



Nueces River Authority

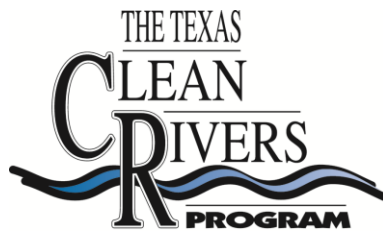
2021 Basin Highlights Report

San Antonio-Nueces Coastal Basin

Nueces River Basin

Nueces-Rio Grande Coastal Basin

May 2021



Prepared in cooperation with the Texas Commission on Environmental Quality
Clean Rivers Program

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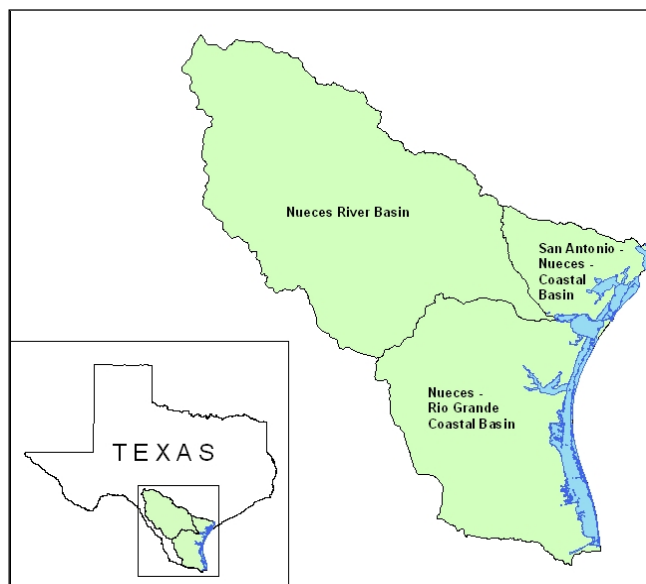
List of Acronyms

AU	Assessment Unit
BCRAGD	Bandera County River Authority and Groundwater District
BMP	Best Management Practices
CAFO	Confined Animal Feeding Operations
CBBEP	Coastal Bend Bays and Estuary Program
CCIH	Corpus Christi Inner Harbor
CCSC	Corpus Christi Channel Ship
cfu	Colony Forming Units
CR	County Road
CRP	Clean Rivers Program
CWQM	Continuous Water Quality Monitoring
DDE	Dichlorodiphenylethylene
DO	Dissolved Oxygen
DSHS	Department of State Health Services
FM	Farm to Market
Hr	Hour
ICWW	Intracoastal Waterway
IH	Interstate Highway
km	Kilometers
m	Meters
mg/l	Milligrams Per Liter
mL	Milliliter
MSL	Mean Sea Level
NCR	Non-contact Recreation
NRA	Nueces River Authority
PCB	Polychlorinated biphenyl
PCR	Primary Contact Recreation
RR	Ranch Road
RRC	Railroad Commission of Texas
RUAA	Recreational Use Attainability Analysis
SCR1	Secondary Contact Recreation 1
SCR2	Secondary Contact Recreation 2
SH	State Highway
su	Standard Units
SWQM	Surface Water Quality Monitoring
SWQMIS	Surface Water Quality Monitoring Information System
TCEQ	Texas Commission on Environmental Quality
TDS	Total Dissolved Solids
TGLO	Texas General Land Office
TIAER	Texas Institute of Applied Environmental Research
TMDL	Total Maximum Daily Load
TPWD	Texas Parks and Wildlife Department
TSS	Total Suspended Solids
TSSWCB	Texas State Soil and Water Conservation Board
TWRI	Texas Water Resources Institute
µg/l	Micrograms Per Liter
US	United States (Highway)
WPP	Watershed Protection Plan
WWTP	Wastewater Treatment Plant

INTRODUCTION and 2020 HIGHLIGHTS

Introduction

In 1991, the Texas Legislature passed the Texas Clean Rivers Act requiring basin-wide water quality assessments to be conducted for each river basin in Texas. Under this act, the Clean Rivers Program (CRP) has developed an effective partnership involving the Texas Commission on Environmental Quality (TCEQ), other state agencies, river authorities, local governments, industry, and citizens. Using a watershed management approach, the Nueces River Authority (NRA) and TCEQ work together to identify and evaluate surface water quality issues and to establish priorities for corrective action. Under CRP, NRA is responsible for the San Antonio – Nueces Coastal Basin, the Nueces River Basin, the Nueces – Rio Grande Coastal Basin, and the adjacent bays and estuaries, an area roughly 31,500 square miles, ranging from the hill country in Edwards County to San Antonio Bay in Refugio County to the Brownsville Ship Channel in Cameron County.



NRA's Basins of Responsibility

San Antonio – Nueces Coastal Basin

The San Antonio – Nueces Coastal Basin is approximately 3,100 square miles, covering all or part of 7 counties. The basin is bordered by the San Antonio River Basin to the north, the Lavaca-Guadalupe Coastal Basin to the northeast, bays, estuaries, and the Gulf of Mexico to the east, the Nueces-Rio Grande Coastal Basin to the south, and the Nueces River Basin to the northwest. Being a coastal area, the basin is naturally host to several state-operated recreational areas. These include Goose Island State Park near Rockport, Copano Bay State Fishing Pier along SH 35 north of Fulton, Fulton Mansion State Historic Park in Fulton, and the Aransas National Wildlife Refuge in Aransas County.

Nueces River Basin

The Nueces River Basin covers approximately 17,000 square miles, encompassing all or part of 23 counties in South-Central Texas. Other rivers within the basin include the Frio, Leona, Sabinal, and Atascosa Rivers. The basin is bordered by the Colorado, Guadalupe, and San Antonio River Basins to the north, the San Antonio – Nueces Coastal Basin to the southeast, the Nueces – Rio Grande Coastal Basin to the south, and the Rio Grande River basin to the south and southwest. Throughout the basin, the rivers are used for water supply and recreational purposes. The basin is home to numerous state-operated recreational areas including: Choke Canyon State Park on the south side of Choke Canyon Reservoir near Three Rivers, Lake Corpus Christi State Park on the southeast bank of Lake Corpus Christi near Mathis, Garner State Park north of Concan, Tips State Recreational Area on the Frio River in Three Rivers, Lipantitlan State Historic Park State Historic Park near Sandia, Lost Maples State Natural Area north of Vanderpool, and Hill Country State Natural Area north of Hondo.

Nueces – Rio Grande Coastal Basin

The Nueces – Rio Grande Coastal Basin covers approximately 10,400 square miles, encompassing all or part of 12 counties in South Texas. The basin is bordered by the Nueces River Basin and the San Antonio – Nueces Coastal Basin to the north, bays, estuaries, and the Gulf of Mexico to the east, and the Rio Grande River Basin to the south and southwest. The inland area of the basin is dominated by large ranches, including the King Ranch. State-operated recreational areas are primarily along the coast and include Mustang Island State Park, Port Isabel Light House State Historic Park in Port Isabel, and the Padre Island National Seashore.

2020 HIGHLIGHTS

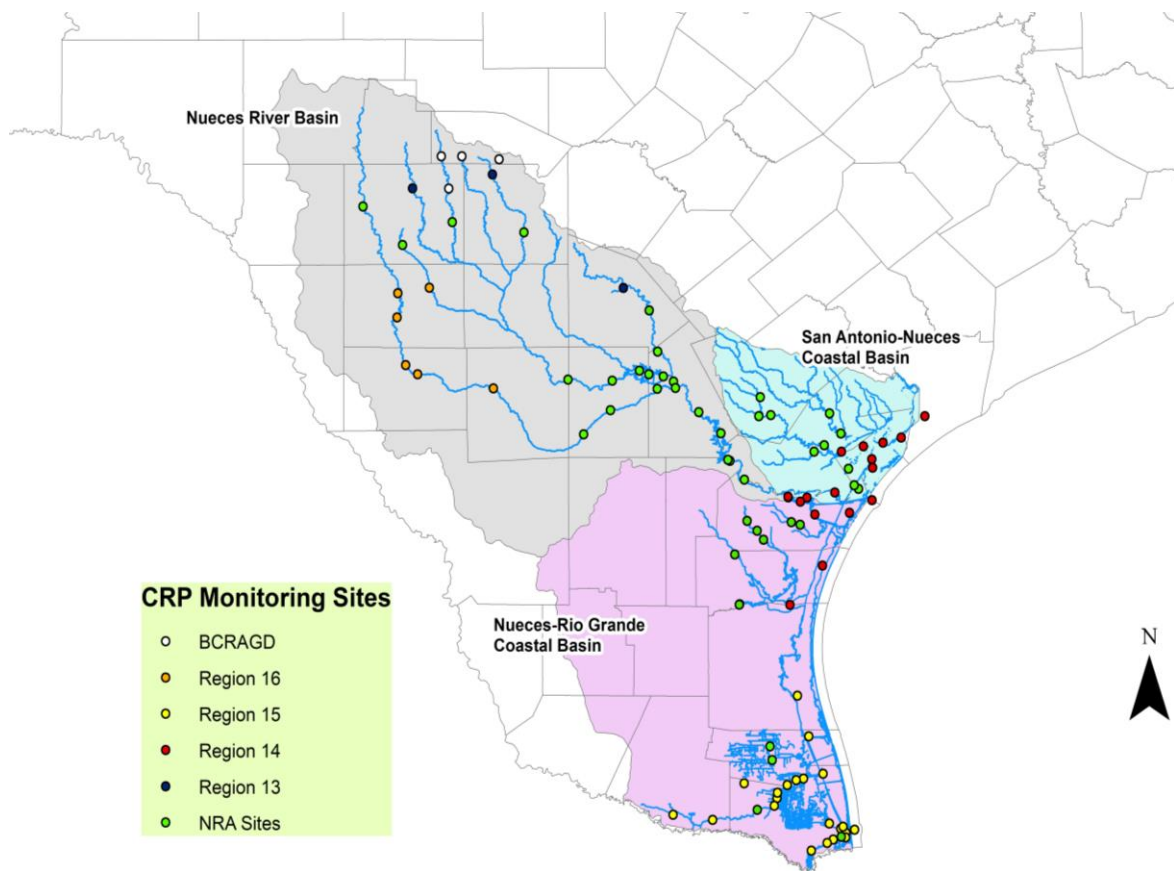
2020 was a challenging year for NRA's CRP Program. Statewide shutdowns of schools and businesses due to the COVID-19 pandemic provided many hurdles to overcome. Classroom based education outreach efforts using the watershed, groundwater, and rainwater models were suspended for the 2020 school year and greatly reduced in the first half of the 2021 school year. Meetings and other functions that were previously held in-person transitioned to electronic platforms as many people began working from home. NRA's Water Quality Monitoring Program was one of the few tasks that were relatively unaffected by the constraints of the pandemic. Fortunately, the water quality laboratories that NRA uses all remained open allowing field staff to continue collecting and reporting data at 100%. NRA owes a debt of gratitude to the labs and lab personnel.

Water-wise, 2020 was a relatively dry year compared to 2019 which was one of the wettest years in decades in the Nueces River Basin. Flows from the Upper Nueces River began tapering off and many rivers and creeks began drying up resulting in many stations having insufficient water for data collection. In summer, the Texas Coast did see increased tropical activity with the passage of Hurricane Hannah just south of Baffin Bay, but the rains did little to increase flows in the Nueces River Watershed. The Frio River Sub-watershed and Choke Canyon were still in drought conditions as they have been since 2007 when that reservoir was last full. The San Antonio – Nueces Coastal Basin also experienced below average precipitation resulting in reduced streamflow. The Nueces - Rio Grande Coastal Basin received the lion's share of rain in 2020 due to the tropical activity.



WATER QUALITY MONITORING

Surface water quality monitoring in South Texas is conducted by the Nueces River Authority (NRA) through the Texas Clean Rivers Program (CRP) and by the Texas Commission on Environmental Quality (TCEQ) through the Surface Water Quality Monitoring (SWQM) Program. Most of the monitoring stations have been monitored for many years and provide valuable information with respect to trends and/or changing conditions. Routine water quality samples are analyzed for conventional and bacteria parameters. These samples are usually collected four times per year, once per quarter. Field parameters are also recorded as part of the sampling events. Parameters analyzed for conventional monitoring include alkalinity, ammonia, total dissolved solids (TDS), total suspended solids (TSS), total phosphorous, chlorides, sulfate, hardness (fresh water sites), nitrates, chlorophyll-*a*, pheophytin, and total organic carbon. Routine bacteria analysis includes enterococcus in saltwater bodies and tidal segments and *E. coli* for fresh water sites. Additional bacterial analysis is being conducted for some of the special studies. Measured field parameters in the NRA CRP include dissolved oxygen (DO), salinity (saltwater and tidal sites), flow (fresh water sites), pH, water temperature, air temperature, conductivity, secchi depth, and wind speed and direction. Observations such as water color, water odor, surface conditions, turbidity, current weather, recent rainfall amounts, and evidence of primary contact recreation are noted. Low DO concerns are more thoroughly evaluated with 24-Hour (Hr) DO measurements. This monitoring is conducted when adequate flow conditions exist. Metals in water analysis samples are collected at a number of select stations for various reasons including water supply protection, monitoring historic impairments, and to provide baseline data on new water bodies before permitted facilities are constructed. Specific sites and the type of monitoring being conducted during FY 2020 are listed in summary tables at the beginning of each basin subsection. Detailed information is available on the Statewide Coordinated Monitoring Schedule, <http://cms.lcra.org/>, maintained by the Lower Colorado River Authority (LCRA). A map of routine quarterly monitored sampling locations and program partners involved in water quality monitoring in the Nueces River Basin, San Antonio-Nueces Coastal Basin, and Nueces-Rio Grande Coastal Basin is provided below.



Monitoring Sites in the Nueces River Basin, San Antonio-Nueces Coastal Basin, and Nueces-Rio Grande Coastal Basin

WATER QUALITY CONDITIONS

Water Quality Terminology

In this report, you will see many references to the 2020 IR. This refers to the 2020 Texas Integrated Report (IR). The IR assesses suitable data in the State's water quality database (Surface Water Quality Monitoring Information System (SWQMIS)) for a 7-year period, and a new 7-year data set is assessed every two years. In most cases, a minimum of 10 samples is required to conduct the assessment. In some cases, the 10 samples are obtained by using a slightly longer period of time. The 2020 IR includes data from December 1, 2011 through November 30, 2018. For this report, the analysis and discussion of the concerns and impairments in each segment is based on the 2020 IR. Prior to 2010, water quality assessments conducted by the TCEQ were called the Water Quality Inventory.

TCEQ assessed a variety of parameters including DO, pH, water temperature, total phosphorus, nitrates, ammonia, chlorophyll-a, and bacteria (*E.coli* for fresh water segments and *Enterococcus* on tidal and marine segments) values on each assessment unit (AU) of a classified segment where ample data were available. Metals data were assessed where applicable. A single segment can consist of one to several AUs. TDS, chloride, and sulfate are assessed for the entire segment and only on fresh water segments. AU boundaries are occasionally modified to be more representative and provide for a more accurate analysis.

Impairments for the following parameters are defined as follows:

Parameter	Criteria	Calculation Used for Impairment*
Total Dissolved Solids (TDS), chloride, and sulfate	Segment specific	Average of samples are above the criteria
Dissolved Oxygen (DO) - for High Aquatic Life Use	3.0 mg/l** grab sample 5.0 mg/l 24-Hr average or Segment specific	10% of samples are below either criteria
pH	6.5 su*** and 9 su	10% of samples are above or below the criteria
<i>E. coli</i>	126 cfu****	Geometric mean is greater than the criteria
Enterococci	35 cfu	Geometric mean is greater than the criteria

*The percent of samples exceeding the criteria or screening level varies somewhat with small sample sizes (between 10 and 20). When sample sizes are greater than 20 samples, the percentage shown in the calculation column is much more accurate.

**mg/l: milligrams per liter

***su: standard units

****cfu: colony forming units

Concerns for the following parameters are defined as follows:

Parameter	Screening Levels*			Calculation Used for Concern
	Stream	Reservoir	Tidal Stream	
Ammonia-Nitrogen	0.33 mg/l	0.11 mg/l	0.46 mg/l	20% of samples are above the criteria
Nitrate	1.95 mg/l	0.37 mg/l	1.10 mg/l	
Total phosphorus	0.69 mg/l	0.20 mg/l	0.66 mg/l	
Chlorophyll-a	14.1 µg/l**	26.7 µg/l	21.0 µg/l	

*Screening levels to identify concerns have been developed by the State to enable an assessment of water quality for some parameters, primarily nutrients that only have a narrative criteria. The levels were developed by calculating the 85th percentile for all water quality data in the TCEQ's water quality database over a 10-year period.

**µg/l: micrograms per liter

The following chart explains the potential impacts when the water quality standards are not met and the most common causes for concerns or impairments.

Parameter of Concern or Impairment	Impact	Cause
DO	Organisms that live in water need oxygen to live. In waters with depressed DO levels, organism may not have sufficient oxygen to survive.	Modifications to the riparian zone, human activity that causes water temperatures to increase, and increases organic matter, bacteria, and over abundant algae.
pH	Most aquatic life is adapted to live within a narrow pH range. Different organisms can live and adjust to differing pH ranges, but all fish die if pH is below 4 (the acidity of orange juice) or above 12 (the pH of ammonia).	Industrial and wastewater discharge, runoff from quarry operations, and accidental spills.
Ammonia	Elevated levels of ammonia in the environment can adversely affect fish and invertebrate reproductive capacity and reduced growth of the young.	Ammonia is excreted by animals and is produced during the decomposition of plants and animals. It is an ingredient in many fertilizers and is also present in sewage, storm water runoff, certain industrial wastewaters, and runoff from animal feedlots.
Nutrients Nitrates Total phosphorus	These nutrients increase plant and algae growth. When plants and algae die, the bacteria that decompose them use oxygen so that is no longer available for fish and other living aquatic life. The more dead plants in the water, the more bacteria are produced to decompose the dead leaves. High levels of nitrate and nitrites can produce Nitrite Toxicity, or "brown blood disease," in fish. This disease reduces the ability of blood to transport oxygen throughout the body.	Nutrients are found in effluent released from wastewater treatment plants (WWTP)s, fertilizers, and agricultural runoff carrying animal waste from farms and ranches. Soil erosion and runoff from farms, lawns, and gardens can add nutrients to the water.
Chlorophyll-a	Chlorophyll-a is the photosynthetic pigment found in all green plants, algae, and cyanobacteria. Elevated levels indicate abundant plant growth which could lead to reduced DO levels.	Modifications to the riparian zone, human activity that causes water increases in organic matter, nutrients, bacteria, and over abundant algae.
TSS	TSS measures particles that are suspended in water and which will not pass through a filter. It can also affect light penetration. Deposition of these particles can bury and/or destroy benthic habitat for most species of aquatic insects, snails and crustaceans.	TSS originates from multiple point and nonpoint sources but most commonly results from erosion of soils substrates. A good measure of the upstream land use conditions is how much TSS rises after a heavy rainfall.
TDS Chloride Sulfate	High levels of these parameters may affect the aesthetic quality of water, interfering with washing clothes and corroding plumbing fixtures. They can also affect the permeability of ions in aquatic organisms.	Mineral springs, carbonate deposits, salt deposits, and sea water intrusion are natural sources of these parameters. Other sources can be attributed to oil exploration, drinking water treatment chemicals, storm water and agricultural runoff, and wastewater discharges.

Recreational Use Designations

Beginning in 2010, TCEQ initiated a Water Quality Standards revision by expanding categories for Recreational Uses. Below is a breakdown of definitions of each designation and corresponding bacterial concentrations.

Primary contact recreation (PCR): Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water. For *E. coli*, the geometric mean criterion is 126 cfu per 100 milliliters of sampled water; for *Enterococcus*, the geometric mean criterion is 35 cfu per 100 milliliters of sampled water.

Secondary contact recreation 1 (SCR1): Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur. For *E. coli*, the geometric mean criterion is 630 cfu per 100 milliliters of sampled water; for *Enterococcus*, the geometric mean criterion is 175 colonies per 100 milliliters of sampled water.

Secondary contact recreation 2 (SCR2): Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access. For *E. coli*, the geometric mean criterion is 1030 cfu per 100 milliliters of sampled water.

Noncontact recreation (NCR): Activities, such as ship and barge traffic, birding, and using hike and bike trails near a water body, not involving a significant risk of water ingestion, and where primary and secondary contact recreation should not occur because of unsafe conditions. For *E. coli*, the geometric mean criterion is 2,060 cfu per 100 milliliters of sampled water; for *Enterococcus*, the geometric mean criterion is 350 cfu per 100 milliliters of sampled water.

Recreational Use Designations	<i>E. coli</i> (Freshwater) cfu/100 mL	<i>Enterococcus</i> (Salt Water) cfu/100 mL
Primary Contact Recreation	126	35
Secondary Contact 1	630	175
Secondary Contact 2	1030	*
Noncontact Recreation	2060	350

*There is no Secondary Contact 2 designation for *Enterococcus*.

Recreational Use Attainability Analysis (RUAA)

In order to determine the appropriate designation, a Recreational Use Attainability Analysis (RUAA) must be conducted. An RUAA is designed to: capture information of the types of recreational uses occurring in a water body; document physical stream characteristics that affect recreational uses; and document observed, historical, and anecdotal recreational uses. The information is obtained via questionnaires, field surveys, and research. Until an RUAA is conducted and a designation other than primary contact recreation is found to be more appropriate, a segment will continue to be assessed using the primary contact recreation criteria.

Aquatic Life Monitoring (ALM)

Aquatic Life Monitoring (ALM) is a type of monitoring that's used to derive baseline data on fish communities, benthic macroinvertebrate communities, and physical habitat to determine if designated or presumed aquatic life uses are being attained and/or are appropriate for the waterbody. ALM activities include fish and aquatic invertebrate collection, habitat assessment, 24-hour dissolved oxygen data collection, and water chemistry analysis. Typically, two biological events are required over one year. One event is to be conducted during the critical period (July 1 - September 30) and the other event during the non-critical portion of the index period March 15 - June 30 or October 1 – October 15) with, at least one month between monitoring events.

Least Disturbed Stream (LDS)

Least Disturbed Stream (LDS) monitoring is a type of ALM that is conducted in streams to define reference conditions for Texas streams and represent the “best available” streams in each of the ecoregions in Texas. LDS studies serve as the basis for developing benchmarks against which a biological monitoring program can assess the biological condition of test sites. LDS studies were conducted on Segment 2105 – Nueces River above Holland Dam in 2018.

This section contains detailed information for each of the three basins in NRA's area of responsibility for CRP: The San Antonio – Nueces Coastal Basin, the Nueces Basin, and the Nueces – Rio Grande Coastal Basin. Information included for each of the basins contains a map of the basin, a description of the basin, a summary of concerns and impairments identified in the 2020 IR, a table of the FY 2020 sampling locations, and summaries for each segment within the basin.

2111: Upper Sabinal River

Legend:

- TCEQ_SWQM_STATIONS
- ▲ CAFOs
- WasteWaterOutfalls

LULC

Land_cover

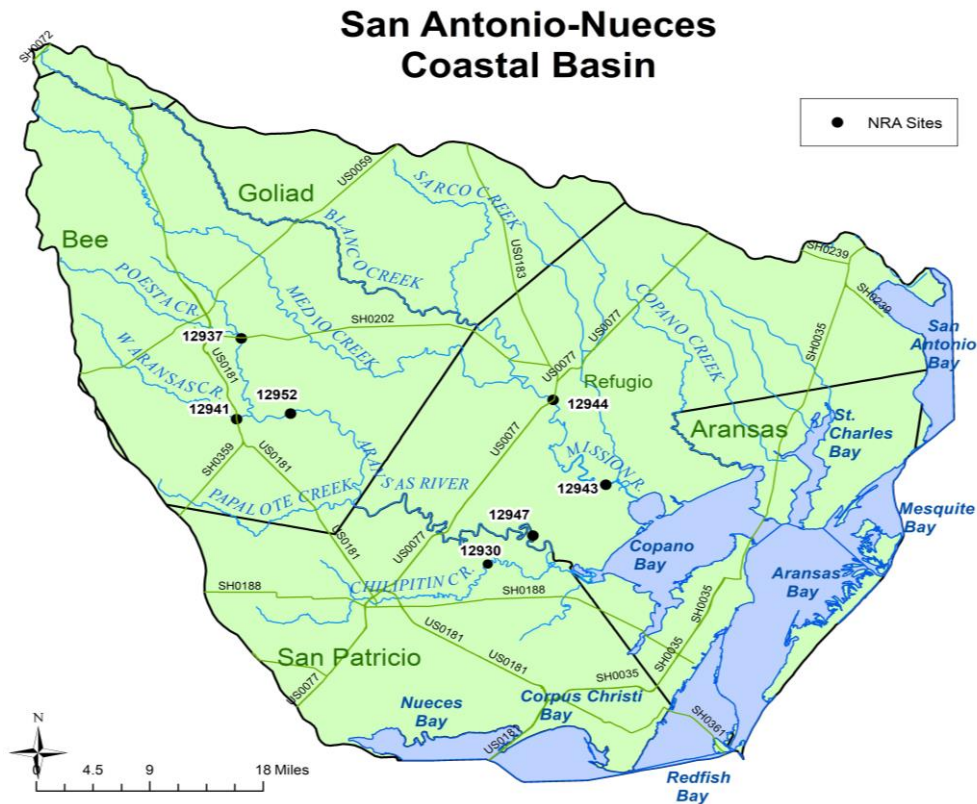
- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, High Intensity
- Barren Land
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Shrub/Scrub
- Herbaceous
- Hay/Pasture
- Cultivated Crops
- Woody Wetlands

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), Swisstopo, © OpenStreetMap contributors, and the GIS User Community

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BASIN 20 - SAN ANTONIO – NUECES COASTAL BASIN

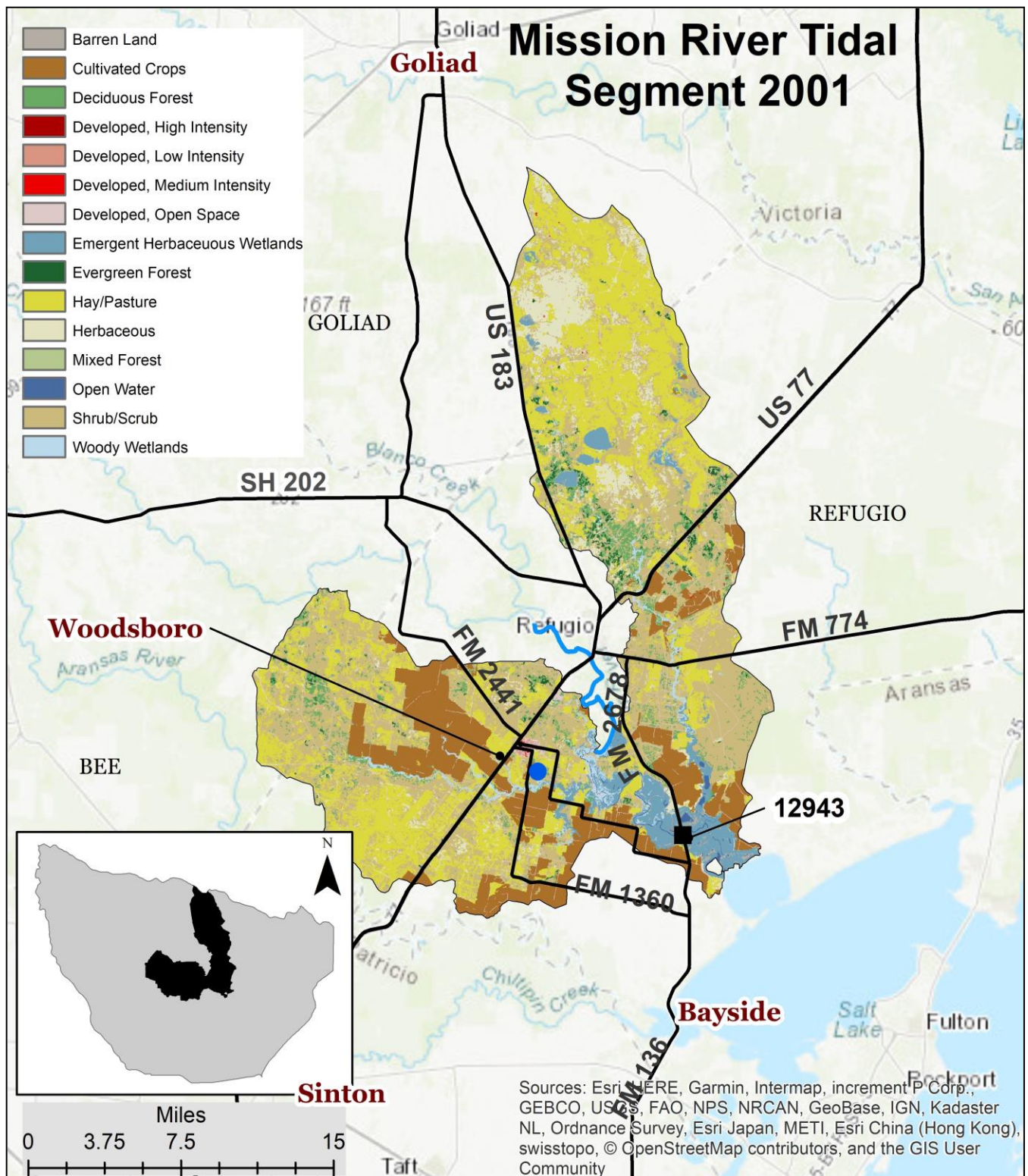
The San Antonio – Nueces Coastal Basin is approximately 3,100 square miles, covering all or part of 7 counties. The basin is largely rural, with the dominant industries being crop farming and cattle rearing. Rivers and creeks in the basin includes Blanco and Medio creeks which flow into Mission River, Poesta, Aransas, and Chiltipin creeks which flow into Aransas River, and Copano Creek which discharges directly into Copano Bay. The basin also includes the tributaries of St. Charles Bay. The tidal segments of both the Aransas and Mission rivers are impaired for bacteria for primary contact recreation. The receiving waterbody, Copano Bay, is located in Basin 24 – Bays and Estuaries.



Map of Basin 20 – San Antonio-Nueces Coastal Basin

CRP Sites in Basin 20 - San Antonio – Nueces Coastal Basin

Segment Name	Station Id	Description	Monitoring Entity	Conventional, Bacteria, Field	Other
2001 Mission River Tidal	12943	Near south bank immediately downstream of FM 2678 between Refugio and Bayside	NRA	Quarterly	
2002 Mission River Above Tidal	12944	At US 77 upstream from bridge at Refugio	NRA	Quarterly	
2003 Aransas River Tidal	12947	At boat ramp at FM 629 terminus south of Bonnie View	NRA	Quarterly	
	12948	At US 77 upstream of bridge between Sinton and Refugio	NRA	Quarterly	
2003A Chiltipin Creek Tidal	12930	At Plymouth Road northeast of Sinton	NRA	Quarterly	Metals 2x/year
2004 Aransas River Above Tidal	12952	At county road east of Skidmore	NRA	Quarterly	
2004A Aransas Creek	12941	At US 181 North of Skidmore	NRA	Bacteria and Field Only	
2004B Poesta Creek	12937	77 m downstream of SH 202	NRA	Quarterly	



Segment 2001 – Mission River Tidal Segment

Segment 2001: Mission River Tidal

Segment Description - Mission River Tidal Segment 2001 flows 19 miles from a point 4.6 miles downstream of US-77 in Refugio County to its confluence with Mission Bay in Refugio County. Its watershed is 199,798 acres. The area is predominately ranch and farmland and the town of Woodsboro is the only community in the watershed.

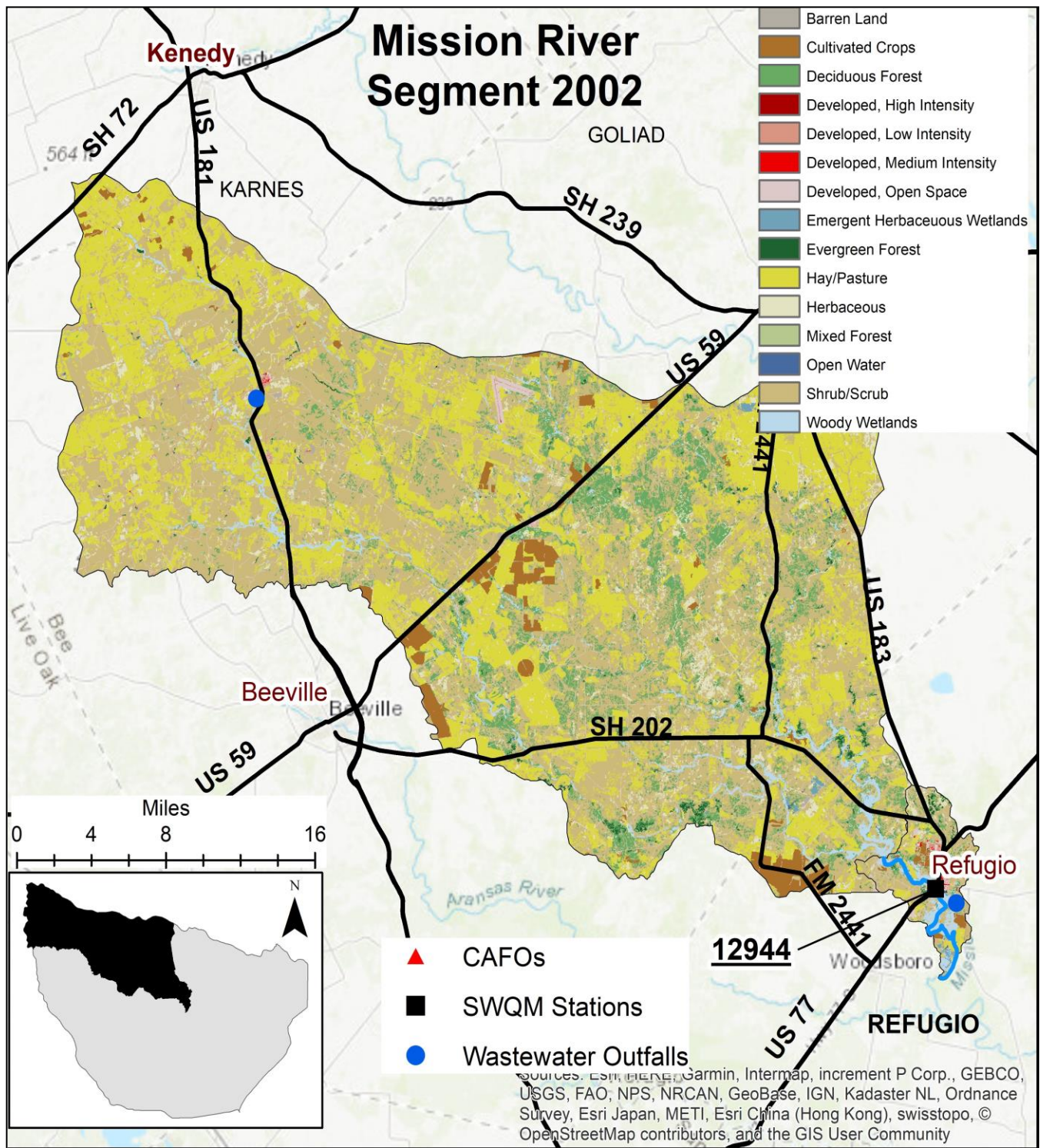
Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Mission River Tidal	12943	01	Near south bank immediately downstream of FM 2678 between Refugio and Bayside	NRA	Routine Quarterly

Water Quality – According to the 2020 IR, Segment 2001 is **impaired** for **bacteria** (Enterococcus) and has a screening level **concern** for **chlorophyll-a**. Segment 2001 has been impaired for bacteria, which is the primary contact recreation indicator, since the 2004 IR and was included in the Copano Bay Total Maximum Daily Load (TMDL).

