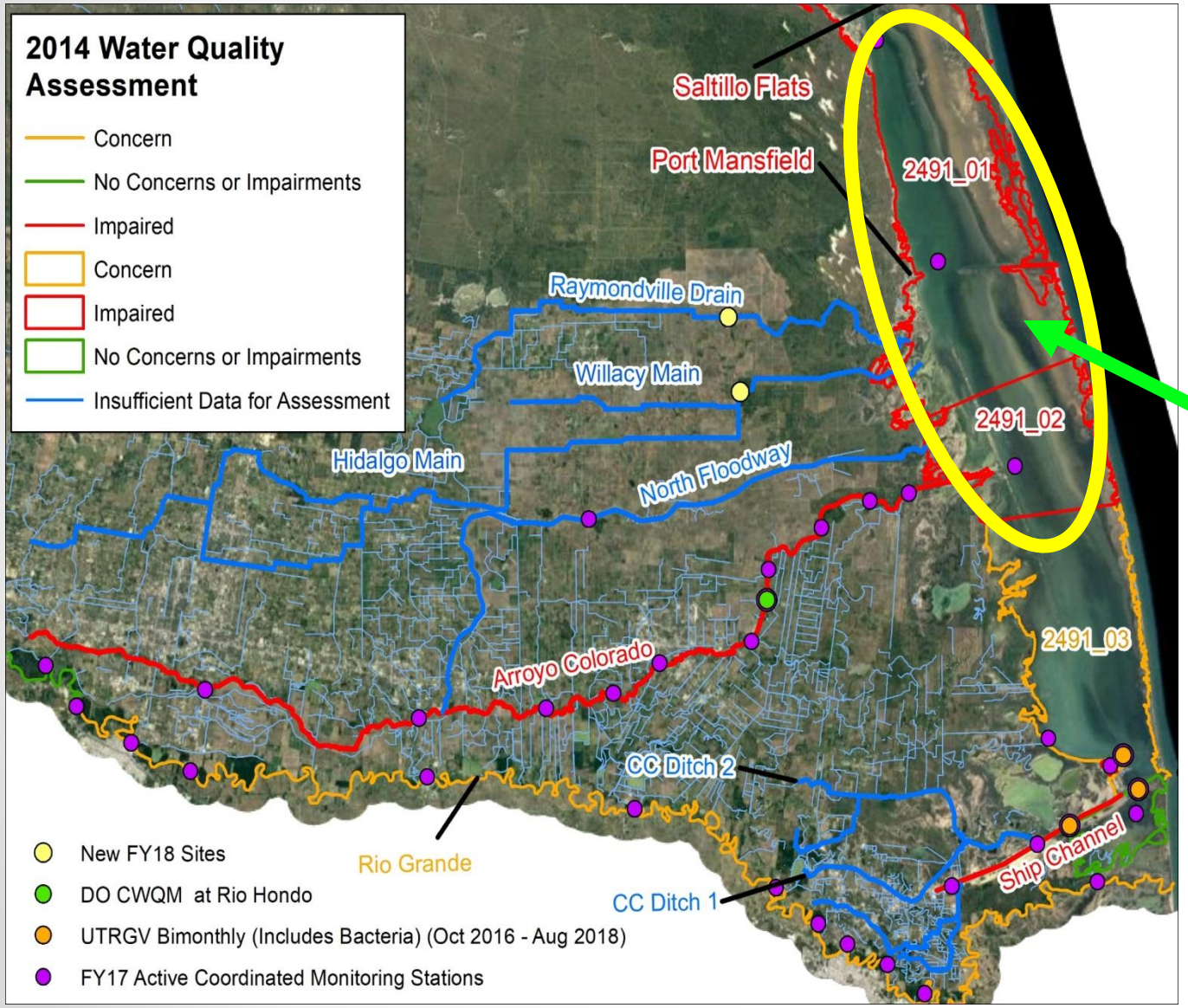
Background

- The Raymondville Drain and the Hidalgo/Willacy Main, the IBWC pilot channel (IBWC North Floodway) flow into the Lower Laguna Madre which is impaired for low DO and bacteria.

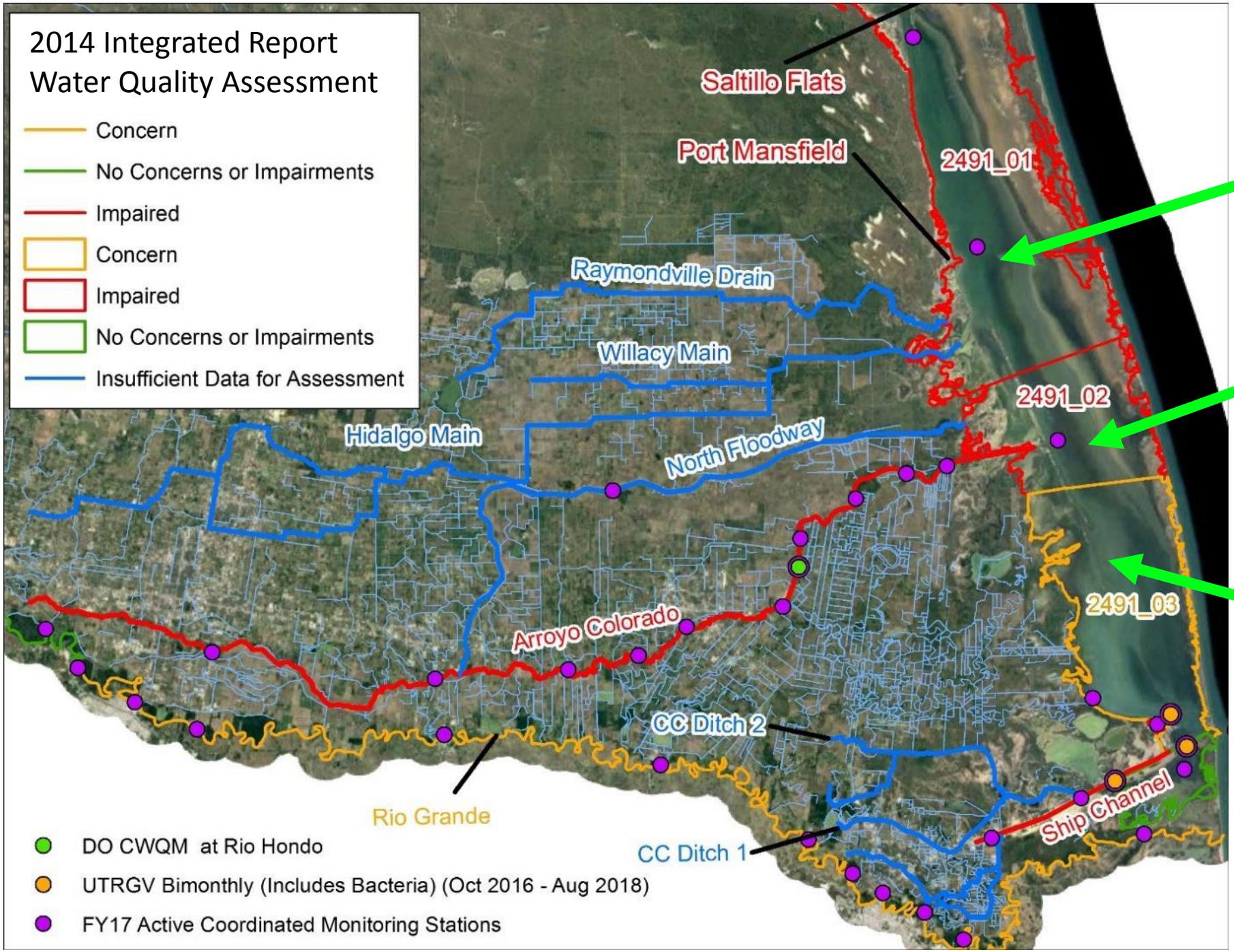
- The three floodways collects stormwater runoff and agriculture runoff activity (Non-point source Pollution).

- There is a lack of water quality data collection within the target region and limited data has been collected

Laguna Madre



- The Laguna Madre is one of only five hypersaline in the world (Unique ecosystem).
- Due to its location in semi-arid South Texas, its waters generally evaporate more than freshwater flows into it.
- Lower Laguna Madre Segment 2491 (2941_01, 2941_02 and 2941_03).
- Laguna Madre is impaired for low dissolved oxygen and bacteria



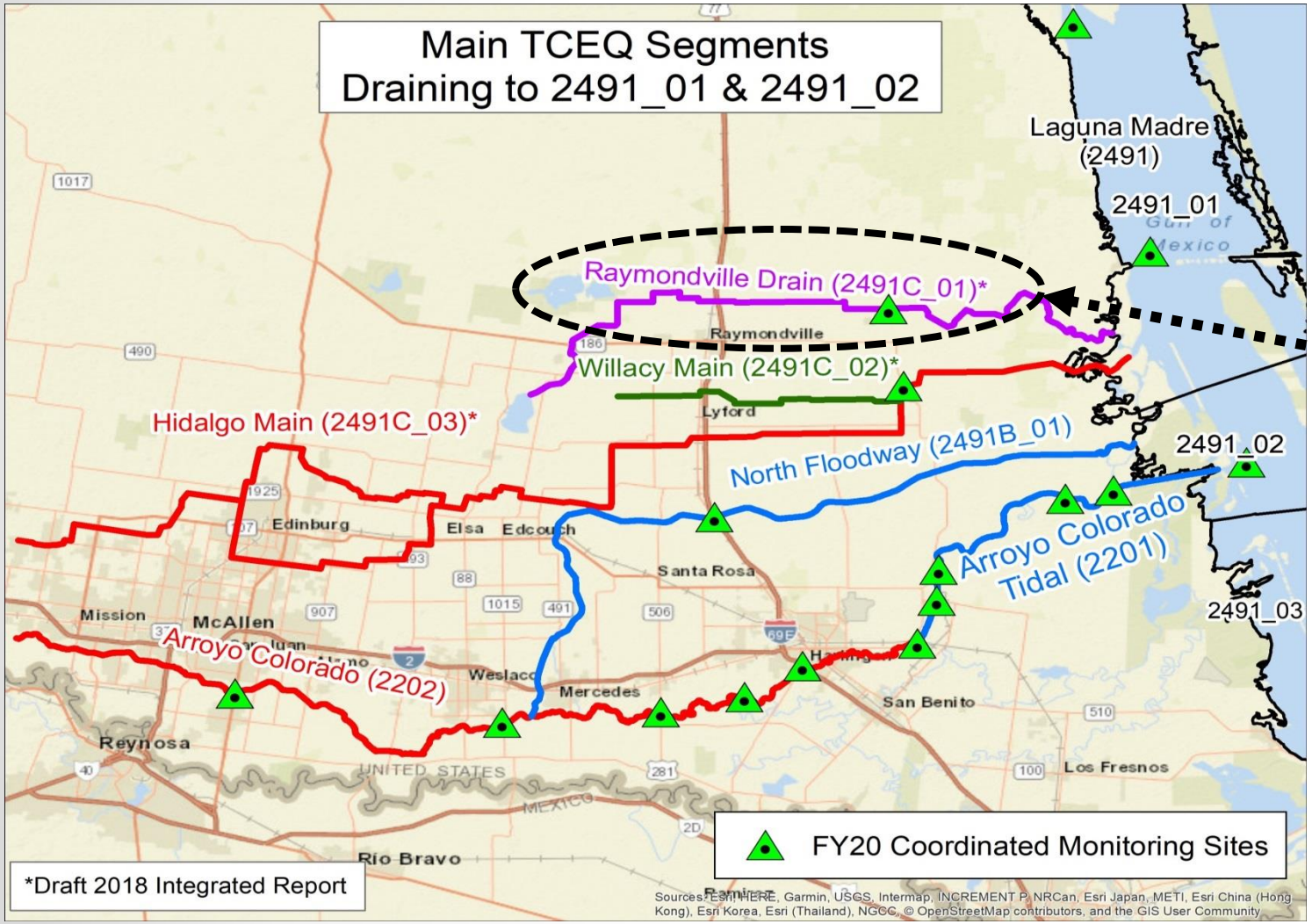
Laguna Madre (2491)

