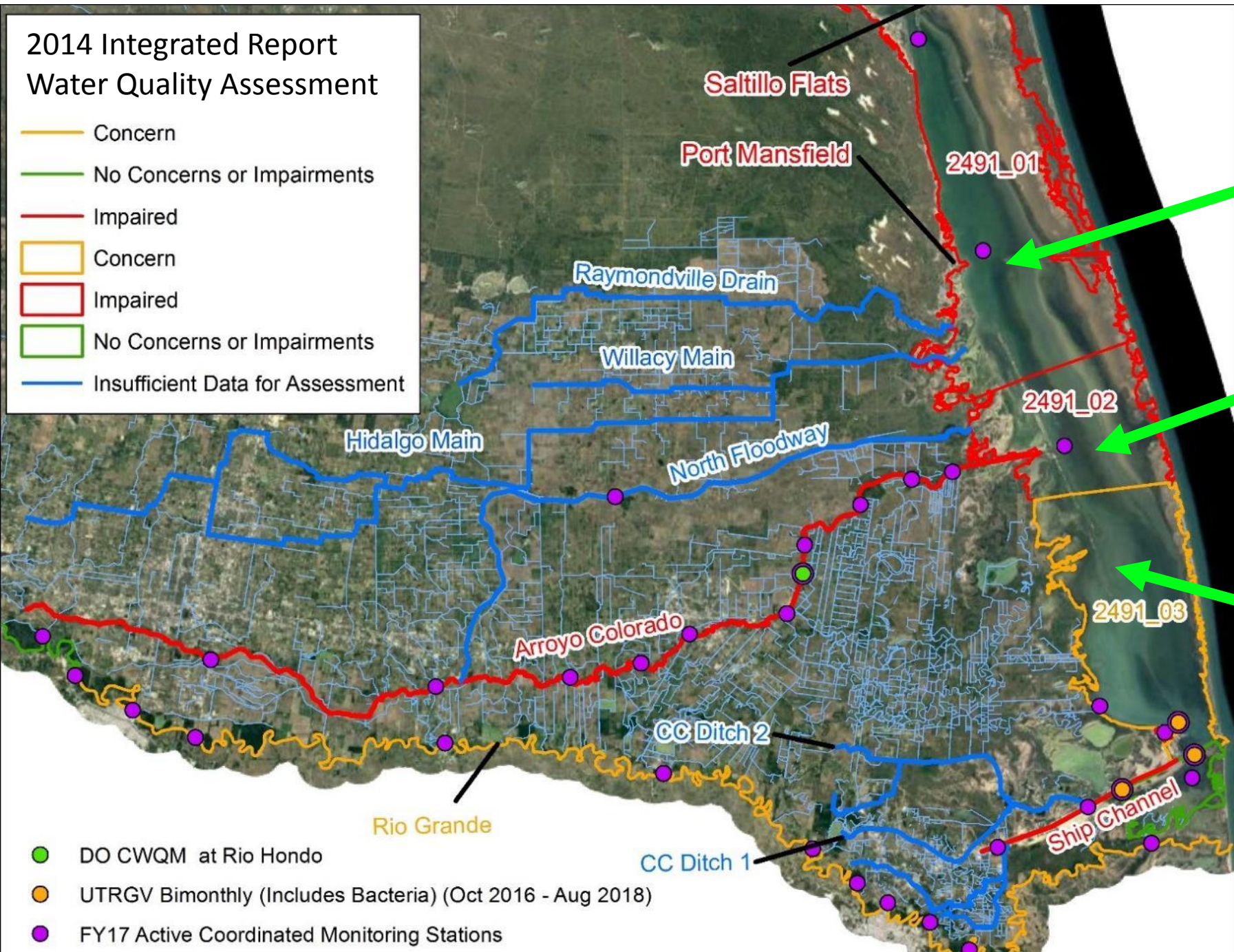


USIBWC Floodway Watershed Partnership

Ahmed Mahmoud, Ph.D.
Civil Engineering Department
University of Texas Rio Grande Valley

2014 Integrated Report Water Quality Assessment

- Concern
- No Concerns or Impairments
- Impaired
- Concern
- Impaired
- No Concerns or Impairments
- Insufficient Data for Assessment



Laguna Madre (2491)

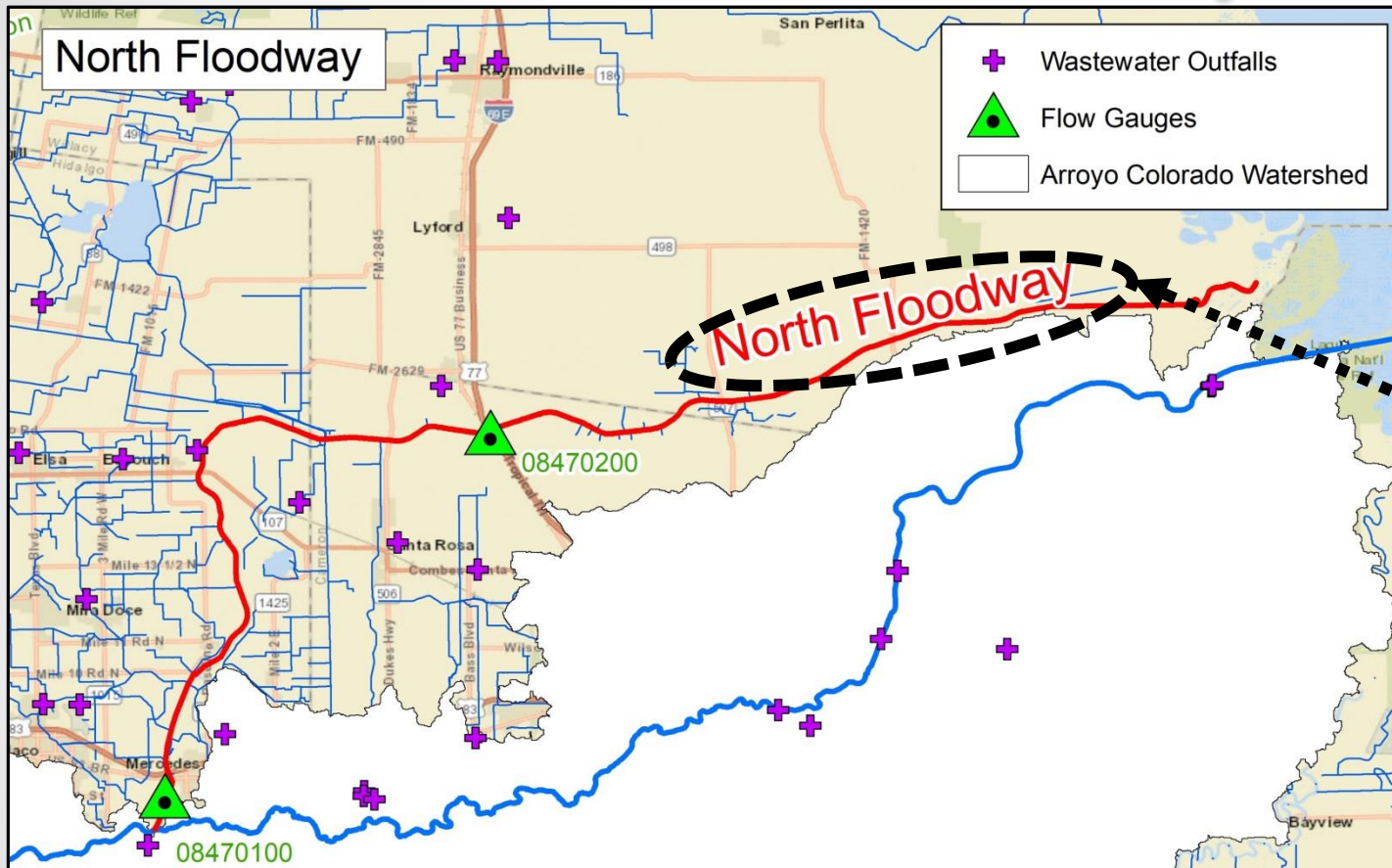
Low Dissolved Oxygen
Chlorophyll-a

Low Dissolved Oxygen
Bacteria
Ammonia
Nitrate
Chlorophyll-a

Low Dissolved Oxygen

- DO CWQM at Rio Hondo
- UTRGV Bimonthly (Includes Bacteria) (Oct 2016 - Aug 2018)
- FY17 Active Coordinated Monitoring Stations

USIBWC North Floodway



- Constantly drains **WWTP** effluent and irrigation return flow to constant drainage
- During large storm events, collect **excess runoff** from urbanized areas of **Hidalgo County** and **agriculture land** in Cameron and Willacy County.