Special Studies - In 2011, after extensive data collection, analysis, and water quality efforts, TMDLs were recommended by stakeholders. The Mission and Aransas Tidal bacteria TMDL was adopted and the Implementation Plan (I-Plan) was approved in 2016. The segment was also included in the Mission and Aransas River Watershed Protection Plan (WPP) that was completed by Texas Water Resources Institute (TWRI) in 2019. The goal of the WPP is to restore water quality to water quality standards by establishing a 5-year implementation schedule and work to reduce runoff pollution concentrations from entering the river and coastal zone. The final report can be found at: <https://twri.tamu.edu/media/4175/mission-and-aransas-rivers-watershed-protection-plan-final-draft.pdf>



Station 12943 – Mission River tidal at FM 2678



Segment 2002 – Mission River Above Tidal

Segment 2002: Mission River Above Tidal

Segment Description - Mission River Above Tidal Segment 2002 flows 9 miles from the confluence of Blanco and Medio creeks to a point 4.6 miles downstream of US 77 in Refugio County. Its watershed is 452,172 acres. The area is predominately ranch and farm land. The Town of Refugio (pop. 2,806) is the only community in the watershed.

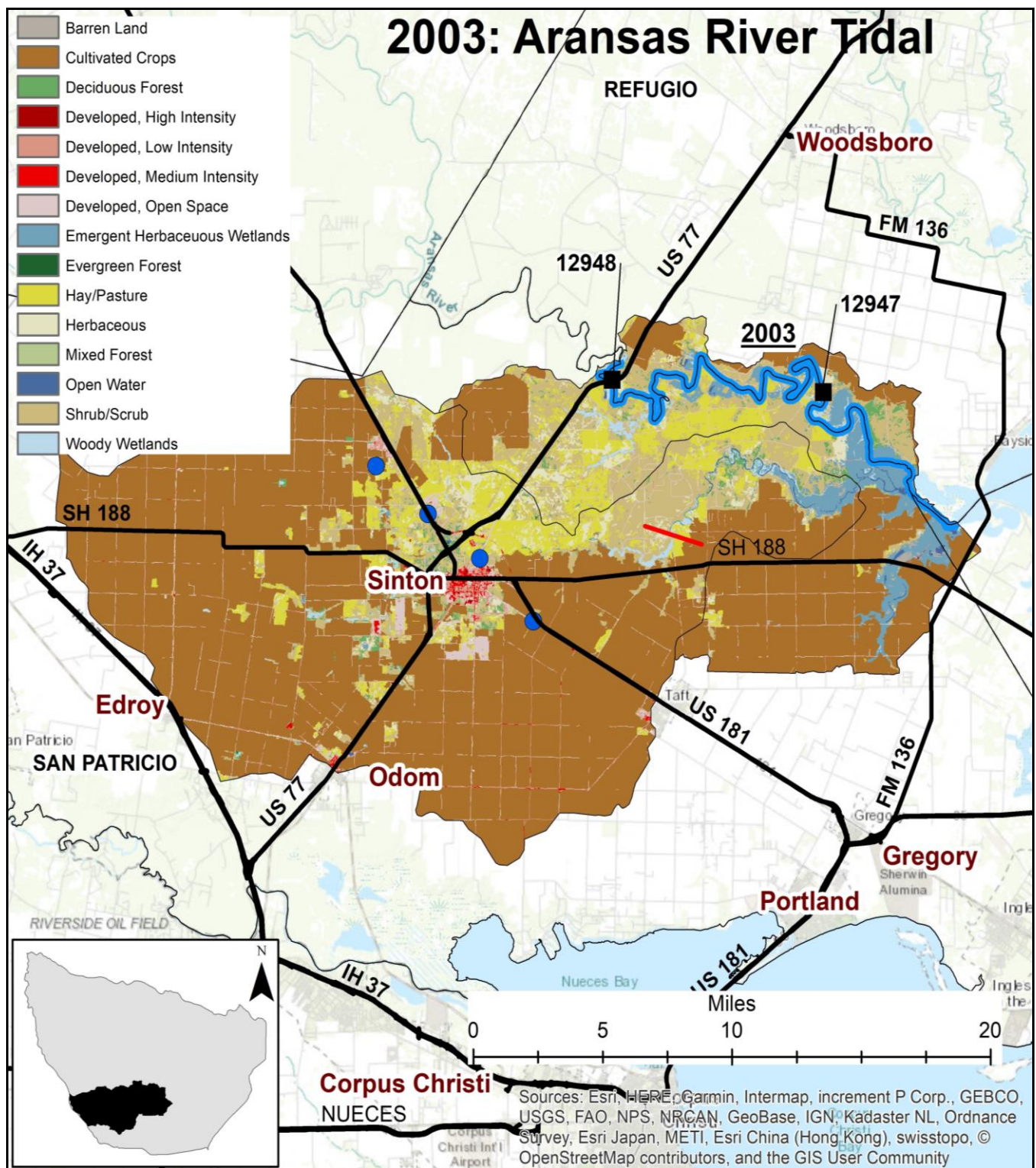
Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
2002 Mission River Above Tidal	12944	01	At US 77 bridge at Refugio	NRA	Routine Quarterly

Water Quality - Segment 2002 has a **concern** for **depressed dissolved oxygen** (grab screening level) in the 2020 IR. All other parameters meet their assessment criteria.

Special Studies - In 2011, after extensive data collection, analysis, and water quality efforts, TMDLs were recommended by stakeholders. The Mission and Aransas Tidal bacteria TMDL was adopted and the I-Plan was approved in 2016. The segment was also included in the Mission and Aransas River WPP that was completed by TWRI in 2019. The goal of the WPP is to restore water quality to water quality standards by establishing a 5-year implementation schedule and work to reduce runoff pollution concentrations from entering the river and coastal zone. The final report can be found at: <https://twri.tamu.edu/media/4175/mission-and-aransas-rivers-watershed-protection-plan-final-draft.pdf>



Station 12944 – Mission River Above Tidal at US-77 in Refugio



Segment 2003 – Aransas River Tidal

Segment 2003: Aransas River Tidal

Segment Description - Aransas River Tidal Segment 2003 forms part of the county line between Refugio and San Patricio Counties. It flows 6 miles from a point 1.0 mile upstream of US 77 in to its confluence with Copano Bay. Its watershed is 208,031 acres. The City of Sinton (pop. 5,406) is the only major town in the watershed.

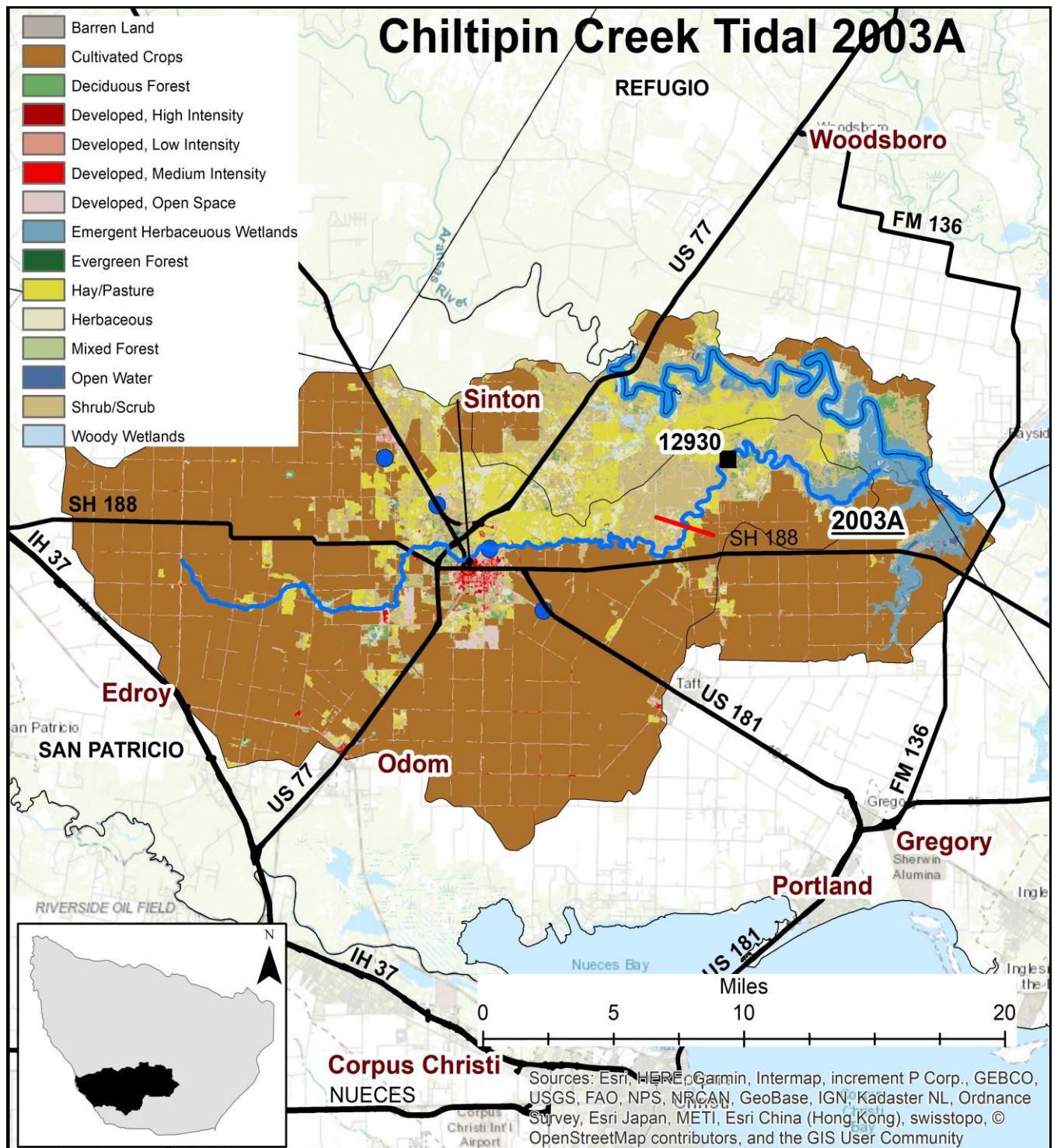
Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Aransas River Tidal	12947	01	At boat ramp at FM 629 terminus south of Bonnie View	NRA	Routine Quarterly
	12948	01	At US-77 bridge between Woodsboro and Sinton	NRA	Routine Quarterly

Water Quality - Segment 2003 has an **impairment for bacteria** (enterococcus) and a screening level **concern for chlorophyll-a**. The segment has been impaired for bacteria for primary contact recreation since the 2004 Assessment. All other parameters meet their assessment criteria in the 2020 IR.

Special Studies – Aransas River Tidal was included in the Mission and Aransas River WPP that was completed by TWRI in 2019. The goal of the WPP is to restore water quality in order to meet the water quality standards by establishing a 5-year implementation schedule and work to reduce runoff pollution concentrations from entering the river and coastal zone. The final report can be found at: <https://twri.tamu.edu/media/4175/mission-and-aransas-rivers-watershed-protection-plan-final-draft.pdf>



Aransas River Tidal at Station 12947



Segment 2003A – Chiltipin Creek Tidal

Segment 2003A: Chiltipin Creek Tidal

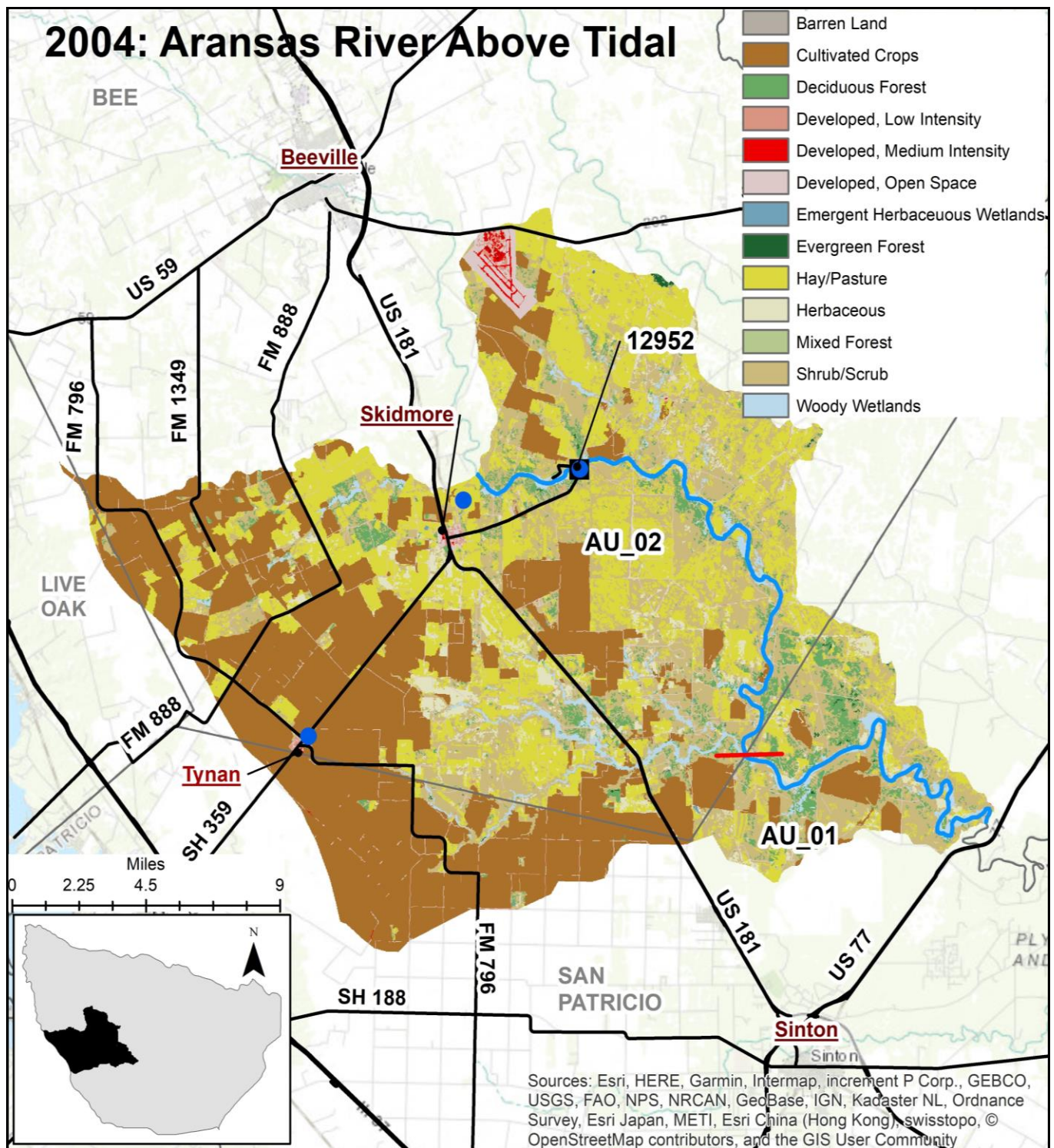
Segment Description – Chiltipin Creek Tidal is located in a newly renamed segment for 2020 that was previous included with Aransas River Tidal (Segment 2003). Segment 2003A flows from a point 0.75 km (0.46 mi) downstream of the intersection of San Patricio CR 81 and CR 864 to the confluence with Aransas River Tidal. The land use in the watershed is largely comprised of cultivated cropland south of the creek. On the north side, hay/pasture and shrub/scrub dominate the land use. The City of Sinton (population 5,410) is the only town in the watershed.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Chiltipin Creek Tidal	12930	01	2.11 km downstream from north end of Plymouth Road northeast of Sinton	NRA	Routine Quarterly + Semi-annual metals in water

Water Quality – Station 12930 is a new monitoring station for the Nueces River Authority (NRA) beginning in the Fall of 2020. Water quality was last monitored in 1979 by the TCEQ. Located on a bridge crossing on private property, the station is downstream from a steel production plant that is under construction near the town of Sinton. Stakeholder input indicated the need for a monitoring station on the creek to provide quarterly water quality data and semi-annual trace heavy metals data on the creek prior to the construction of the plant. There was not enough data available for the 2020 IR Assessment.



Station 12930 - Chiltipin Creek Tidal



Segment 2004 – Aransas River Above Tidal

Segment 2004: Aransas River Above Tidal

Segment Description - Aransas River Above Tidal Segment 2004 flows 35 miles from the confluence of Poesta Creek and Aransas Creek to a point 1.0 mile upstream of US 77. Its watershed is 178,807 acres. Skidmore and Tynan are the only communities in the watershed. The area is a mix of cultivated crops, hay and pasture and shrub/scrub. Segment 2004 is divided into two Assessment Units (AUs); the lower 17 miles (AU_01) and the upper 18 miles (AU_02). Sampling has only been conducted on AU_02 at **Station 12952** which is located at the crossing at Corrigan Road east of Skidmore.

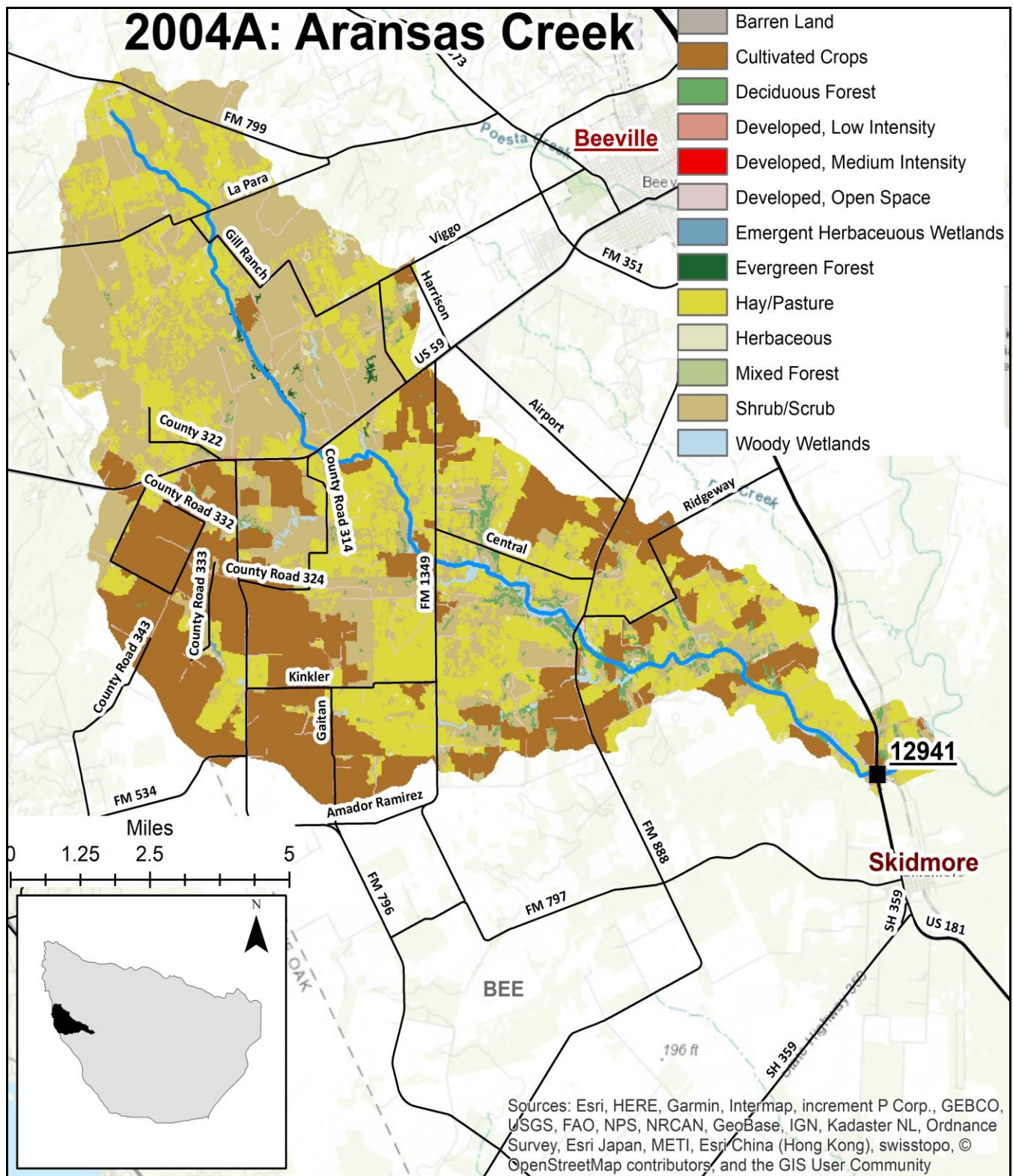
Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
2004 Aransas River	12952	02	At County Road east of Skidmore	NRA	Routine Quarterly

Water Quality – There are **no** water quality **concerns** or **impairments** in AU_01. AU_02 has an **impairment** for **bacteria** (*E. coli*), and a concern for **depressed dissolved oxygen** (grab sample), **nitrate**, and **total phosphorus**. All other parameters meet their assessment criteria in the 2020 IR Assessment.

Special Studies - The segment was included in the addendum to the Two TMDLs on Mission and Aransas River in 2017. Possible sources include nutrient laden runoff from cropland and effluent from WWTPs. The segment was also included in the Mission and Aransas River WPP that was completed by TWRI in 2019. The goal of the WPP is to restore water quality to water quality standards by establishing a 5-year implementation schedule and work to reduce runoff pollution concentrations from entering the river and coastal zone. The final report can be found at: <https://twri.tamu.edu/media/4175/mission-and-aransas-rivers-watershed-protection-plan-final-draft.pdf>



Station 12952 - Aransas River east of Skidmore



Segment 2004A – Aransas Creek

Segment 2004A: Aransas Creek

Segment Description - Aransas Creek Segment 2004A is 20 miles long, beginning west of Beeville (pop. 12,863) to its confluence with the Aransas River. Its watershed is 45,196 acres. The area is predominately ranchland. There are no major communities in the watershed.

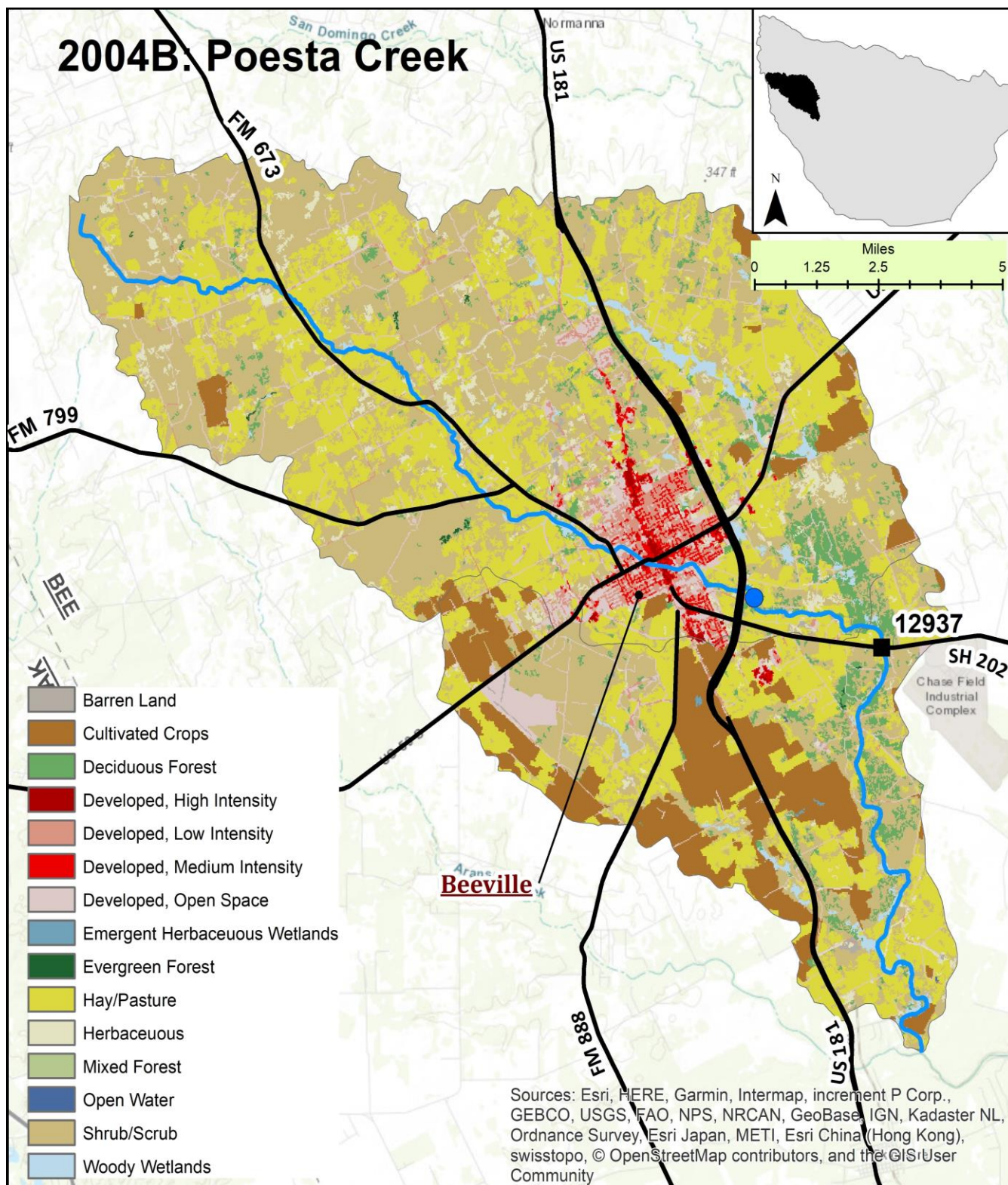
Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
2004A Aransas Creek	12941	01	At US 181 north of Skidmore	NRA	Quarterly Field & Bacteria (E. coli)

Segment 2004A is monitored on a quarterly basis at Station 12941 located at the bridge crossing of US 181 north of Skidmore. The site is monitored for field and bacteria parameters only. According to the 2020 TCEQ Assessment, Segment 2002 has an **impairment** for **bacteria** (E. coli). All other parameters meet their assessment criteria.

Water Quality - The segment was listed as being impaired for bacteria in 2006 based on Fecal coliform analysis. For several years, Station 12941, at US 181, was accidentally monitored instead of at 12952 on the Aransas River. NRA, under contract with the Texas State Soil and Water Conservation Board (TSSWCB), conducted a Recreational Use Attainability Analysis (RUAA) on Aransas Creek back in 2013. The final report for the RUAA was submitted to TSSWCB in May 2013. If the recreational use is designated as secondary contact, the creek will likely meet the new standard.



Station 12941 – Aransas Creek at US 181 near Skidmore



Segment 2004B – Poesta Creek

Segment 2004B: Poesta Creek

Segment Description - Poesta Creek is approximately 24 miles long, beginning northwest of Beeville, 7.5 km upstream of FM 673, to its confluence with the Aransas River. The segment is made up of two AUs. AU_01 is located from the confluence of the Aransas River to the confluence of Talpacate Creek. AU_02 is located from the confluence of Talpacate Creek to the headwaters of the creek approximately 7.5 km upstream of FM 673. The watershed for Segment 2004B is 78,921 acres and the land use is predominately rangeland. Beeville (pop. 12,912) is the only community in the watershed.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
2004B Poesta Creek	12937	01	77 m downstream of SH 202	NRA	Routine Quarterly

Water Quality – AU_01 was assessed as having water quality **concerns** for **bacteria** (*E. coli*), **nitrate**, and **total phosphorus** in water. AU_02 was assessed as having an **impairment** for **bacteria** (*E. coli*) and a concern for **depressed dissolved oxygen** (grab sample) in the 2020 IR Assessment.

A previous sampling station existed at the US 181 bridge crossing but was moved to Station 12937 at SH 202 in FY 2016 due to construction on US 181. Station 12937 is considered to be more representative of the overall creek since it is located in a more rural area.

Special Studies - The segment was also included in the Mission and Aransas River WPP that was completed by TWRI in 2019. The goal of the WPP is to restore water quality to water quality standards by establishing a 5-year implementation schedule and work to reduce runoff pollution concentrations from entering the river and coastal zone. The final report can be found at: <https://twri.tamu.edu/media/4175/mission-and-aransas-rivers-watershed-protection-plan-final-draft.pdf>



Station 12937 – Poesta Creek at SH 202 near Beeville

List of Impairments and Concerns in the San Antonio – Nueces Coastal Basin

Segment Name	AU	Description	Impairments	Concerns
2001 Mission River Tidal	01	Entire water body	Bacteria	Chlorophyll-a
2002 Mission River Above Tidal	01	Entire water body	None	DO
2003 Aransas River Tidal	01	Entire water body	Bacteria	Chlorophyll-a
2004 Aransas River Above Tidal	01	From the downstream end of segment to the confluence with Papalote Creek	None	None
	02	From the confluence with Papalote Creek to the upstream end of segment at the confluence with Aransas Creek and Poesta Creek	Bacteria	DO, Nitrate, Total Phosphorus
2004A Aransas Creek	01	Entire 20 miles of segment	Bacteria	None
2004B Poesta Creek	02	From the confluence with Aransas Creek to the headwaters of the stream ~ 7.5 km upstream of FM 673	None	Bacteria, Nitrate, Total Phosphorus



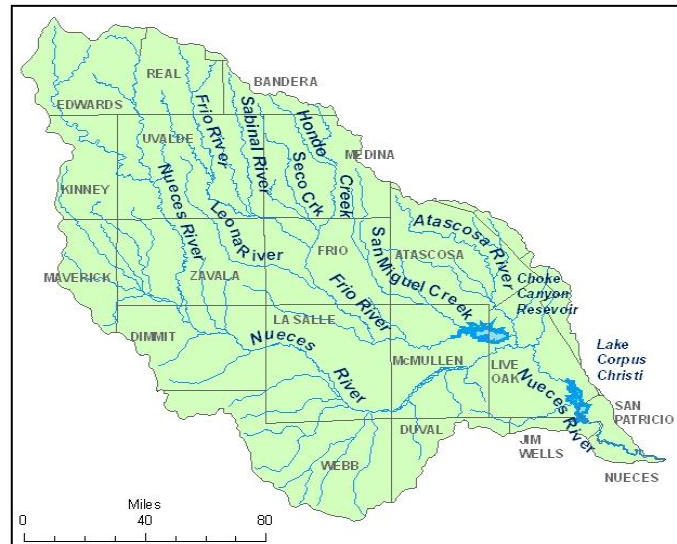
Station 12947 - Aransas River Tidal at Bonnie View Boat Ramp

BASIN 21 - NUECES RIVER BASIN

The Nueces River Basin covers approximately 17,000 square miles, encompassing all or part of 23 counties in South-Central Texas. Other rivers within the basin include the Frio, Leona, Sabinal, and Atascosa Rivers.

There are several TMDLs that have been conducted in the basin: Segment 2104, Nueces River above Frio River, for depressed DO; Segment 2107, Atascosa River, for bacteria and depressed DO; Segment 2110, Lower Sabinal River, for nitrates; and Segment 2113, Frio River above Choke Canyon Reservoir, for depressed dissolved oxygen.

All CRP and SWQM sites monitored during FY 2020 in this basin are listed below.



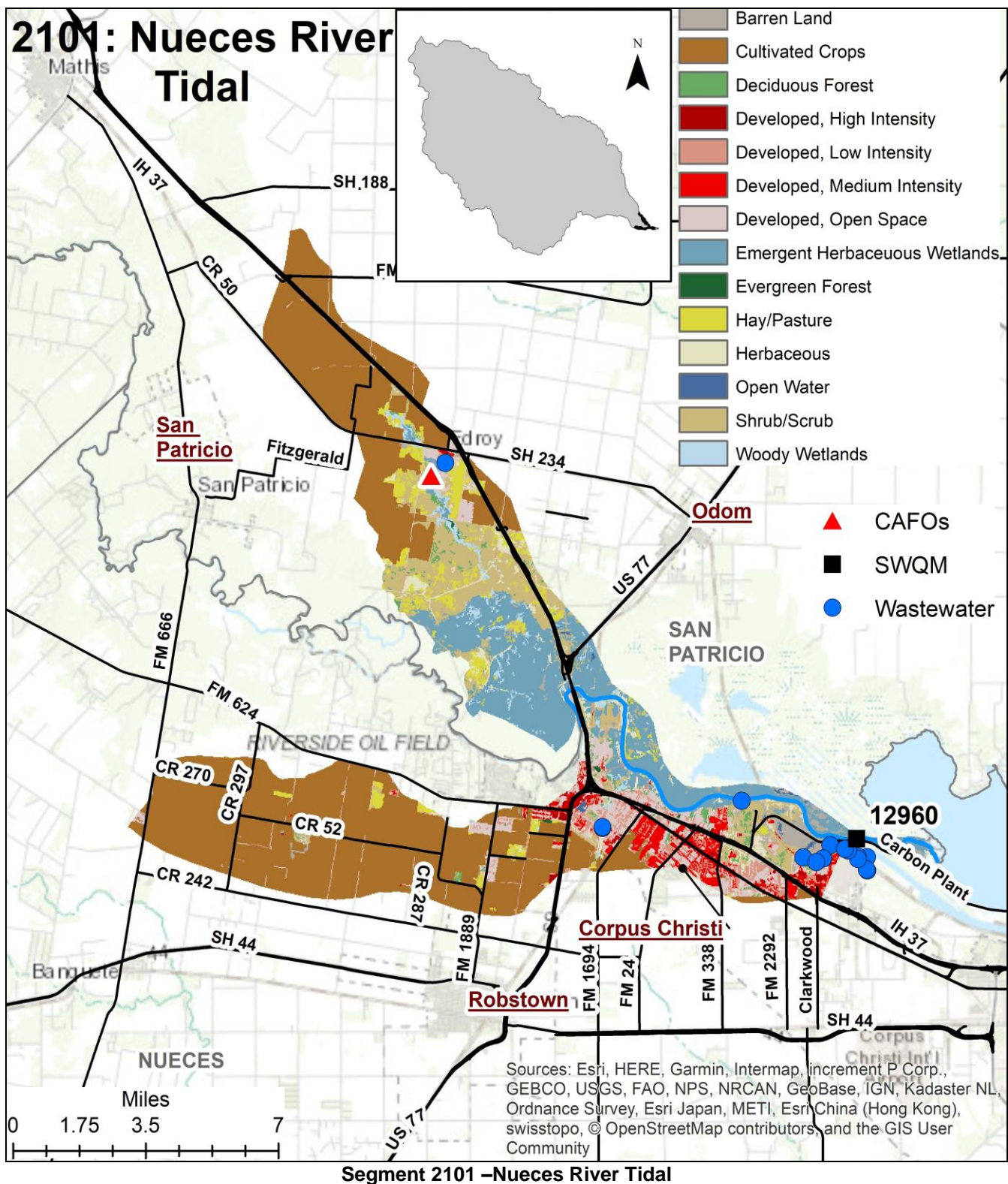
Nueces River Basin

CRP and SWQM Sites in the Nueces River Basin

Segment Name	Station Id	Description	Monitoring Entity	Conventional, Bacteria, Field	Other
2101 Nueces River Tidal	12960 (AU_01)	North of Viola Turning Basin	TCEQ Region 14	Quarterly	
2102 Nueces River Below Lake Corpus Christi	21815 (AU_01)	Immediately upstream of the saltwater barrier dam at Labonte Park	NRA	Quarterly	
	20936 (AU_01)	At Hazel Bazemore Park Boat Ramp	NRA	Quarterly	
	12964 (AU_01)	Bluntzer Bridge at FM 666	NRA	Quarterly	
	12965 (AU_02)	At La Fruta Bridge on SH 359	NRA	Quarterly	
2103 Lake Corpus Christi	12967 (AU_01)	380 m north-northwest of northern tip of dam	NRA	Quarterly	
	17384 (AU_04)	0.2 miles off western shore directly west of Hideaway Hill	NRA	Quarterly	
	17648 (AU_06)	At Live Oak CR 151 near River Creek Acres	NRA	Quarterly	
2104 Nueces River Above Frio River	12972 (AU_01)	At FM 1042 bridge 1.2 miles north of Simmons	NRA	Quarterly	4x Metals in water
	12973 (AU_02)	At SH 16 south of Tilden	NRA	Quarterly	
	12974 (AU_03)	At FM 624	NRA	Quarterly	Field only
2105 Nueces River Above Holland Dam	12975 (AU_01)	At Business IH 35 south of Cotulla	TCEQ Region 16	Quarterly	
	12976 (AU_02)	At FM 190-north of Asherton	TCEQ Region 16	Quarterly	
			NRA	N/A	4x 24-Hr DO
	20156 (AU_02)	Immediately upstream of SH 85 approximately 12 miles east of Carrizo Springs	TCEQ Region 16	Quarterly	
2106 Nueces / Lower Frio River	12979 (AU_01)	At US 281 south of Three Rivers	NRA	Quarterly	
	12977 (AU_02)	At US 72 in Three Rivers	NRA	Quarterly	

CRP and SWQM Sites in the Nueces River Basin (cont.)