Low Dissolved Oxygen
Chlorophyll-a

Low Dissolved Oxygen
Bacteria
Ammonia
Nitrate
Chlorophyll-a

Low Dissolved Oxygen

Raymondville Drain:



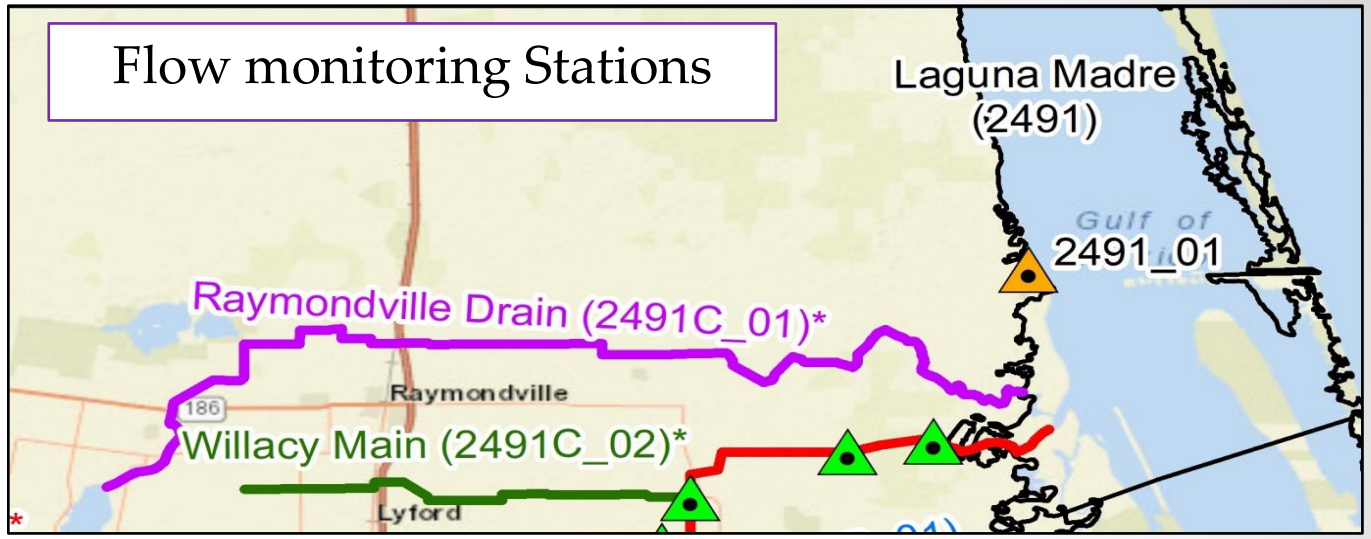
- Includes region **above the Hidalgo/Willacy** Floodway northern watershed boundary to the northern LRGV County limits, and from the **Starr County border** to the **Laguna Madre**.
- Collects stormwater runoff and return flows from subwatershed with predominant agriculture activity

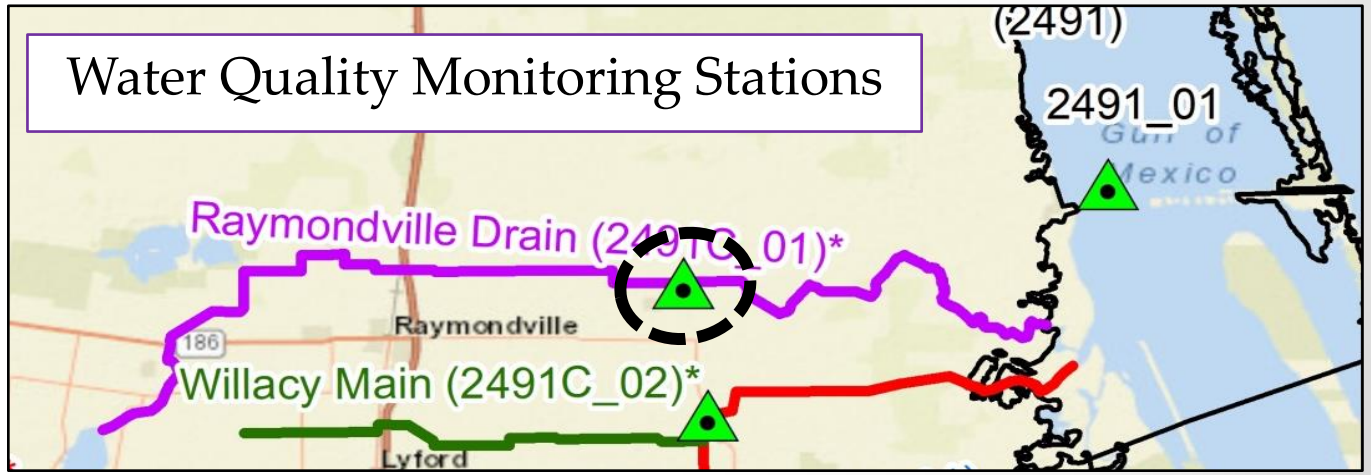
Raymondville Drain Monitoring Stations

No Flow monitoring

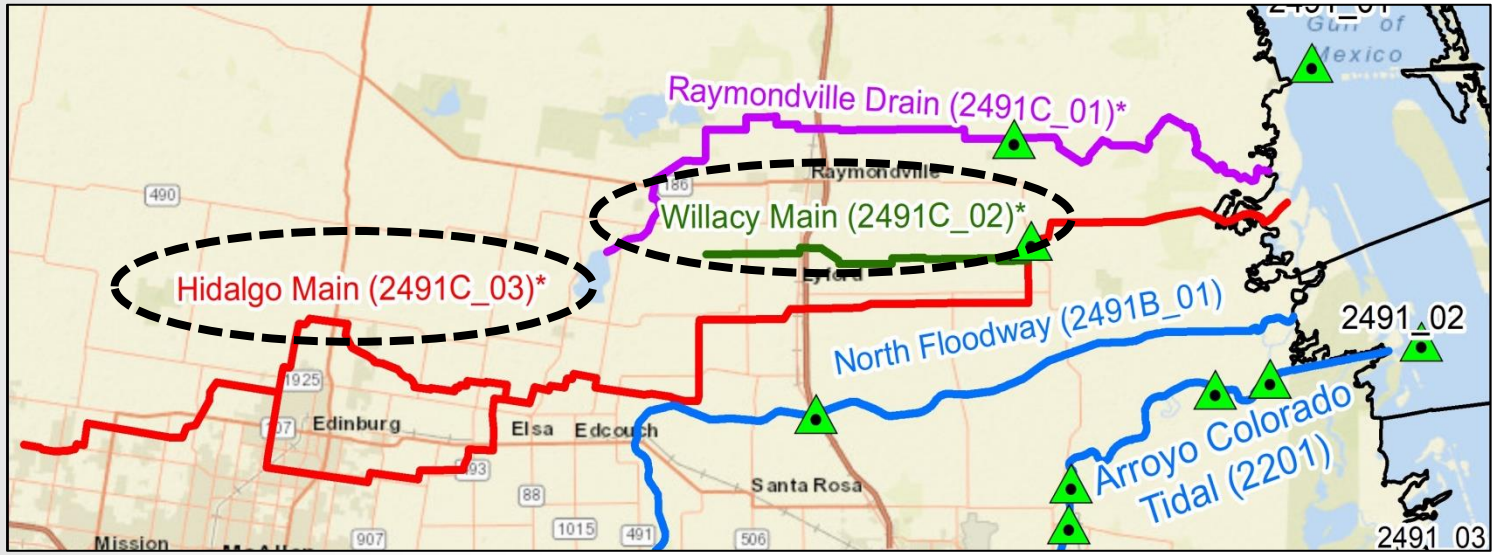
Only one TCEQ water quality monitoring station (ID 22004)

New site started in 2018



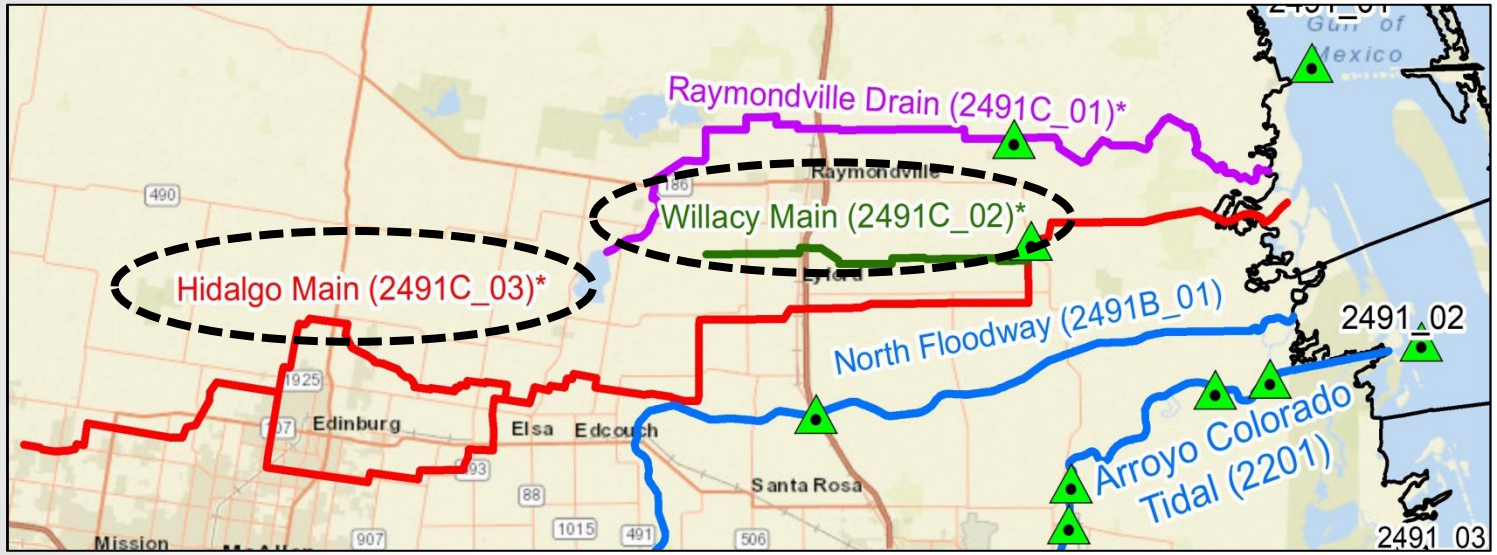


Hidalgo/Willacy County Floodway



- Includes region **above the Arroyo Colorado** to the **south** watershed boundary of the **Raymondville Drain**, and from the **Starr County border** to the **Laguna Madre**

Hidalgo/Willacy County Floodway



- Carries urban stormwater runoff from central and northern Hidalgo County, and
- Agricultural runoff from northeast Hidalgo County and Willacy County