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**

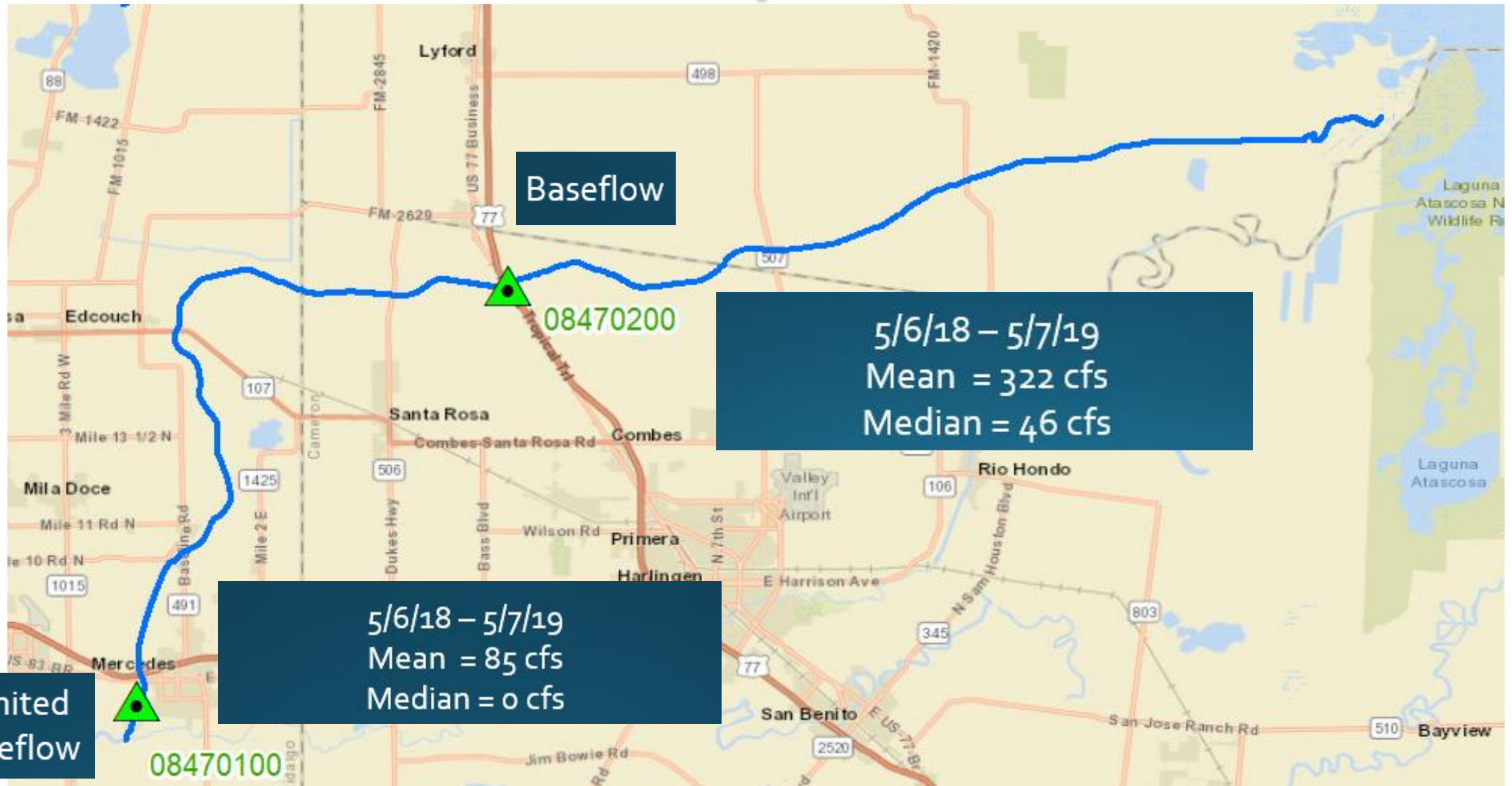
USIBWC North Floodway

2 Flow monitoring IBWC

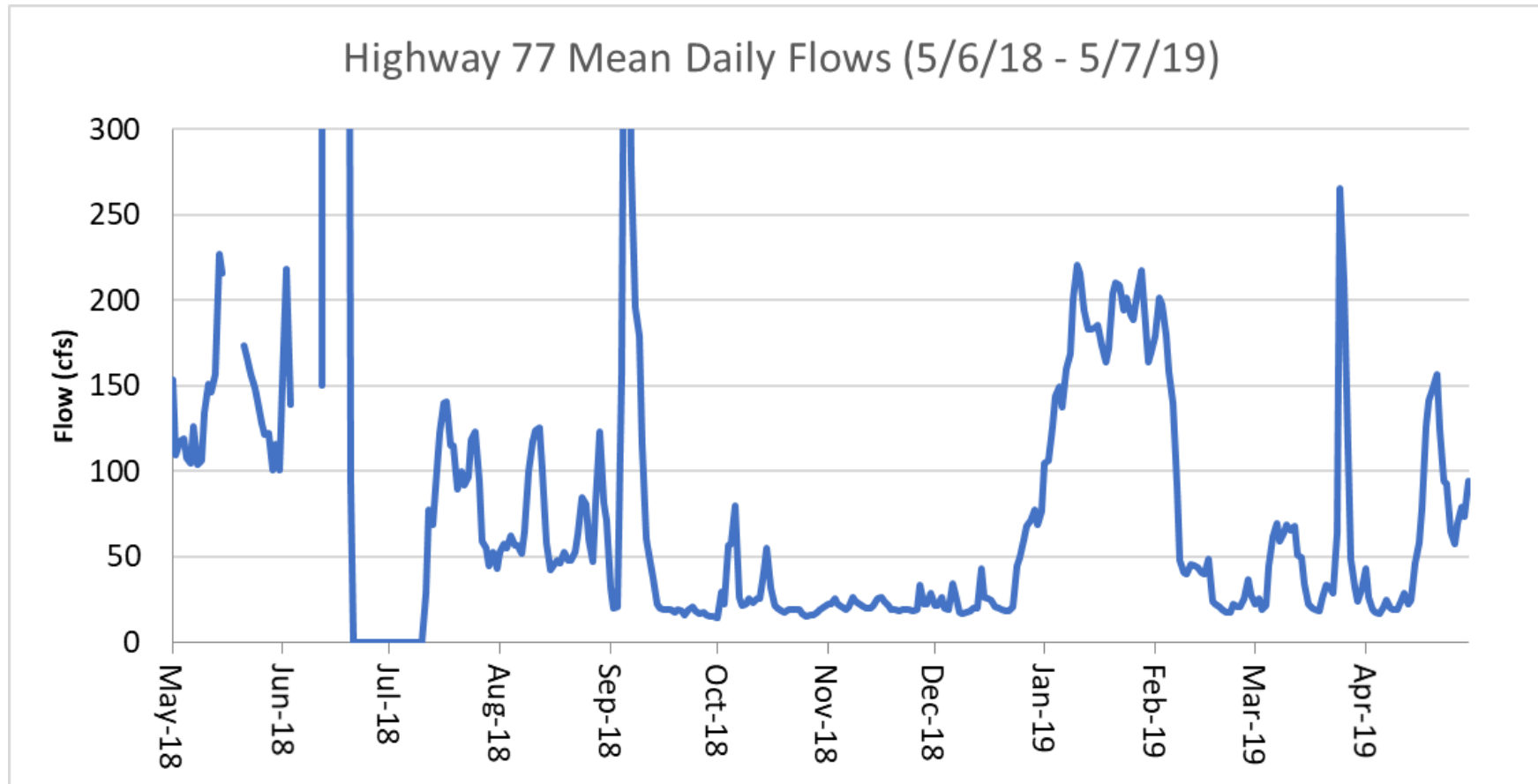
Only **one** TCEQ water quality monitoring station (ID 20930)