Segment Name	Station Id	Description	Monitoring Entity	Conventional, Bacteria, Field	Other
2107 Atascosa River	12980 (AU_01)	At FM 99 west of Whitsett	NRA	Quarterly	4x Metals in Water
2108 San Miguel Creek	12983 (AU_01)	At SH 16 north of Tilden	NRA	Quarterly	4x Metals in Water
2109 Leona River	12987 (AU_02)	At US 57 near Batesville	TCEQ Region 16	Bi-annually	
	18418 (AU_03)	370 m upstream of FM 140	NRA	Quarterly	4x 24-Hr DO
2110 Lower Sabinal River	12993 (AU_01)	At US 90 west of Sabinal	NRA	Quarterly	
2111 Upper Sabinal River	21948 (AU_01)	At RR 187 approx. 10 km south of Utopia and 400 m upstream of confluence with Onion Creek	BCRAGD	Quarterly	
	14939 (AU_02)	At FM 187 south of Vanderpool	BCRAGD	Quarterly	
2112 Upper Nueces River	12996 (AU_01)	20 m upstream of US 57 south of Uvalde	TCEQ Region 16	Bi-annually	
	17143 (AU_01)	At Lake Averhoff / Upper Nueces Lake 1.62 km upstream of Texas Parks and Wildlife Department (TPWD) boat ramp	TCEQ Region 16	Quarterly	
	16704 (AU_03)	Immediately downstream of SH 55 southbound bridge approx 2.5 km south of Laguna	NRA	Quarterly	
2113 Upper Frio River	13006 (AU_01)	At SH 127 east of Concan	TCEQ Region 13	Bi-annually	
2114 Hondo Creek	18408 (AU_01)	At FM 173 southeast of Hondo	NRA	Quarterly	
2114A Commissioners Creek	22122 (AU_01)	At 5.7 km upstream of Hondo Creek and 4 km east of Tarpley and south of FM 470	BCRAGD	Quarterly	
2115 Seco Creek	13017 (AU_02)	At SH 470 approximately 10 miles west of Tarpley	BCRAGD	Quarterly	
2116 Choke Canyon Reservoir	13019 (AU_01)	Near the Dam	NRA	Quarterly	
	13020 (AU_03)	Mid lake 15 m east of Live Oak/McMullen County line near old HWY 99 1.25 km north of Choke Canyon State Park Point	NRA	Quarterly	
	17389 (AU_06)	0.45 km southeast of FM 99 southern most bridge crossing the Frio River Arm	NRA	Quarterly	4x Metals in Water
2117 Frio River Above Choke Canyon Reservoir	13023 (AU_01)	At SH 16 in Tilden	NRA	Quarterly	4x Metals in Water
	18373 (AU_02)	Immediately upstream of SH 97 north of Fowlerton	NRA	Quarterly	
2118 Upper Atascosa River	20764 (AU_01)	At FM 541	NRA	Quarterly	(4) 24-Hr DO
2118C Upper Atascosa River	12982 (AU_01)	At US 281 at Pleasanton	TCEQ Region 13	Quarterly	



Segment 2101: Nueces River Tidal

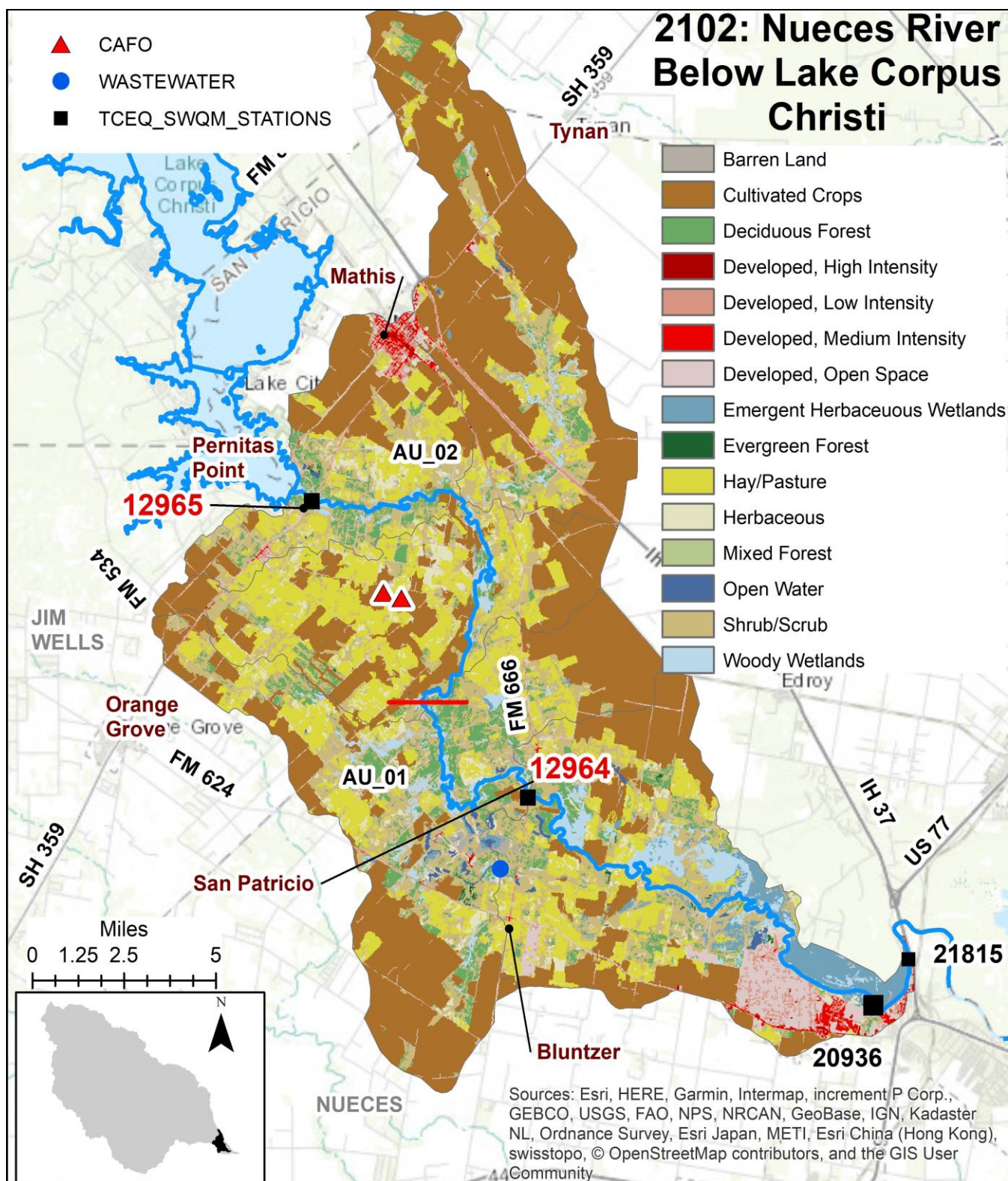
Segment Description – Segment 2101 forms part of the county line between Nueces and San Patricio Counties. It flows 12 miles from the Calallen “saltwater barrier” Dam 1.1 miles upstream of US 77/IH 37 to its confluence with Nueces Bay. Its watershed is 175,301 acres. The City of Corpus Christi (pop. 325,780) borders the south bank of the river. A large portion of the area north of the river is included in the Coastal Bend Bays and Estuaries Program’s (CBBEP) Nueces Delta Preserve. The rest is owned by private ranches.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Nueces River Tidal	12960	01	North of Viola Turning Basin	TCEQ Region 14	Routine Quarterly

Water Quality - The segment was assessed as having **concerns** for elevated **chlorophyll-a** concentrations and **fish kills in water** in the 2020 IR Assessment. The chlorophyll-a concern is likely attributed to nutrient inputs from multiple permitted effluent discharges in the segment and minimal flushing from tide and or pass thru events. Elevated levels of chlorophyll-a indicate abundant plant and algal growth which can lead to reduced dissolved oxygen levels. Fish kills in the segment have been attributed to low dissolved oxygen events and effluent treatment issues. Fish kills also occur as freshwater species are trapped in the tidal portion of the river following a reservoir pass thru and/or spill. All the other assessed parameters met their assessment criteria in the 2020 IR.



Segment 2101 – Nueces River Tidal



Segment 2102: Nueces River Below Lake Corpus Christi

Segment Description - The segment forms part of the county line between Jim Wells and San Patricio Counties and between Nueces and San Patricio Counties. It flows 39 miles from Wesley Seale Dam at Lake Corpus Christi to Calallen Dam 1.7 km (1.1 miles) upstream of US 77/IH 37. Its watershed is 116,863 acres. The segment is divided into two AUs; from the downstream end of the segment to the confluence with Javelin Creek (AU_01) and from the confluence of Javelin Creek to Wesley Seale Dam (AU_02). The City of Corpus Christi (pop. 325,780) borders the south bank of the river in the lower 10 miles of the segment. The City conducts its own water quality monitoring as this is the primary drinking water source for the area. There are several freshwater intakes in the Calallen Pool just above the Calallen “saltwater barrier” Dam. The upper half of the segment is primarily private ranches and farms. There are numerous, active and inactive, sand and gravel pits in the lower half.

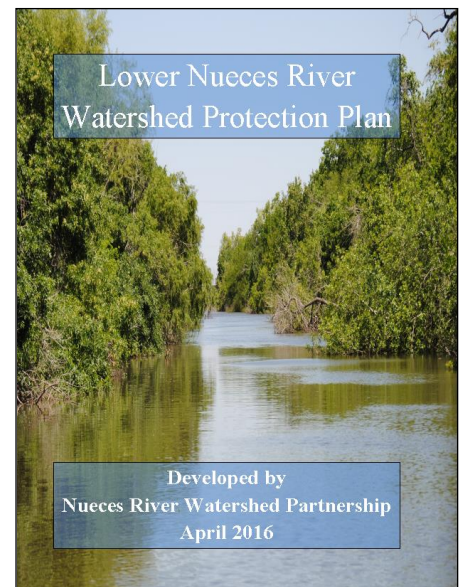
Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
2102 Nueces River Above Tidal	21815	01	Immediately upstream of the saltwater barrier dam at Labonte Park	NRA	Routine Quarterly
	20936	01	At Hazel Bazemore Park Boat Ramp	NRA	Routine Quarterly
	12964	02	Bluntzer Bridge at FM 666	NRA	Routine Quarterly
	12965	02	At La Fruta Bridge on SH 359	NRA	Routine Quarterly

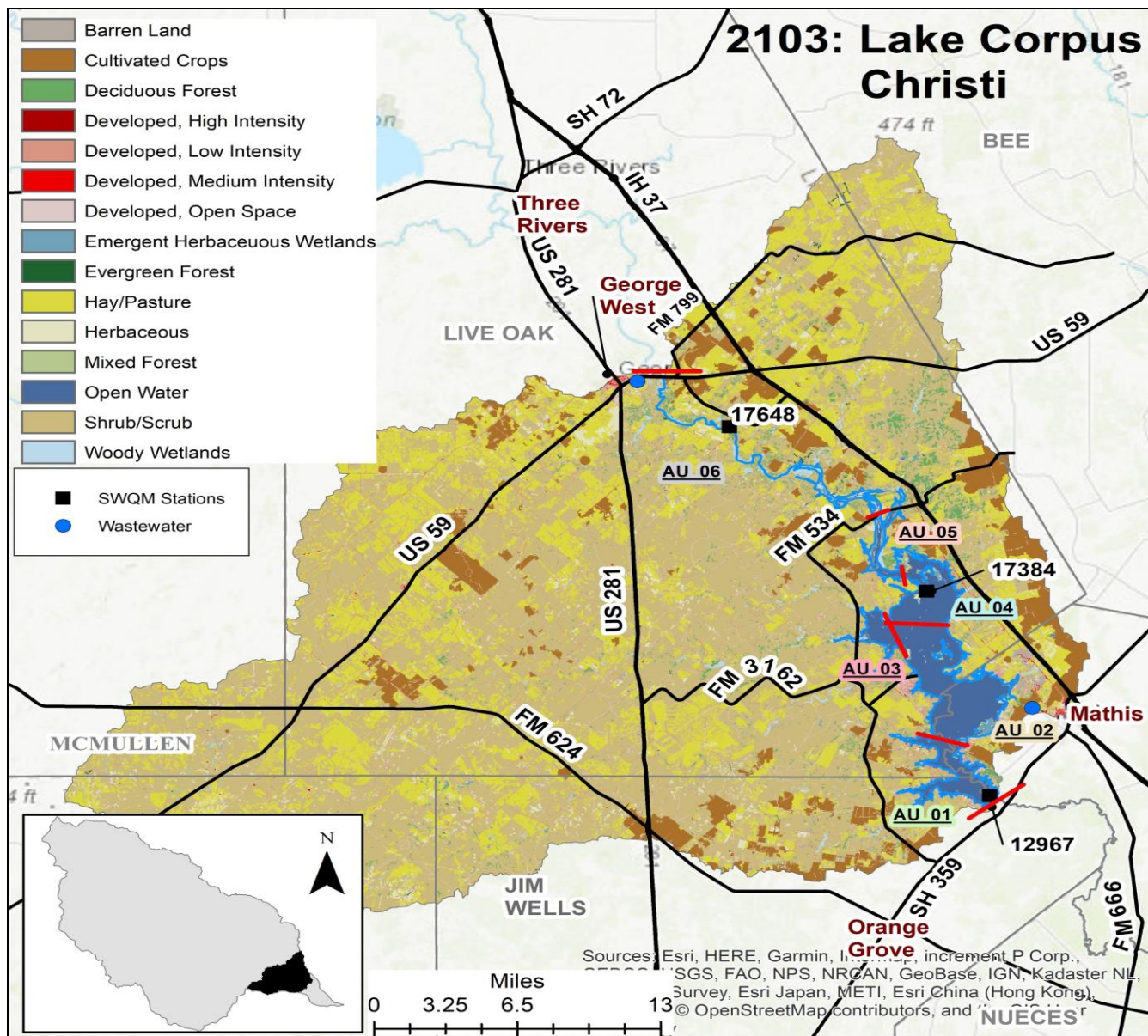
Water Quality – AU_01 of the segment was assessed as having an **impairment** for **Total Dissolved Solids** (TDS) in the 2020 IR. The impairment first appeared in the 2014 IR and is largely due to elevated TDS concentrations in the groundwater that seeps into the river segment and elevated TDS levels in Lake Corpus during drought conditions when minerals are concentrated due to evaporation. AU-02 of the segment was assessed as having an **impairment** for **TDS** and a water quality **concern** for **chlorophyll-a** in the 2020 IR. All the other assessed parameters met their assessment criteria.

Special Studies – The Lower Nueces River Watershed Protection Plan (WPP) was completed in 2016 to protect the drinking water supplies for approximately 500,000 Coastal Bend residents following a spike in turbidity levels in 2009 that resulted in a drinking water violation. The City of Corpus hired the NRA to develop a source water protection plan to help prevent future turbidity issues and identify and prevent other possible threats to the water supply. For more information, please visit <http://www.nuecesriverpartnership.org/>

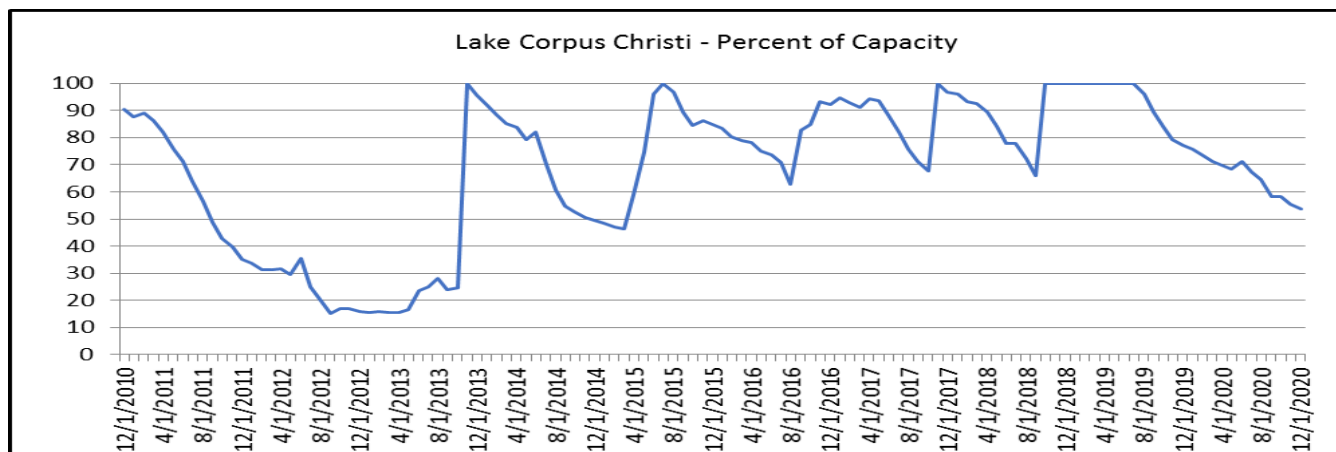


Station 21815 – Nueces River above Calallen “saltwater barrier” Dam





Segment 2103 – Lake Corpus Christi



Segment 2103: Lake Corpus Christi

Segment Description - Lake Corpus Christi is formed by Wesley Seale Dam near Mathis and impounds the Nueces River. It is defined by the 94' above mean sea level (MSL) elevation. The lake covers portions of Live Oak, Jim Wells, and San Patricio Counties. The segment extends upstream to a point 100 m (110 yards) upstream of US 59 in Live Oak County. Its watershed is 505,550 acres. When the lake is near capacity, the river levels are influenced by the lake level as far north as Airport Road north of George West (pop. 2,566).

The segment is divided into six AUs; mid-lake near the dam (AU_01), the area approximately 4 miles SE of FM 3162 and FM 534 intersection near the western shore (AU_02), the western arm of the lake near the Lagarto Creek Inlet (AU_03), the upper portion of the lake on the opposite shore from Hideaway Hills (AU_04), the upper arm of the lake at FM 534 crossing (AU_05), and the remainder of the segment (AU_06).

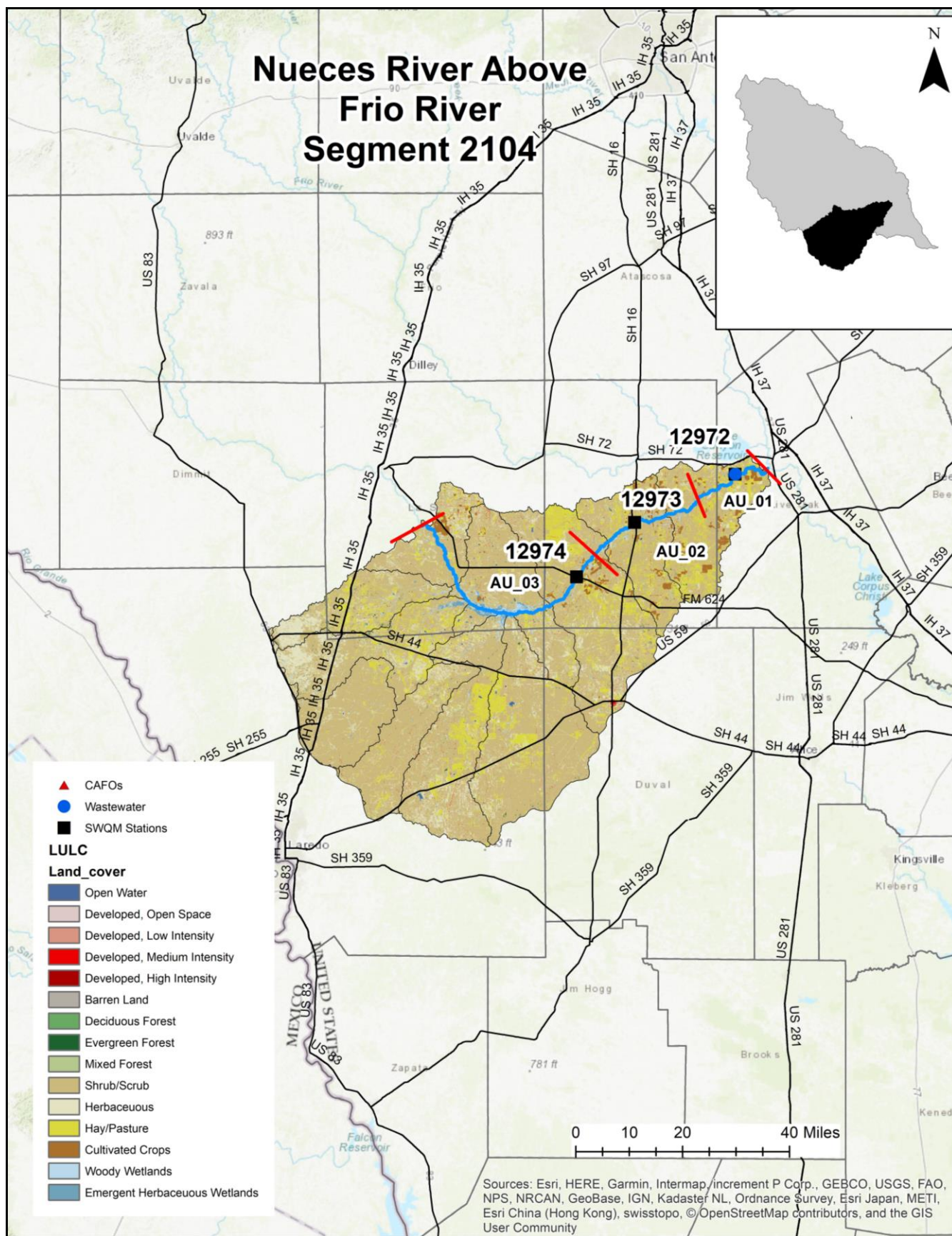
Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
2103 Lake Corpus Christi	12967	01	380 m north-northwest of northern tip of dam	NRA	Routine Quarterly
	17384	04	0.2 miles off western shore directly west of Hideaway Hill	NRA	Routine Quarterly
	17648	06	At Live Oak CR 151 near River Creek Acres	NRA	Routine Quarterly

Water Quality – Water quality monitoring in Lake Corpus Christi indicate **no concerns or impairments** in the 2020 IR. The segment has had historical impairments for TDS, but the entire segment was delisted in the 2018 IR Assessment. TDS levels tend to increase as lake levels drop and can be attributed to evaporation of surface waters that concentrate the dissolved solids. All the other assessed parameters met their assessment criteria in the 2020 IR. Additional information about the reservoir is available at:

http://www.twdb.texas.gov/surfacewater/rivers/reservoirs/corpus_christi/index.asp.



Segment 2103 - Lake Corpus Christi



Segment 2104 –Nueces River Above Frio River

Segment 2104: Nueces River Above Frio River

Segment Description - Segment 2104, Nueces River above Frio River, flows from Holland Dam in La Salle County to its confluence with the Frio River in Live Oak County near the town of Three Rivers (pop. 1,821). The segment is approximately 91 miles long and its watershed is 1,876,877 acres. The middle Nueces River is underlain by Cretaceous chalk, clay, and limestone beds that contributes turbidity to surface water flows. The middle Nueces River winds its way through a portion of Texas known as the “Wildhorse Desert”. A relative lack of topography combined with finer sediments results in a gently flowing but turbid stream. The upper reaches of this segment are also known as the “braided reach” due to a network of flood relief channels that crisscross each other during high flow events. Pools left behind after floods provide refuge to wildlife and aquatic species.

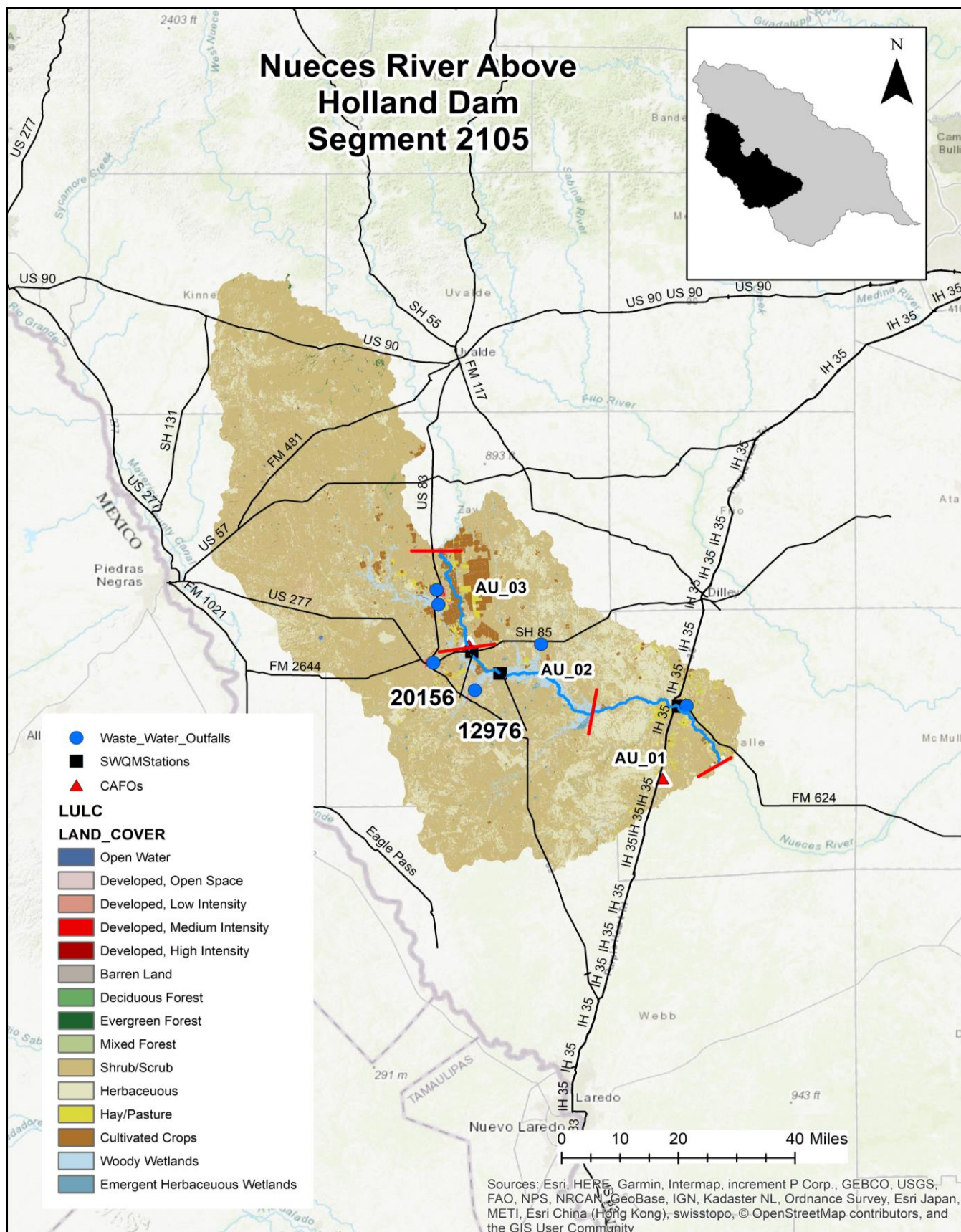
Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Nueces River Above Frio River	12972	01	From the downstream end of the segment to the confluence of Dragon Creek	NRA	Routine Quarterly + Metals in Water
	12973	02	From the confluence of Dragon Creek to the confluence of Guadalupe Creek	NRA	Routine Quarterly
	12974	03	From the confluence of Guadalupe Creek to Holland Dam	NRA	Field and Flow

Water Quality – AU_01 of the segment was assessed as having an **impairment** for **bacteria** (*E. coli*) and water quality **concerns** for **impaired macrobenthic community**, **nitrate**, and **total phosphorus** in water. AU_02 of the segment has **concerns** for **impaired fish** and **macrobenthic communities in water**. AU_03 has a water quality **concern** for **depressed dissolved oxygen** (grab sample) in water. All the other parameters met their assessment criteria in the 2020 IR.

Special Studies - The concerns for impaired macrobenthic community and impaired fish community were addressed by conducting Aquatic Life Monitoring (ALM) studies in 2017 and 2019 at Stations 12972 and 12973. ALMs include fish and macroinvertebrate collection, habitat surveys, measuring streamflow, analyzing water chemistry, and 24-hour dissolved oxygen monitoring. The first ALM was held in April 2017 and the second was in September 2019. The results of the ALMs will be used to reassess these impairments and concerns for the 2022 IR.



Station 12973 – Nueces River at SH-16



Segment 2105: Nueces River Above Holland Dam

Segment Description - The segment flows 78 miles from FM 1025 in Zavala County to Holland Dam in La Salle County. It is divided into three AUs; from the downstream end of the segment to the confluence with Sauz Mocho Creek (AU_01), from the confluence with Sauz Mocho Creek to the confluence with Line Oak Slough (AU_02), and from the confluence of Live Oak Slough to the upstream end. (AU_03). Its watershed is 2,200,065 acres. The Cities of Crystal City (pop. 7,310), Carrizo Springs (pop. 5,554), Asherton (pop. 877), Big Wells (pop. 930), and Cotulla (pop. 4,168) are all in this watershed. Each of these cities has WWTPs that discharge into the river. Streamflow in Segment 2105 varies greatly from year to year and is largely dependent on runoff from localized rain events and from flood flows originating in the upper Nueces River. Much of the segment is underlain by the Carrizo-Wilcox Aquifer which provides flow in the upper part of the segment, but streamflow typically drops to zero at the lower end of the segment. During periods of moderate drought, streamflow drops to zero with intermittent pools providing refuge for aquatic species. During periods of extreme drought, much of the riverbed goes dry.

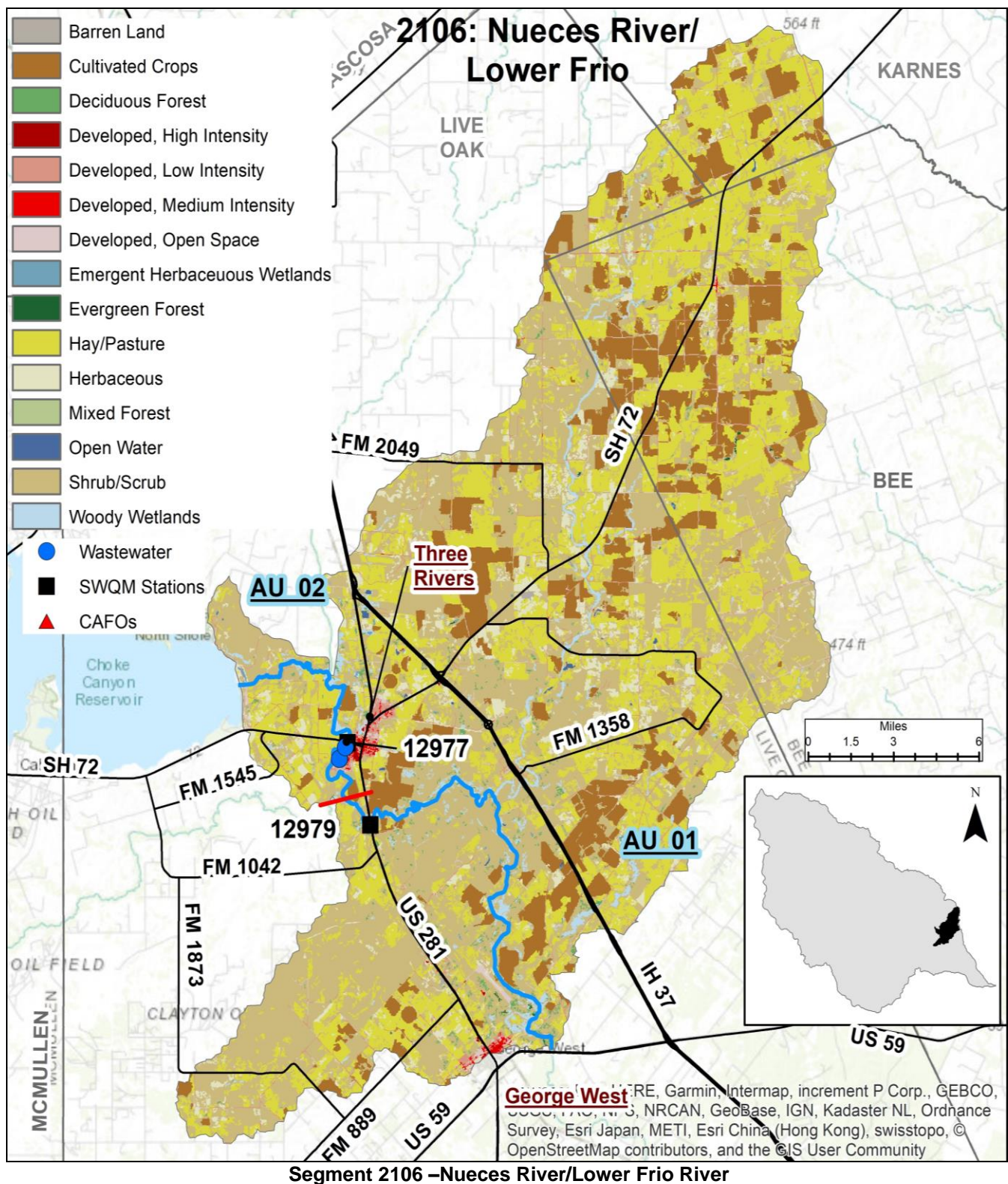
Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Nueces River Above Holland Dam	12975	01	At Business IH 35 south of Cotulla	TCEQ Region 16	Routine Quarterly
	12976	02	At FM 190 north of Asherton	TCEQ Region 16	Routine Quarterly
				NRA	24-hour Dissolved Oxygen
	20156	02	Immediately upstream of SH 85 approximately 12 miles east of Carrizo Springs	TCEQ Region 16	Routine Quarterly

Water Quality - AU_01 has a **concern** for **chlorophyll-a** in water. AU_02 is **impaired** for **depressed dissolved oxygen** (grab minimum) and has **concerns** for **chlorophyll-a** and **depressed dissolved oxygen** (screening level). In AU_03, all the assessed parameters met their assessment criteria in the 2020 IR.