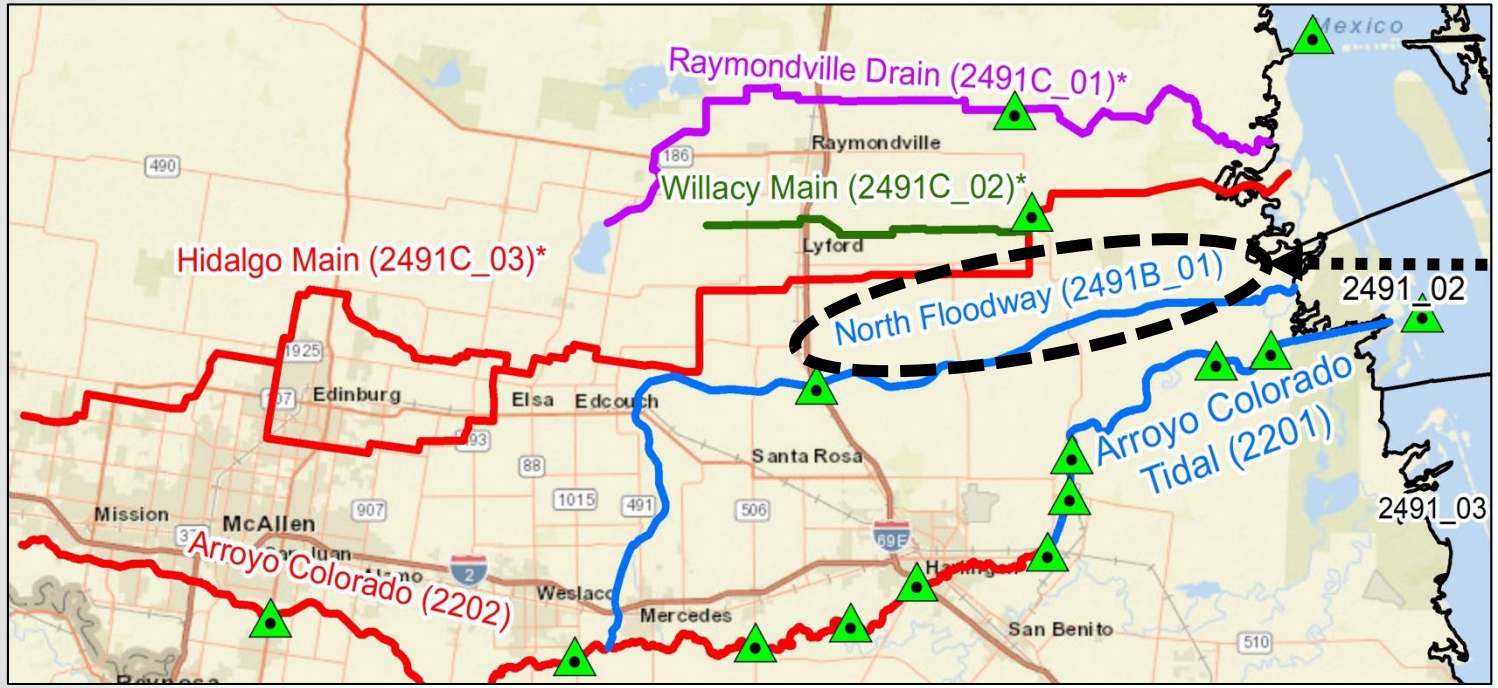
Hidalgo/Willacy County Floodway Monitoring Stations

16 Flow monitoring Hidalgo County Drainage District #1

Only one TCEQ water quality monitoring station (ID 22003)

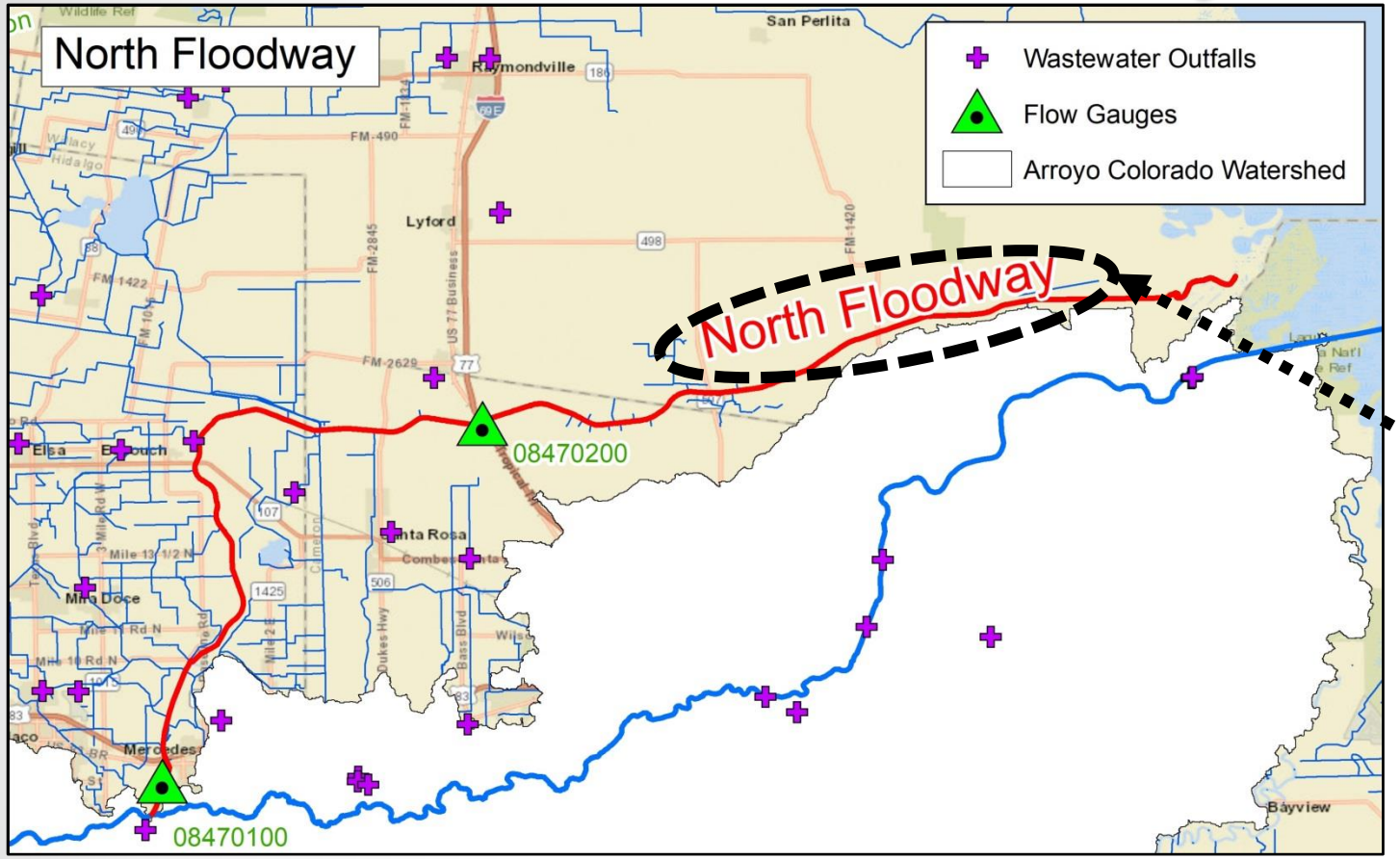
New site started in 2018

USIBWC North Floodway



- Built as a system of floodways in the 1930s
- From Penitas, Texas to the Gulf of Mexico
- In 1967, Hurricane Beulah (27 inches/36 hours – 136 mile/hr), damages ($234.6 million).
- From 1968 to 1977, $29 million was invested in project improvements.

USIBWC North Floodway

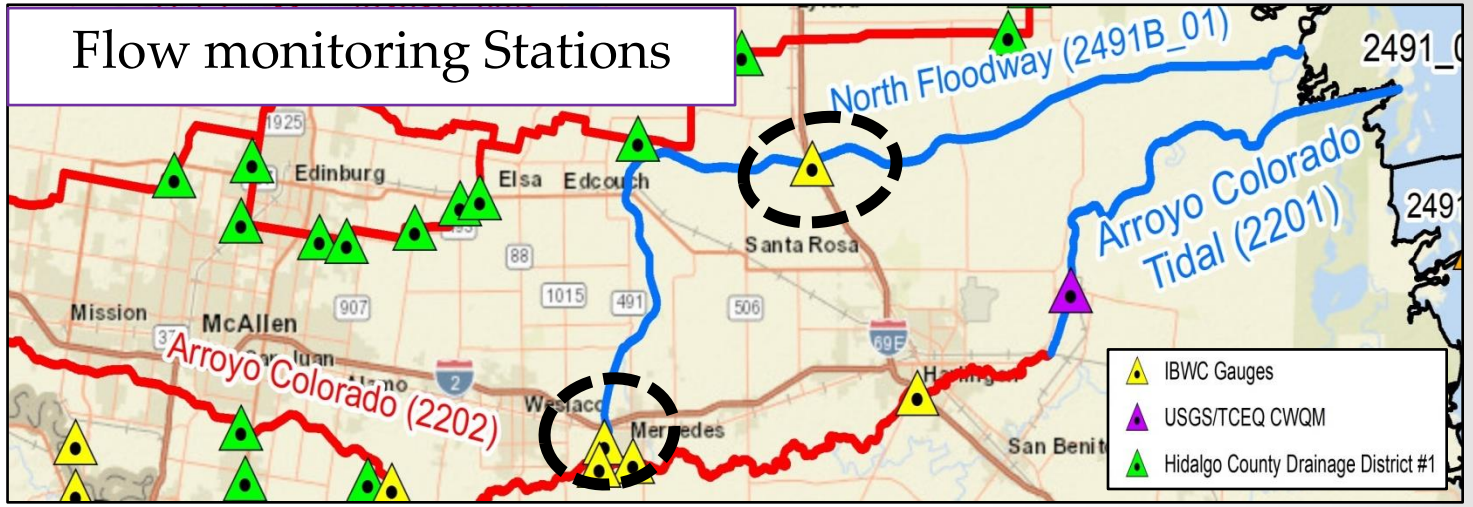


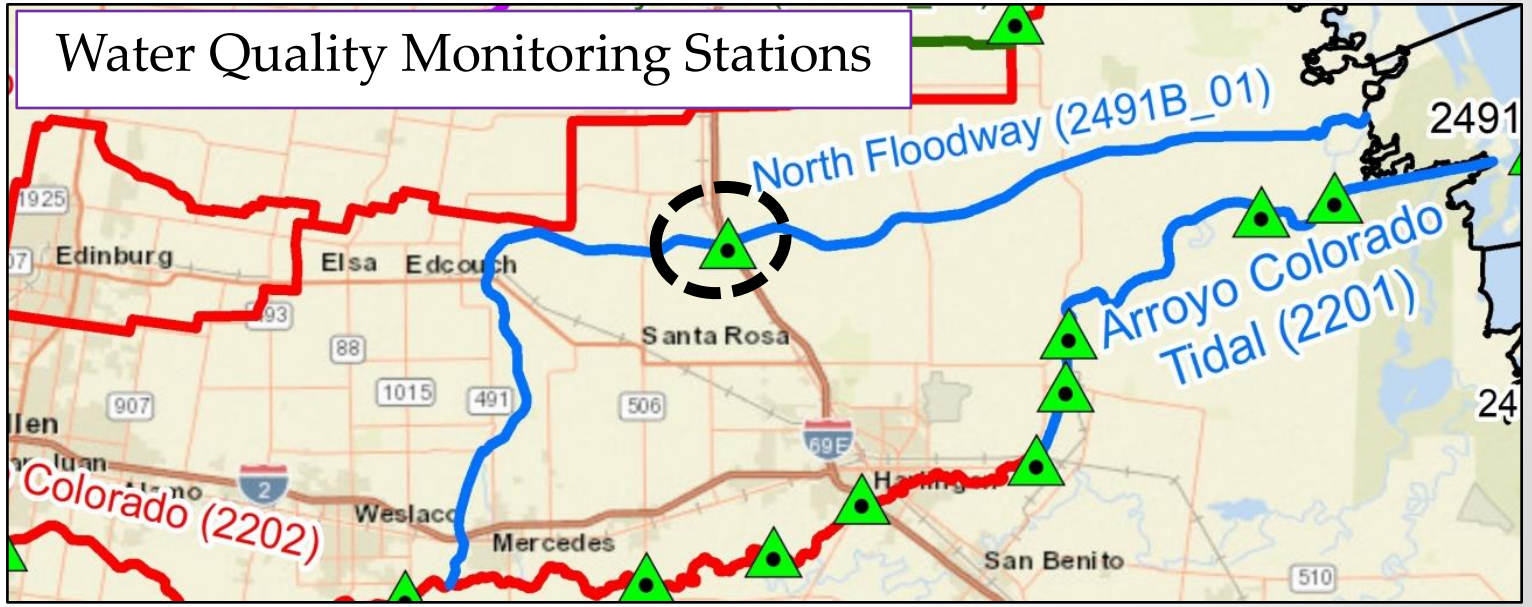
- Constantly drains WWTP effluent and
- During large storm events, collect excess runoff from urbanized areas of Hidalgo County and agriculture land in Cameron and Willacy County.