USIBWC North Floodway



USIBWC North Floodway

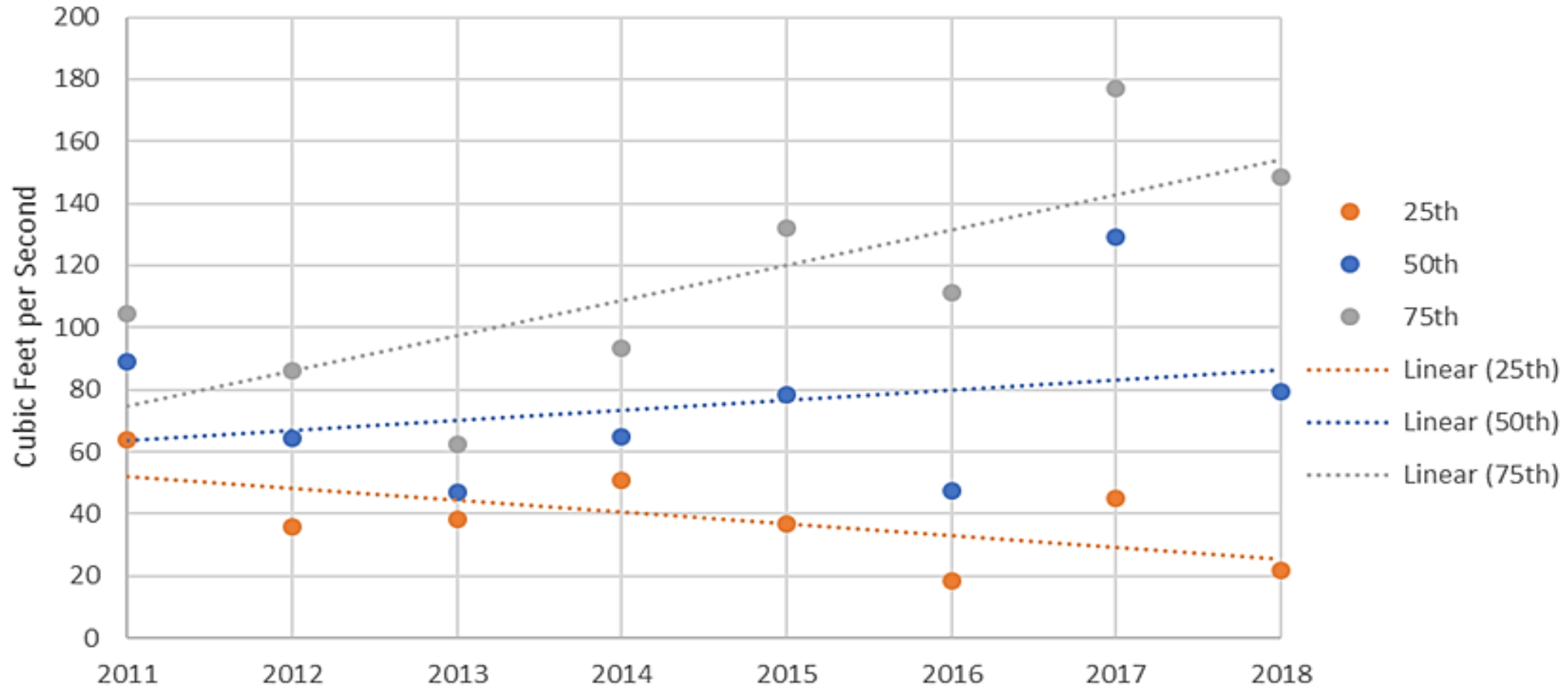


Mean = 322 cfs

Median = 46 cfs

USIBWC North Floodway Flow Data

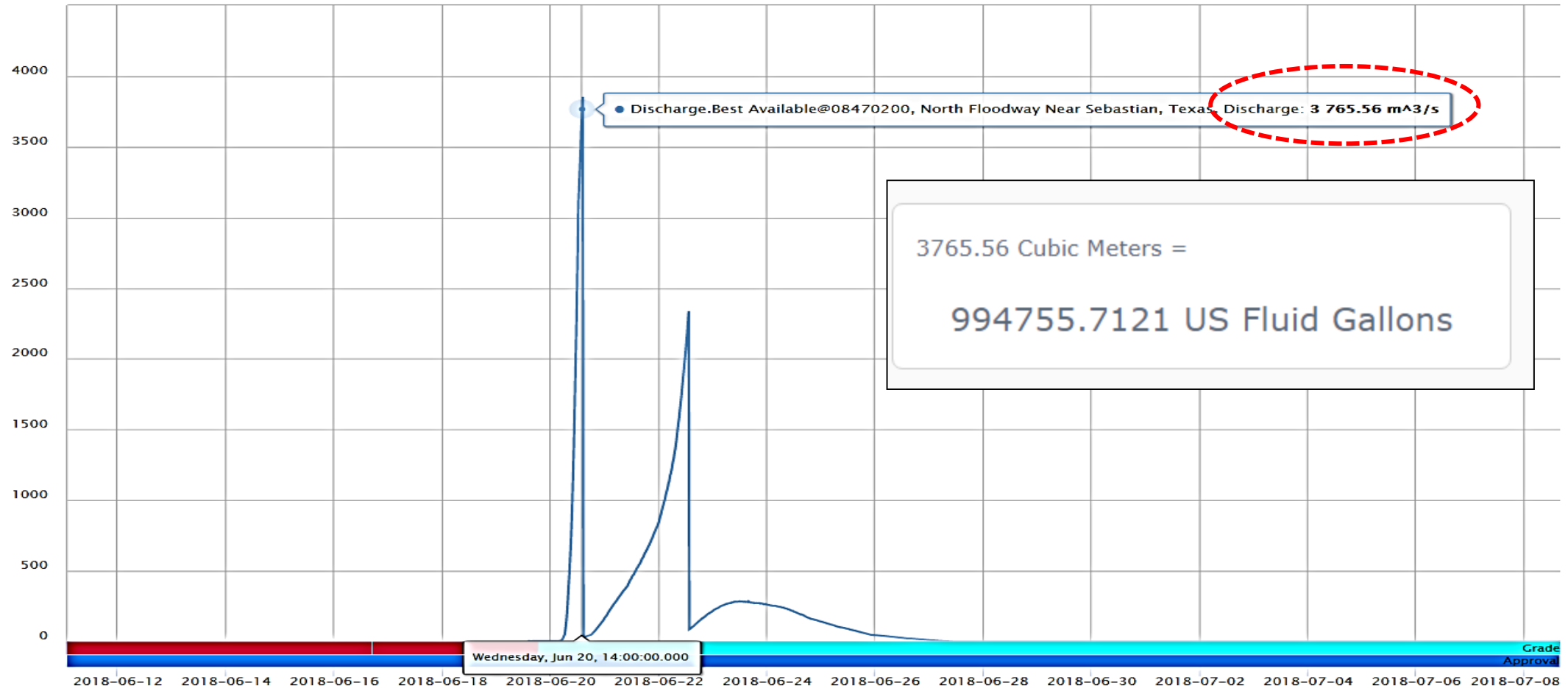
North Floodway Hwy 77 Yearly Percentile Flows 2011 - 2018