Special Studies – NRA field staff are currently in the process of acquiring 24-hour dissolved oxygen data at Station 12976 near Asherton. However, streamflow at the station dropped to zero for 2020. Three 24-hour dissolved oxygen collections conducted to date have all been above the dissolved oxygen criteria. NRA will continue to conduct 24-hour monitoring at the site until the impairment can be fully assessed.



Station 12976 – Nueces River at SH 85 in Asherton



Segment 2106: Nueces River / Lower Frio River

Segment Description - The segment flows 27 miles from Choke Canyon Reservoir Dam to just upstream of US 59. It is divided into two AUs; the Nueces River from the downstream end to the confluence with the Frio River (AU_01), and the Frio River from the confluence with the Nueces River to the Choke Canyon Reservoir Dam (AU_02). Its watershed is 204,055 acres. The City of Three Rivers and the Valero Refinery WWTPs discharge to the Frio River below SH 72.

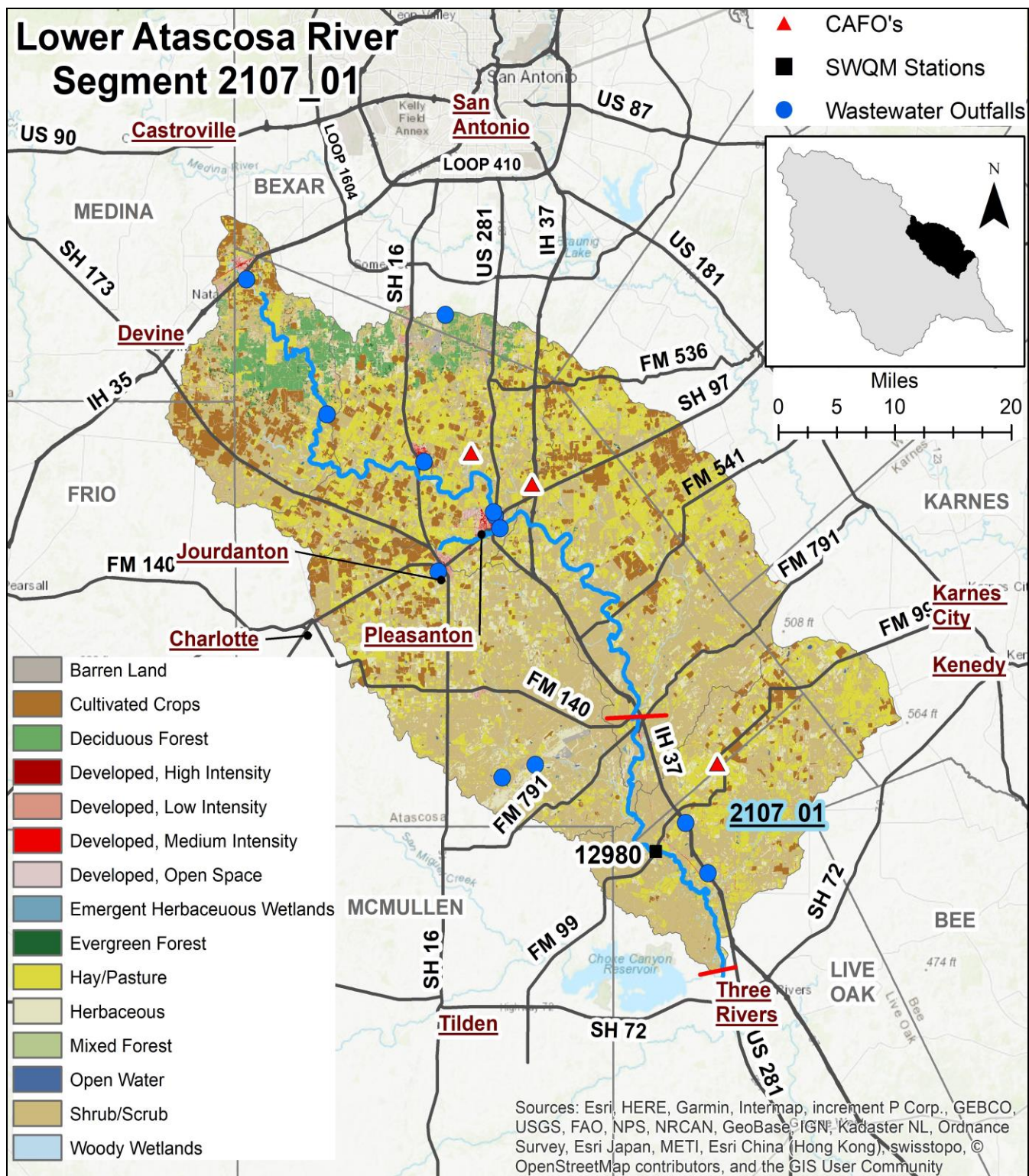
Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Nueces River/ Lower Frio River	12979	01	At US 281 south of Three Rivers	NRA	Routine Quarterly
	12977	02	At US 72 in Three Rivers	NRA	Routine Quarterly

Water Quality – AU_01 has a water quality **impairment** for **TDS** and a **concern** for **chlorophyll-a**. AU_02 is **impaired** for **bacteria** (*E. coli*) and **TDS** and a water quality **concern** for **chlorophyll-a**. All the other assessed parameters met their assessment criteria in the 2020 IR.

Special Studies - The TDS standard is based on the average of all values and is currently 500 mg/l for both AUs. Alan Plummer and Associates, Inc., working on behalf of the City of Corpus Christi, worked with TCEQ to develop revised and separate standards for the two distinct portions of this segment. The proposed changes will increase the TDS standard to 950 mg/l in the downstream portion (AU_01) and 735 mg/l in the upstream portion (AU_02). If and when approved, AU_01 will most likely meet the proposed standard and be removed from the 303(d) List. Standards revisions are also being proposed for chloride and sulfate in the segment. Again, the standard is based on the average of all values. For AU_01, chloride would increase from 250 mg/l to 350 mg/l and sulfate would decrease from 250 mg/l to 165 mg/l. For AU_02, chloride would increase from 250 mg/l to 285 mg/l and sulfate would decrease from 250 mg/l to 145 mg/l.



Station 12977 – Frio River at US 72



Segment 2107 – Lower Atascosa River

Segment 2107: Lower Atascosa River

Segment Description – As a result of a Texas Surface Water Quality Standards (TSWQS) revision, segment descriptions for the Atascosa River have changed. Segment 2107 now includes only the Lower Atascosa River in a single AU which flows from the confluence with Borrego Creek to the confluence of the Frio River. The upper reaches of the river are now in the newly created segment known as the Upper Atascosa River Segment 2118. The total watershed is 886,750 acres.

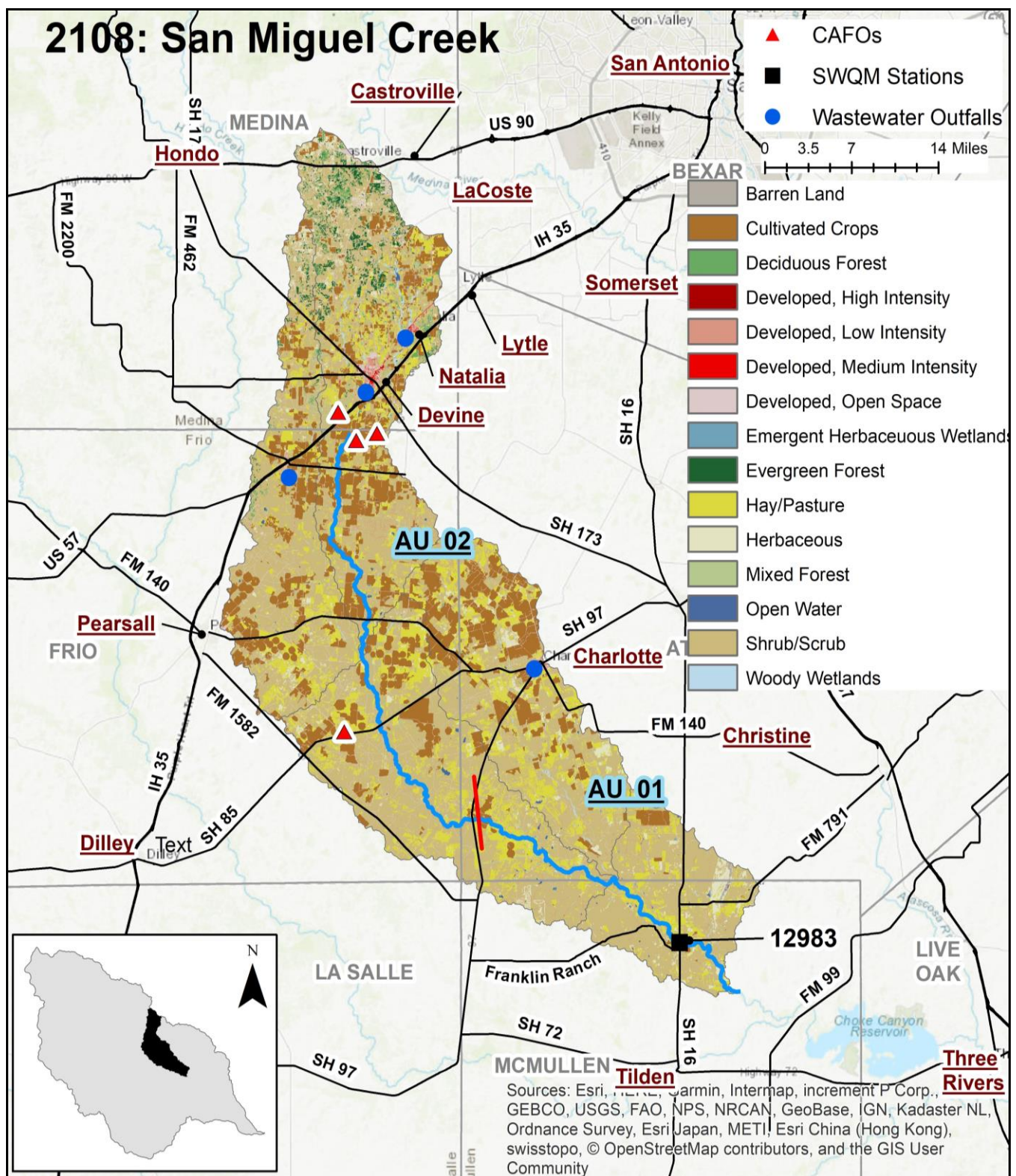
Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Lower Atascosa River	12980	01	At FM 99 west of Whitsett	NRA	Routine Quarterly + Metals in Water

Water Quality – Segment 2107 has been **impaired** for **bacteria** (*E. coli*) since the 1996 IR Assessment and remains listed for that parameter in the 2020 IR. The AU_01 also has a water quality **concern** for **chlorophyll-a** in water. Metals in water analysis was added in FY 2019.

Special Studies - Sampling for a TMDL to address the bacteria impairment was conducted between 2002 and 2004. The sampling confirmed the impairment and an RUAA was conducted by Texas Institute for Applied Environmental Research (TIAER) at Tarleton State University in 2006 and 2007. The report can be found at: <https://www.tceq.texas.gov/assets/public/waterquality/standards/ruaa/atascosa/atascosa%20river-full%20report.pdf>. Additional proposed standards revisions for Segment 2107 include chloride from 600 mg/l to 400 mg/l, sulfate from 500 mg/l to 300 mg/l, and TDS from 1,500 mg/l to 1,650 mg/l.



Station 12980 – Atascosa River at FM 99



Segment 2108: San Miguel Creek

Segment Description - The segment flows 69 miles from the confluence of San Francisco Perez Creek and Chacon Creek in Frio County to Choke Canyon Reservoir. It is divided into two AUs; from Choke Canyon Reservoir to the confluence with Live Oak Creek (AU_01), and from the confluence with Live Oak Creek to the upstream end (AU_02). Its watershed is 535,610 acres. There are no sampling sites in AU_02. The Cities of Charlotte, Devine, Natalia, and the Moore Water Supply Corporation ultimately discharge to San Miguel Creek.

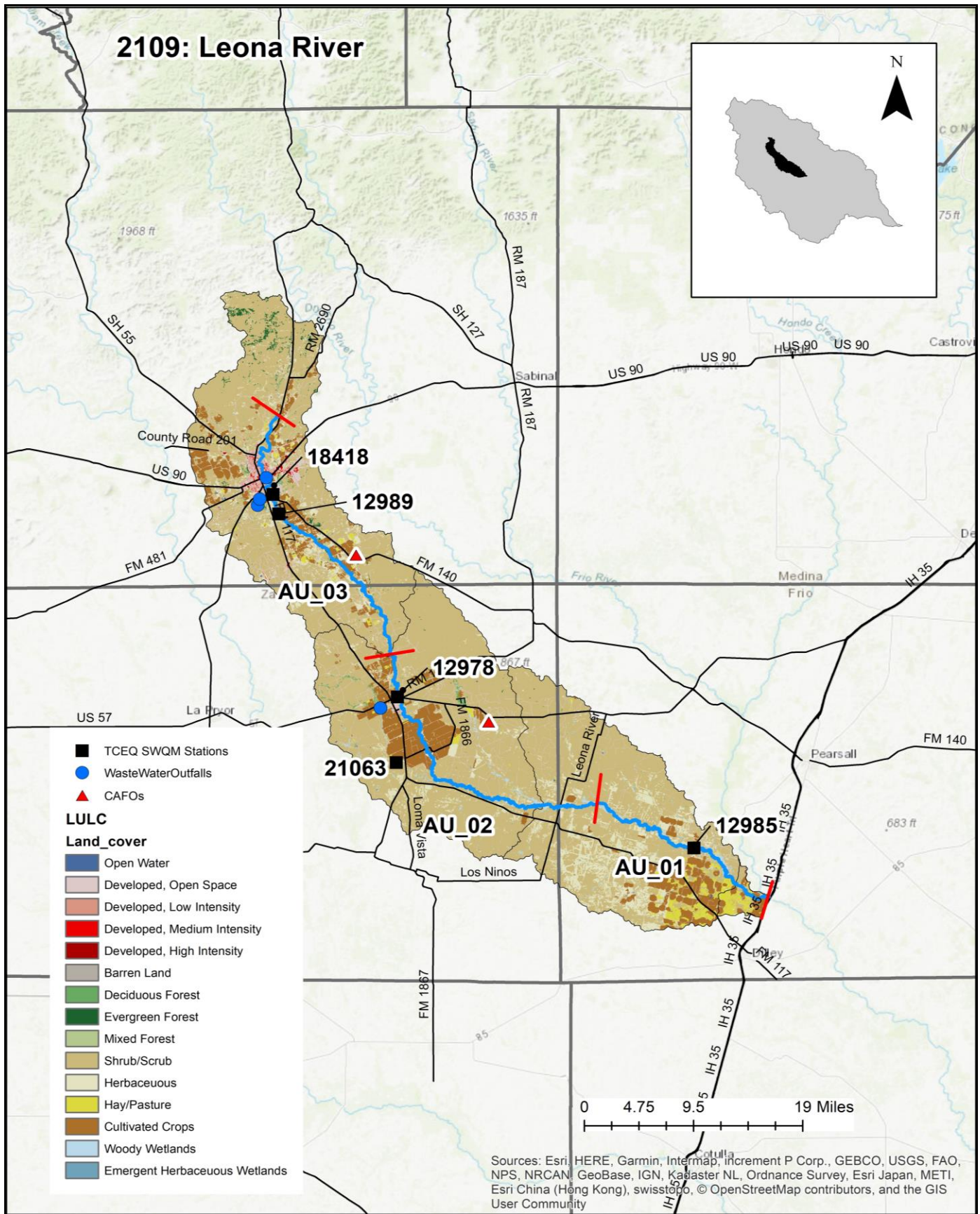
Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
San Miguel Creek	12983	01	At SH 16 north of Tilden	NRA	Routine Quarterly + Metals in Water

Water Quality – AU_01 has been listed as being **impaired** for **bacteria** (*E. coli*) for primary contact recreation since the 2006 IR Assessment. The impairment carries over to the 2020 IR Assessment. In AU_02 there are **no concerns** or **impairments**.

Special Studies – To address the bacteria impairment and determine if the correct standard is being applied to the water body, the TSSWCB contracted with NRA to conduct a Recreational Use Attainability Analysis (RUAA) to determine if recreation is occurring on the stream. The site surveys took place in late spring/early summer of 2015. For more information visit the project website. <https://www.nueces-ra.org/SMC/>.



Segment 2108 – San Miguel Creek



Segment 2109 – Leona River

Segment 2109: Leona River

Segment Description - Segment 2109, Leona River, flows from central Uvalde County southeast through Zavala County to its confluence with the Frio River near I-35 north of Dilley. The segment is approximately 85 miles long and its watershed is 429,555 acres. Municipalities located within the watershed include the City of Uvalde (population 16,300) and the town of Batesville (population 1,100). Tributaries in the upper reaches of the river near Uvalde include Cooks, Boon, and Taylor sloughs. Gallina Slough, Live Oak, Little Yoledigo and Todos Santo creeks contribute water below Batesville.

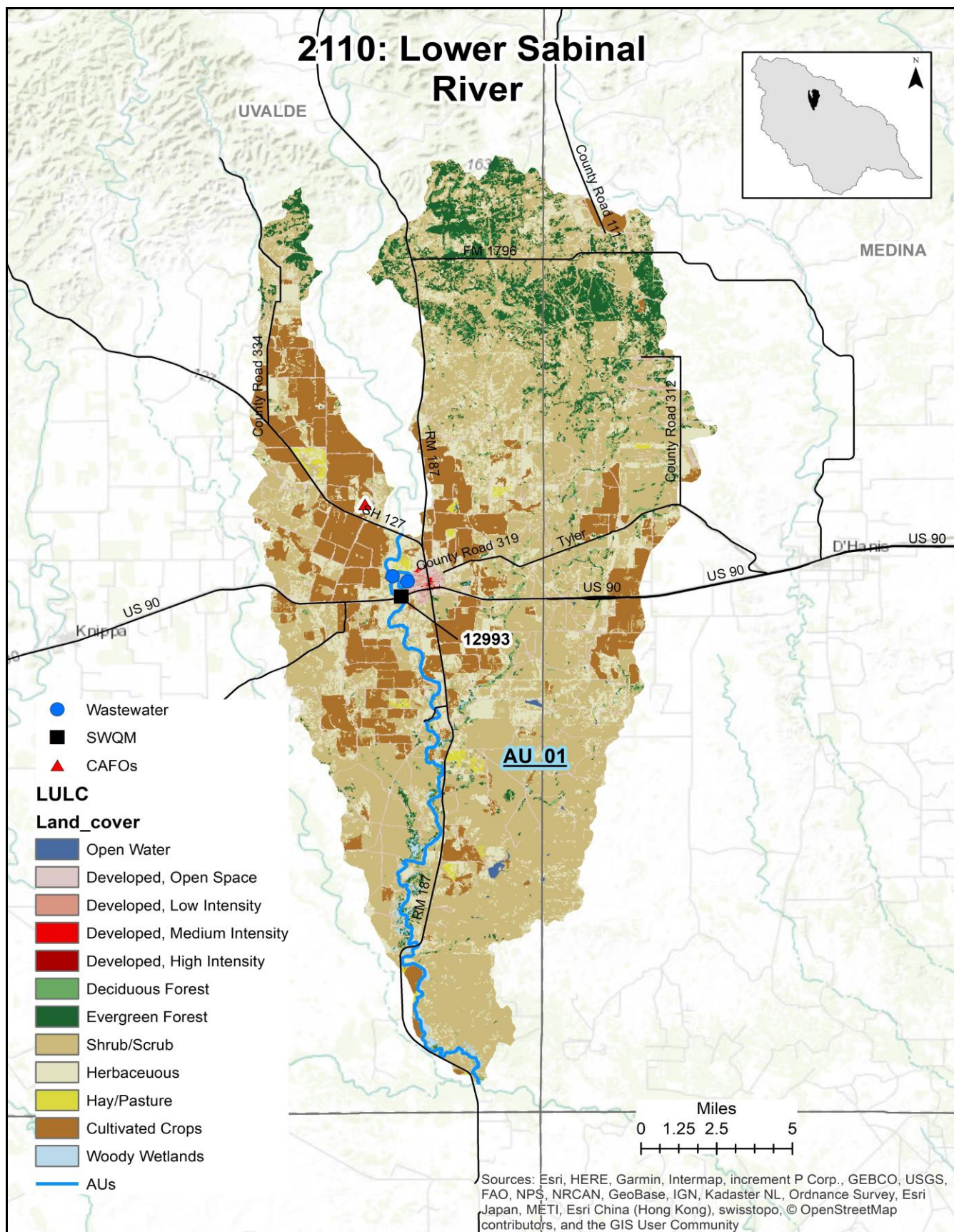
Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
2109 Leona River	12987	02	From the confluence of Yoledigo Creek to the confluence of Camp Lake Slough	TCEQ Region 16	Routine Biannually
	18418	03	From confluence of Camp Lake Slough to the upper end of the segment	NRA	Routine Quarterly

Water Quality - The entire segment was listed as being impaired for **bacteria** (*E. coli*) for primary contact recreation in the 2006 IR Assessment. The impairment carries over to the 2020 IR Assessment. The entire segment also has listed water quality **concerns** for **nitrate** in water. AU_03, located in the upper end of the segment has a water quality **impairment** for **depressed dissolved oxygen** (grab minimum) and a screening level **concern** for **depressed dissolved oxygen**.

Special Studies – To address the bacteria impairment, an RUAA was conducted by the Texas Institute for Applied Environmental Research (TIAER) from January 2011 through December 2012. The interviews indicated that contact recreation (wading by children) does occur. No recreational activities were observed during the field surveys or site visits. Visit <https://www.tsswcb.texas.gov/assessment-water-quality-and-watershed-planning-leona-river> for more information.



Station 18418 – Leona River at FM 140



Segment 2110 – Lower Sabinal River

Segment 2110: Lower Sabinal River

Segment Description - The Lower Sabinal River segment is from the confluence with the Frio River in Uvalde County to a point 100 meters (110 yards) upstream of SH 127 in Uvalde County. Its watershed is 136,676 acres and the City of Sabinal (population 1,696) is the only community in the watershed.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Lower Sabinal River	12993	01	At US 90 west of Sabinal	NRA	Routine Quarterly

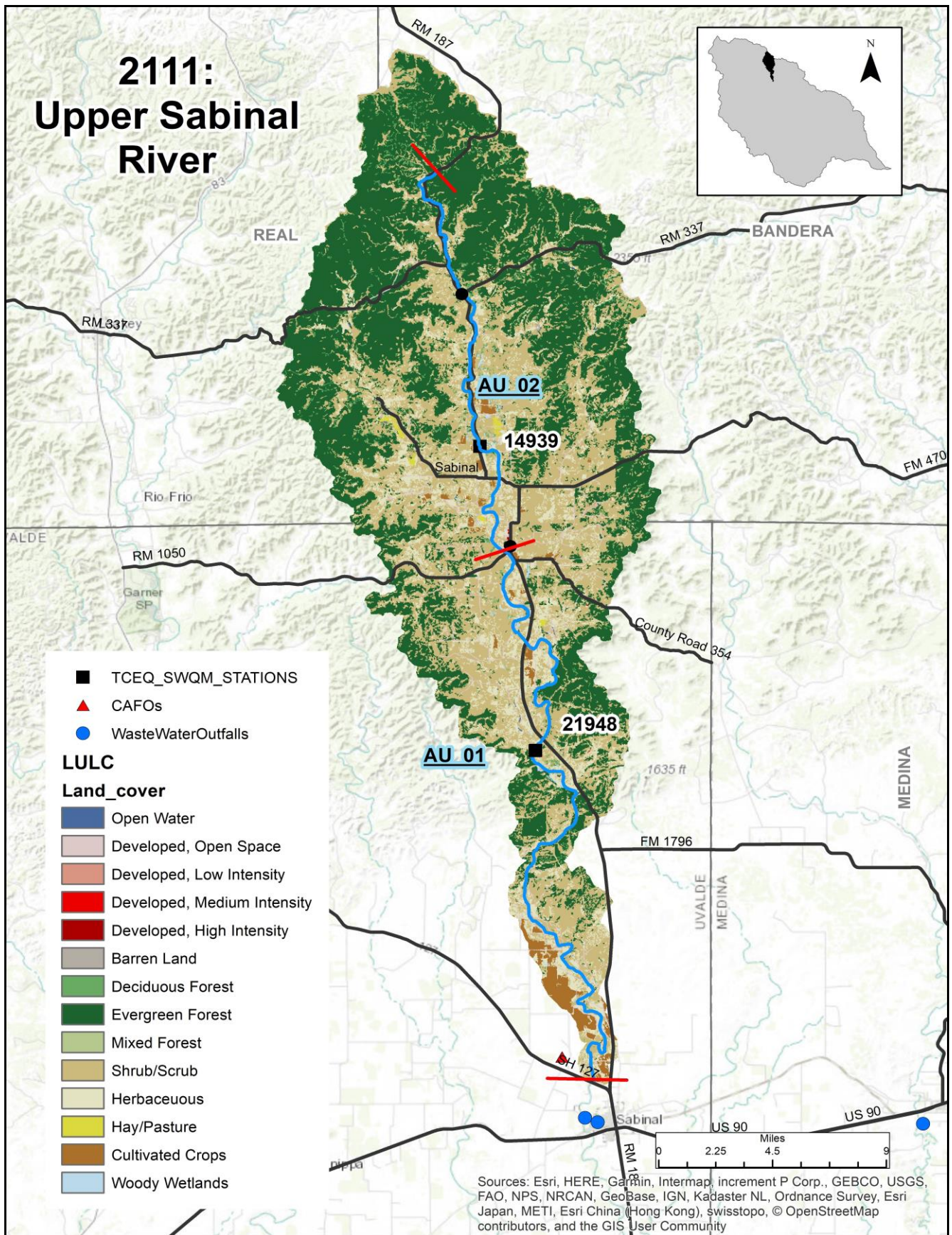
Water Quality - The segment was first listed as being **impaired** for **nitrate**s in the 2002 IR Assessment. The status of the waterbody changed from “not supporting” to “of concern” in the 2014 IR. The **concern** for **nitrate** in water is carried forward as a parameter of concern in the 2020 IR Assessment. The suspected source was the Sabinal WWTP which was subject to inundation during floods. Visible evidence of nutrient enrichment is often noted as an abundance of floating and submerged algae is generally present during site visits. The site also has a screening level **concern** for **depressed dissolved oxygen** (grab sample) in the 2020 IR.

Special Studies – To address the nitrate impairment, a TMDL was conducted and an Implementation Plan (I-Plan) was approved in 2005. The plan called for the construction of a new plant which has been completed and came online on July 27, 2011. The final report for the TMDL can be found at:

<https://www.tceq.texas.gov/assets/public/waterquality/tmdl/45sabinalnitrate/45-sabinaltmdladopted.pdf>



Station 12993 – Sabinal River at US 90



Segment 2111 – Upper Sabinal River

Segment 2111: Upper Sabinal River

Segment Description - The segment flows 48 miles from the most upstream crossing FM 187 in Bandera County to a point 100 m upstream of SH 127 in Uvalde County. It is divided into two AUs; from the downstream end to the confluence with the West Sabinal River (AU_01), and from the confluence with the West Sabinal River to the upstream end (AU_02). Its watershed is 149,444 acres. The Cities of Utopia (pop. 167) and Vanderpool (pop. 86) are the only communities in the watershed. Lost Maples State Park is in the headwaters of the stream.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
2111 Upper Sabinal River	21948	01	At RR 187 approx. 10 km south of Utopia and 400 m upstream of the confluence	BCRAGD	Quarterly
	14939	02	At FM 187 5.6 miles south of Vanderpool	BCRAGD	Quarterly

Water Quality – There are **no** water quality **concerns** or **impairments** identified in AU_01 or AU_02 in the 2020 IR Assessment.



Station 21948 – Sabinal River at FM 187



Segment 2112: Upper Nueces River

Segment Description - The segment flows 123 miles from the confluence of the East Prong Nueces River and Hackberry Creek in Edwards County to a point 100m (110 yards) upstream of FM 1025 in Zavala County. It is divided into four AUs; from the downstream end to the confluence with Sand Ridge Creek (AU_01), from the confluence with Sand Ridge Creek to just downstream of US 90 (AU_02), from just downstream of US 90 the confluence with Miller Creek (AU_03), and from the confluence with Miller Creek to the upstream end. Its watershed is 1,336,006 acres. There are several small communities in the watershed including Camp Wood (pop. 934), Uvalde (pop. 16,154), and Crystal City (pop. 7,310).

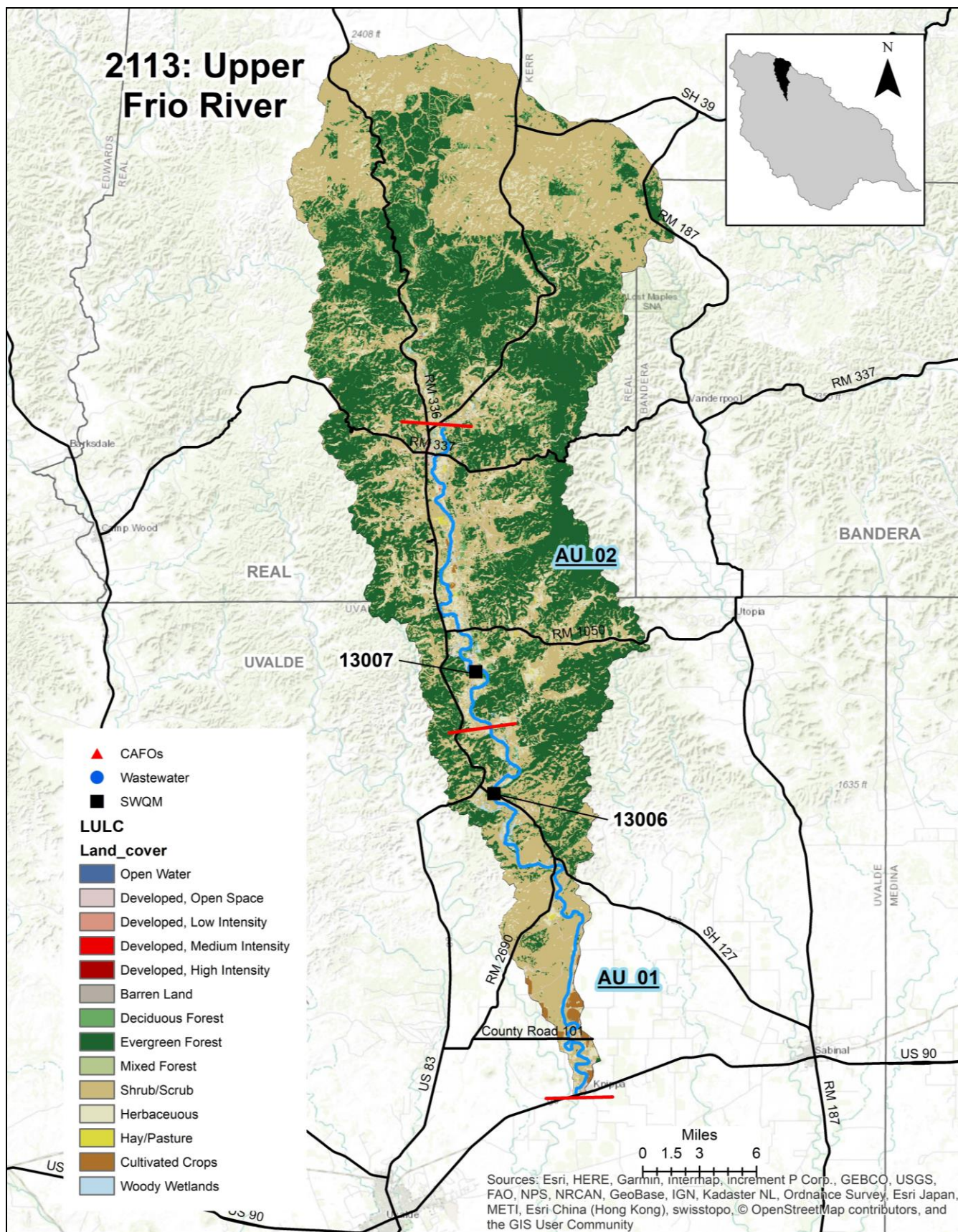
Segment Name	Station ID	AU	Station Description	Monitoring Entity	Sampling Type
2112 Upper Nueces River	17143	01	At Lake Averhoff/Upper Nueces Lake 1.62 km upstream of TPWD boat ramp 6.5 miles northeast of Crystal City	TCEQ Region 16	Quarterly
	12996	01	20 m upstream of US 57 south of Uvalde	TCEQ Region 16	Bi-annually
	16704	03	At SH 55 2.5 km south of Laguna	NRA	Quarterly

Water Quality - AU_01, located at the bottom end of the segment, has a water quality **concern** for **depressed dissolved oxygen** (grab sample) in the 2020 IR. Water quality in the headwaters and upper end of the segment is exceptional with crystal-clear springs providing a steady flow of water in all but the driest of years. **No concerns or impairments** exist in AUs 02 through 04.

Special Studies – In 2010 and 2011, TCEQ, TPWD, and NRA conducted a type of Aquatic Life Monitoring (ALM) in this segment known as the Least Disturbed Stream (LDS) monitoring. LDS monitoring occurs in streams where there is little to no anthropogenic influences on water quality. These streams are used as reference streams to help assess rivers across the state. LDS occurred in AU_03, Montell Creek, AU-04, and Bullhead Creek.



Station 16704 – Upper Nueces River at SH 55



Segment 2113 – Upper Frio River

Segment 2113: Upper Frio River

Segment Description - The segment flows 47 miles from the confluence with the West Frio River and the East Frio River in Real County to a point 100m upstream of US 90 in Uvalde County. The segment is divided into two AUs; from the downstream end to the confluence with Bear Creek (AU_01), and from the confluence with Bear Creek to the upstream end (AU_02). Its watershed is 280,596 acres. Towns in the watershed include Leakey (pop. 430) and Concan (pop. 271) which have significant seasonal variations in population due to recreation on the river. Recreational activities are very popular in the segment. Garner State Park receives between 300,000 and 400,00 visitors on an annual basis. Concan is another destination popular for summertime recreation activities. Streamflow in the Upper Frio River is sourced from numerous spring-fed tributaries located north of the town of Leakey in Real County.