USIBWC North Floodway

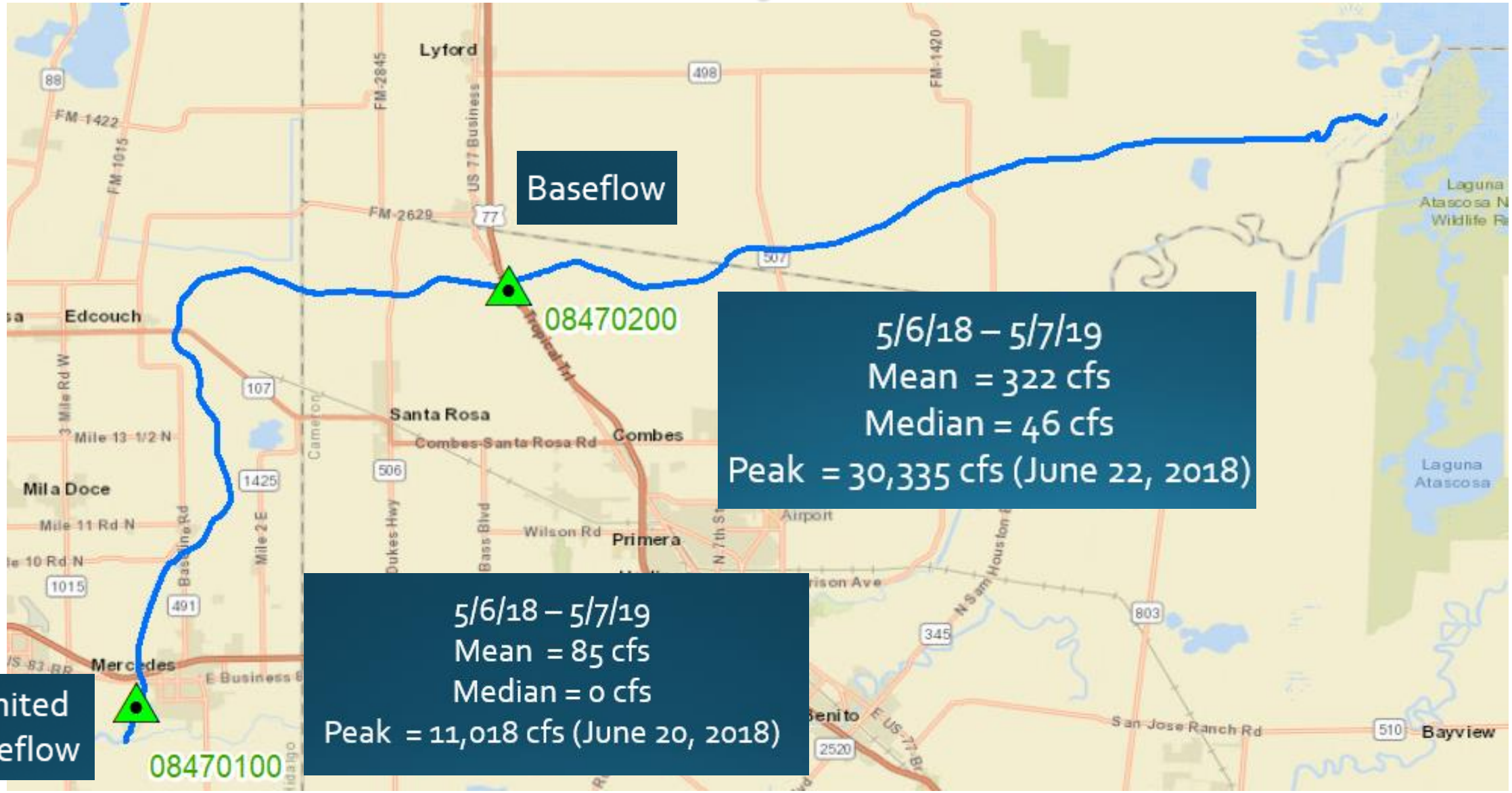
2 Flow monitoring IBWC (Since 2012)

Only one TCEQ water quality monitoring station (ID 20930)