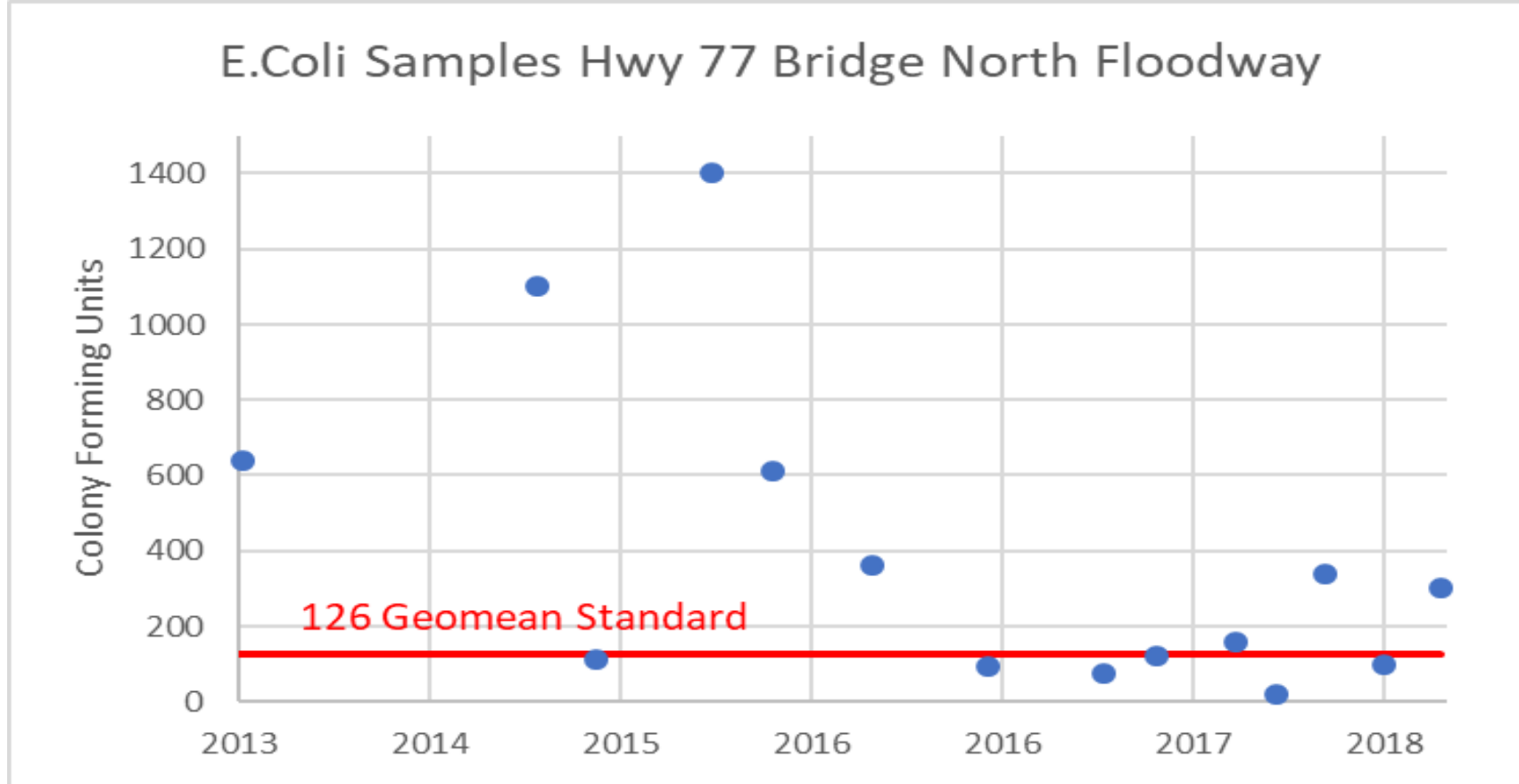
USIBWC North Floodway

Search for a Location: 08470200 - North Floodway Near Sebastian, Texas Select a Data Set: Discharge.Best Available@08470200 Date: All Data