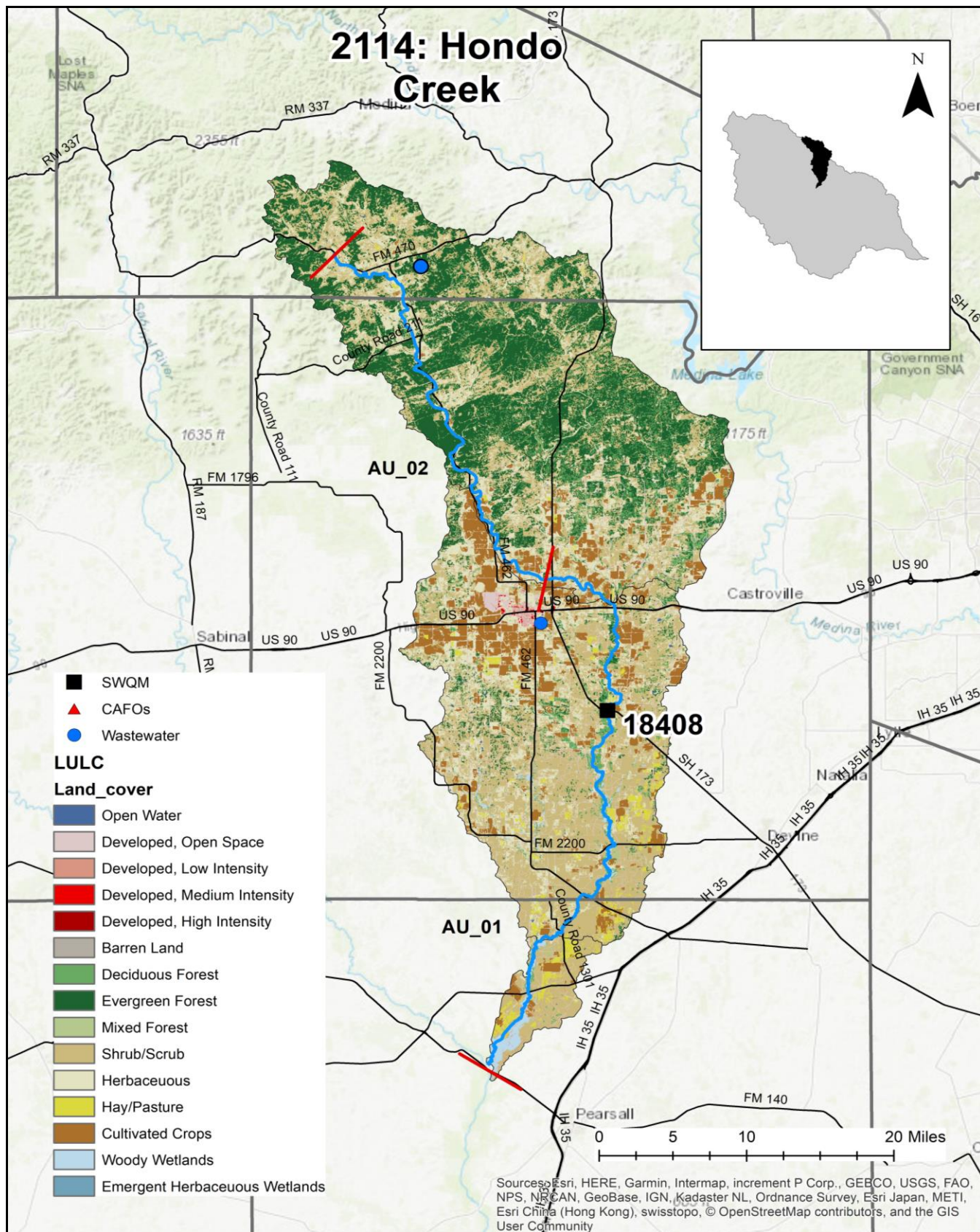
Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Upper Frio River	13006	01	At SH 127 east of Concan	TCEQ Region 13	Semi-Annually

Water Quality – AU_01 was listed as having **impairment** for **fish** and **macrobenthic communities in water** and a water quality **concern** for **impaired habitat in water** that were first identified in the 2006 IR. AU_02 has water quality **concerns** for **impaired fish community** and **impaired habitat**. The impairments carry forward in the 2020 IR Assessment.

Special Studies - To address the biological impairments and habitat concerns, a collaborative effort between TCEQ, TPWD, and NRA occurred to conduct two Aquatic Life Monitoring (ALM) events at four stations in the segment. ALMs include fish and macroinvertebrate collection, habitat surveys, flow, water chemistry, and 24-hour dissolved oxygen monitoring. The first one was held in April 2017 and the second one was in September 2019.



Segment 2113 – Upper Frio River



Segment 2114 – Hondo Creek

Segment 2114: Hondo Creek

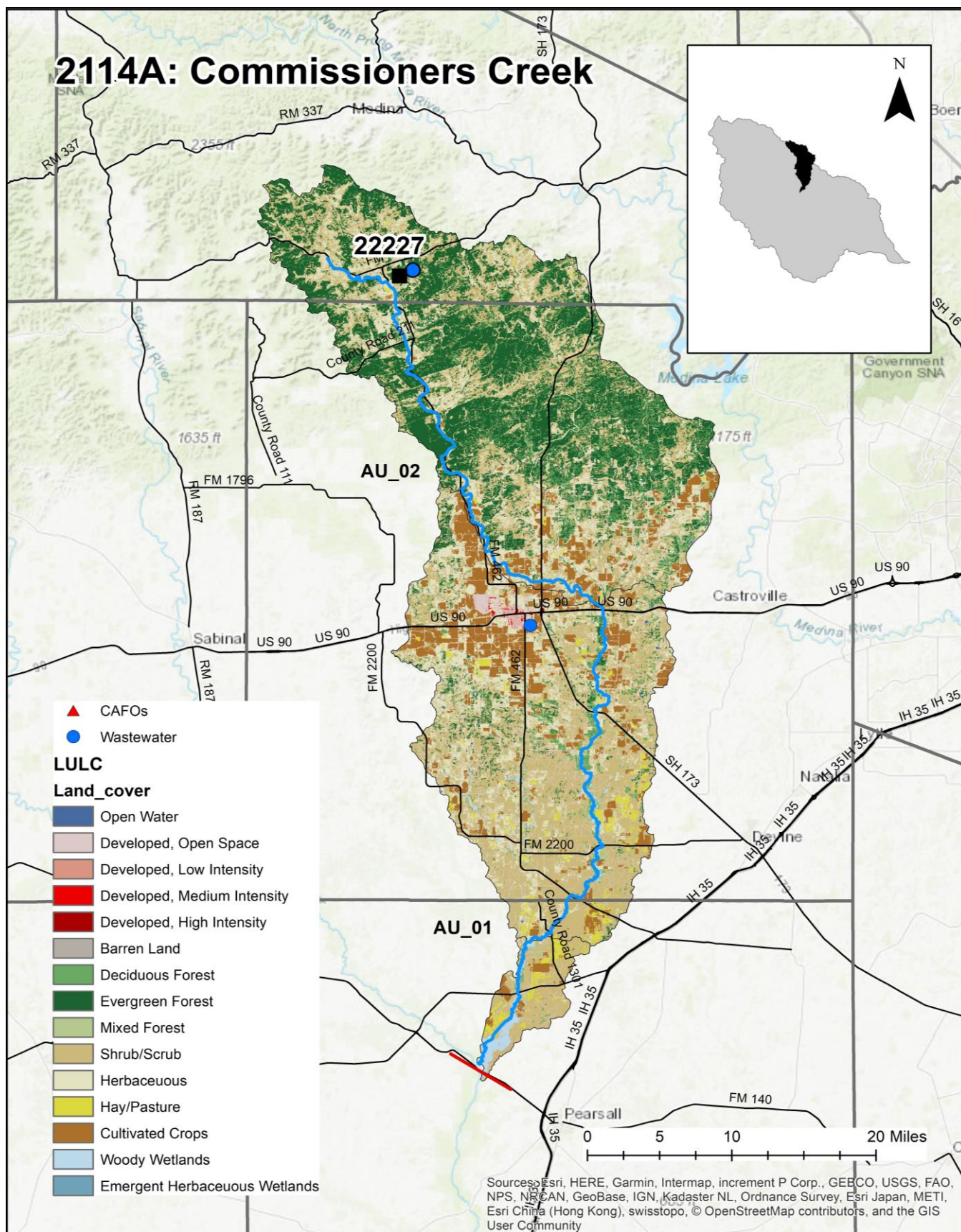
Segment Description - The segment flows 78 miles from FM 470 in Bandera County to the confluence with the Frio River in Frio County. It is divided into two AUs; from the downstream end to just upstream of FM 2676 (AU_01), and from just upstream of FM 2676 to the upstream end (AU-02). Its watershed is 435,985 acres. The City of Hondo (pop. 9,251) WWTP discharges into this segment. The creek is spring fed in its upper reaches as it makes its way through the steep slopes of the Texas Hill Country to the gently rolling hills and fertile croplands in Frio County. A large pool exists at the crossing of SH-173 southeast of Hondo and water appearance at Station 18408 often takes on an aquamarine color during quarterly site visits.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Hondo Creek	18408	01	At SH 173 southeast of Hondo	NRA	Quarterly

Water Quality - There is a water quality **concern** for **nitrate in water** in AU_01. In AU_02 all assessed water quality parameters met the standards in the 2020 IR Assessment.



Station 18408 – Hondo Creek at SH 173



Segment 2114A – Commissioners Creek

Segment 2114A: Commissioners Creek

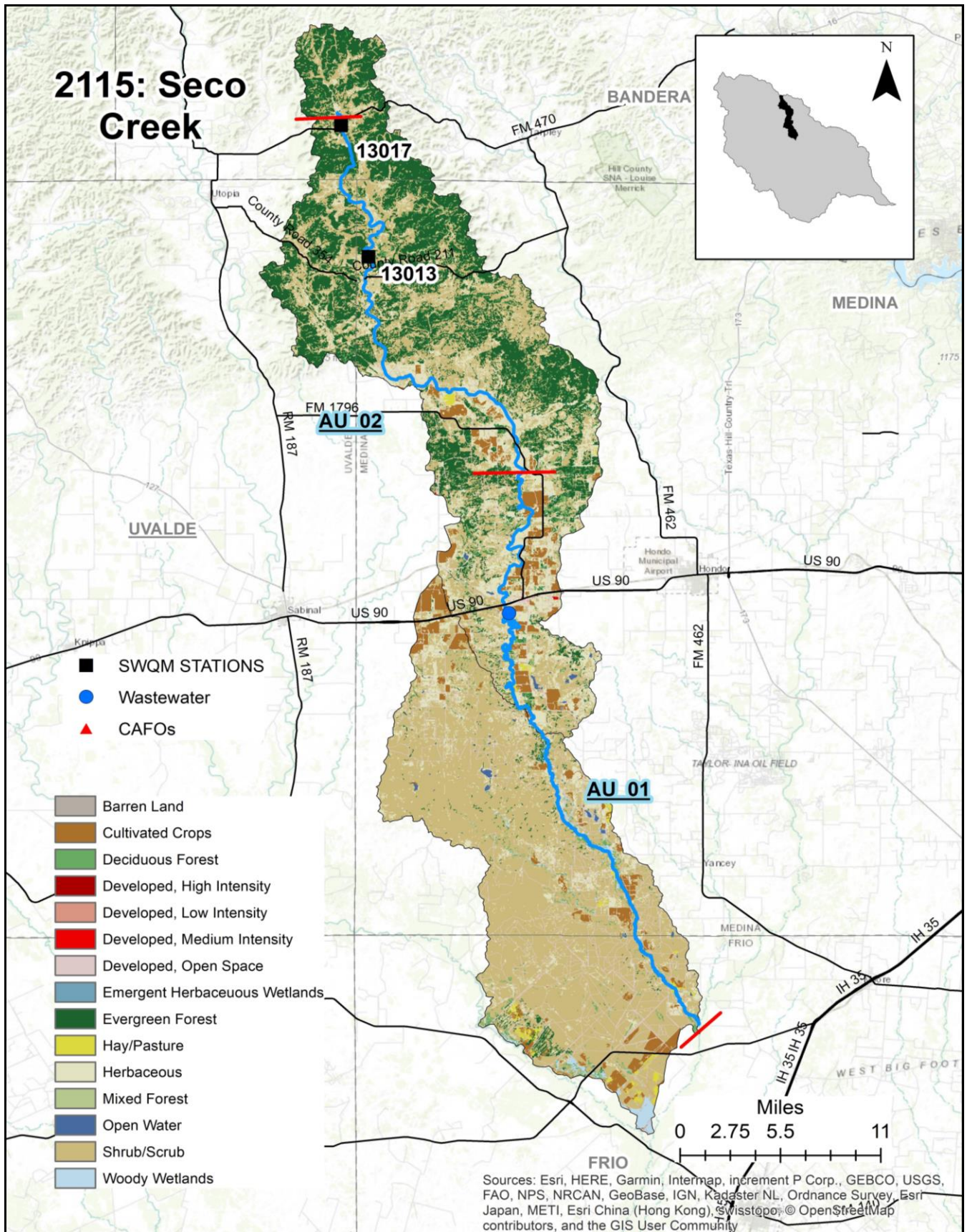
Segment Description – Commissioners Creek is a tributary to Upper Hondo Creek (Segment 2114). The segment flows from the headwaters approximately 6.4 km (4.0 mi.) northeast of Tarpley in Bandera County to the confluence with Upper Hondo Creek. The waterbody was previously included with Upper Hondo Creek (Segment 2114) but is now a newly created segment with a new monitoring station.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Commissioners Creek	22227	01	At SH 173 southeast of Hondo	BCRAGD	Quarterly

Water Quality – Commissioners Creek is a new site for FY2020 and does not have enough data for assessment. The site was chosen due to stakeholder input following water quality disturbances associated with construction of an impoundment on the creek. The low flowing creek also receives effluent from Camp of the Ozarks (RR 417 LLC – 49,000 gal/day).



Segment 2114A – Commissioners Creek



Segment 2115 – Seco Creek

Segment 2115: Seco Creek

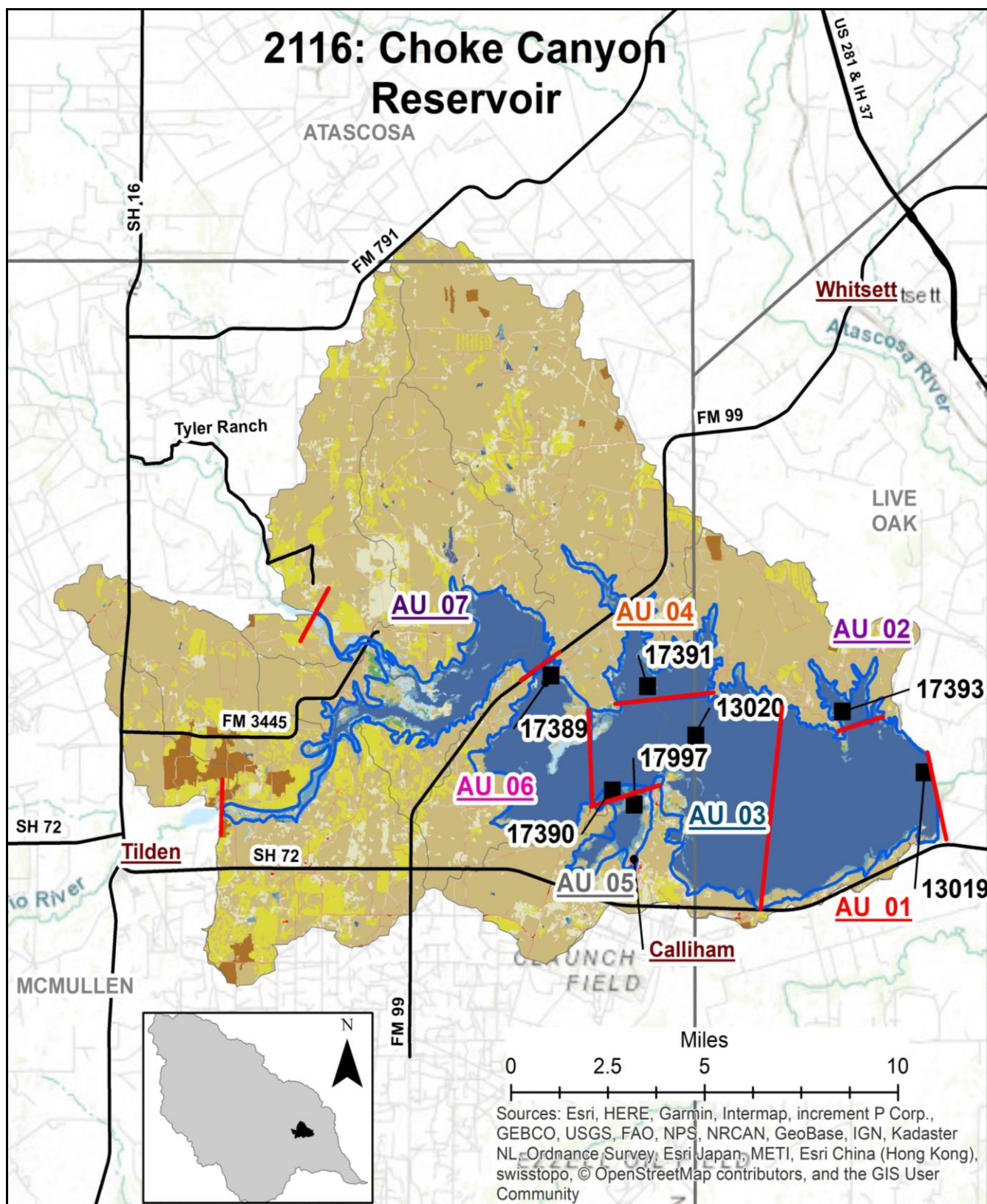
Segment Description - The segment is 70 miles long and flows from the confluence of West Seco Creek in Bandera County to the confluence with Hondo Creek in Frio County. It is divided into two AUs; from the downstream end to the confluence with an unnamed tributary near FM 1796 (AU_01), and from the confluence with an unnamed tributary near FM 1796 to the upstream end (AU_02). Its watershed is 266,833 acres. There are no sampling sites in AU_01. BCRAGD began sampling in AU-02 in FY 2016. They are contributing their resources for this sampling and providing the data to NRA for submittal to SWQMIS.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Seco Creek	13013	01	At SH 127 east of Concan	TCEQ Region 13	Semi-Annually

Water Quality – There are **no** water quality **concerns** or **impairments** listed in the 2020 IR Assessment.



Segment 2115 – Seco Creek



Segment 2116 – Choke Canyon Reservoir

Segment 2116: Choke Canyon Reservoir

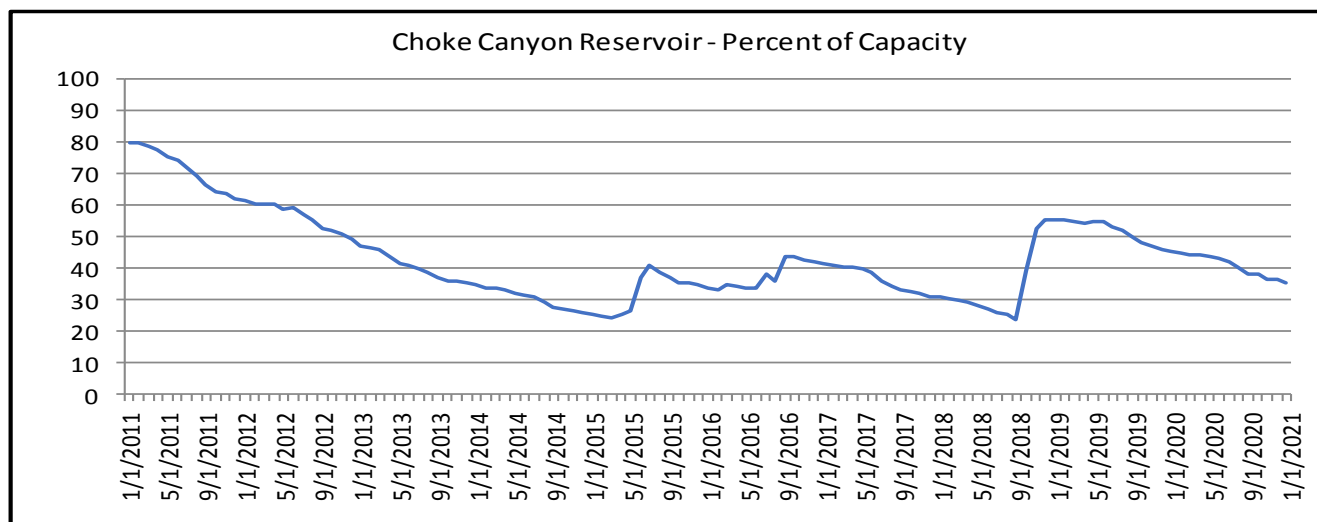
Segment Description - The segment is from Choke Canyon Dam to a point 4.2 km (2.6 mi) downstream of SH-16 on the Frio River Arm and to a point 100 meters (110 yards) upstream of the confluence of Mustang Branch on the San Miguel Creek Arm and up to the normal pool elevation of 220.5 feet (impounds Frio River). The reservoir covers portions of McMullen and Live Oak Counties. The reservoir is divided into seven AUs; the 5,120 acres near the dam (AU_01), the small north arm near the dam and Willow Hollow Tank (AU_02), the 5120 acres in the middle of the reservoir (AU_03), the large north arm near mid-reservoir and Jacob Oil Field (AU_04), the southern arm near mid-reservoir and Recreation Road 7 west of Calliham (AU_05), the western end of the reservoir up to RR 99 (AU_06), and from RR 99 to the upper end (AU_07). Its watershed is 11,304 acres.

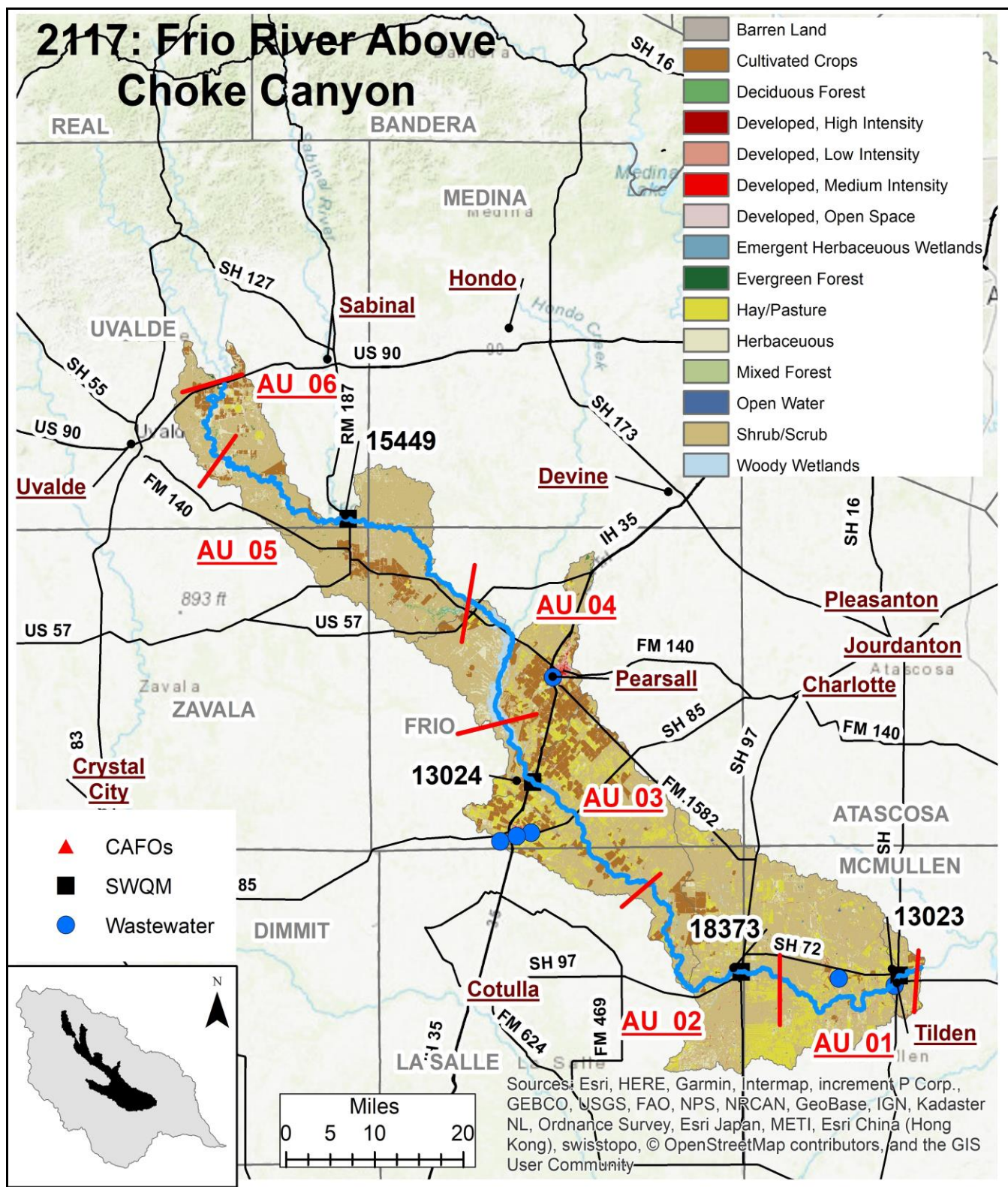
Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
2116 Choke Canyon Reservoir	13019	01	Near Dam East of Spillway Channel	NRA	Routine Quarterly
	13020	03	Mid-lake near north of State Park	NRA	Routine Quarterly
	17389	06	Near FM 99 bridge crossing	NRA	Routine Quarterly + Metals in Water

Water Quality – AU_01 thru AU_07 all have **impairments** for **excessive algal growth** in water. AU_06 has a water quality **concern** for **depressed dissolved oxygen** (screening level concern) in water. All other assessed parameters met the standards in the 2020 IR. The last time the reservoir was full was in September 2007. The water level graph displays the lake percent of capacity from January 1, 2011 through January 1, 2021.

Additional information about the reservoir is available at:

http://www.twdb.texas.gov/surfacewater/rivers/reservoirs/choke_canyon/index.asp.





Segment 2117 – Frio River Above Choke Canyon

Segment 2117: Frio River Above Choke Canyon Reservoir

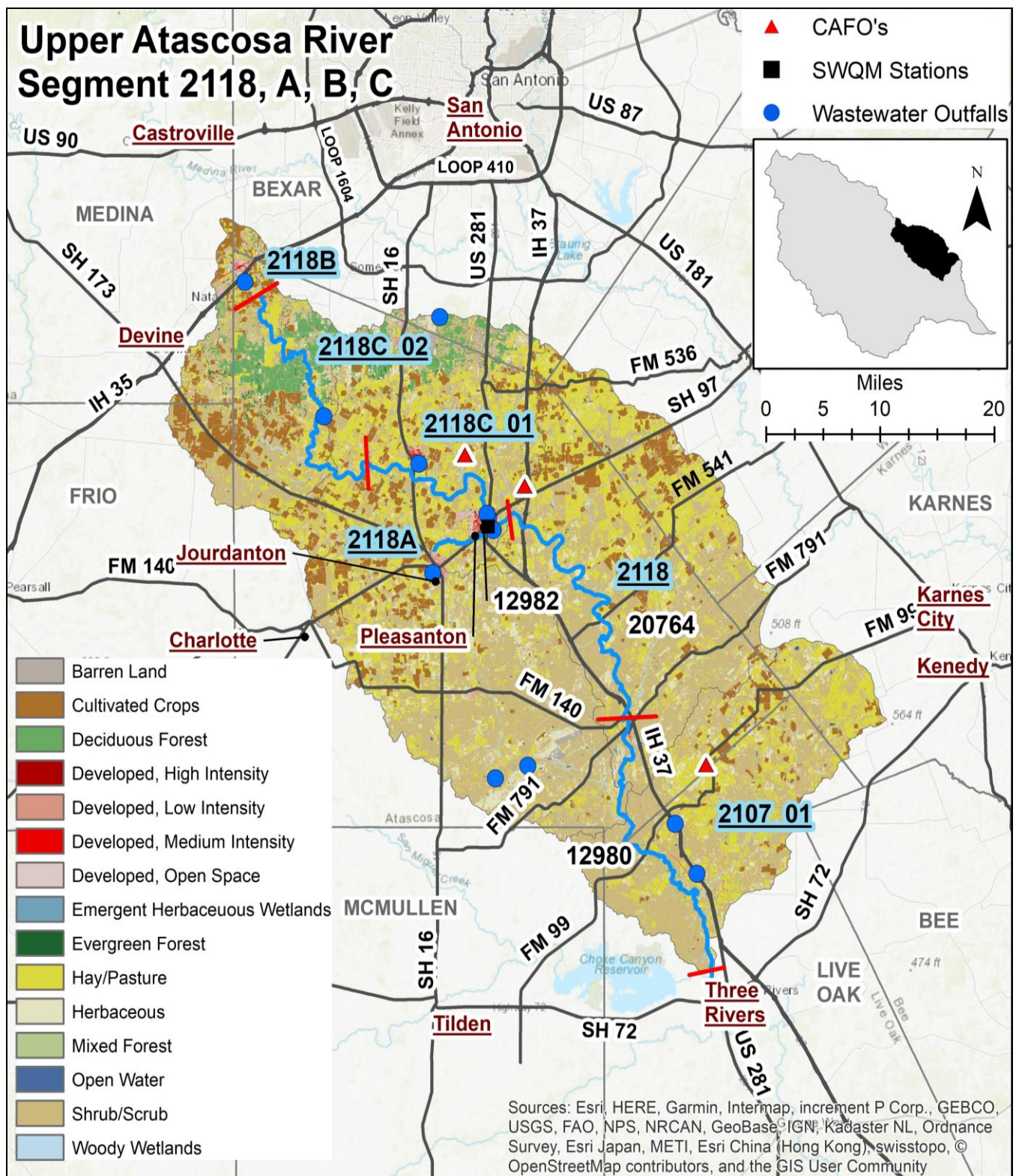
Segment Description - The segment flows 158 miles from 100 m upstream of US 90 in Uvalde County to the confluence with Choke Canyon Reservoir in McMullen County. The segment is divided into six AUs; from Choke Canyon Reservoir to the confluence with Esperanza Creek (AU_01), from the confluence with Esperanza Creek to the confluence with Ruiz Creek (AU_02), from the confluence with Ruiz Creek to the confluence with Live Oak Creek (AU_03), from the confluence with Live Oak Creek to the confluence with Elm Creek (AU_04), from the confluence with Elm Creek to the confluence with Spring Branch (AU_05), and from the confluence with Spring Branch to the upper end of the segment (AU_06). The City of Tilden (pop. 290) is the only city in the segment and the watershed is 1,161,405 acres. The segment has been in a persistent drought since 2007 when the receiving waterbody, Choke Canyon, was last full.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
2117 Frio River Above Choke Canyon Reservoir	13023	01	At SH 16 in Tilden	NRA	Routine Quarterly + Metals in Water
	18373	02	At SH 97 north of Fowlerton	NRA	Routine Quarterly

Water Quality – AUs 01 through 06 are all listed in the 2020 IR as being **impaired** for **TDS**. AUs 01 and 02 have been **impaired** for **bacteria** since the 2012 IR assessment. AUs 01 through 03 have water quality **concerns** for **chlorophyll-a**. AUs 01 and 03 have water quality **concerns** for **depressed dissolved oxygen** (grab and screening level). AUs 04 and 05 have water quality **concerns** for **nitrate in water**. All AUs were delisted for chloride in water in the 2018 IR Assessment.



Station 13023 – Frio River at SH 173 in Tilden



Segment 2118 – Upper Atascosa River

Segment 2118: Atascosa River

Segment Description – As a result of a 2014 Texas Surface Water Quality Standards (TSWQS) revision, segment descriptions for the Atascosa River have changed. The middle reach of the river is now in the newly created segment known as the Upper Atascosa River, Segment 2118. The new segment consists of one AU which runs from the confluence with Borrego Creek to the confluence with Galvan Creek in Atascosa County. Tributaries and the upper end of the river have been broken up into appendices, Bonita Creek (Segment 2118A), West Prong Atascosa River (Segment 2118B), and Atascosa River (Segment 2118C).

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Upper Atascosa River	20764	01	At FM 541 near McCoy	NRA	Routine Quarterly + 24-hour Dissolved Oxygen

Water Quality – Segment 2118_01 (formerly 2107_02) has listed **impairments** for **depressed dissolved oxygen** in water (24-hour average and grab) since the 1996 IR assessment, impaired **fish community**, impaired **macrobenthic community**, and **bacteria** (*E. coli*) identified in the 2020 IR. The AU also has a water quality **concern** for **impaired habitat**, **total phosphorus**, and **nitrate** in water.

Special Studies - Sampling for a TMDL to address the bacteria impairment was conducted between 2002 and 2004. The sampling confirmed the impairment and an RUAA was conducted by Texas Institute for Applied Environmental Research (TIAER) at Tarleton State University in 2006 and 2007. The proposed standards for Segment 2118 for chloride, sulfate, and TDS are 350 mg/l, 700 mg/l, and 1,550 mg/l, respectively.



Station 20764 – Atascosa River at FM 541 near McCoy

2118A: Bonita Creek

Segment Description – Segment 2118A replaces Atascosa River Segment 2107A. This waterbody is within the Upper Atascosa River watershed and is from its confluence with the Atascosa River in Pleasanton to the headwaters approximately 1.4 km (0.87 mi.) upstream of Ernest Road in Jourdanton. There are no active water quality monitoring stations in the segment.

2118B: West Prong Atascosa River

Segment Description – The West Prong Atascosa River is an intermittent stream with perennial pools located from the confluence with the Atascosa River upstream to the confluence with an unnamed tributary at IH 35. There are no active water quality monitoring stations in the segment.

2118C: Upper Atascosa River

Segment Description – Segment 2118C is made up of two AUs. 2118C_01 replaces Segment 2107_03 for assessment purposes. Segment 2118C_01 is from the confluence with Galvan Creek in Atascosa County upstream to the confluence of the West Prong Atascosa River and North Prong Atascosa River in Atascosa County. Segment 2118C_02 replaces Segment 2107_04 and is from Palo Alto Creek to the upper end of the segment.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Upper Atascosa River	12982	01	At US 281 in Pleasanton	TCEQ Region 13	Routine Quarterly

Water Quality – Segment 2118C_01 (formerly Segment 2107_03) has listed **impairments** for **fish community** and **macrobenthic community** in the 2020 IR assessment. Segment 2118C_01 also has a water quality **concerns** for **impaired habitat** and **chlorophyll-a** in water. In Segment 2118C_02 (formerly Segment 2107_04), there are **no water quality impairments or concerns** in the 2020 IR.



Station 12981 – Atascosa River at railroad bridge crossing in Pleasanton

List of Impairments and Concerns in the Nueces River Basin

Segment Name	AU	Description	Impairment	Concern
2101 Nueces River Tidal	01	Entire water body	None	Chlorophyll-a, fish kill in water
2102 Nueces River Below Lake Corpus Christi	01	From the downstream end of segment to the confluence with Javelin Creek	TDS	None
	02	From the confluence with Javelin Creek to the upstream end of segment at Lake Corpus Christi	TDS	Chlorophyll-a
2103 Lake Corpus Christi	01	Mid lake near dam	None	None
	02	Area ~ 4 miles SE of FM 3162 and FM 634 intersection near western shore	None	None
	03	Western arm of lake near Lagarto Creek Inlet	None	None
	04	Upper portion of lake on opposite shore from Hideaway Hill	None	None
	05	Upper arm of lake in more riverine section surrounding FM 534	None	None
	06	Uppermost riverine part of reservoir upstream of FM 534 to upper end of segment to just upstream of US Hwy 59	None	None
2104 Nueces River Above Frio River	01	From the downstream end of the segment to the confluence with Dragon Creek	Bacteria	Impaired macrobenthic community, Nitrate, Total Phosphorus
	02	From the confluence with Dragon Creek to the confluence with Guadalupe Creek	None	Impaired fish community, impaired macrobenthic community
	03	From confluence of Guadalupe Creek to Holland Dam	None	DO
2105 Nueces River Above Holland Dam	01	From the downstream end of the segment to the confluence with Sauz Mocho Creek	None	Chlorophyll-a
	02	From the confluence with Sauz Mocho Creek to the confluence with Live Oak Slough	DO	DO, Chlorophyll-a
	03	From the confluence of Live Oak Slough to the upstream end	None	None
2106 Nueces / Lower Frio River	01	The Nueces River from the downstream end to the confluence with the Frio River	TDS	Chlorophyll-a
	02	The Frio River from the confluence with the Nueces River to the Choke Canyon Reservoir Dam	Bacteria, TDS	Chlorophyll-a
2107 Atascosa River	01	From the downstream end to the confluence with Borrego Creek	Bacteria	Chlorophyll-a
2108 San Miguel Creek	01	From Choke Canyon Reservoir to the confluence with Live Oak Creek	Bacteria	None
	02	From the confluence of Live Oak Creek to the upstream end of the segment	None	None

List of Impairments and Concerns in the Nueces River Basin (cont.)