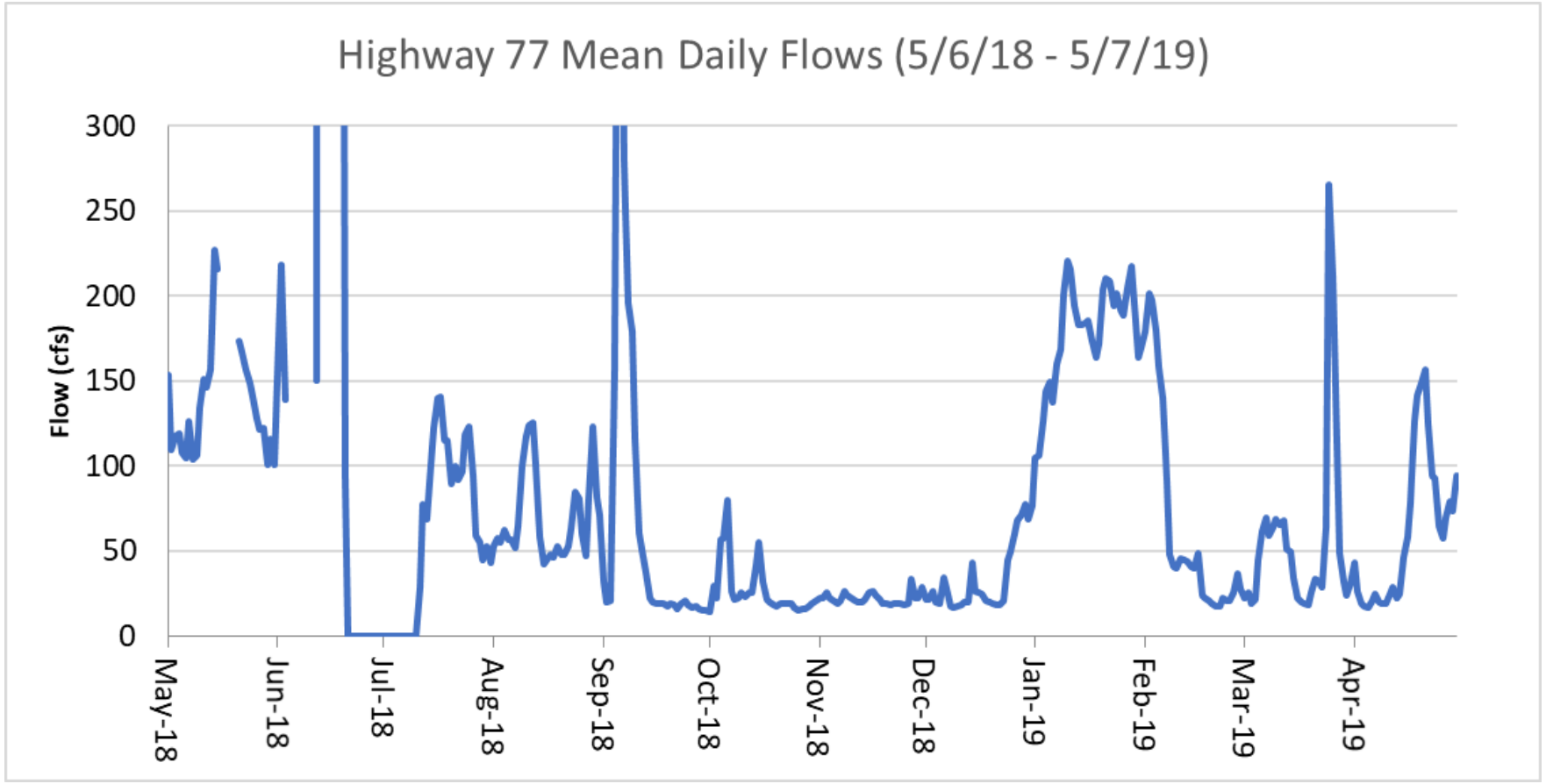




USIBWC North Floodway



USIBWC North Floodway

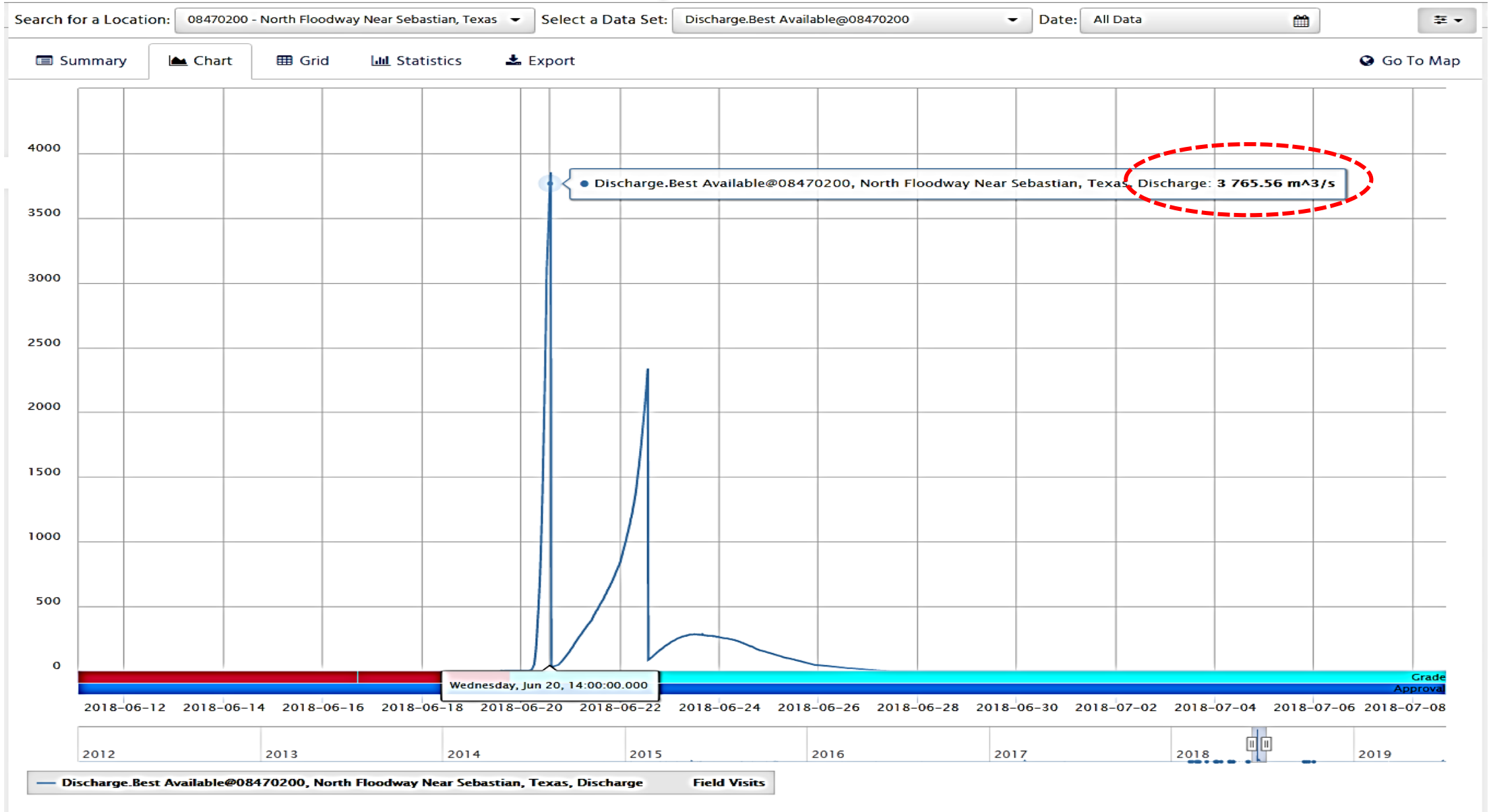


Mean = 322 cfs

Median = 46 cfs

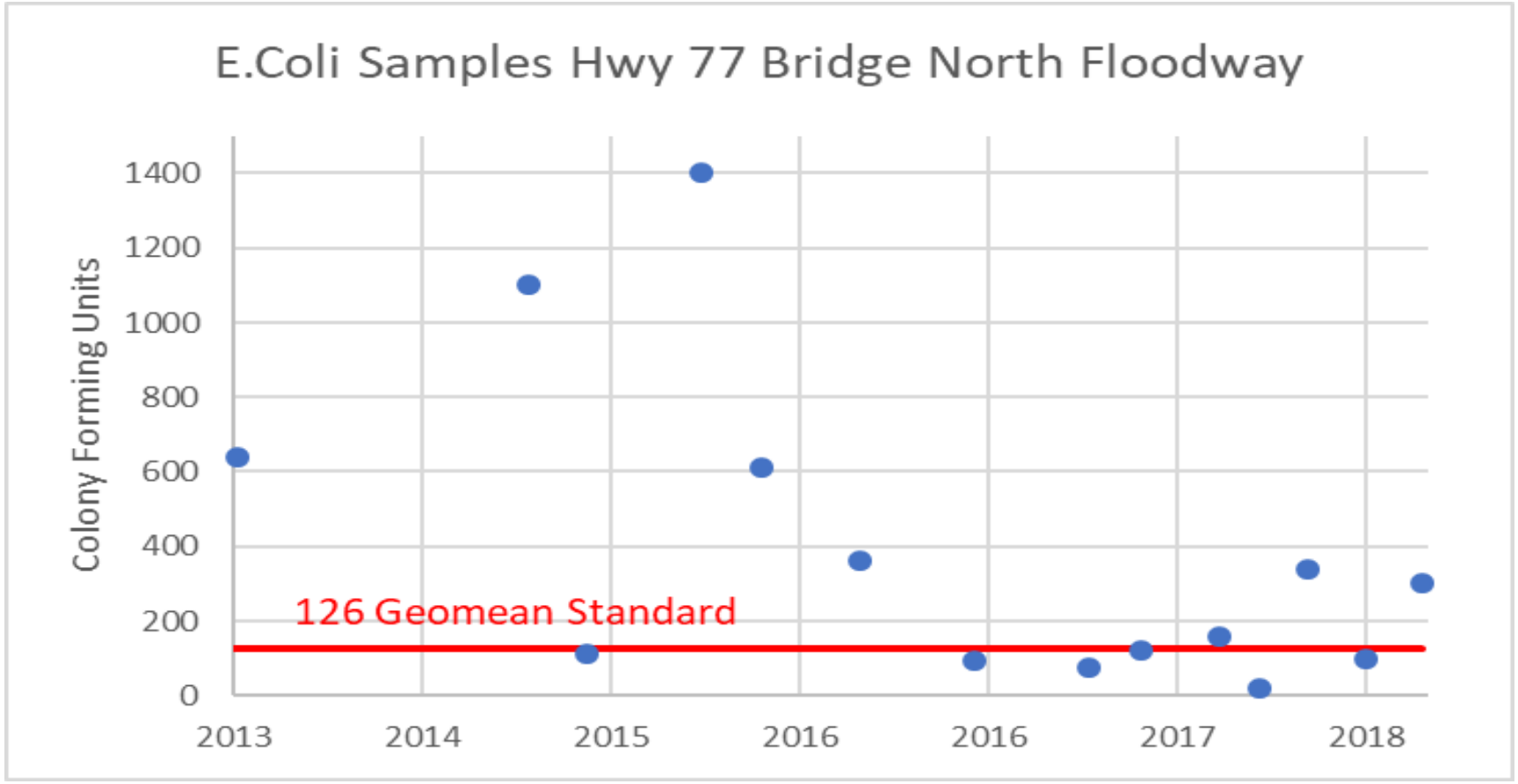
(Waterdata.ibwc.gov)

USIBWC North Floodway



https://waterdata.ibwc.gov/Data/DataSet/Chart/Location/08470200/DataSet/Discharge/Best%20Available/Interval/AllData/2018