Summary Chart Grid Statistics Export Go To Map



USIBWC North Floodway Water Quality



Flows when samples collected

Mean = 81 cfs

Median = 54 cfs

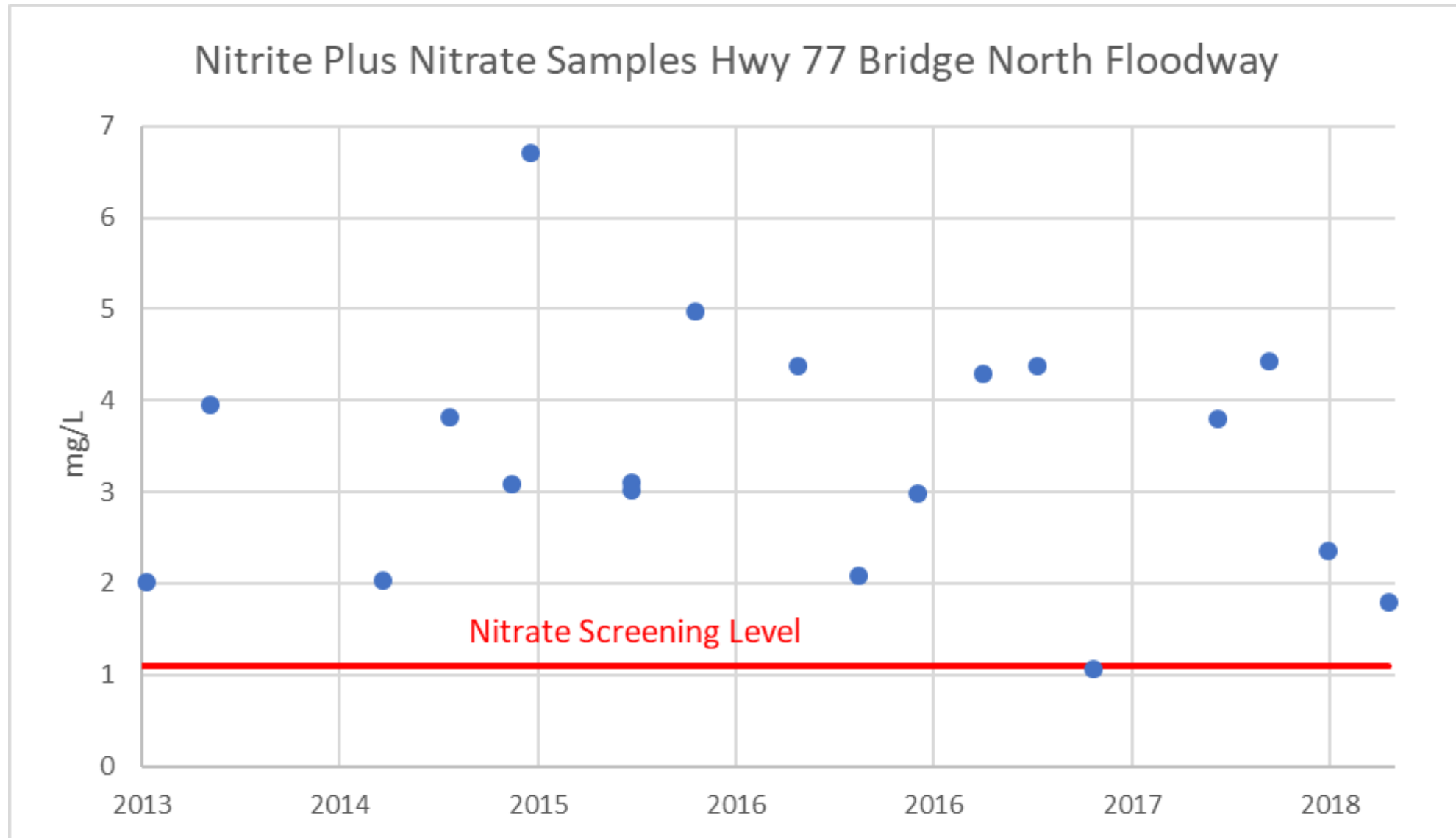
Max = 178 cfs

Min = 13 cfs

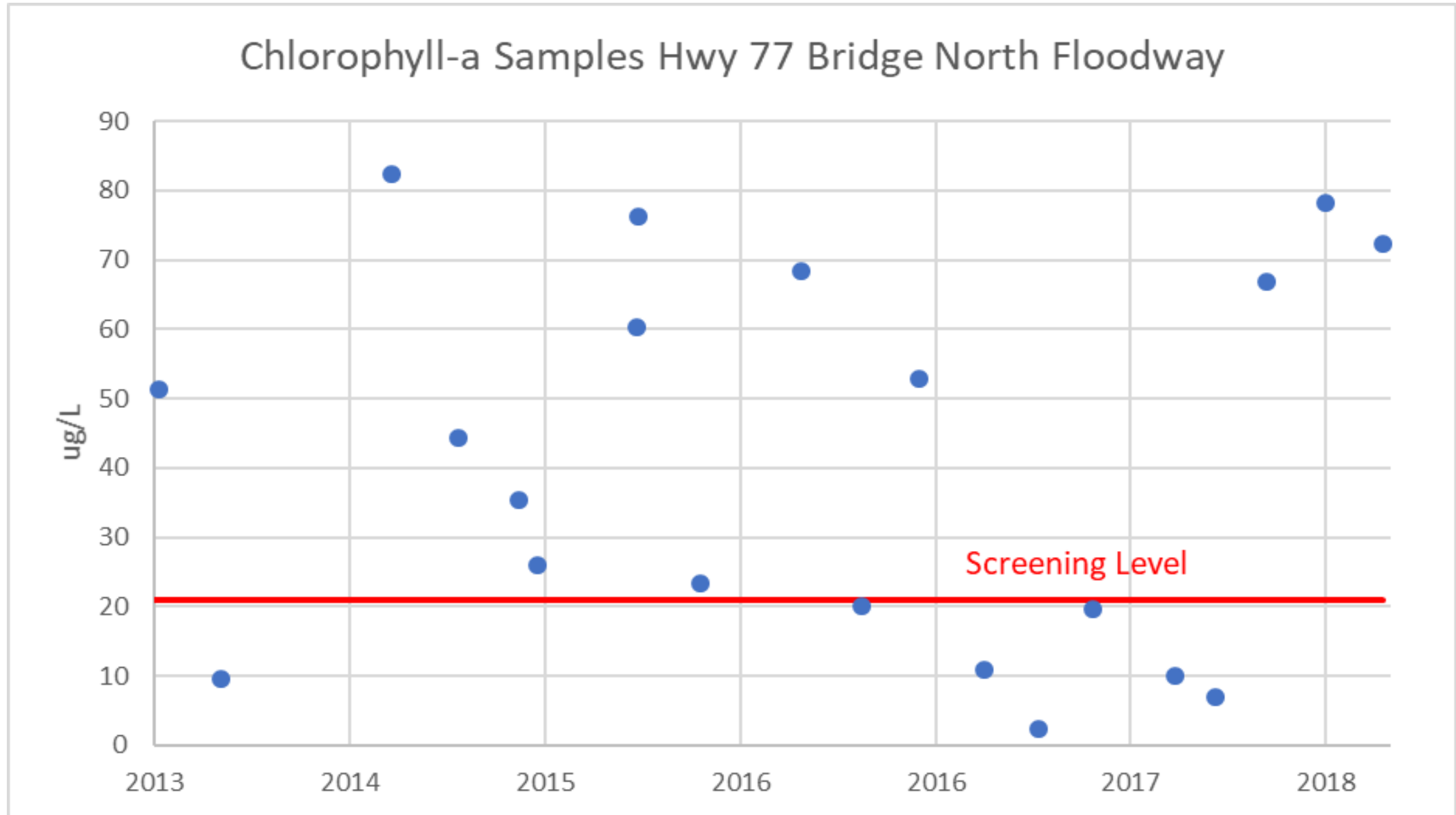
Geomean of 16 samples is 263

*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

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 #	Value	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	<input type="checkbox"/>	FS			<input type="checkbox"/>
Dissolved Oxygen grab screening level	Dissolved Oxygen Grab	12/01/09 - 11/30/16	3	19		0		AD	NC	<input type="checkbox"/>	NC			<input type="checkbox"/>

Recreation Use

Method	Parameter	Period of Record	Criteria	Data Assessed #	Value	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	<input type="checkbox"/>	CN	Bacteria in water		<input type="checkbox"/>

General Use

Method	Parameter	Period of Record	Criteria	Data Assessed #	Value	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	<input type="checkbox"/>	NC			<input type="checkbox"/>
Nutrient Screening Levels	Chlorophyll-a	12/01/09 - 11/30/16	14.10	18		17	46.13	AD	CS	<input type="checkbox"/>	CS	chlorophyll-a		<input type="checkbox"/>
Nutrient Screening Levels	Nitrate	12/01/09 - 11/30/16	1.95	18		18	3.44	AD	CS	<input type="checkbox"/>	CS	nitrate		<input type="checkbox"/>
Nutrient Screening Levels	Total Phosphorus	12/01/09 - 11/30/16	0.69	15		0		AD	NC	<input type="checkbox"/>	NC			<input type="checkbox"/>

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

Task 2: Quality Assurance

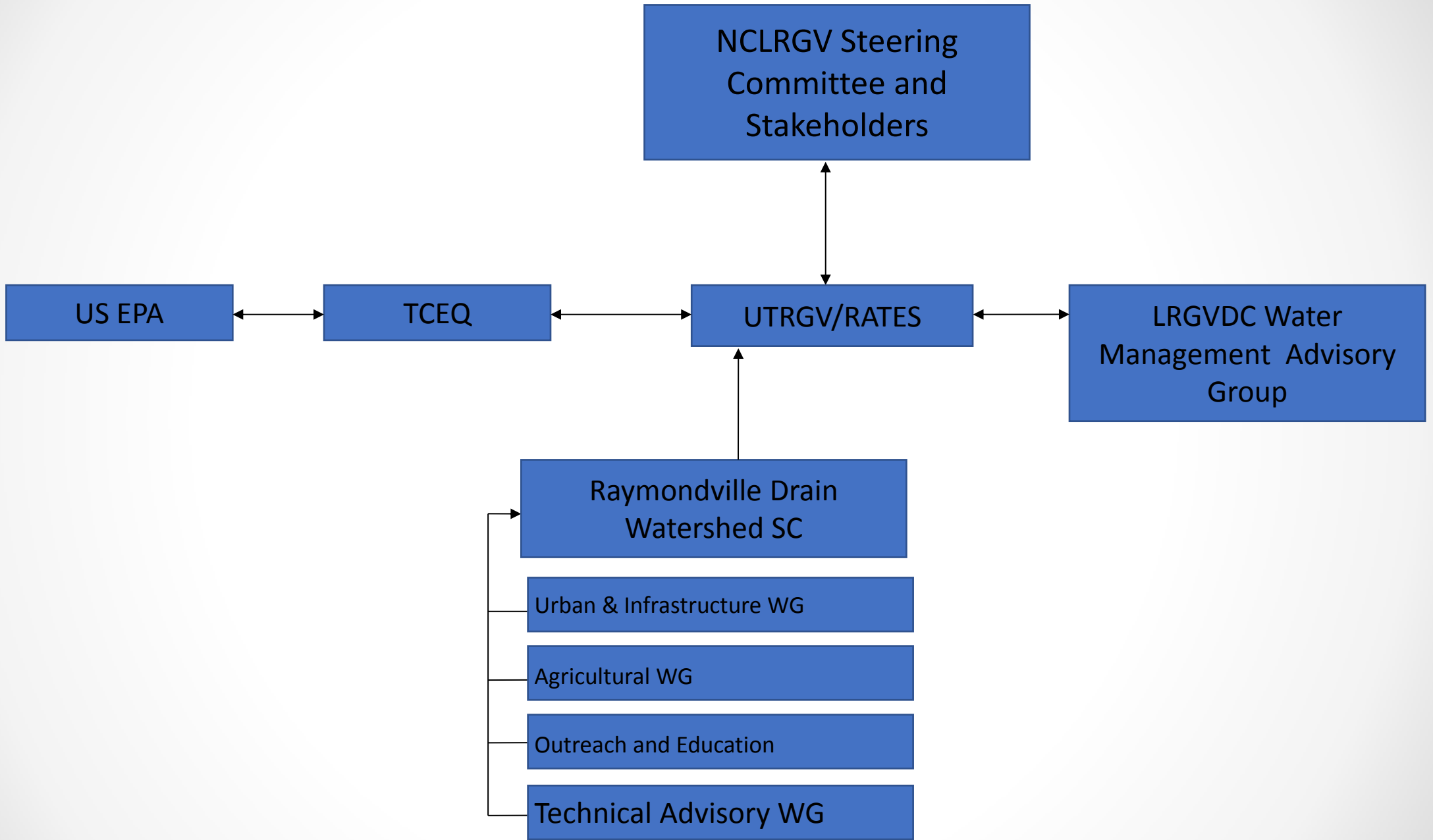
- Quality Assurance Project Plan
- Draft QAPP

Geospatial Data

GIS Data	Source
Roadways	Cities in each watershed
Local Drainage Network	City and County drainage network layers. HCDD Layers – Link , Pharr Layers – Link , Edinburg Layers – Link , Weslaco Layers – Link and Brownsville Layers – Link
Irrigation Canals	GIS layers available from Irrigation Districts and TAMU, TAMUK LRGV Maps – Link , HIDCC1 – Link
IBWC Gauge Locations	IBWC and TCEQ provided GIS layer to UTRGV
Land Use	Cities in each watershed (2016 National Land Cover data base as Land use)
Existing Urban BMP locations	Information of existing BMPs will be gathered from cities
Areas of drainage project locations	Areas of existing and future drainage projects will be obtained from cities and drainage districts.