Segment Name	AU	Description	Impairment	Concern
2109 Leona River	01	From the confluence with the Frio River to the confluence with Yoledigo Creek	Bacteria	Nitrate
	02	From the confluence with Yoledigo Creek to the confluence with Camp Lake Slough	Bacteria	Nitrate
	03	from the confluence with Camp Lake Slough to the upstream end	DO, Bacteria	DO, Nitrate
2109C Live Oak Creek	01	From its confluence with the Leona River in Zavala County to the headwaters approximately 15.2 km upstream of US Hwy 57 in Zavala County	None	None
2109D Gallina Slough	01	From the confluence with the Leona River is Zavala County to the headwaters ~ 9 km upstream of US Hwy 57 in Zavala County	None	Bacteria, Nitrate
2110 Lower Sabinal River	01	Entire water body	None	DO, Nitrate
2111 Upper Sabinal River	01	From the downstream end to the confluence with the West Sabinal River	None	None
	02	from the confluence with the West Sabinal River to the upstream end	None	None
2112 Upper Nueces River	01	From the downstream end to the confluence with Sand Ridge Creek	None	DO
	02	From the confluence with Sand Ridge Creek to the confluence with unnamed tributary just downstream of US Hwy 90	None	None
	03	From the confluence with unnamed tributary just downstream of US Hwy 90 to the confluence with Miller Creek	None	None
	04	From the confluence with Miller Creek to the upper end of the segment	None	None
2113 Upper Frio River	01	From the downstream end to the confluence with Bear Creek	Impaired fish community, Impaired macrobenthic community	Impaired Habitat
	02	From the confluence with Bear Creek to the upstream end	None	Impaired habitat, Impaired fish community
2114 Hondo Creek	01	From downstream end to just upstream of FM 2676	None	Nitrate
	02	From just upstream of FM 2676 to the upstream end	None	None
2115 Seco Creek	01	From the downstream end of the segment to the confluence with and unnamed tributary at -99.28N, 29.42W	None	None
	02	From the confluence with an unnamed tributary near FM 1796 to the upstream end	None	None
2116 Choke Canyon Reservoir	01	5120 acres near dam	Excessive algal growth	None
	02	Small north arm of lake near dam and Willow Hollow Tank	Excessive algal growth	None
	03	5120 acres in the middle of the reservoir	Excessive algal growth	None
	04	Large north arm near mid lake and Jacob Oil Field	Excessive algal growth	None
	05	Southern arm near mid-Lake and RR7 west of Calliham	Excessive algal growth	None
	06	western end of the reservoir up to RR 99	Excessive algal growth	DO
	07	Remainder of lake from RR 99 bridge to upper end of segment	Excessive algal growth	None

List of Impairments and Concerns in the Nueces River Basin (cont.)

Segment Name	AU	Description	Impairment	Concern
2117 Frio River Above Choke Canyon Reservoir	01	From Choke Canyon Reservoir to the confluence with Esperanza Creek	Bacteria, TDS	Chlorophyll-a, DO
	02	From the confluence with Esperanza Creek to the confluence with Ruiz Creek	Bacteria, TDS	Chlorophyll-a
	03	From the confluence with Ruiz Creek to the confluence with Live Oak Creek	TDS	Chlorophyll-a, DO
	04	From the confluence with Live Oak Creek to the confluence with Elm Creek	TDS	Nitrate
	05	From the confluence with Elm Creek to the confluence with Spring Branch al	TDS	Nitrate
	06	From the confluence with Spring Branch to the upstream end of the segment	TDS	None
2118 Atascosa River	01	From confluence with Borrego Creek to the confluence of Galvan Creek	DO, Impaired macrobenthic, fish community, Bacteria	Impaired habitat, nitrate, total phosphorus
2118A Bonita Creek	01	From the confluence with the Atascosa River in Pleasanton to the headwaters 1.4 km (0.87 mi) upstream of Ernest Rd in Jourdanton	None	None
2118B West Prong Atascosa River	01	Intermittent stream with perennial pools from the confluence with the Atascosa River upstream to the confluence with an unnamed tributary at IH 35	None	None
2118C Upper Atascosa River	01	From the confluence with Galvan Creek in Atascosa County upstream to the confluence with Palo Alto	Impaired fish community and macrobenthic community	Impaired Habitat, Chlorophyll-a
	02	From the confluence with Palo Alto Creek to the upper end of the segment	None	None

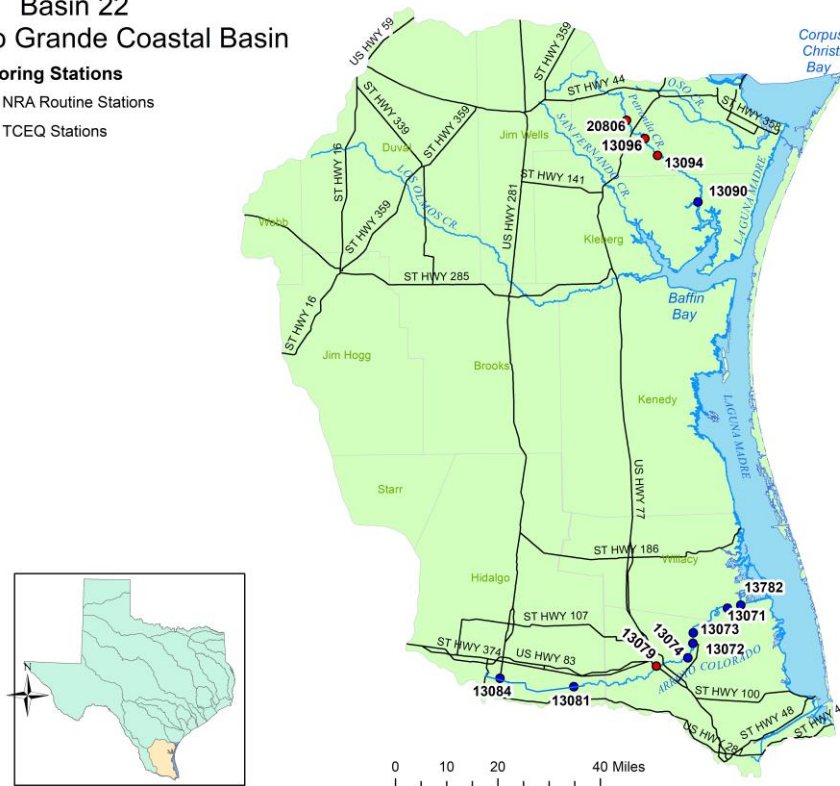
BASIN 22 - Nueces-Rio Grande Coastal Basin

The Nueces – Rio Grande Coastal Basin lies on the coastal plain between the Nueces River and the Rio Grande River Basins. The drainage area is 10,442 square miles, encompassing all or part of 12 counties in South Texas. Waterbodies include the Arroyo Colorado which drains into the Lower Laguna Madre and Petronila Creek which flows into Baffin Bay.

Basin 22 Nueces-Rio Grande Coastal Basin

Monitoring Stations

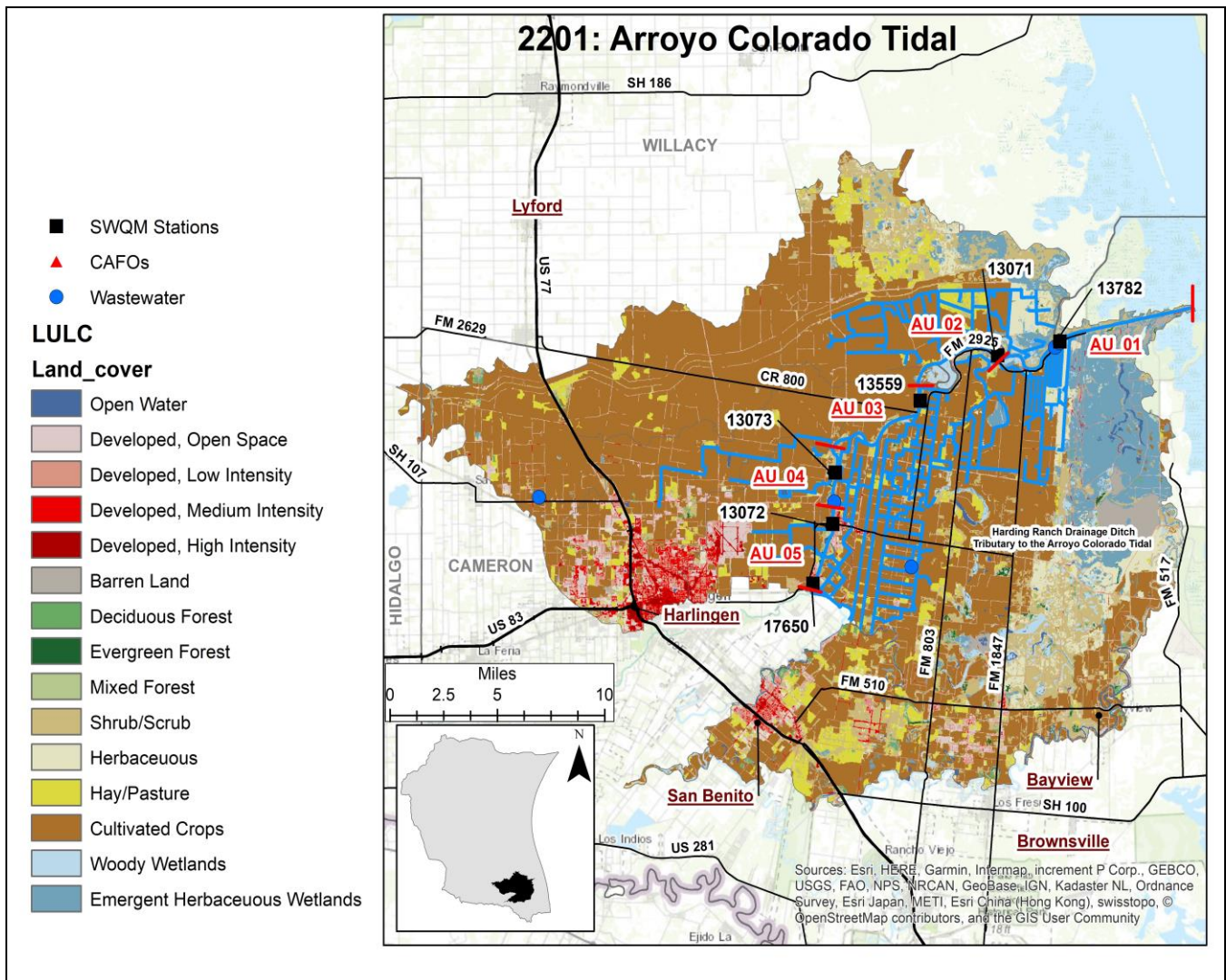
- NRA Routine Stations
- TCEQ Stations



Segment 2204 – Petronila Creek Above Tidal

CRP and SWQM Sites in the Nueces – Rio Grande Coastal Basin

Segment Name	Station Id #	Description	Monitoring Entity	Conventional, Field	Other
2201 Arroyo Colorado Tidal	13782 (AU_01)	Near Channel Marker 16 at Arroyo City 492 m downstream of confluence with Arroyo Colorado and Arroyo Colorado cutoff	TCEQ Region 15	Quarterly	
	13071 (AU_02)	At Mile 10 Marker 22 81 m upstream from San Vicente drain ditch	TCEQ Region 15	Quarterly	
	13073 (AU_04)	At Camp Perry north of Rio Hondo 177 m downstream from confluence with unnamed ditch west side of Arroyo Colorado	TCEQ Region 15	Quarterly	
	13072 (AU_05)	At FM 106 bridge at Rio Hondo	TCEQ Region 15	Quarterly	
2202 Arroyo Colorado Above Tidal	13074 (AU_01)	At low water bridge at Port Harlingen at Cemetery Rd bridge	TCEQ Region 15	Quarterly	
	13079 (AU_02)	At US 77 in SW Harlingen	NRA	Quarterly	
	13081 (AU_03)	At FM 1015 south of Weslaco	TCEQ Region 15	Quarterly	
	13084 (AU_04)	At US 281 south of Pharr	TCEQ Region 15	Quarterly	
2203 Petronila Creek Tidal	13090	1.2 km upstream of the confluence with Tunas Creek	TCEQ Region 14	Quarterly	
2204 Petronila Creek Above Tidal	13094 (AU_01)	At FM 892 SE of Driscoll	NRA	Quarterly	Monthly TDS, chloride, sulfate, nutrients, flow
	13096 (AU_02)	At FM 665 east of Driscoll	NRA	Quarterly	Monthly TDS, chloride, sulfate, nutrients, flow
	20806 (AU_02)	At 181 m West and 6 m south from the intersection of Alice Road and Lost Creek road	NRA	Quarterly	Monthly bacteria and nutrients



Segment 2201 – Arroyo Colorado Tidal



Station 13073 – Arroyo Colorado Tidal at Camp Perry north of Rio Hondo

Segment 2201: Arroyo Colorado Tidal

Segment Description - The segment flows 26 miles from 110 yards downstream of Cemetery Road south of the Port of Harlingen to its confluence with the Laguna Madre. The segment forms part of the county line between Cameron and Willacy Counties. The segment is divided into five AUs; from the confluence with the Laguna Madre to the confluence with San Vicente Drainage Ditch (AU_01), from the confluence with San Vicente Drainage Ditch to the confluence with an unnamed drainage ditch at 26.31, -97.53 (AU_02), from an unnamed drainage ditch at 26.31, -97.53 to the confluence with the Harding Ranch Ditch tributary (AU_03), from the confluence with the Harding Ranch Ditch tributary to just upstream of the City of Hondo wastewater discharge point (AU_04), and from just upstream of the City of Rio Hondo wastewater discharge point to the upstream end of the segment (AU_05). The area is predominately farmland. The Arroyo Colorado Tidal segment serves as the waterway from the Laguna Madre to the Port of Harlingen. Its watershed is 294,591 acres. The City of Rio Hondo is just downstream of the Port. Arroyo City is located along the southern shore, with many homes lining the river.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Arroyo Colorado Tidal	13782	01	Near Channel Marker 16 at Arroyo City	TCEQ Region 15	Routine Quarterly
	13071	02	At Mile 10 Marker 22 upstream of San Vicente Drain	TCEQ Region 15	Routine Quarterly
	13073	04	At Camp Perry north of Rio Hondo	TCEQ Region 15	Routine Quarterly + 2x 24-hour DO
	13072	05	At FM 106 bridge at Rio Hondo	TCEQ Region 15	Routine Quarterly

Water Quality – All AUs have listed water quality **impairments** for **bacteria** (enterococcus) and **concerns** for **chlorophyll-a** and **nitrate** in the 2020 IR Assessment. The impairment for bacteria for primary contact recreation is based on limited data. Due to the eight-hour holding time and because there are no local labs accredited for enterococci analysis, routine bacteria sample collection has been suspended.

AUs 04 and 05 are also **impaired** for **depressed dissolved oxygen** (24-hour minimum) and have **concerns** for **total phosphorus**. AU-04 and AU_05 have been impaired for depressed DO since the 1996 IR Assessment, generally attributed to the physical properties of the segment, including the Port of Harlingen and manipulation by dredging and other mechanical changes to the river. At times, barge traffic to the Port causes the anoxic water near the bottom of the channel to rise to the surface which results in fish kills. This report also lists AU_05 as having a **concern** for **depressed dissolved oxygen** (24-hour average). Additional 24-Hr DO monitoring will be needed to fully evaluate the concern.

Fish consumption warnings continue for AU_05 for **PCBs** and **Mercury in edible fish tissue**. More information on fishing advisories and bans are available at <http://dshs.texas.gov/seafood/advisories-bans.aspx>.

Special Studies – Numerous water quality studies have been conducted on the segment by multiple entities over the past two decades. The Watershed Protection Plan (WPP) Phase 1 was completed in 2007 by Texas Water Resources Institute (TWRI). Phase 1 of the WPP describes the state of the watershed and presents a strategic plan to improve environmental conditions, and to address impairments and concerns listed in the 2004 IR Assessment. That document can be found at: <https://arroyocolorado.org/media/gthk4kpd/watershed-protection-plan-phase-i-final-jan-11-2007.pdf>

The Arroyo Colorado Watershed Partnership, which is a coalition of public and private organizations was created to provide collaboration with stakeholders to determine goals and priorities. More information about the WPP can be found at: <https://arroyocolorado.org/about/wpp/>

An update to the WPP was completed by the Arroyo Colorado Watershed Partnership and approved by EPA in 2017. The technical Report for the project can be found at: <https://arroyocolorado.org/media/wwmmsqzx/arroyo-colorado-wpp-final-optimized.pdf>

Segment 2201A: Harding Ranch Drainage Ditch Tributary

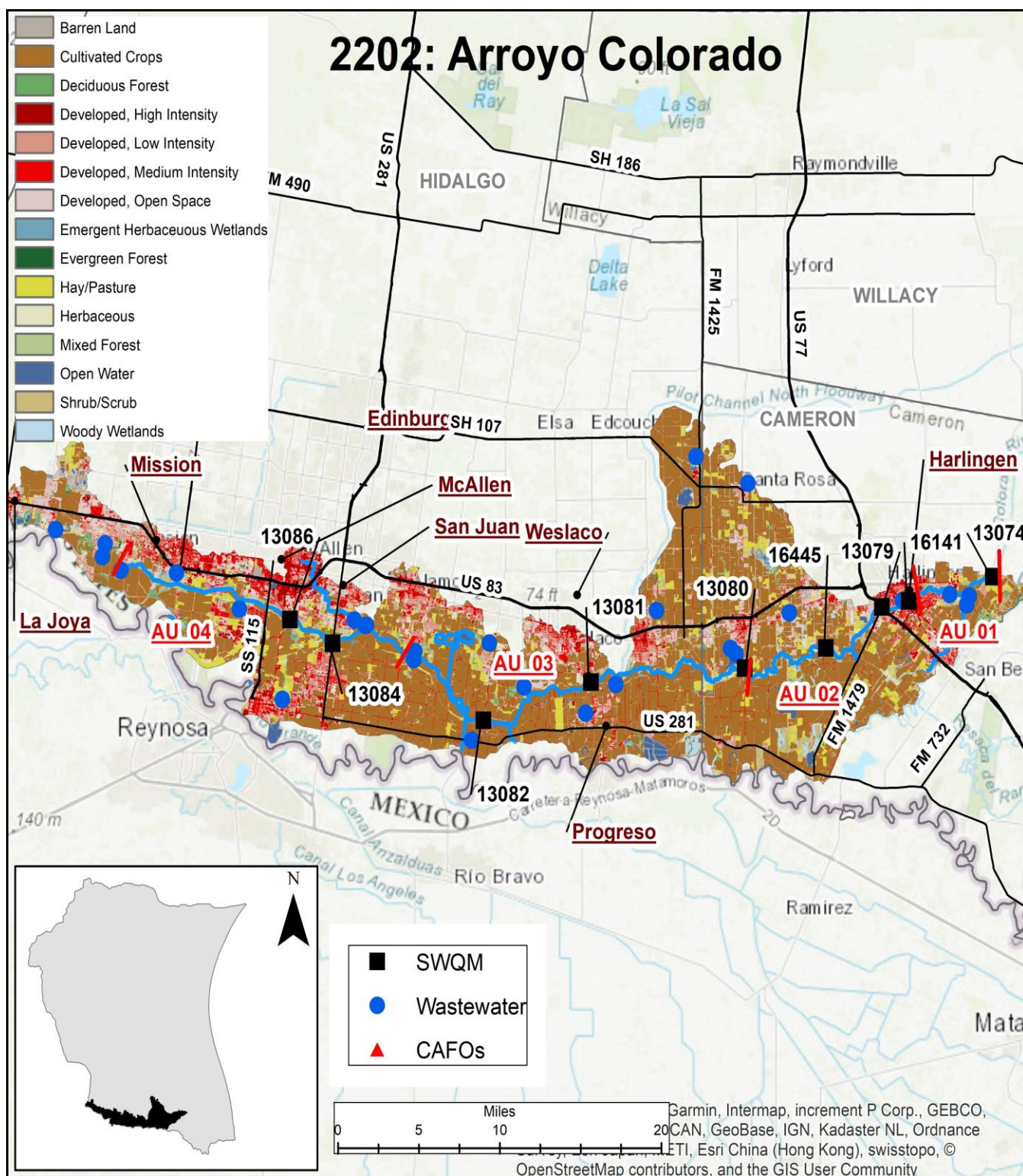
Segment Description - The unclassified water body flows from 20.8 km upstream of the FM 508 crossing to the confluence with the Arroyo Colorado Tidal.

There are no active monitoring sites on the segment. Data were collected during 2001 and 2002 as part of the Arroyo Colorado TMDL study. No additional sampling has taken place, but the concern for ammonia identified during the study is being carried forward in the 2020 IR and addressed by the WPP.

Segment 2201B: Unnamed Drainage Ditch Tributary in Cameron County Drainage District #3

Segment Description - The unclassified water body flows from 17.6 km upstream of the FM 510 crossing to the confluence with the Arroyo Colorado Tidal in the Rio Hondo turning basin.

There are no active monitoring sites on the segment. Data were collected during 2001 and 2002 as part of the Arroyo Colorado TMDL study. No additional sampling has taken place, but a bacteria impairment and concerns for nitrates and chlorophyll-*a* are carried forward in the 2020 IR and addressed by the WPP.



Segment 2202 – Arroyo Colorado Above Tidal

Segment 2202: Arroyo Colorado Above Tidal

Segment Description - The segment flows 63 miles from FM 2062 in Hidalgo County to 110 yards downstream of Cemetery Road south of the Port of Harlingen. The segment is divided into four AUs; from the downstream end of the segment to the confluence with Little Creek just upstream of State Loop 499 (AU_01), from the confluence with Little Creek to the confluence with La Feria Main Canal just upstream of Dukes Highway (AU_02), from confluence with La Feria Main Canal to the confluence with La Cruz Resaca just downstream of FM 907 (AU_03), and from the confluence with La Cruz Resaca to the upstream end of the segment (AU_04). Its watershed is 252,633 acres. There are numerous cities along US 83 just north of the Arroyo Colorado, with farming activities in between. The Arroyo Colorado is the primary conveyance of wastewater and agricultural runoff for this area.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Arroyo Colorado Above Tidal	13074	01	At Low Water Bridge at Port Harlingen at Cemetery Road	TCEQ Region 15	Routine Quarterly
	13079	02	At US 77 in Harlingen	NRA	Routine Quarterly
	13081	03	At FM 1015 South of Weslaco	TCEQ Region 15	Routine Quarterly
	13084	04	At US 281 South of Pharr	TCEQ Region 15	Routine Quarterly

Water Quality - All four AUs have **impairments** for **bacteria** (*E. coli*) and have been impaired since the 1996 Assessment. They remain listed in the 2020 IR Assessment. All four AUs also have water quality **concerns** for **chlorophyll-a**, **nitrate**, and **total phosphorus**.

Fish consumption warnings continue for all AUs for **PCBs** and **Mercury in edible fish tissue**. More information on fishing advisories and bans are available at <http://dshs.texas.gov/seafood/advisories-bans.aspx>.

Special Studies - The Watershed Protection Plan (WPP) Phase 1 was completed in 2007 by Texas Water Resources Institute (TWRI). Phase 1 of the WPP describes the state of the watershed and presents a strategic plan to improve environmental conditions, and to address impairments and concerns listed in the 2004 IR Assessment. That document can be found at: <https://arroyocolorado.org/media/gthk4kpd/watershed-protection-plan-phase-i-final-jan-11-2007.pdf>. An update to the WPP was completed by the Arroyo Colorado Watershed Partnership and approved by EPA in 2017. The technical Report for the project can be found at: <https://arroyocolorado.org/media/wwmmsqzx/arroyo-colorado-wpp-final-optimized.pdf>

To address the bacteria (*E. coli*) impairment and to help TCEQ determine the appropriate bacteria standard for the stream, NRA conducted a Recreational Use Attainability Analysis (RUAA) in 2011. The project consisted of conducting site surveys on 20 publicly accessible stream crossings. The final report for the project can be found at: <https://www.nueces-ra.org/AC/pdfs/Arroyo%20Final%20Report%20Sept%2019.pdf>



Station 13074 – Arroyo Colorado at Cemetery Road

Segment 2202A: Donna Reservoir

Segment Description - The unclassified water body is an off-channel irrigation reservoir pumped from the Rio Grande River near the City of Donna. There are no active monitoring sites on the segment.

Special Studies - The unclassified water body has been impaired for Polychlorinated biphenyl (PCB) in edible fish tissue since the 1996 Assessment. A TMDL was conducted and an Implementation Plan was approved in 2001. This pollutant is considered a background source that reflects the site-specific application histories and loss rates. Any continuing source of pollutant loadings occur from nonpoint source runoff, leaching, or erosion of sinks that may exist within the watershed. Residual PCB contamination from a site near the Donna Canal is likely to remain a continuing source until site investigation and remediation is completed. No authorized point source discharges of this pollutant are allowed by law. The Implementation Plan is available at

https://www.tceq.texas.gov/assets/public/waterquality/tmdl/07arroyoleg/07-implan_arroyo.pdf.



No Fishing sign at Donna Reservoir

Segment 2202B: Unnamed Drainage Ditch Tributary to Arroyo Colorado

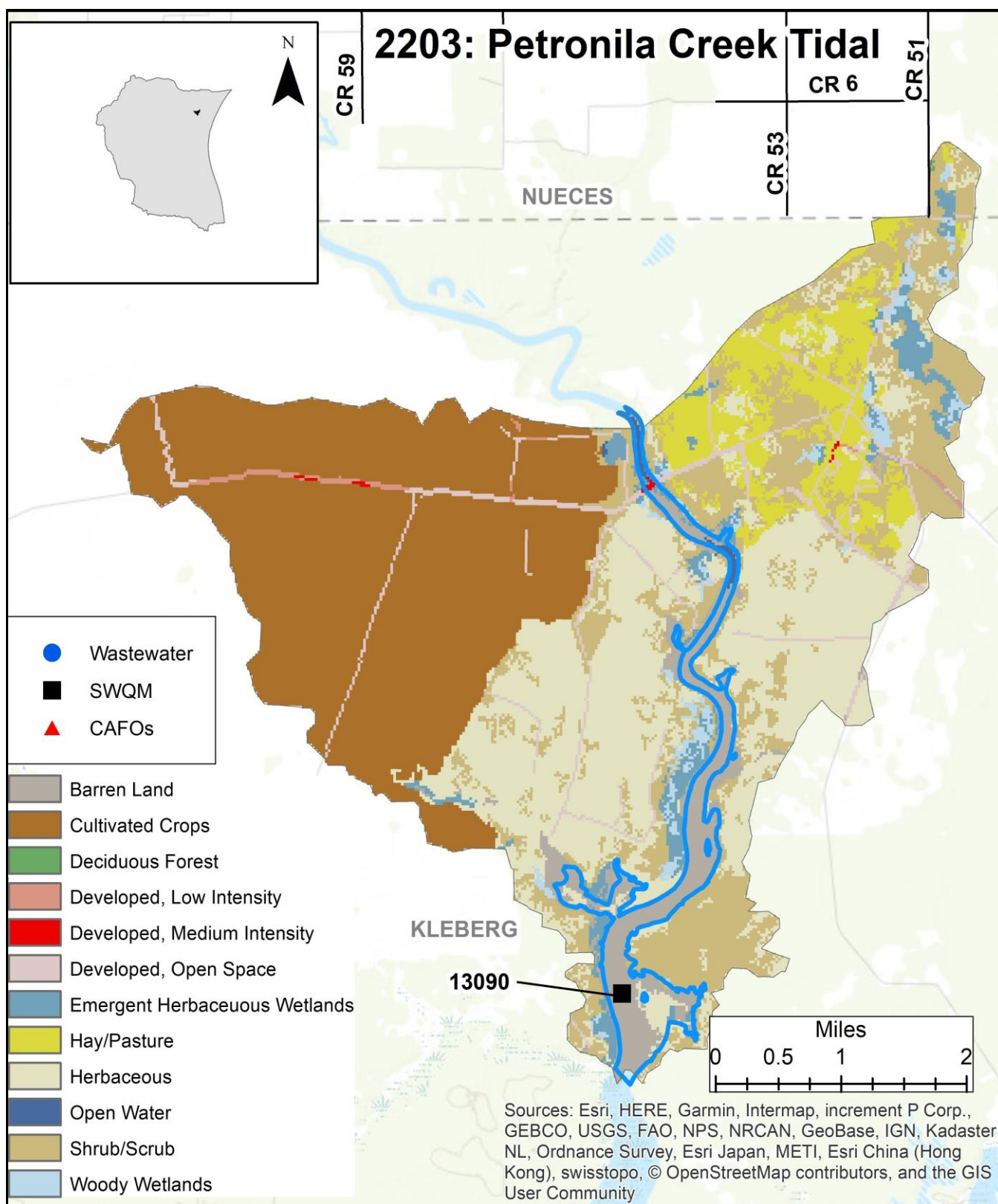
The unclassified water body is perennial drainage ditch that flows into the Arroyo Colorado in Harlingen.

There are no active monitoring sites on the segment. Data were collected as part of the Arroyo Colorado TMDL study. No additional sampling has taken place, but concerns for bacteria, ammonia, and chlorophyll-a identified during the study are being carried forward in the 2020 IR and addressed by the WPP.

Segment 2202C: Unnamed Drainage Ditch Tributary to Arroyo Colorado

The unclassified water body is from a point 1.1 miles upstream of US 281 to the confluence with the Arroyo Colorado southeast of Donna.

There are no active monitoring sites on the segment. Data were collected as part of the Arroyo Colorado TMDL study. No additional sampling has taken place but concerns for bacteria and ammonia identified during the study are being carried forward in the 2020 IR Assessment and addressed by the WPP.



Segment 2203 – Petronila Creek Tidal

Segment 2203: Petronila Creek Tidal

Segment Description - The segment flows 14 miles from a point 0.6 miles upstream of a private road crossing near Laureles Ranch in Kleberg County to the confluence with Chiltipin Creek/Alazan Bay in Kleberg County. Its watershed is 10,918 acres.

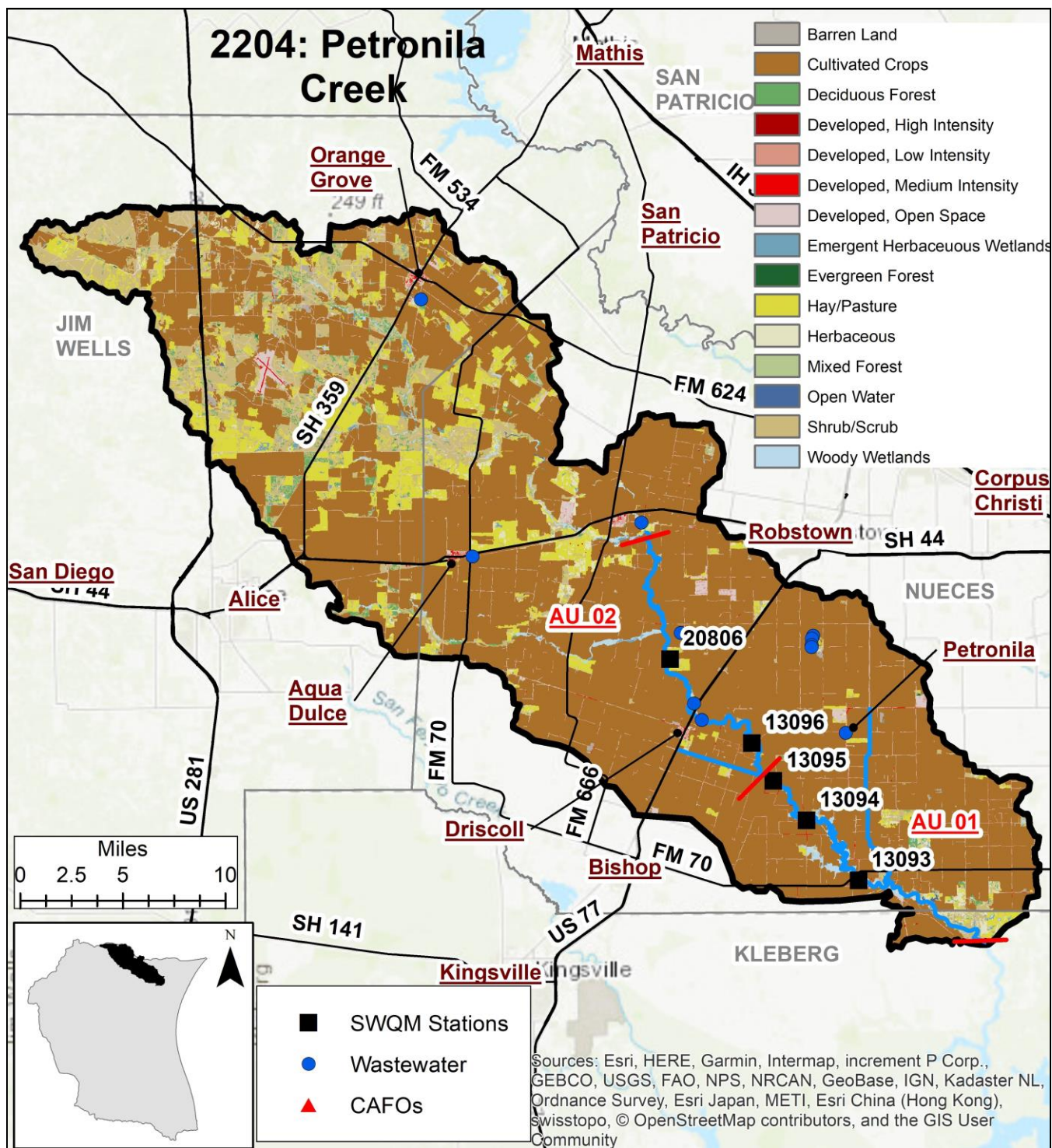
Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Petronila Creek Tidal	13090	01	Upstream of the confluence of Tunas Creek	TCEQ Region 14	Routine Quarterly

Water Quality - The segment has been listed as being **impaired** for **bacteria** (Enterococcus) for primary contact recreation since the 2010 IR Assessment. The impairment carries forward in the 2020 IR Assessment. The segment also has a water quality **concern** for **chlorophyll-a**. The segment was delisted for elevated pH in the 2018 IR Assessment.