USIBWC North Floodway Water Quality



Flows when samples collected

Mean = 81 cfs

Median = 54 cfs

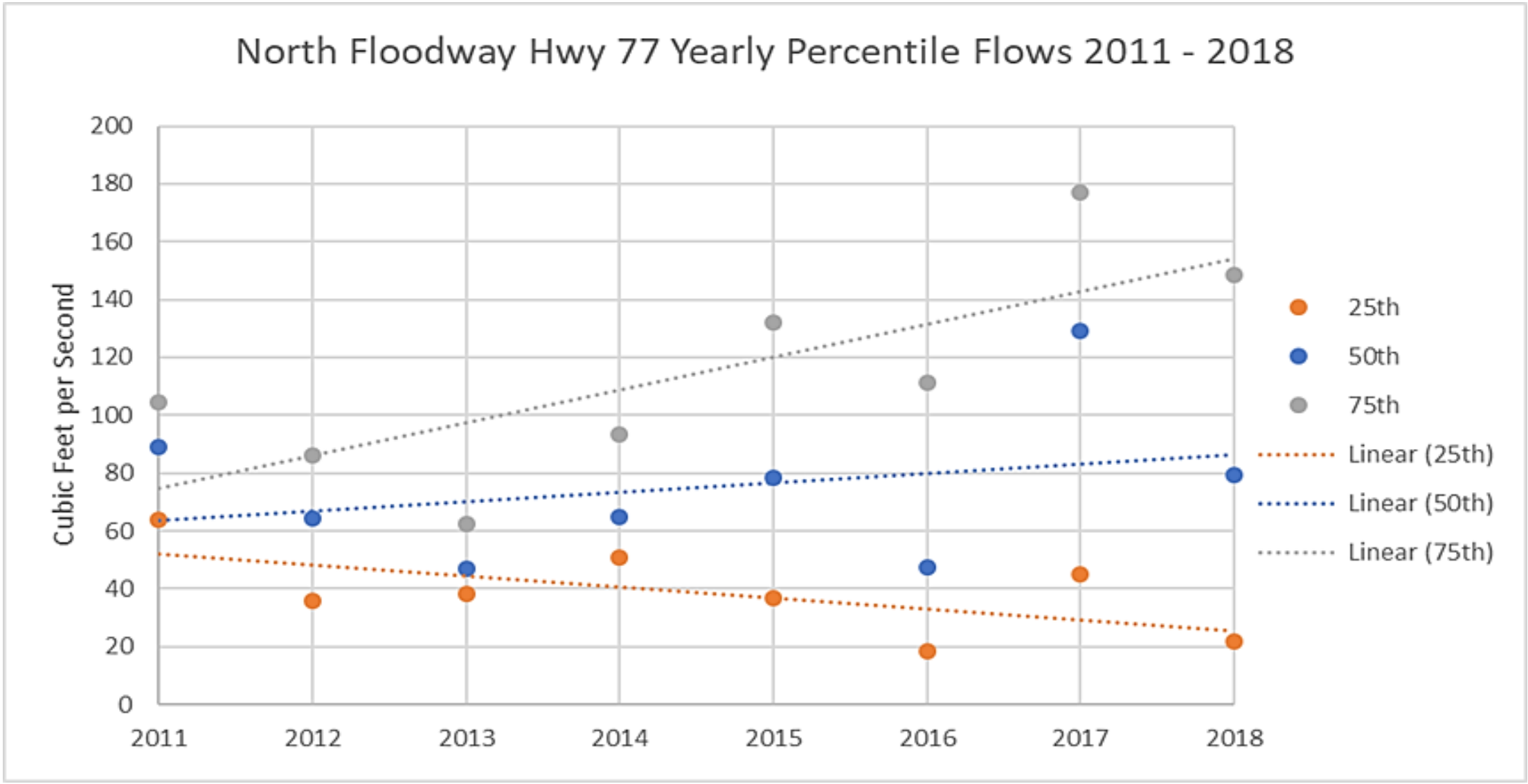
Max = 178 cfs

Min = 13 cfs

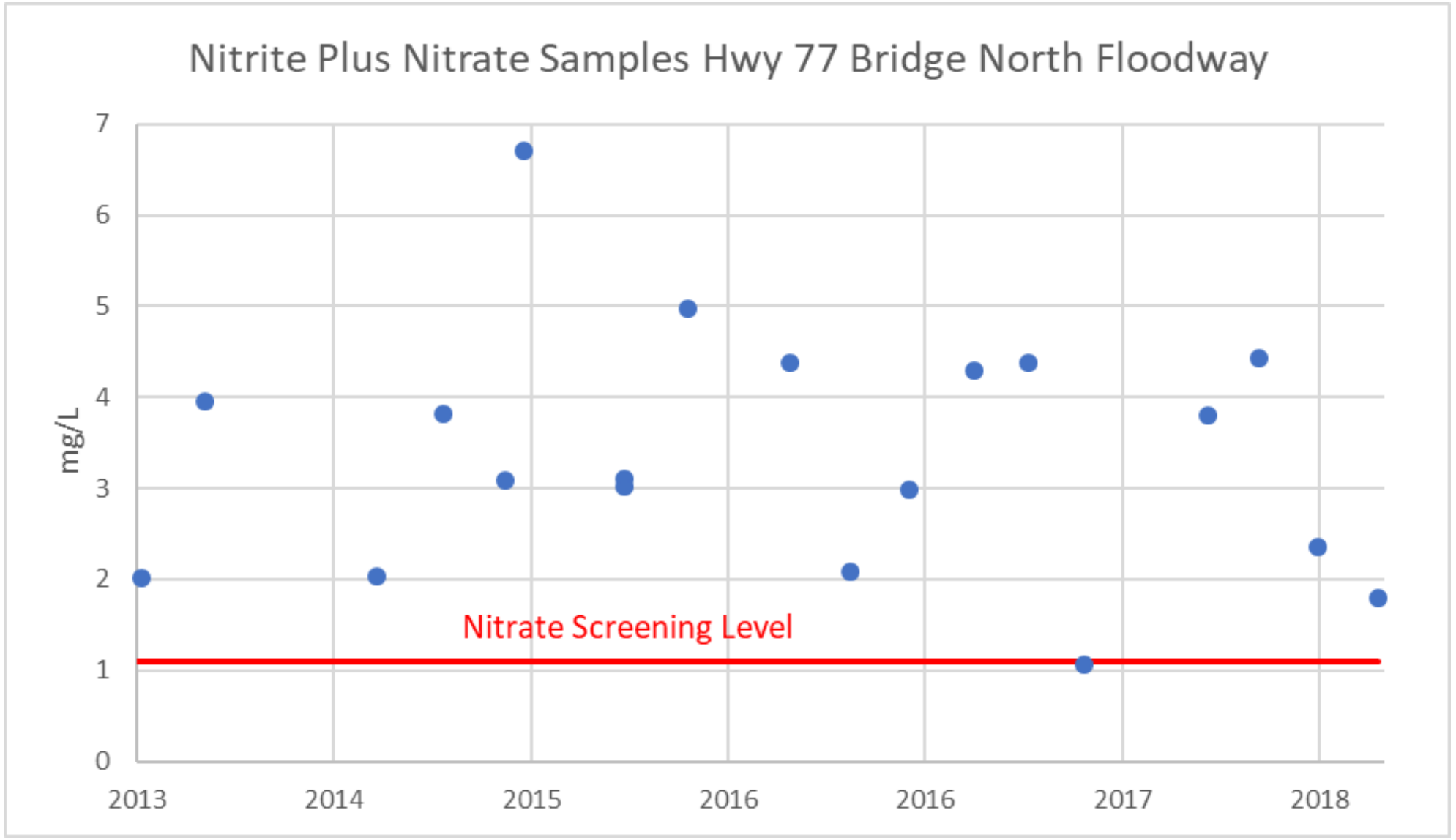
Geomean of 16 samples is 263

*Value of 7,300 on 11/25/2013 removed from chart

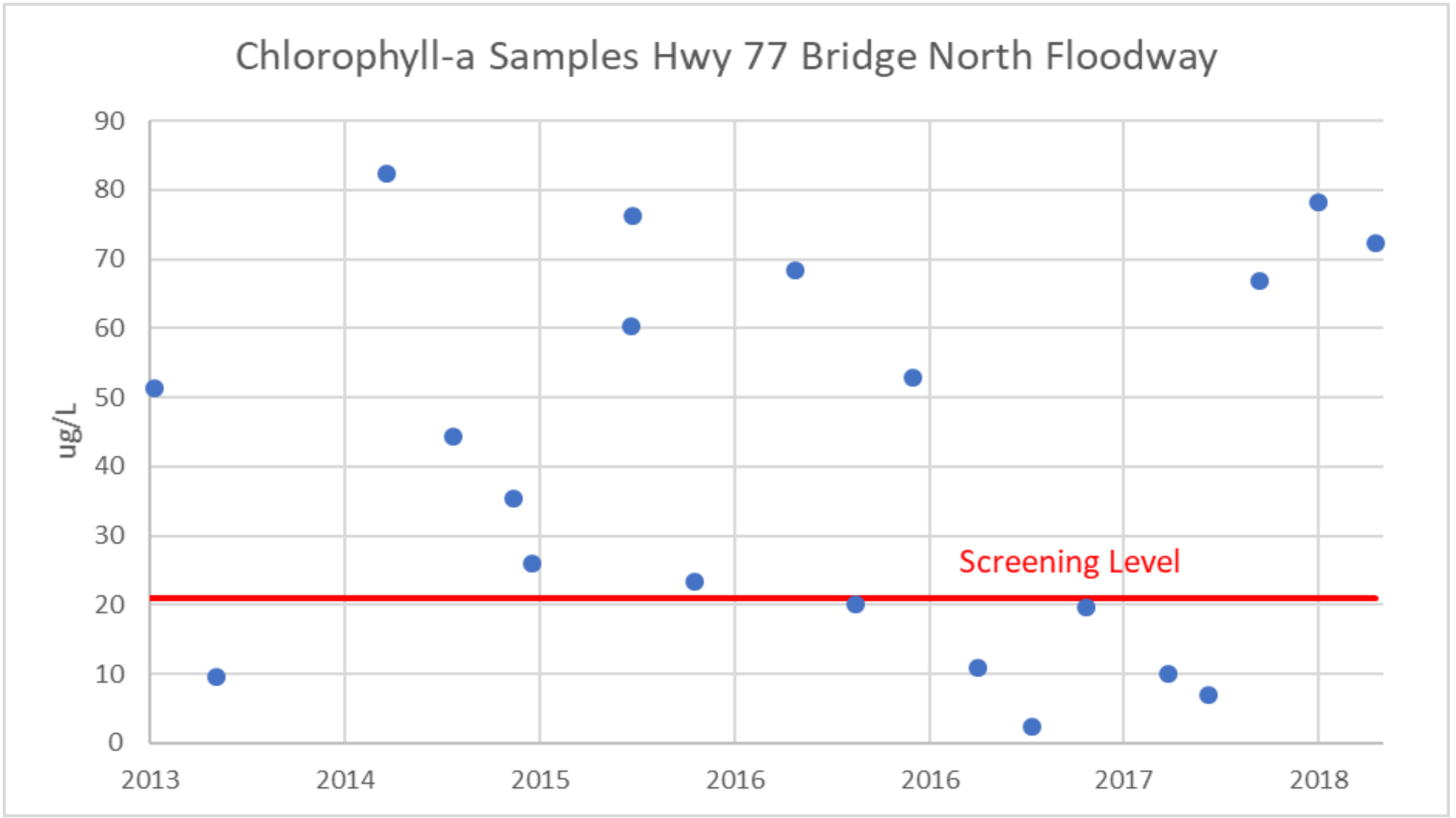
USIBWC North Floodway Water Quality



USIBWC North Floodway Water Quality



USIBWC North Floodway Water Quality



USIBWC North Floodway Water Quality

Draft 2018 Texas Integrated Report - Assessment Results for Basin 24 - Bays and Estuaries

SEGID: 2491B North Floodway

AUID: 2491B_01 From 0.04 mi north of Campacuas Lake and 0.32 mi west of FM 491 (Mercedes, TX) to the confluence with Lower Laguna Madre (tidal flats)

Aquatic Life Use

Method	Parameter	Period of Record	Criteria	Data Assessed #	Data Assessed Value	Exceedances #	Exceedances Value	Data Qual	LOS	CF	Int LOS	TCEQ Cause	Cat	TMDL
Dissolved Oxygen grab minimum	Dissolved Oxygen Grab	12/01/09 - 11/30/16	2	19		0		AD	FS	☐	FS			☐
Dissolved Oxygen grab screening level	Dissolved Oxygen Grab	12/01/09 - 11/30/16	3	19		0		AD	NC	☐	NC			☐

Recreation Use

Method	Parameter	Period of Record	Criteria	Data Assessed #	Data Assessed Value	Exceedances #	Exceedances Value	Data Qual	LOS	CF	Int LOS	TCEQ Cause	Cat	TMDL
Bacteria Geomean	E. coli	12/01/09 - 11/30/16	126	9	495.98	1		LD	CN	☐	CN	Bacteria in water		☐

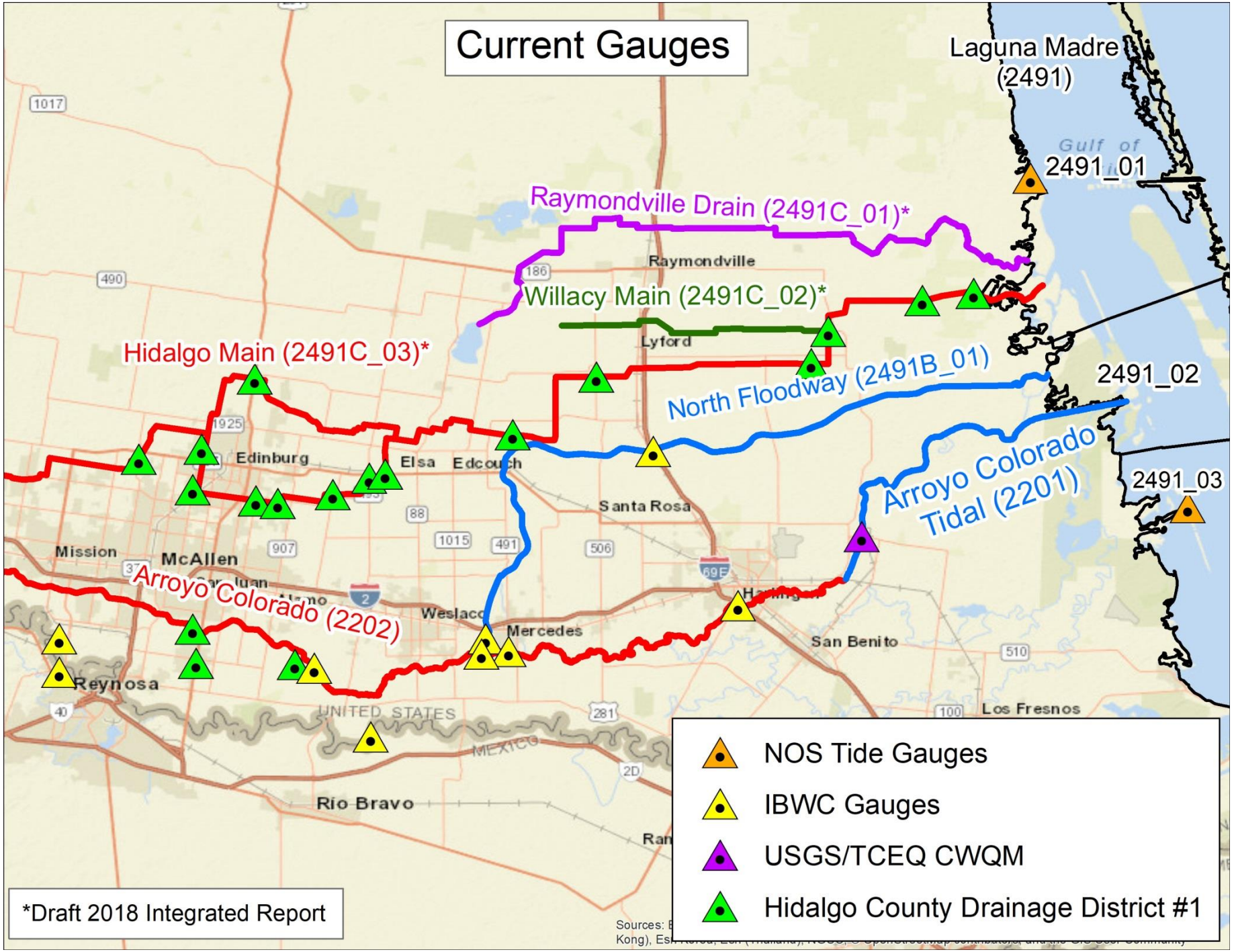
General Use

Method	Parameter	Period of Record	Criteria	Data Assessed #	Data Assessed Value	Exceedances #	Exceedances Value	Data Qual	LOS	CF	Int LOS	TCEQ Cause	Cat	TMDL
Nutrient Screening Levels	Ammonia	12/01/09 - 11/30/16	0.33	17		0		AD	NC	☐	NC			☐
Nutrient Screening Levels	Chlorophyll-a	12/01/09 - 11/30/16	14.10	18		17	46.13	AD	CS	☐	CS	chlorophyll-a		☐
Nutrient Screening Levels	Nitrate	12/01/09 - 11/30/16	1.95	18		18	3.44	AD	CS	☐	CS	nitrate		☐
Nutrient Screening Levels	Total Phosphorus	12/01/09 - 11/30/16	0.69	15		0		AD	NC	☐	NC			☐