Non-Geospatial Data

GIS Data	Source
Flow Data	Hidalgo, Cameron, Willacy Counties and Cities on each watershed
Drinking Water Data	Cities
Biological Assessments	Hidalgo, Cameron, Willacy Counties
Climatic Data	IBWC, NCEI, and NOAA. Rain gages near and within watershed.



USIBWC Pilot Channel/Floodway Watershed Protection

Plan Steering Committee:

1. Chair Andrew Ernest, UTRGV
2. Vice Chair Juan Uribe, USIBWC
3. Marci Oveido, LRGVDC
4. Augusto Sanchez, Cameron County
5. Eduardo Gonzalez, Willacy Commissioner
6. David Fuentes, Hidalgo County Commissioner
7. Jose Figueroa, City of Mercedes
8. Juan Cesar Bezares-Cruz, TAMUK
9. Benjamin Worsham, City of Weslaco
10. David Salinas, City of San Juan
11. David Alaniz, City of La Villa

Subcommittees

1- Agriculture Committee

- Jose Figueroa - City of Mercedes
- Ronnie Sanchez – Soil Board
- John Degrassa – Citrus group
- NRCS Corpus (Sonny)
- IBWC

2- Habitat Group

- Boyd
- Tina Buford
- U.S. Fishing Wildlife
- Texas Fishing Wildlife
- Land Owners Ass.
- Nature Conservancy

3- Urban Group

- Wastewater Treatment Plant
- Taskforce

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.

Steering Committee and Workgroup Meetings

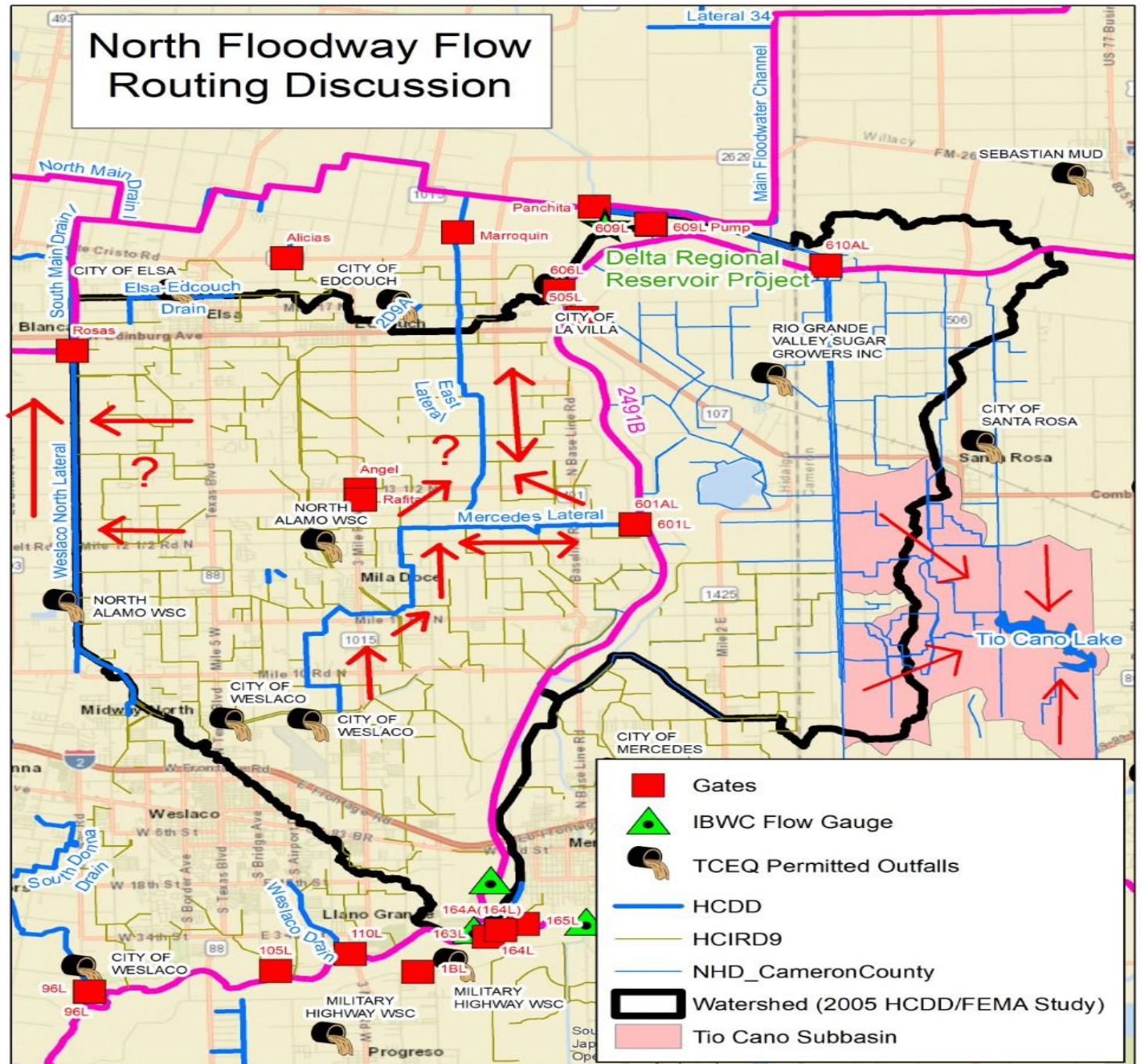
Date	Type of Meeting	Meeting Agenda	Notes	Presentation
02/26/2019	Steering Committee (USIBWC Floodway)	IBWC Feb 26 Agenda	USIBWC-SC- Minutes- 022619	USIBWC SC meeting 02-26-2019
03/14/2019	Steering Committee (Raymondville Drain)	Rayondville Macrh 14 Agenda	RV-SC- Minutes- 031419	Raymondville SC meeting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