Special Studies - A Watershed Protection Plan (WPP) is being developed for the Baffin Bay watershed due to water quality concerns and impairments in the bay and tributaries including Petronila and San Fernando creeks. Texas Water Resource Institute (TWRI), in partnership with Texas State Soil and Water Conservation Board (TSSWCB), NRA, Texas A&M University, Coastal Bend Bays and Estuaries Program (CBBEP), and Texas Sea Grant are working on the WPP. For more information, visit their website: <https://twri.tamu.edu/baffinwpp>



Segment 2203 - Petronila Creek Tidal



Segment 2204 – Petronila Creek Above Tidal

Segment 2204: Petronila Creek Above Tidal

Segment Description - The segment flows 44 miles from the confluence of Agua Dulce and Banquete Creeks in Nueces County to a point 0.6 miles upstream of a private road crossing near Laureles Ranch in Kleberg County. The segment is part of the Baffin Bay watershed. The segment is divided into two AUs; from the downstream end to the confluence with 2204A (AU_01) and from the confluence with 2204A to the upstream end of the segment (AU-02). Its watershed is 1,867,755 acres. The segment is primarily farmland interspersed with a number of small communities and cities. It flows through the City of Driscoll (pop. 631), at US 77, and several colonias. There are nine WWTPs that discharge to this segment and a storm water discharge permit for a hazardous waste landfill.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Petronila Creek Above Tidal	13094	01	At FM 892 southeast of Driscoll	NRA	Routine Quarterly
	13096	02	At FM 665 east of Driscoll	NRA	Routine Quarterly
	20806	02	At the end of Alice Road	NRA	Routine Quarterly

Water Quality - The segment has been **impaired** for **TDS**, **chloride**, and **sulfates** since the 1999 IR Assessment. Excessive concentrations of these three parameters occur east of U.S. Hwy 77, in an area where man-made nonpoint sources such as produced water, brine pits, and brine injection wells are most numerous. Segment 2204 is also **impaired** for **bacteria** (*E. coli*). The segment also has **concerns** for **chlorophyll-a** in both AUs.

Special Studies – Three TMDLs were conducted for total dissolved solids (TDS), sulfate and chloride in 2007. Results of the study concluded that the impairments were the result of historic oil and gas operations. The Railroad Commission of Texas (RRC) has been working with identified operators to properly plug abandon wells and to remove contaminated soils. Where operators cannot be identified, the RRC has been doing work as funding is available. The full TMDL report can be found here:

<https://www.tceq.texas.gov/assets/public/waterquality/tmdl/32petronila/32-petronilatmdlapproved.pdf>

NRA completed a review of the Implementation Plan (IP) in FY 2014. Continued routine monitoring and monthly monitoring in the creek and tributaries were recommended and implemented. The IP also recommended a continuous water quality monitoring (CWQM) station and a program to properly plug and abandon wells that are no longer active. The CWQM instrumentation was installed by TCEQ at Station 13093 at FM 70 in December 2006. NRA performed the routine maintenance. The CWQM station was discontinued in February 2016 after it was determined that sufficient data had been gathered to help understand the relationship between water level and pollutant concentrations.

NRA also conducts monthly monitoring for TDS, sulfate, and chloride under TCEQs TMDL Program at 13 stations (9 tributary and 4 main stem stations). The CBBEP also funds nutrient monitoring at these same site locations. The final report for the CBBEP funded project can be found at:

<https://www.cbbep.org/manager/wp-content/uploads/2003-Final-Report-FINAL.pdf>

A Watershed Protection Plan (WPP) is being developed for the Baffin Bay Watershed due to water quality concerns and impairments in the bay and tributaries including Petronila and San Fernando creeks. Partners of the project include TWRI, TSSWCB, NRA, Texas A&M University, and Texas Sea Grant. For more information, visit: <https://twri.tamu.edu/baffinwpp>

List of Impairments and Concerns in the Nueces – Rio Grande Coastal Basin

Segment Name	AU	Description	Impairment	Concern
2201 Arroyo Colorado Tidal	01	From the confluence with the Laguna Madre to the confluence with San Vicente Drainage Ditch	Bacteria	Chlorophyll-a, Nitrate
	02	From the confluence with San Vicente Drainage Ditch to the confluence with an unnamed drainage ditch at 26.31, -97.53	Bacteria	Chlorophyll-a, Nitrate
	03	From an unnamed drainage ditch at 26.31, -97.53 to the confluence with the Harding Ranch Ditch tributary	Bacteria	Chlorophyll-a, Nitrate
	04	From the confluence with the Harding Ranch Ditch tributary to just upstream of the City of Hondo wastewater discharge point	Bacteria, DO	Chlorophyll-a, Nitrate
	05	From just upstream of the City of Rio Hondo wastewater discharge point to the upstream end of the segment	DO, Bacteria, Mercury in edible tissue, and PCBs in edible tissue	Chlorophyll-a, Nitrate, Total Phosphorus
2201B Unnamed Drainage Ditch Tributary (B) in Cameron County Drainage District #3	01	Entire water body	Bacteria	Chlorophyll-a
2202 Arroyo Colorado Above Tidal	01	From the downstream end of the segment to the confluence with Little Creek just upstream of State Loop 499	Bacteria, Mercury, in edible tissue, PCBs in edible tissue	Chlorophyll-a, Nitrate, Total Phosphorus
	02	From the confluence with Little Creek to the confluence with La Feria Main Canal just upstream of Dukes Highway	Bacteria, Mercury in edible tissue, PCBs in edible tissue	Chlorophyll-a, Nitrate, Total Phosphorus
	03	From confluence with La Feria Main Canal to the confluence with La Cruz Resaca just downstream of FM 907	Bacteria, Mercury in edible tissue, PCBs in edible tissue	Chlorophyll-a, Nitrate, Total Phosphorus
	04	From the confluence with La Cruz Resaca to the upper end of segment at FM 2062	Bacteria, Mercury in edible tissue, PCBs in edible tissue	Chlorophyll-a, Nitrate, Total Phosphorus
2202A Donna Reservoir	01	Entire Reservoir	PCBs in edible fish tissue	None
2202B Unnamed Drainage Ditch Tributary (B) to S. Arroyo Colorado	01	Entire segment	None	Ammonia, Bacteria, Chlorophyll-a
2202C Unnamed Drainage Ditch Tributary (C) to S. Arroyo Colorado	01	Entire segment	None	Ammonia, Bacteria,
2203 Petronila Creek Tidal	01	Entire segment	Bacteria	Chlorophyll-a
2204 Petronila Creek Above Tidal	01	From the downstream end to the confluence with 2204A	Bacteria, TDS, Chloride, Sulfate	Chlorophyll-a

Basin 24 - Bay and Estuaries and Gulf of Mexico

Several TMDLs and special studies have been conducted in the basin. Segment 2472, Copano Bay, for bacteria in oyster waters; Segment 2482, Nueces Bay, for zinc in oyster tissue; Segment 2485, Oso Bay for bacteria and depressed DO; Segment 2485A for bacteria; and Segment 2491, Laguna Madre for depressed DO.

Beach Watch is a Texas General Land Office (TxGLO) sponsored program that collects bacteria samples at Texas Beaches. There are five bays with Beach Watch Stations: Segment 2471, Aransas Bay – Rockport Beach; Segment 2481, Corpus Christi Bay; Segment 2483, Redfish Bay; Segment 2491, Laguna Madre; and Segment 2491, Baffin Bay - Cayo del Grullo Bay. Specific sites are discussed in their respective segments. The data are used to alert the public for times when it may be unsafe to be in water and can be found on the Beach Advisory and Closing On-line Notification (BEACON) Website

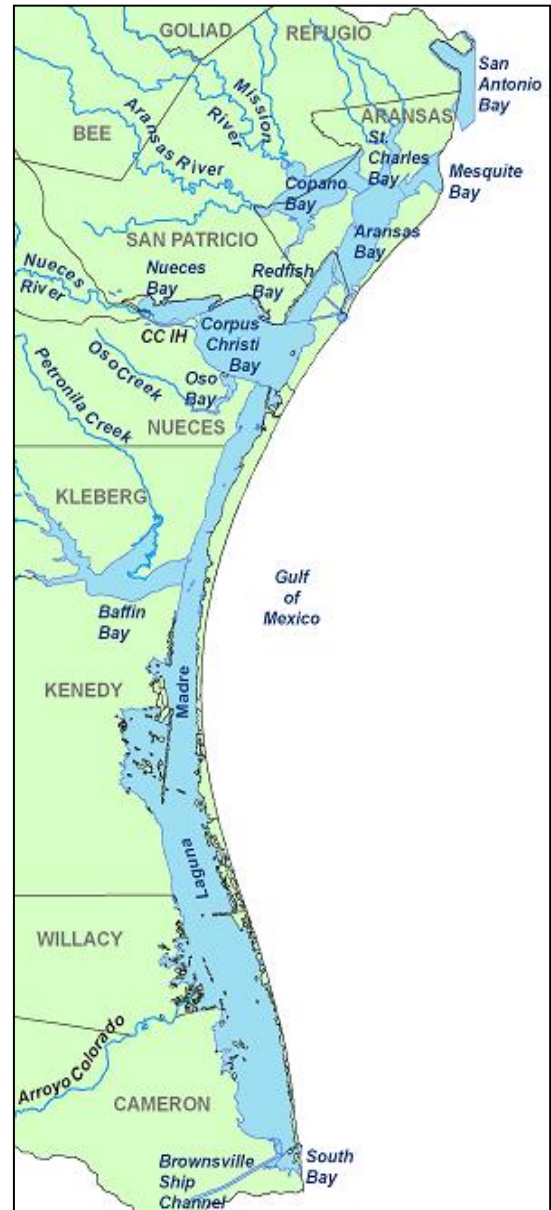
(http://iaspub.epa.gov/waters10/beacon_national_page.main).



Corpus Christi Marina



Bird Island Basin, Laguna Madre



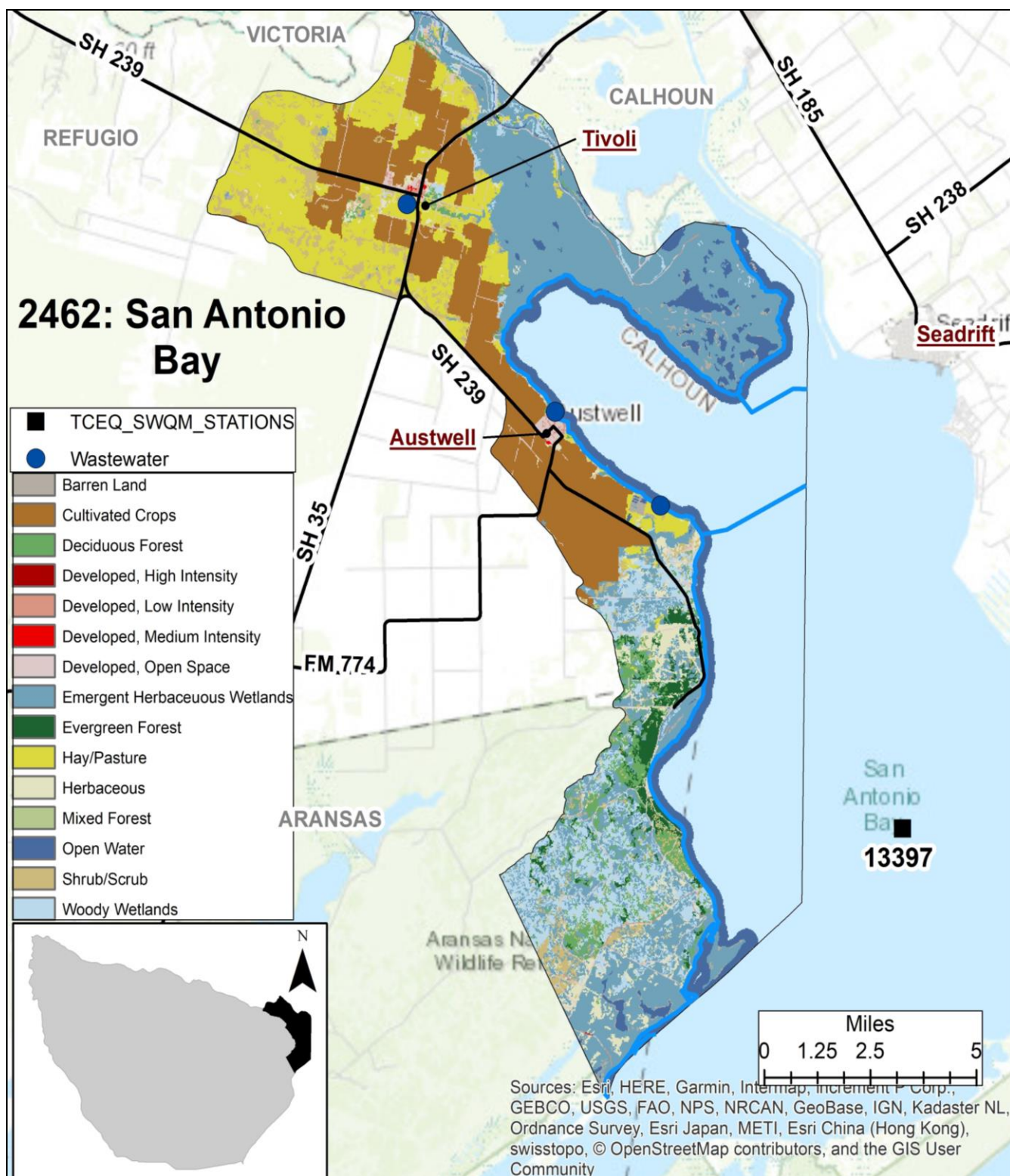
Bays and Estuaries and
Gulf of Mexico

CRP and SWQM Sites in the Bays and Estuaries and Gulf of Mexico

Segment Name	Station Id	Description	Monitoring Entity	Conventional Bacteria, Field	Other
2462 San Antonio Bay / Hynes Bay/ Guadalupe Bay	13397	At Intercoastal Waterway (ICWW) Buoy C-17	TCEQ Region 14	Quarterly	2 Metals in Sediment
2463 Mesquite Bay	13400	South of ICWW Marker 13	TCEQ Region 14	Quarterly	
2471 Aransas Bay	13402	At intersection of Intracoastal Canal and Lydia Ann Channel south of Rockport	TCEQ Region 14	Quarterly	
2471A Little Bay	16232	At Broadway and the inlet Canal to Canoe Lake in Rockport	TCEQ Region 14	Quarterly	
2472 Copano Bay / Port Bay / Mission Bay	13405	Port Bay at middle of SH 188 west of Rockport	NRA	Quarterly	2 Metals in Water
	14783	125 m south and 655 m east of Copano Bay Dr. at Spoonbill east of Bayside	TCEQ Region 14	Quarterly	
	17724	At Approx 3.5 mile west of Copano Bay Fishing pier at South end of Copano Bay Causeway SH 35	TCEQ Region 14	Quarterly	
2473 St. Charles Bay	17692	Approx 0.5 mi NE of Hail Point on Lamar Peninsula	TCEQ Region 14	Quarterly	
2481 Corpus Christi Bay	13409 (AU_01)	La Quinta CM 16	TCEQ Region 14	Quarterly	2 Metals in Water 2 Metals in Sediment 2 Organics In Sediment
	13411 (AU_02)	1 km NE of Intersection of Doddridge St. and Ocean Dr.	TCEQ Region 14	Quarterly	
	14355 (AU_03)	0.4 km east of Shamrock Island and 1.5 km NE of Shamrock Point	TCEQ Region 14	Quarterly	
2482 Nueces Bay	13422	0.5 mi from south shore at east overhead powerline	TCEQ Region 14	Quarterly	2 Metals in Water 2 Metals in Sediment 2 Organics In Sediment
2483 Redfish Bay	13426	At SH 361 at 3 rd bridge between Aransas Pass and Port Aransas	NRA	Quarterly	
2483A Conn Brown Harbor	18848	Mid harbor 50 m northeast of the intersection of Huff St and E Maddox Ave in Aransas Pass	NRA	Bi-annually	2 Metals in Water
2484 Corpus Christi Inner Harbor	13432	0.4 km east of Navigation Blvd draw bridge	TCEQ Region 14	Quarterly	
	13439	Viola turning basin	TCEQ Region 14	Quarterly	2 Metals in Water
2485 Oso Bay	13440	Immediately offshore at tip of peninsula at Padre Island Drive/southbound SH 358	NRA	Quarterly	
	13442	40 m upstream of Ocean Drive and approx. 50 m west of eastern landfall of bridge	NRA	Quarterly	
2485A Oso Creek	13028	Immediately downstream of SH 286 south of Corpus Christi	NRA	Quarterly	
	13029	Immediately downstream of FM783 SW of Corpus Christi	NRA	Quarterly	

CRP and SWQM Sites in the Bays and Estuaries and Gulf of Mexico (cont.)

Segment Name	Station Id	Description	Monitoring Entity	Conventional Bacteria, Field	Other
2491 Laguna Madre	13445 (AU_01)	at ICWW approx. 1.6 km southwest from the southernmost point of south Bird Island	TCEQ Region 14	Quarterly	
	13446 (AU_03)	ICWW at Marker 129 east of Port Isabel	TCEQ Region 15	Quarterly	
	13447 (AU_02)	Intersection of ICWW and Arroyo Colorado	TCEQ Region 15	Quarterly	Field only
	13448 (AU_01)	Intersection of ICWW and Port Mansfield Channel	TCEQ Region 15	Bi-annually	
	13449 (AU_01)	CM C-225A north of Port Mansfield	TCEQ Region 15	Bi-annually	
	14870 (AU_03)	200 yds off Laguna Vista shoreline	TCEQ Region 15	Quarterly	
2491B North Floodway	20930	North Floodway at US77 South of Intersection of US77 and FM 2629 in Sebastian	TCEQ Region 15	Quarterly	
2491C_01 Hidalgo Main	22003	At FM 1420 1.65 km south of intersection with 490 east of Raymondville	NRA	Quarterly	
2491_03 Raymondville Drain	22004	At Willacy County Road 445 800 m north of intersection with 3142 east of Raymondville	NRA	Quarterly	
2492 Baffin Bay / Alazan Bay / Cayo Del Grullo / Laguna Salada	13450	At Channel Marker 14	TCEQ Region 14	Quarterly	
	13452	At Channel Marker 36	TCEQ Region 14	Quarterly	
2492A San Fernando Creek	13033	At US 77 at Kingsville	NRA	Quarterly	
2492B Los Olmos Creek	13034	At US 77 south of Riviera	NRA	Quarterly	
2493 South Bay	13459	Near ship CM 17	TCEQ Region 15	Quarterly	
	14865	Middle of bay	TCEQ Region 15	Quarterly	
2494 Brownsville Ship Channel	13460	Near ship CM35 / black buoy	TCEQ Region 15	Quarterly	
	14871	Mid-channel 595 m east of SH 48 at Foust Rd.	TCEQ Region 15	Quarterly	
	14875	Mid-channel at entrance to San Martin Lake	TCEQ Region 15	Quarterly	
2494A Port Isabel Fishing Harbor	13285	Port Isabel Fishing Harbor	TCEQ Region 15	Quarterly	
2494C San Martin Lake System	22170	Mid estuary 2.04 km east and 0.80 km north of the HWY 48 bridge northeast of Brownsville	NRA	Quarterly	
2501 Gulf of Mexico	13468 (AU_06)	At Aransas Pass 165 m south and 413 m east of tip of South Jetty near Marker R-7	TCEQ Region 14	Quarterly	
	13470 (AU_10)	At Port Isabel, 1.18 km east and 35 m south of Brazos Santiago Pass North Jetty	TCEQ Region 15	Quarterly	



Segment 2462 – San Antonio / Hynes Bay

Segment 2462: San Antonio Bay / Hynes Bay

Segment Description - This segment is primarily in Refugio and Calhoun Counties and includes Guadalupe Bay. The official boundary for the San Antonio – Nueces Coastal Basin includes all of Hynes Bay and only a portion of San Antonio Bay. Its watershed is 69,939 acres. The area around the bay is dominated by farm and ranch lands. The small town of Austwell (pop. 133) is on the bay is the only community in the area.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
San Antonio Bay/ Hynes Bay	13397	01	At Buoy C-17	TCEQ Region 14	Routine Quarterly + 2x Metals in Sediment

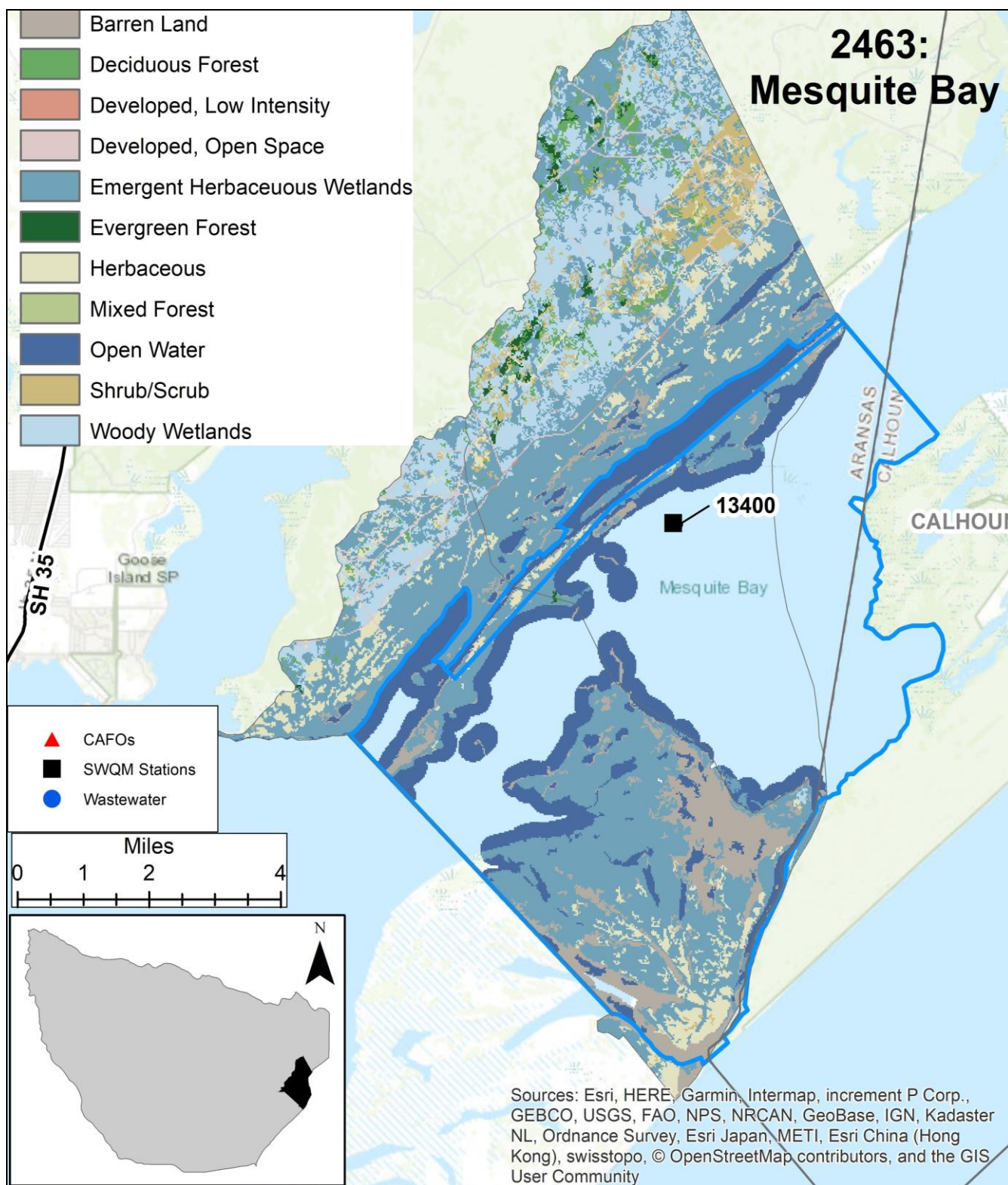
Water Quality - There is a water quality **concern** for **chlorophyll-a** in the 2020 IR Assessment. The Department of State Health Service's (DSHS) shellfish restrictions in AU_01 for bacteria in oyster waters are being carried forward in the 2020 IR Assessment.

Special Studies – To address the impaired oyster-waters use, TCEQ initiated a project to evaluate the oyster-water impaired waterbodies and to develop strategies to improve water quality. Texas' bays were divided in three geographical regions and projects were initiated reflecting the different needs in each region. The projects included data collection and stakeholder input. The project was completed in 2006 by TCEQs TMDL Program. For more information, visit the project webpage at:

<http://www.tceq.texas.gov/waterquality/tmdl/35-gulfcoastoysters.html>



Segment 2462 - San Antonio Bay/ Hynes Bay



Segment 2463 – Mesquite Bay

Segment 2463: Mesquite Bay

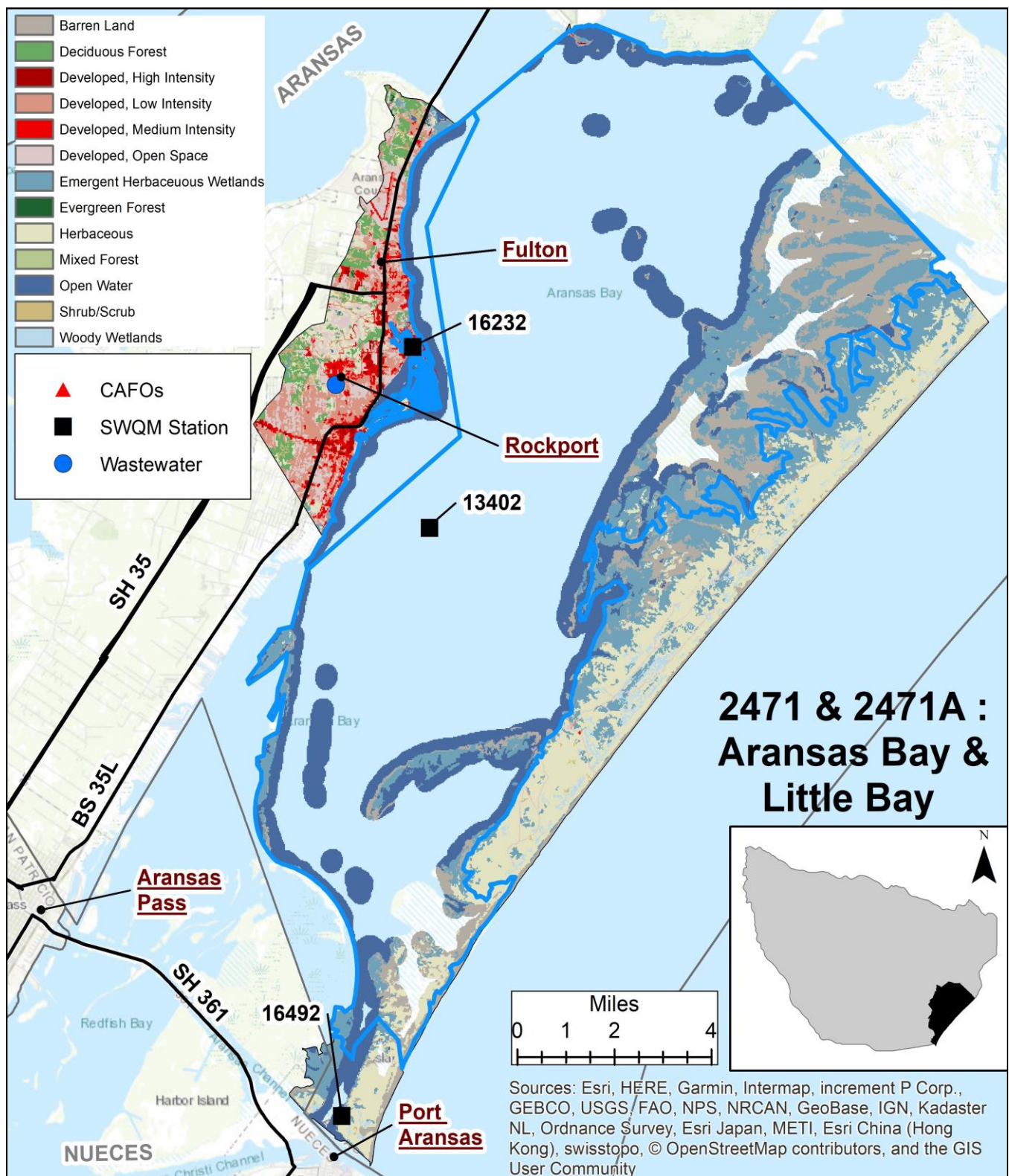
Segment Description - Mesquite Bay is the northernmost bay in the monitoring jurisdiction and is located in Aransas County. Its watershed is 37,323 acres. The bay is surrounded by natural areas. The Aransas Wildlife Refuge is to the northwest and uninhabited San Jose and Matagorda Islands are to the southeast.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Mesquite Bay	13400	01	South of ICWW Marker 13	TCEQ Region 14	Routine Quarterly

Water Quality - There are **no water quality concerns** or **impairments** in Segment 2463.



Segment 2463 – Mesquite Bay



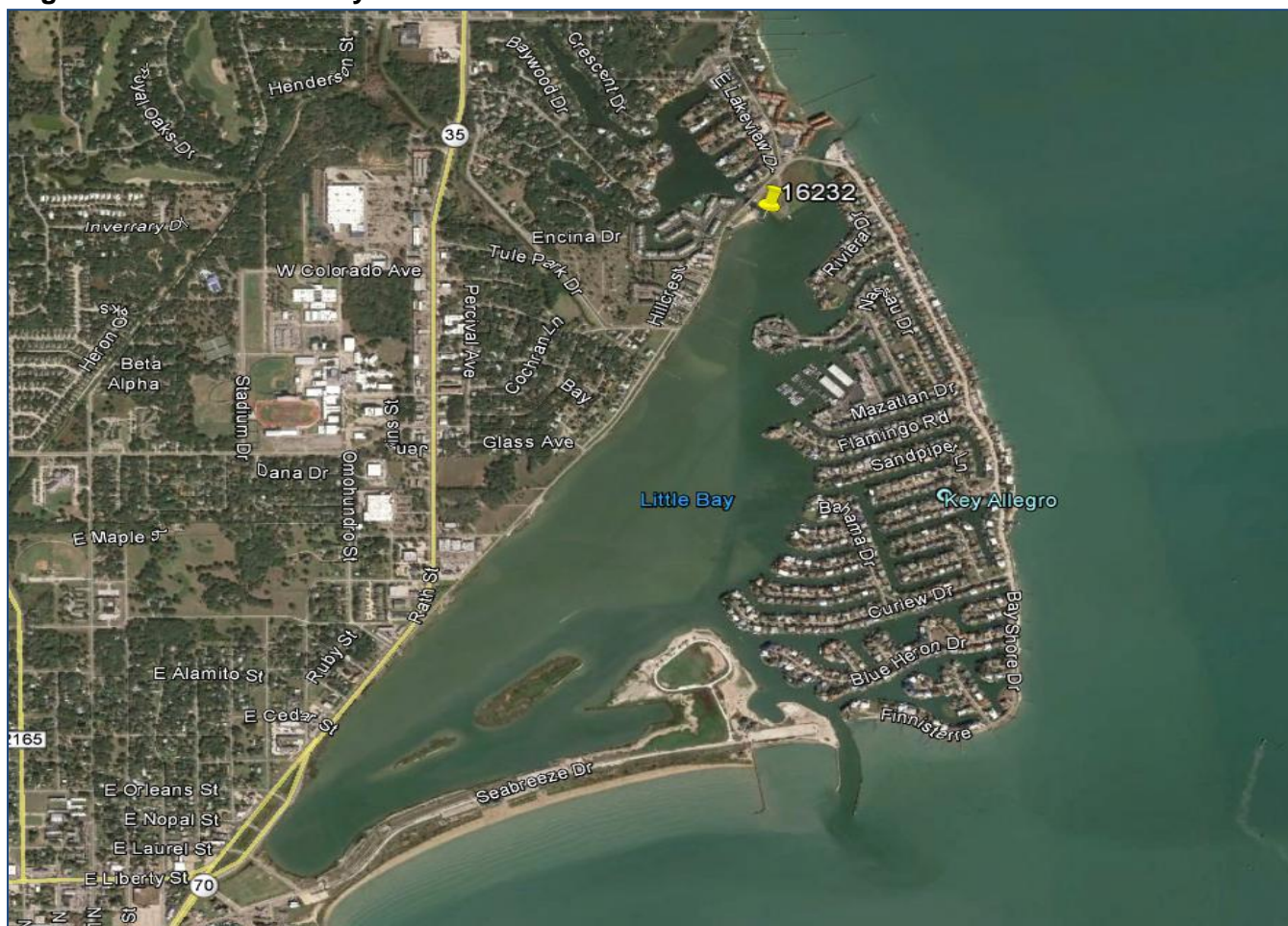
Segment 2471: Aransas Bay

Segment Description - This segment is primarily in Aransas County and is composed of one AU. Its watershed is 85,724 acres. The City of Rockport is along the western shore of the bay and the uninhabited Matagorda Island is on the east. The Aransas Wildlife Refuge is to the north.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Aransas Bay	13402	01	At intersection of Intracoastal Canal and Lydia Ann Channel South of Rockport	TCEQ Region 14	Routine Quarterly

Water Quality - There are **no water quality concerns** or **impairments** in Segment 2471.

Segment 2471A: Little Bay

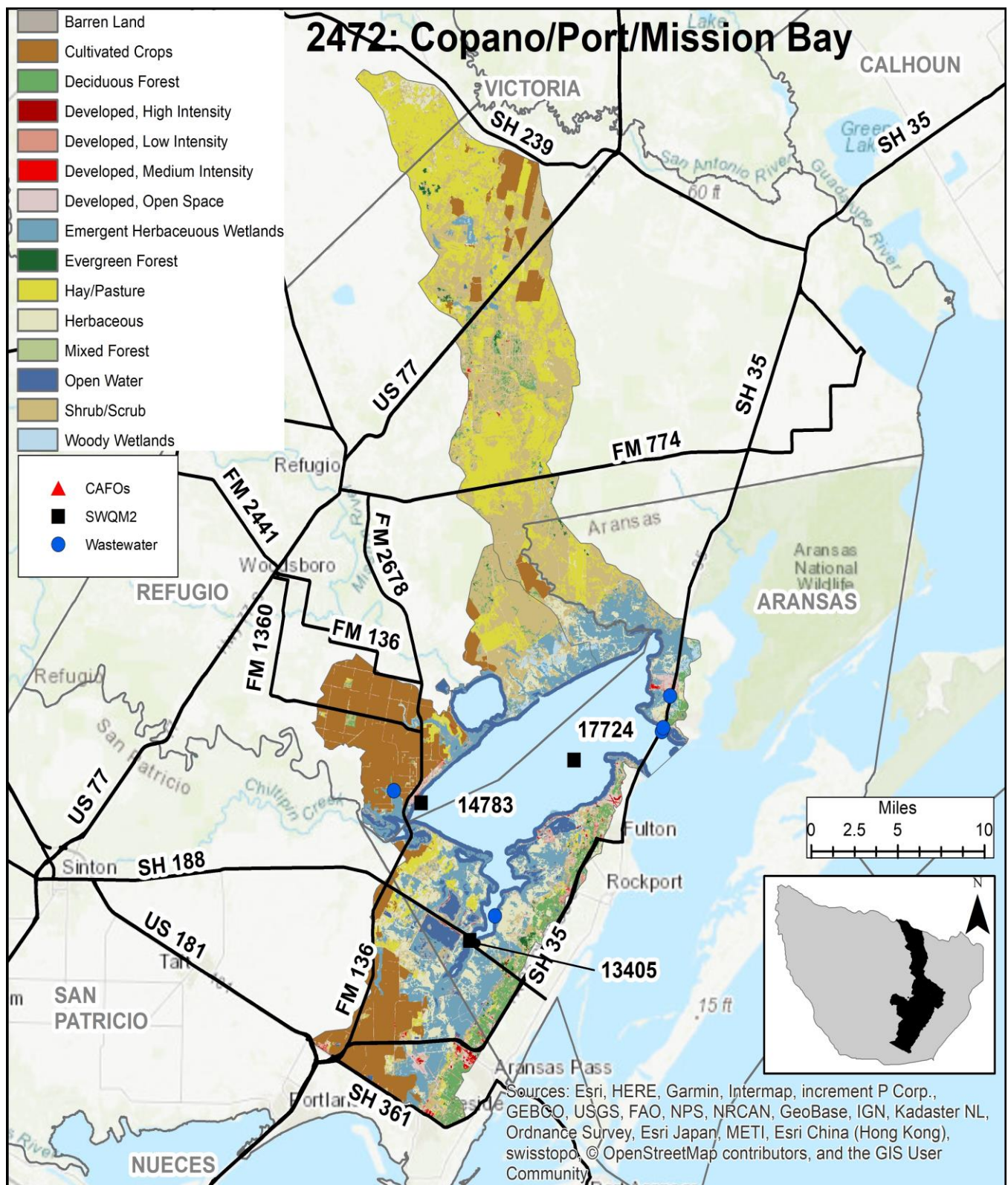


Station 16232 – Little Bay in Rockport

Segment Description - This segment is located between Aransas Bay, Broadway Street in Rockport, and Rockport Beach.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Little Bay	16232	01	At Broadway and the Inlet Canal to Canoe Lake in Rockport	TCEQ Region 14	Routine Quarterly

Water Quality - There is a **concern** for **chlorophyll-a** in the 2020 IR Assessment and likely attributed to limited circulation within the bay.