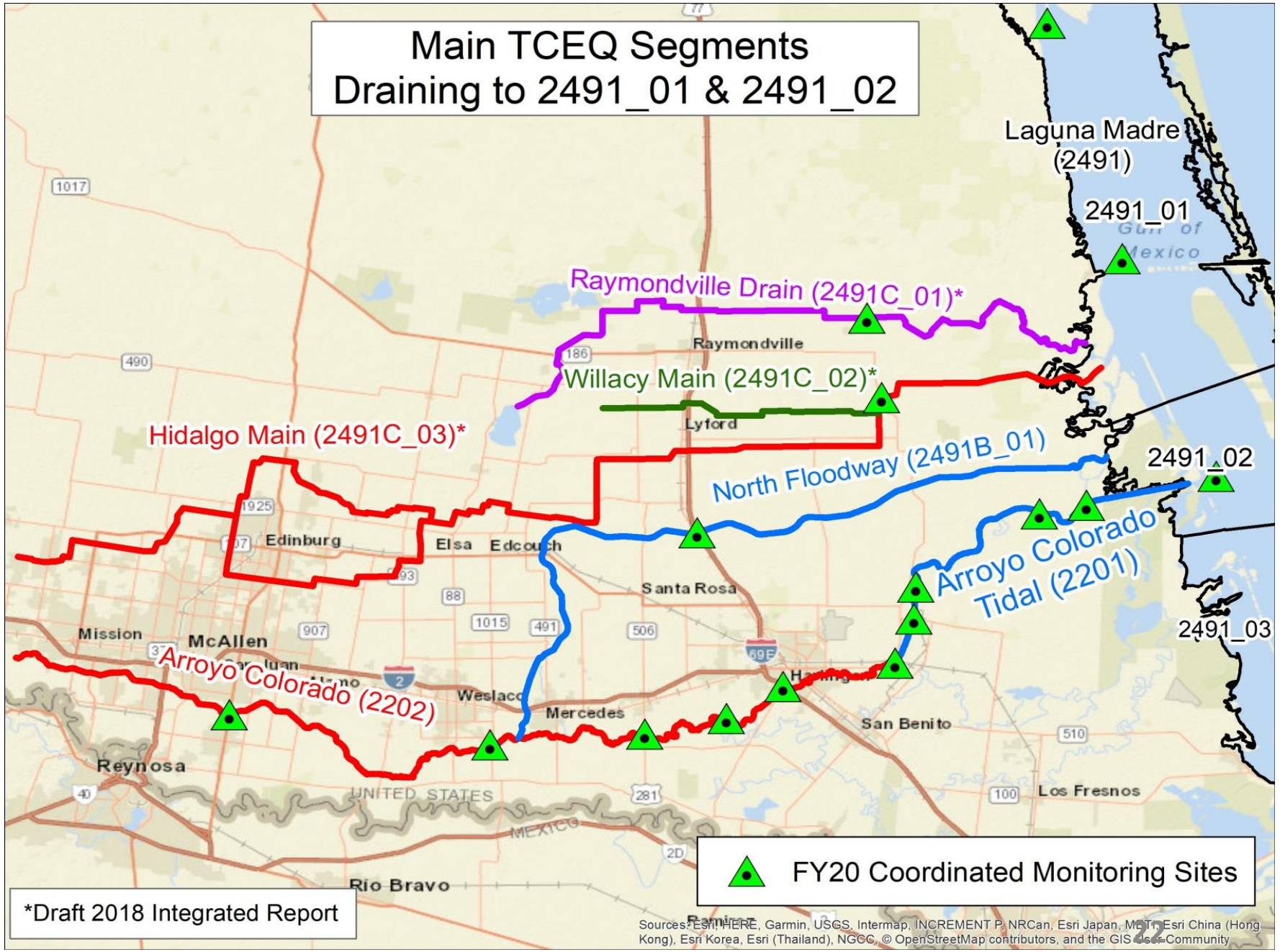
LOS: *Level of support for this use, method, assessment parameter:*

FS = Fully Supporting
NC = No Concern
NA = Not Assessed
NS = Nonsupport
CS = Screening Level Concern
CN = Use Concern

Flow Monitoring Stations



Water Quality Monitoring Stations



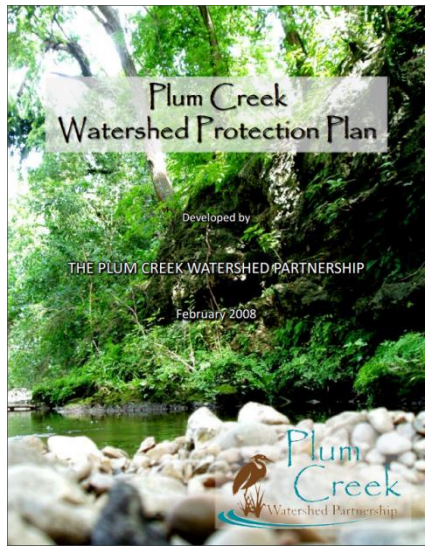
Project Description

- The major sub-watersheds must be characterized to identify potential causes and sources of impairments.

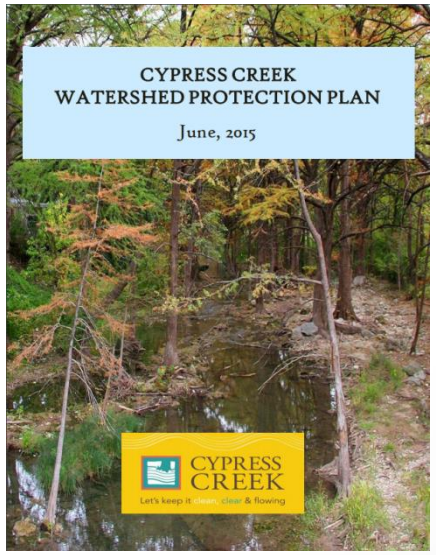
- This project will identify existing data and identify data gaps for characterization as well as identify a path forward by selecting an analytical method for estimating pollutant loads

Watershed Protection Plans

Meets the Nine Elements listed in EPA's *Handbook for Developing Watershed Plans*



Restoration



Protection

EPA's 9-Elements

- **A- Identify causes and sources of pollution**
- **B - Estimate pollutant loading into the watershed and the expected load reductions**
- **C - Describe management measures that will achieve load reductions and targeted critical areas**
- **D - Estimate amounts of technical and financial assistance and the relevant authorities needed to implement the plan**
- **E - Develop an information/education component**
- F - Develop a project schedule
- G - Describe the interim, measurable milestones
- H - Identify indicators to measure progress
- I - Develop a monitoring component

Project Goals

Goal	Measure of Success
Partial development of Element A and initiation of Element E of EPA's Nine Elements for WBPs found in the Handbook for Developing Watershed Plans to Restore and Protect our Waters.	Completion of Watershed Characterization – Data Evaluation Report and approval from TCEQ PM.
Engage stakeholders to provide input for the development of a Strategic Plan moving forward based on information presented from the Watershed Characterization.	Formation of Stakeholders workgroups. List of next steps for watershed-based planning in the Partnership Coordination Report.

Task 1: Project Administration

- Quarterly Progress Report (QPRs)
- Coordination meeting with EPA
- Annual Report article and pictures
- Contract and Annual Budget updates

Task 2: Quality Assurance

- QAPP Planning Meeting notes
- Draft and Final QAPP
- QAPP Annual Reviews and Revisions
- Draft and Final QAPP Amendments

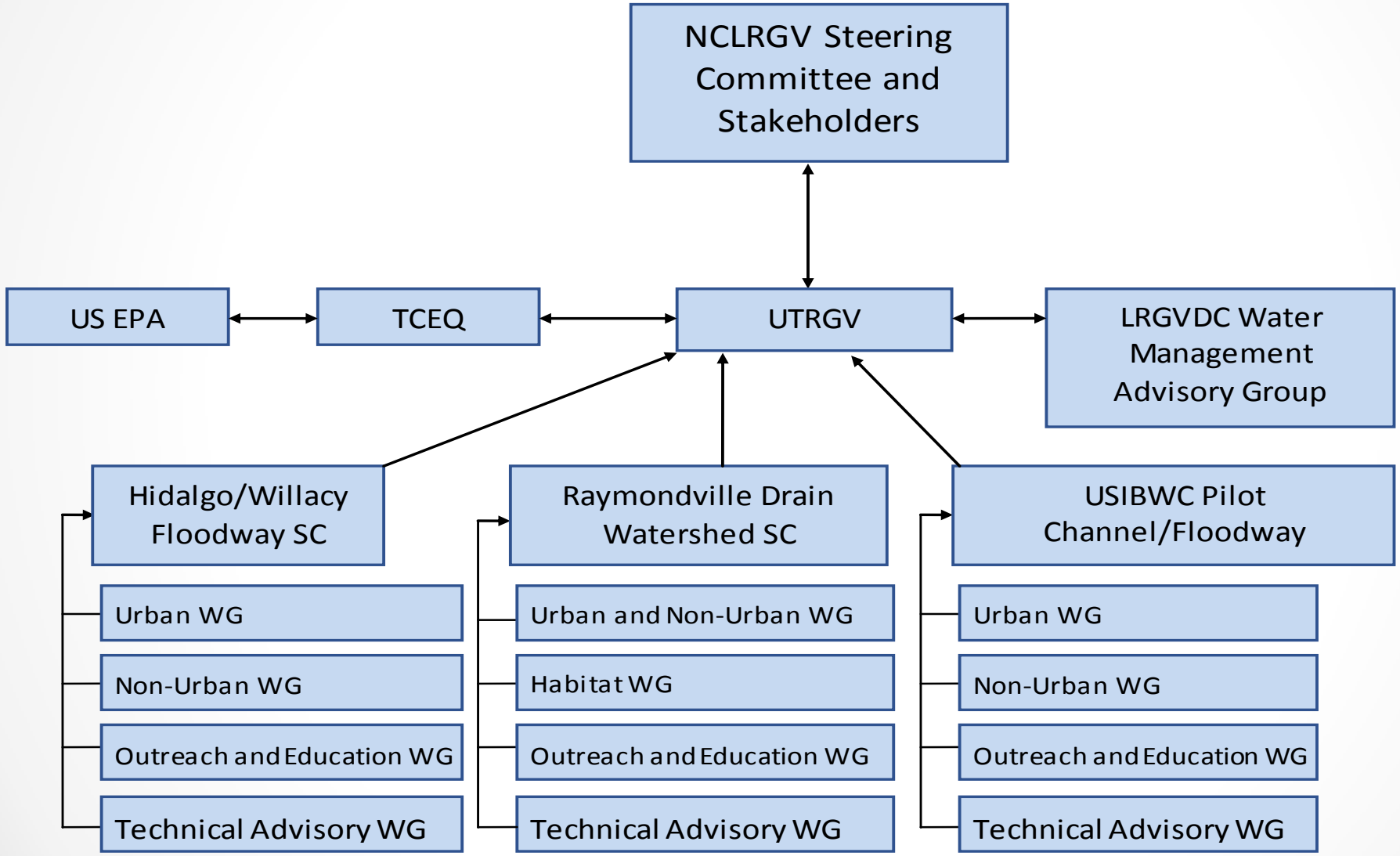
Task 3: Watershed Characterization – Data Evaluation and Analysis