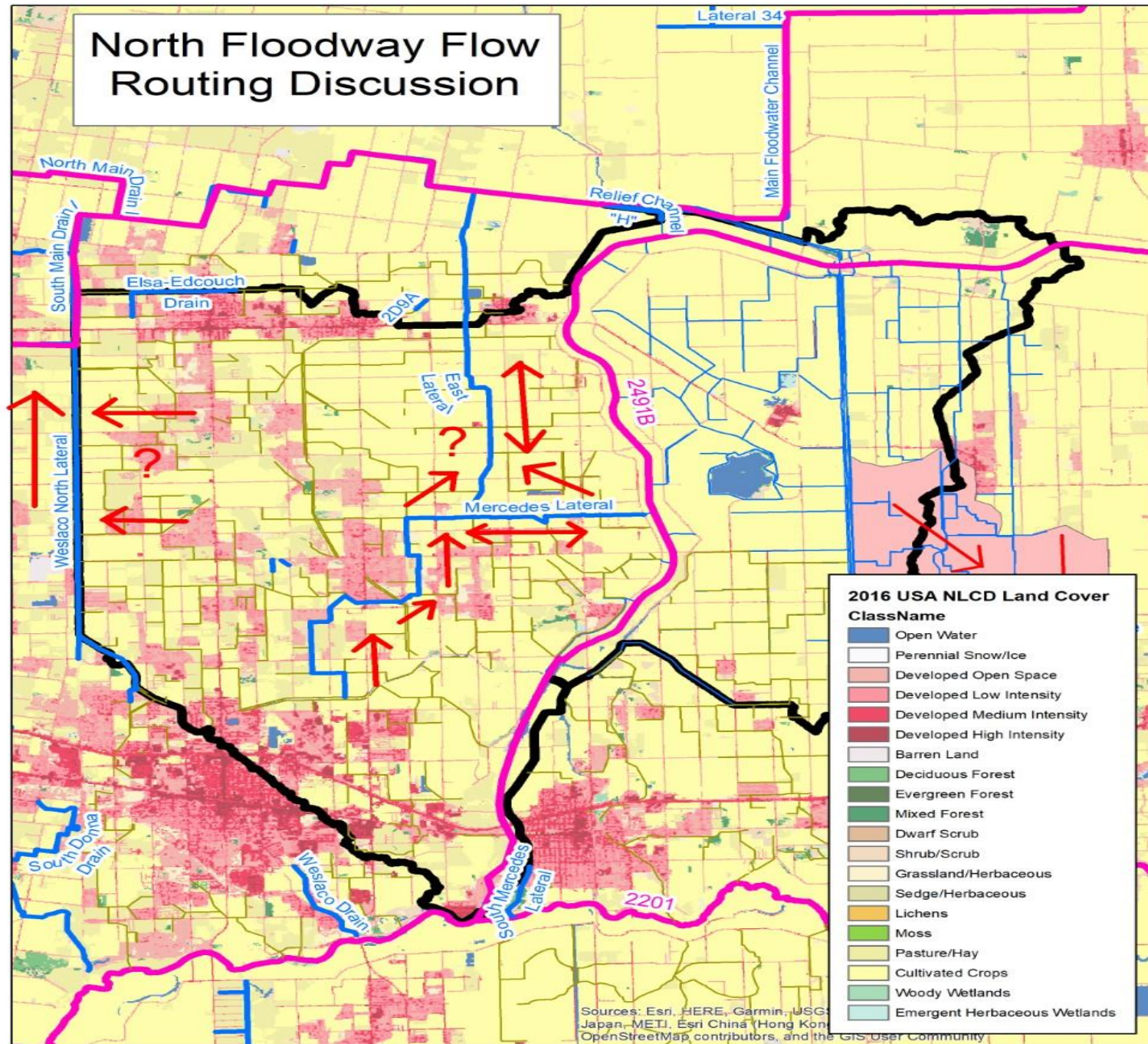
Questions?

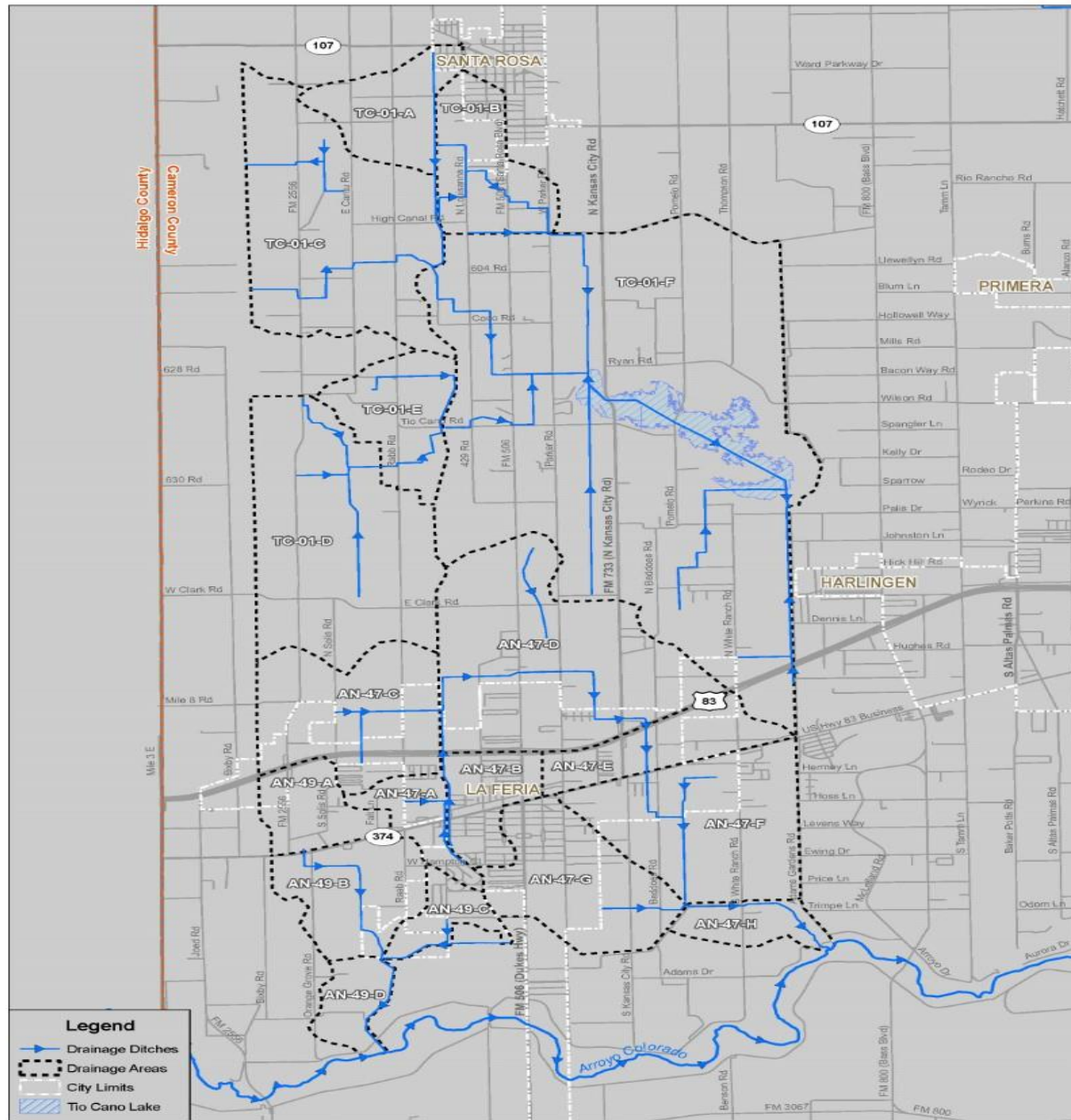
- Environmental Protection Agency Texas Commission on Environmental Quality (TCEQ) Clean Water Act (CWA) Section 319(h) Nonpoint Source (NPS) Grant Program through UTRGV
- TCEQ Project Manager : Tim Cawthon
- PI : Andy Ernest, Ph.D., P.E., BCEE, D. WRE
- Watershed Coordinator: Ahmed Mahmoud, Ph.D.

North Floodway Flow Routing Discussion



North Floodway Flow Routing Discussion





Espey Consultants, Inc.
Environmental & Engineering Services

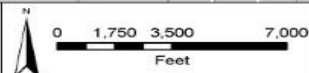
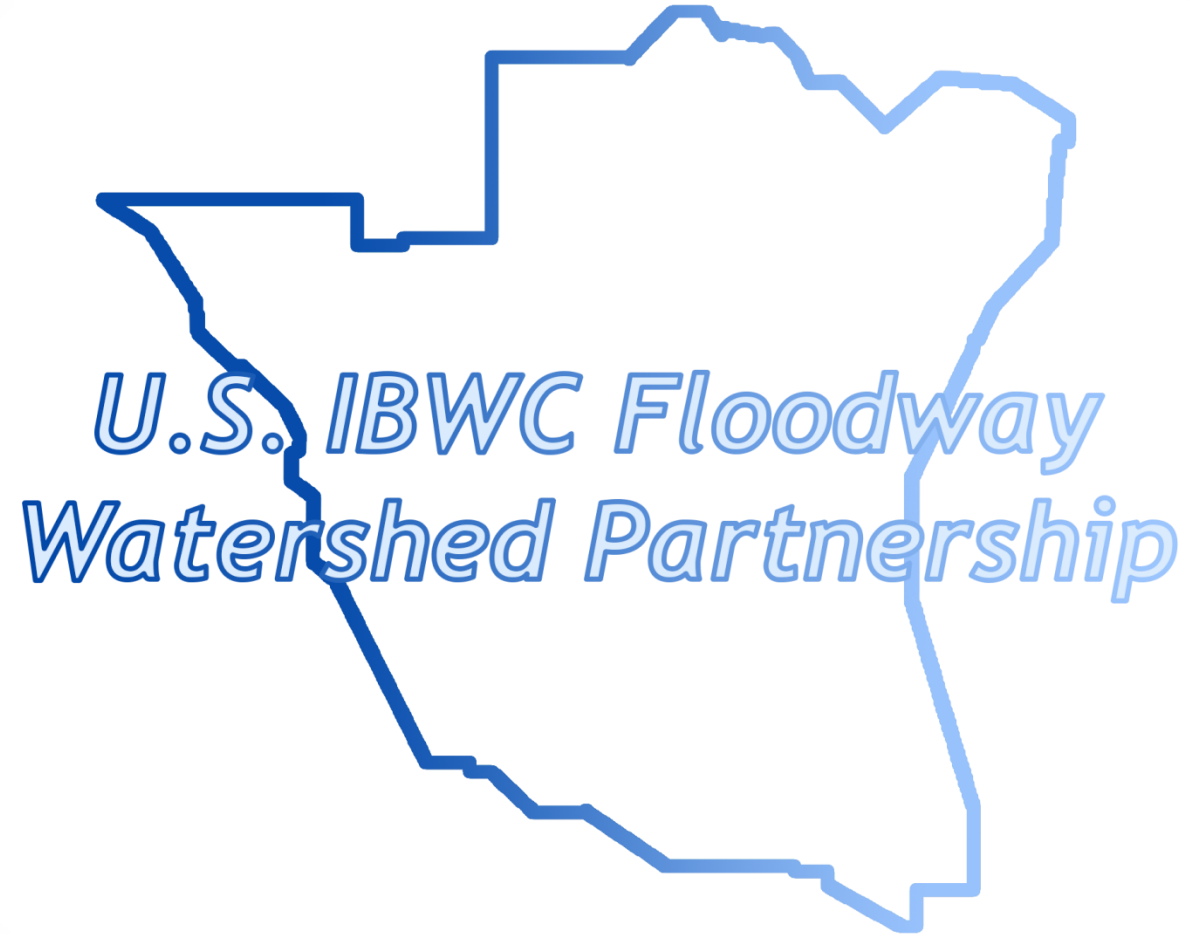


EXHIBIT 01
Drainage Area Map
LA FERIA FPP
CAMERON COUNTY, TEXAS
OCTOBER 2010 PROJECT NO. 09068.00

Wednesday, October 6, 2010 11:09:56 AM, P:\Projects\09068\00_La_Feria_FPP\09068.dwg Report\001_Drainage Areas_09068.rvt

Logo Discussion



Website Discussion

CHARACTERIZATION OF NORTHERN AND CENTRAL RIO GRANDE VALLEY WATERSHEDS



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

Listserv

Plan Steering Committee Members:

1. Chair Andrew Ernest, UTRGV (andrew.ernest@utrgv.edu)
2. Vice Chair Juan Uribe, USIBWC (juan.uribe@ibwc.gov)
3. Marci Oveido, LRGVDC (moviedo@lrgvdc911.org)
4. Augusto Sanchez, Cameron County
5. Eduardo Gonzalez, Willacy Commissioner (eduardogonzales0758@gmail.com)
6. David Fuentes, Hidalgo County Commissioner (david.fuentes@co.hidalgo.tx.us)
7. Jose Figueroa, City of Mercedes (jfigueroa@cityofmercedes.com)
8. Juan Cesar Bezares-Cruz, TAMUK (juan.bezares-cruz@tamuk.edu)
9. Benjamin Worsham, City of Weslaco
10. David Salinas, City of San Juan (dsalinas@cityofsanjuantexas.com)
11. David Alaniz, City of La Villa

Invited

- francisco.martinez@ibwc.gov,
- roxanne.noyola@co.hidalgo.tx.us,
- saul133@hotmail.com,
- kim.jones@tamuk.edu,
- vramos@lrgvdc911.org,
- saulgar133@gmail.com
- abdoul.oubeidillah@utrgv.edu

Geospatial Data

GIS Data	Source
LIDAR Data	USGS Willacy and Hidalgo https://data.tnris.org/collection/6a825941-a80b-4a61-a2b2-1da205f2f28b IBWC Cameron County https://data.tnris.org/collection/27f30e8a-115a-4ad5-ace1-5e2aa4a53a70
Subwatersheds	Hidalgo Countywide Flood Map Modernization Project Hydrology Analysis TSDN Report (Hidalgo County and FEMA)
Hydrography	National Hydrography Dataset (NHD)Pre-staged Subregions (https://tnris.org/stratmap/hydrography/)
Local Drainage Network	City and County drainage network layers. HCDD Layers – Link , Pharr Layers – Link , Edinburg Layers – Link , Weslaco Layers – Link and Brownsville Layers – Link
Irrigation Canals	GIS layers available from Irrigation Districts and TAMU, TAMUK LRGV Maps – Link , HIDCC1 – Link
IBWC Gauge Locations	IBWC and TCEQ provided GIS layer to UTRGV
Land Use/Land Cover	National Land Cover Database 2016 (https://www.mrlc.gov/)
Land Use	Cities in each watershed
Soil Map Unit Boundaries and Properties	NRCS SSURGO databases < https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx >
Geology Units	USGS Geologic Atlas of Texas/ Environmental Geologic Atlas of the Texas Coastal Zone--Brownsville-Harlingen Area (Texas Bureau of Economic Geology)
Urbanized Areas (2010)	U.S. Census Bureau TIGER/Line® Shapefiles http://www.census.gov/cgi-bin/geo/shapefiles2010/layers.cgi < http://cfpub.epa.gov/npdes/stormwater/urbanmaps.cfm >

Geospatial Data

GIS Data	Source
TCEQ Permitted Wastewater Outfalls	TCEQ GIS Site Layers Download Page < http://www.tceq.texas.gov/gis/download-tceq-gis-data >
TCEQ Assessment Units	TCEQ GIS Hydrology Layers < http://www.tceq.texas.gov/gis/download-tceq-gis-data >
Water Rights Diversion Points	TCEQ Water Rights Diversion Points < http://www.tceq.texas.gov/gis/download-tceq-gis-data >
Water and sewer service areas	TCEQ GIS Regulatory/ Administrative Boundaries, Water & Sewer Certificates of Convenience and Necessity Service Areas, < www.tceq.texas.gov/gis/boundary.html >
Census Data	U.S. Census https://www.census.gov/cgi-bin/geo/shapefiles/index.php
Census Urban Areas	U.S. Census https://www.census.gov/cgi-bin/geo/shapefiles/index.php
Roadways	TxDOT
Roadways	Cities in each watershed
Wells	TWDB Well locations http://www.twdb.texas.gov/mapping/gisdata.asp
TCEQ Surface Water Quality Monitoring Stations	TCEQ GIS Site Layers Download Page < http://www.tceq.texas.gov/gis/download-tceq-gis-data >

Geospatial Data

GIS Data	Source
Address Points	Hidalgo, Willacy, and Cameron Counties available at https://tnris.org/stratmap/address-points/
Parcels	Hidalgo, Willacy, and Cameron Counties available at TNRIS https://tnris.org/stratmap/land-parcels/
Sewer Service Areas	1- Coastal Zone – Texas AgriLife Extension, 2- Hidalgo and Cameron Counties – TWRI
OSSF Points	1- Coastal Zone – Texas AgriLife Extension, 2-Hidalgo and Cameron Counties –TWRI
PAD Database	Protected Areas database Department of the Interior < Link >
Seagrass	TPWD https://tpwd.texas.gov/gis/
Wildlife Management Areas	TPWD https://tpwd.texas.gov/gis/
Water Districts	TCEQ https://www.tceq.texas.gov/gis/download-tceq-gis-data
Colonias	Rural Community Assistance Partnership Link
Coastal Zone Boundary	General Land Office http://www.glo.texas.gov/land/land-management/gis/
Existing Urban BMP locations	Information of existing BMPs will be gathered from cities
Areas of drainage project locations	Areas of existing and future drainage projects will be obtained from cities and drainage districts.