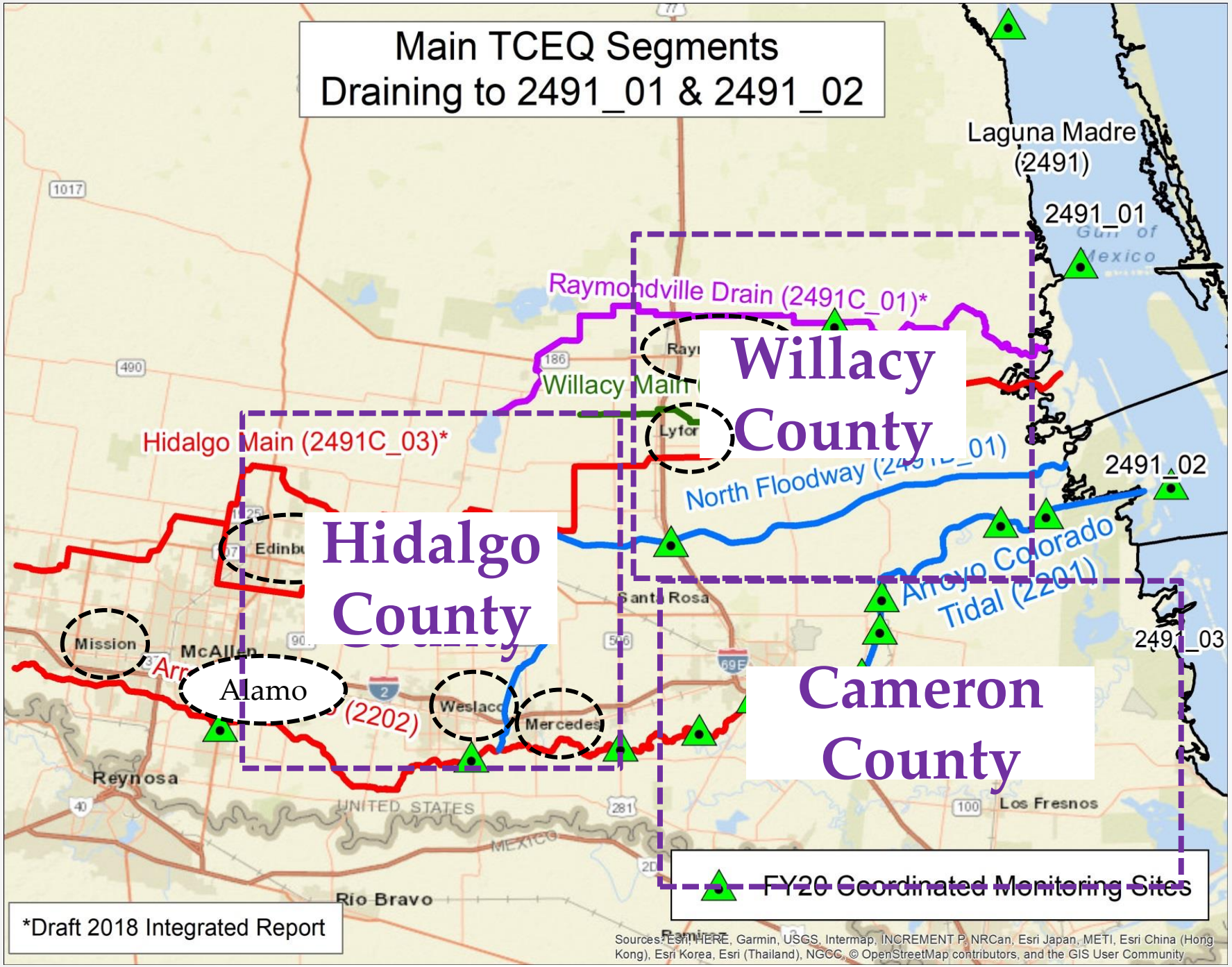
- Summary of existing data and information
- Cyberinfrastructure establishment and database development
- Interim Existing Data and Information Analysis Report
- Draft and Final Watershed Characterization and Next Steps Report

Task 4: Partnership Coordination

- Develop PPP (Public Participation Plan)
- Documentation of key stakeholder meetings, including agendas, presentations, and sign in sheets, minimum of three per quarter
- Draft and Final Partnership Coordination Report

Public Participation Plan

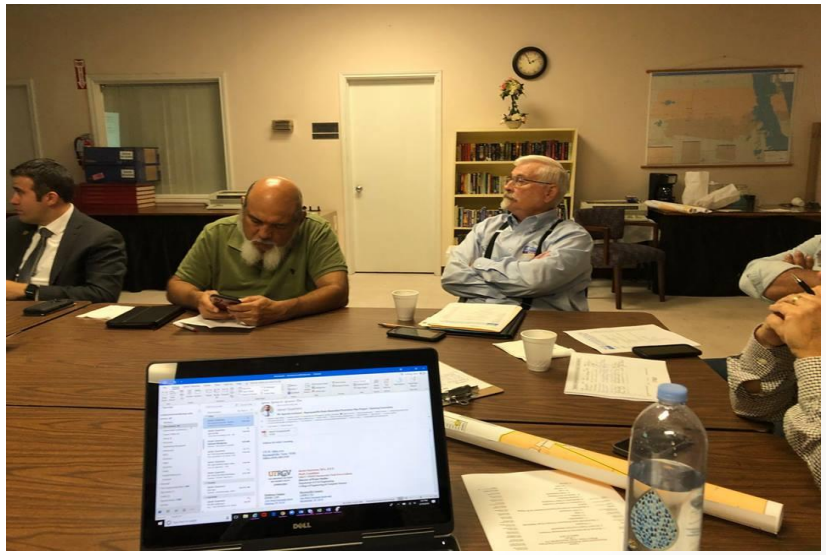



Main TCEQ Segments
Draining to 2491_01 & 2491_02
Laguna Madre (2491)
2491_01
Gulf of Mexico
Raymondville Drain (2491C_01)*
Willacy Main
Willacy County
Hidalgo Main (2491C_03)*
North Floodway (2491D_01)
2491_02
Arroyo Colorado Tidal (2201)
Hidalgo County
Santa Rosa
Mission
McAllen
Alamo
(2202)
Weslaco
Mercedes
2491_03
Cameron County
Reynosa
UNITED STATES
MEXICO
Los Fresnos
Rio Bravo
FY20 Coordinated Monitoring Sites
*Draft 2018 Integrated Report
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

Public Participation Plan

Steering Committee Meetings

02/26/2019	Steering Committee (USIBWC Floodway)
03/14/2019	Steering Committee (Raymondville Drain)
03/25/2019	Steering Committee (Hidalgo/Willacy County Floodway)

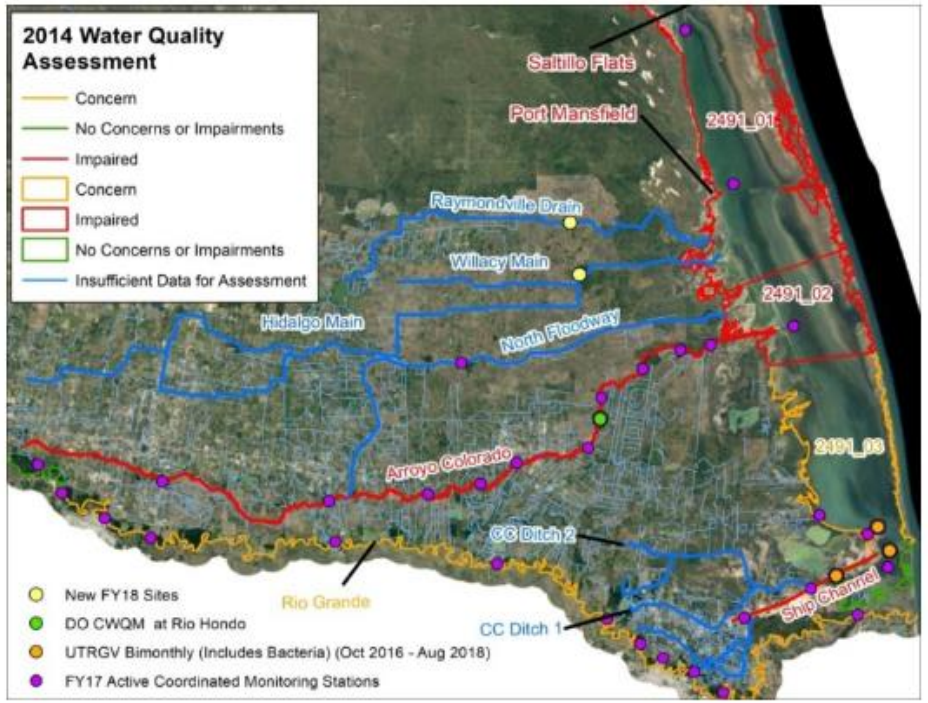


Task 5: Final Report

- Draft Final Report
- Address TCEQ/EPA comments
- Final Report

Project Website

CHARACTERIZATION OF NORTHERN AND CENTRAL RIO GRANDE VALLEY WATERSHEDS



Background Information

The Raymondville Drain and the Hidalgo Main flow into the Lower Laguna Madre Bay assessment unit (AU) 2491_01 which is impaired for low dissolved oxygen (DO). The North Floodway flows into the Lower Laguna Madre AU 2491_02 which is impaired for low DO and bacteria.

The project area is comprised of subwatersheds associated with the Raymondville Drain, the Hidalgo Floodway, and the IBWC pilot channel (IBWC North Floodway). These major waterways contribute freshwater and stormwater to the Laguna Madre. This project will begin the assessment of these subwatersheds. It is anticipated that these three distinct subwatersheds will need to be assessed, quantified, and identified as separate major watersheds in the Lower Rio Grande Valley.

- https://rgvstormwater.org/tceq-319-characterization-of-northern-and-central-rio-grande-valley-watersheds/

Project Website

Steering Committee and Workgroup Meetings

Date	Type of Meeting	Meeting Agenda	Notes	Presentation
02/26/2019	Steering Committee (USIBWC Floodway)	IBWC Feb 26 Agenda	USIBWC-SC-Minutes-022619	USIBWC SC meeting 02-26-2019
03/14/2019	Steering Committee (Raymondville Drain)	Rayondville Macrh 14 Agenda	RV-SC-Minutes-031419	Raymondville SC meeting 03-14-2019
03/25/2019	Steering Committee (Hidalgo/Willacy County Floodway)	Hidalgo Macrh 25 Agenda	HW-SC-Minutes-032619	Hidalgo SC meeting 03-25-2019

https://rgvstormwater.org/tceq-319-characterization-of-northern-and-central-rio-grande-valley-watersheds/

Watershed Protection Plan

1- **Raymondville Drain Watershed Protection Plan -** Includes region **above the Hidalgo/Willacy** Floodway northern watershed boundary to the northern LRGV County limits, and from the **Starr County border** to the **Laguna Madre**.

2- **Hidalgo/Willacy Floodway Watershed Protection Plan** - Includes region **above the Arroyo Colorado** to the **south** watershed boundary of the **Raymondville Drain**, and from the **Starr County border** to the **Laguna Madre**

3- **USIBWC Pilot Channel/Floodway Watershed Protection Plan** - From the Rio Grande River region, including **regions not included** in the Arroyo watershed, along the Rio Grande River continuing **north** and then **east** to the **Laguna Madre**.

Questions?

- **Texas Commission on Environmental Quality (TCEQ) Clean Water Act (CWA) Section 319(h) Nonpoint Source (NPS) Grant Program through UTRGV**
- **TCEQ Project Manager** : Tim Cawthon
- **PI :** Andy Ernest, Ph.D., P.E., BCEE, D. WRE
- **Watershed Coordinator**: Ahmed Mahmoud, Ph.D.