Segment 2472 – Copano / Port / Mission Bay

Segment 2472: Copano Bay / Port Bay / Mission Bay

Segment Description - These bays are located in Refugio and Aransas Counties. Its watershed is 249,235 acres. The segment is composed of three bays. AU_01 includes Mission Bay, Aransas River arm, and the eastern shoreline. AU_02 is located in Copano Bay and AU_03 is located in Port Bay. The south and east sides of the bay have a number of developments and small communities. The north and west sides are mostly farm and ranch lands.

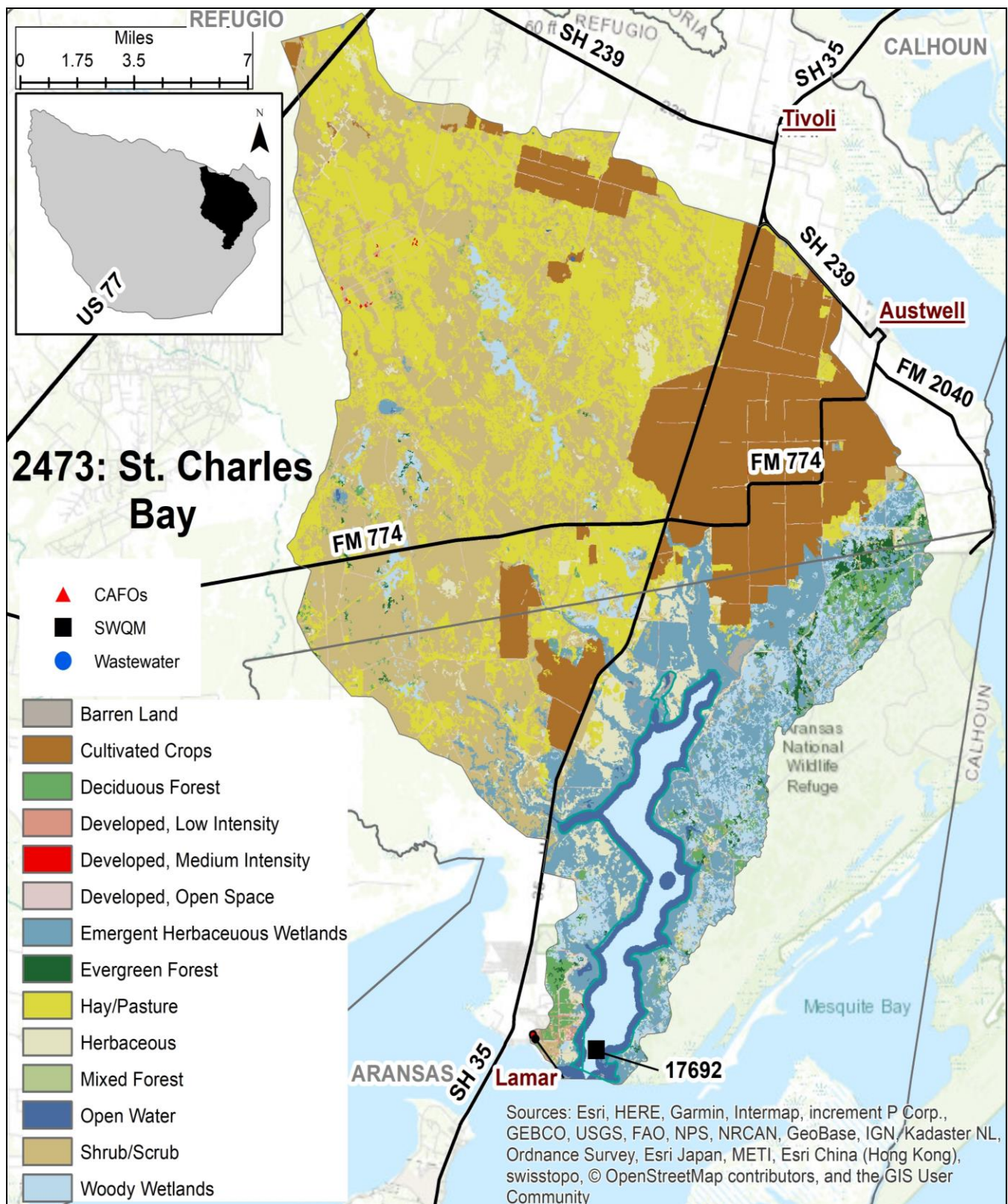
Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Copano Bay/ Port Bay/ Mission Bay	14783	01	East of Copano Bay at Spoonbill east of Bayside	TCEQ Region 14	Routine Quarterly
	17724	02	3.5 mi west of Copano Bay Fishing Pier	TCEQ Region 14	Routine Quarterly
	13405	03	At SH 188 west of Rockport	NRA	Routine bi-annually Metals in water bi-annually

Water Quality – There are **no** water quality **concerns** or **impairments** in AU-01 or AU_02. AU_03 has a listed water quality **concern** for **chlorophyll-a**. All other assessed water quality parameters met the standards in the 2020 IR Assessment. Metals in water monitoring was added to the monitoring schedule in 2019.

The DSHS shellfish restrictions in AU_01 for bacteria in oyster waters are being carried forward in the 2020 IR Assessment.



Station 13405 – Port Bay at SH 188



Segment 2473 – St. Charles Bay

Segment 2473: St. Charles Bay

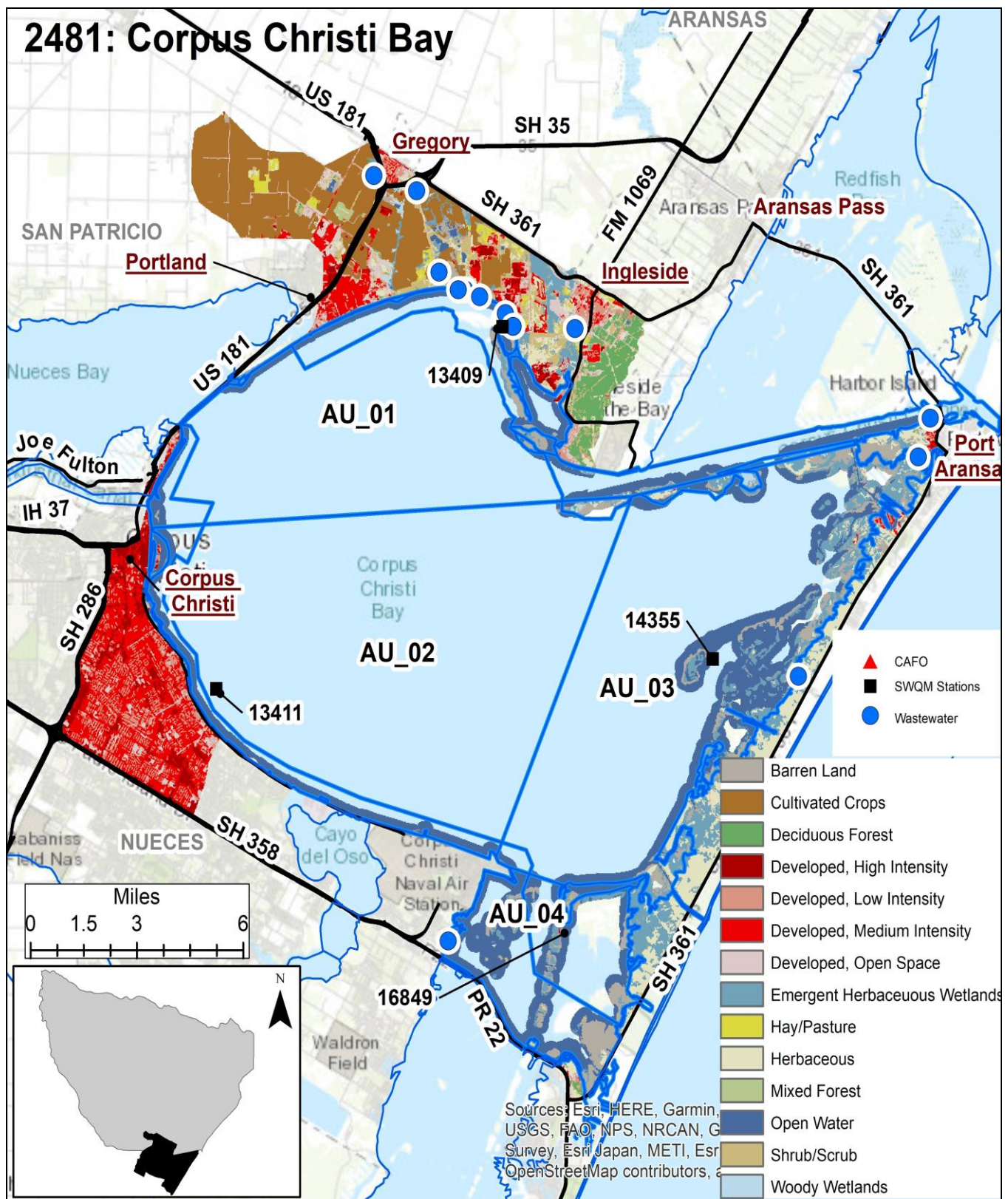
Segment Description - This segment is located in Aransas County and consists of one AU. Its watershed is 162,401 acres. The bay is nearly surrounded by the Aransas Wildlife Refuge. The small community of Lamar, home to the “Big Oak” is located on the southwest side adjacent to Aransas Bay.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
St. Charles Bay	17692	01	At approx. 0.5 mi northeast of Hail Point on Lamar Peninsula	TCEQ Region 14	Routine Quarterly

Water Quality - There are **no water quality concerns** or **impairments** in Segment 2473.



Segment 2473 – St. Charles Bay



Segment 2481 – Corpus Christi Bay

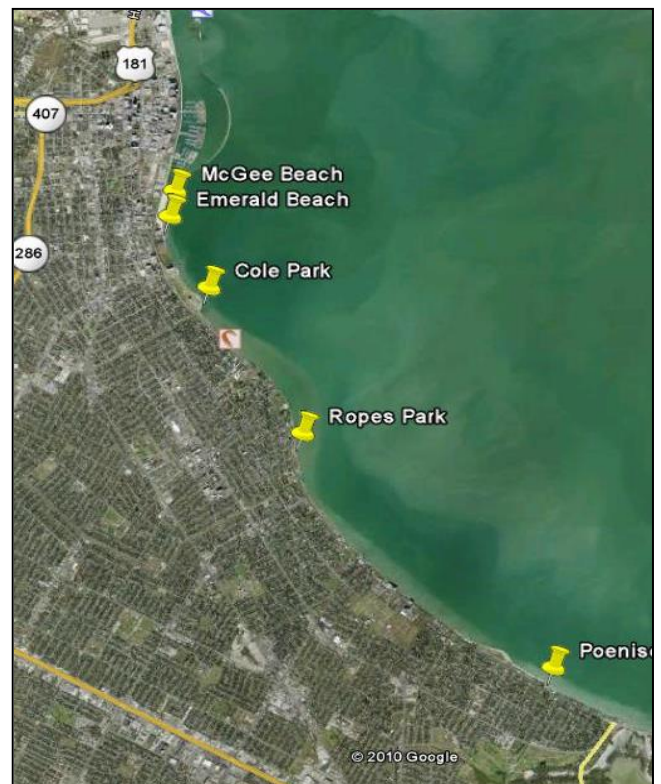
Segment 2481: Corpus Christi Bay

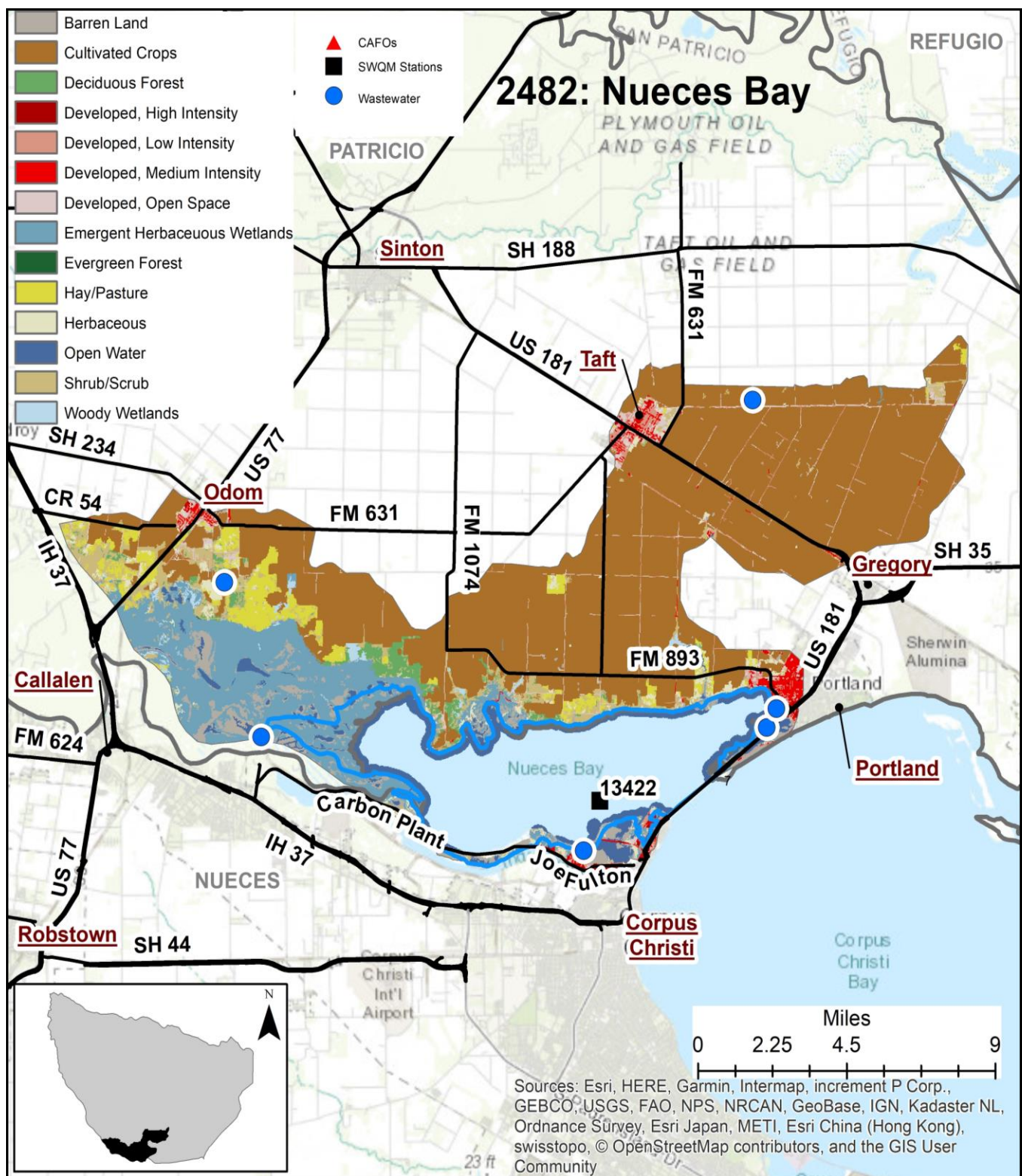
Segment Description - The bay is located in Nueces County. It is split between the San Antonio – Nueces and Nueces – Rio Grande Coastal Basins. The bay is divided into four AUs: from the Corpus Christi Ship Channel (CCSC) east to Pelican Island, south to Demit Island including the La Quinta Channel and the CCSC adjacent to Redfish Bay (AU_01); from the CCSC east to Pelican Island, south to Demit Island including the area from the CCSC to Demit Island (Oso Bay and City of Corpus Christi area) (AU_02); from Pelican Island south to Demit Island, to Mustang Island and the area along Mustang Island State Park to the CCSC (AU_03); and from the JFK Causeway to a line from Demit Island across to Mustang Island State Park (AU_04). Its watershed is 144,878 acres. The bay is nearly surrounded by cities and industries. The City of Corpus Christi borders the south side of the bay and encompasses a large portion of Mustang Island. Along the northern shore are the cities of Portland, Ingleside, and Ingleside-By-The-Bay. There are several industries located along La Quinta Channel, along with the recently closed Naval Station Ingleside.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Corpus Christi Bay	13409	01	At La Quinta Channel Marker 16	TCEQ Region 14	Routine Quarterly 2x Metals in Water 2x Metals in Sediment 2x Organics in Sediment
	13411	02	1 km northeast of Intersection of Doddridge St. and Ocean Drive	TCEQ Region 14	Routine Quarterly
	14355	03	0.4 km east of Shamrock Is. and 1.5 km northeast of Shamrock Point	TCEQ Region 14	Routine Quarterly

Water Quality - There are **no water quality concerns** or **impairments** in Segment 2481, but near-shore **impairments** exist for **bacteria** (enterococcus) for Cole Park (Segment 2481CB_03) and Ropes Park (Segment 2481CB_04), and Poenisch Park (Segment 2481CB_06).

Special Studies - Beach Watch data have identified Cole Park, Ropes Park, and Poenisch Park as having impairments for bacteria for primary contact recreation. These data are collected during and after high stormwater runoff events at the beaches where it discharges into the bay and people are likely to get into the water. Therefore, the impairment is only considered to be at the beaches Figure 3-6, and not the entire bay.





Segment 2482 – Nueces Bay

Segment 2482: Nueces Bay

Segment Description – Nueces Bay is a shallow, secondary bay that is located in Nueces County. Nueces Bay provides the boundary between the San Antonio – Nueces and Nueces – Rio Grande Coastal Basins and consists of a single assessment unit. Its watershed is 92,834 acres. The bay is bordered on the south by the City of Corpus Christi where there are many industries associated with the ship channel. A large portion of the Nueces Delta has been bought and designated as a preserve. The area north of the bay is primarily farm and ranch lands.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Nueces Bay	13422	01	0.50 mi from South Shore at east Overhead Powerline	TCEQ Region 14	Routine Quarterly 2x Metals in Water 2x Metals in Sediment 2x Organics in Sediment

Water Quality – The segment has an **impairment** for **copper in water** (acute and chronic toxicity) and a water quality **concern** for **chlorophyll-a** based on data in the 2020 IR Assessment. The DSHS **shellfish restrictions** for **zinc in edible tissue** are being carried forward.

Special Studies – To address the zinc in edible tissue impairment, a TMDL and Implementation Plan (IP) were developed. The TMDL was approved by EPA in 2006 and the IP was approved in 2007. The plan recommended a continuation of metals sampling to track zinc concentrations. The full report can be found at:

<https://www.tceq.texas.gov/waterquality/tmdl/21-nuecesbay.html>



Segment 2482 – Nueces Bay



Segment 2483 – Redfish Bay

Segment 2483: Redfish Bay

Segment Description - Redfish Bay is located in Nueces County. Its watershed is 45,936 acres. There is very little undeveloped land on the western shore of the bay. The main cities are Ingleside (pop. 10,165) and Aransas Pass (pop. 8,088), with numerous small communities all the way to Rockport (10,841). Port Aransas (pop. 4,123) encompasses most of the eastern shoreline.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Redfish Bay	13426	01	At SH 361 at 3 rd Bridge between Aransas Pass and Port Aransas	NRA	Routine Quarterly

Water Quality - There are **no water quality concerns** or **impairments** in Segment 2483.



Station 13426 – Redfish Bay at SH 361

Segment 2483A: Conn Brown Harbor

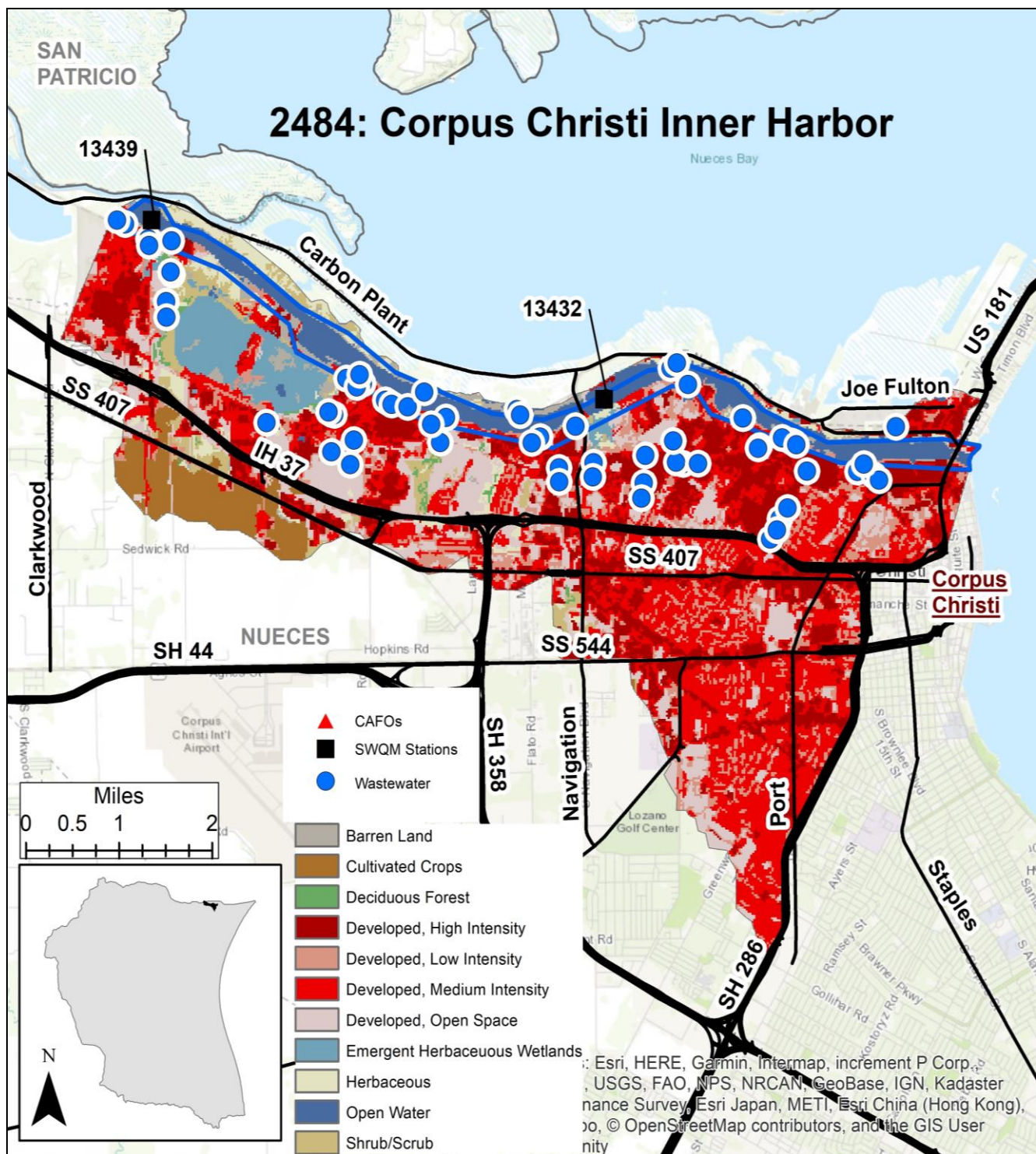
Segment Description - The harbor is within the City of Aransas Pass. The northeast end is in Aransas County and the southwest end is in San Patricio County. Conn Brown Harbor was a commercial harbor, used primarily by shrimpers, for many years, ending in the mid-2000s. The harbor is now used mainly by recreational fishermen and boaters.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Conn Brown Harbor	18848	01	At 50 m northeast of intersection of Huff St. and Maddox Ave. in Aransas Pass	NRA	Routine Quarterly + 2x metals in water

Water Quality - There is a **concern** for **copper** (acute and chronic toxicity) in water in the 2020 IR Assessment. The concern is likely associated with anti-fouling paint application in the harbor.



Station 18418 – Conn Brown Harbor



Segment 2484 – Corpus Christi Inner Harbor

Segment 2484: Corpus Christi Inner Harbor

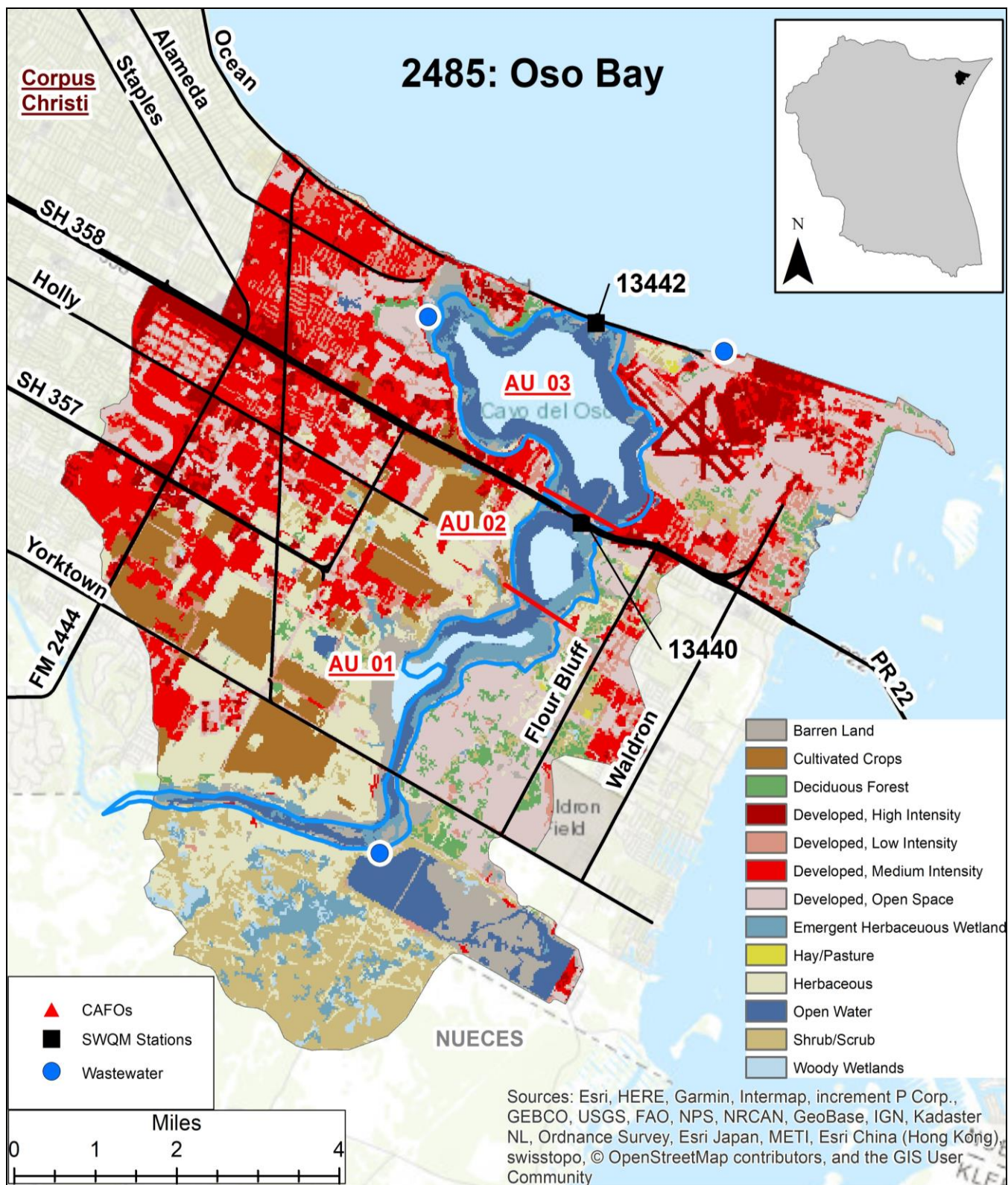
Segment Description - The Corpus Christi Inner Harbor (CCIH) is located in the City of Corpus Christi (pop. 326,554) in Nueces County. Its watershed is 13,360 acres and is comprised of one segment. CCIH is home to the Port of Corpus Christi, the second deepest port in the State of Texas. Many refineries and other industries are located all along the harbor. There are also numerous permitted wastewater outfalls, many of which are for storm water. Only the outfalls for treated effluent are shown on the map (pg. 100).

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Corpus Christi Inner Harbor	14232	01	Approx. 0.4 km east of Navigation Blvd Draw Bridge	TCEQ Region 14	Routine Quarterly
	13439	01	At Inner Harbor in Viola Turning Basin	TCEQ Region 14	Routine bi-annually 2x Metals in Water

Water Quality – Segment 2484 has a water quality **impairment** for **copper in water** (chronic toxicity) based on data from the 2020 IR Assessment. The segment also has **concerns** for **nitrates** and **ammonia** which may be related to the numerous WWTP and storm water discharge permits.



Segment 2484 – Inner Harbor



Segment 2485 – Nueces Bay

Segment 2485: Oso Bay

Segment Description - Oso Bay is located in the City of Corpus Christi (pop. 326,554) in Nueces County. The bay is divided into three AUs; the upper bay from Holly Road to CR 24 (AU_01), middle bay from SH 358 to Holly Road (AU_02), and from Ocean Drive to SH 358 (AU_03). Its watershed is 29,661 acres. The northwest portion of the bay between Ward Island and Ennis Joslin Road in AU_03 is known as the Blind Oso. Oso Bay receives much of the storm water runoff from the City of Corpus Christi as well as the cooling water from the Barney Davis Power Plant. The housing developments around the bay range from large, multi-acre tracts, to neighborhoods with many houses per acre, to apartment complexes.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Oso Bay	13440	02	At South Padre Island Drive SH 358 Bay Bridge	NRA	Routine Quarterly
	13442	03	At Ocean Drive Bay Bridge	NRA	Routine Quarterly

Water Quality – According to the 2020 IR Assessment, AU_01 has a water quality **concern** for **chlorophyll-a** in water. AU_02 has a water quality **impairment** for **depressed dissolved oxygen** (24-hour minimum) and has water quality **concerns** for **bacteria** (enterococcus), **chlorophyll-a**, and **total phosphorus**. AU_03 has a water quality **impairment** for **bacteria** (enterococcus) and has water quality **concerns** for **chlorophyll-a** and **total phosphorus**. AU_03 has had an impairment for bacteria for primary contact recreation and oyster waters since 2004.

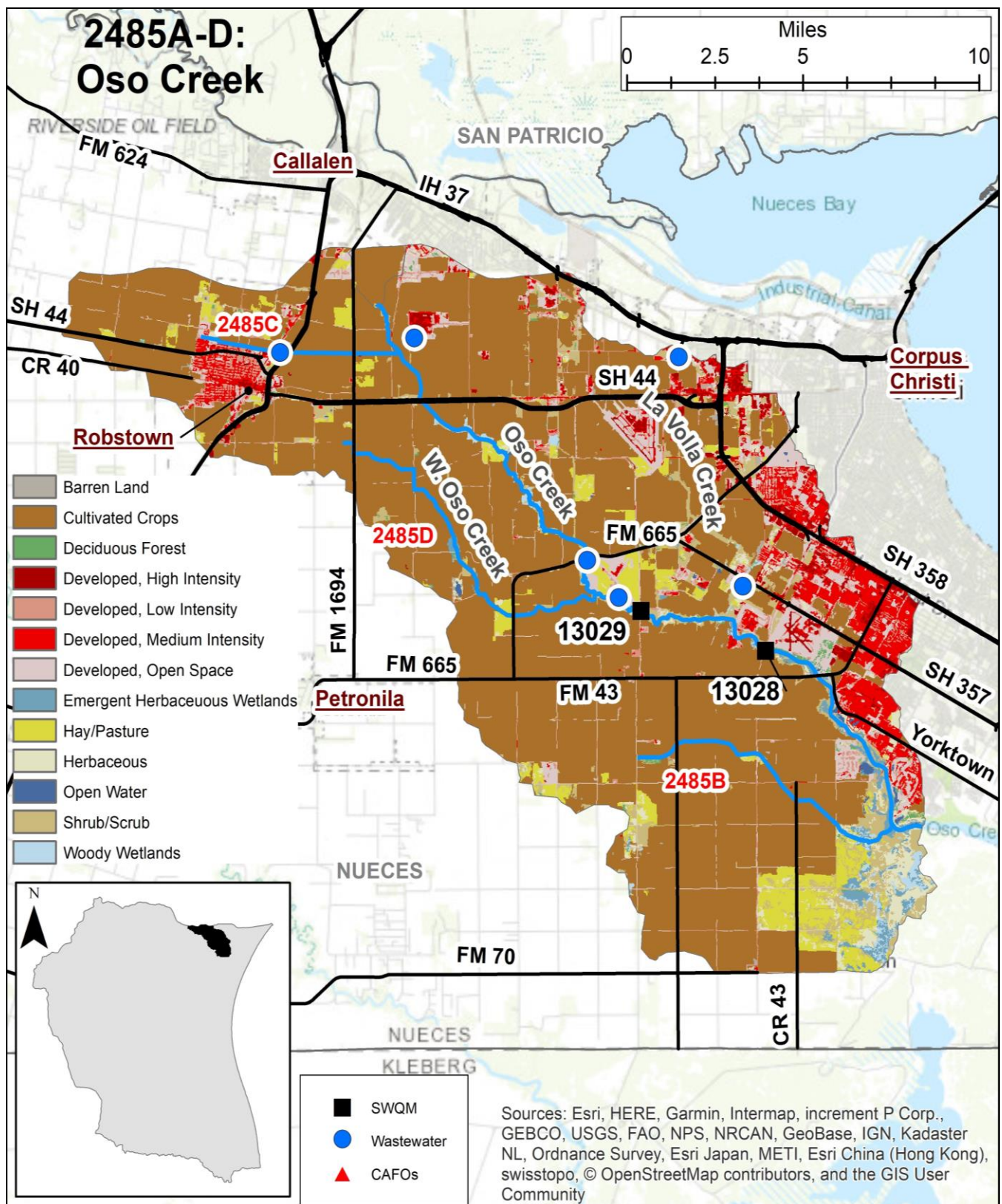
Special Studies – In response to the bacteria impairment, a TMDL for bacteria (Enterococcus) was conducted by the Center for Coastal Studies at TAMU-CC and was completed in 2007. TMDL concluded that the Blind Oso differs significantly in physical characteristics and uses from the main portion of Oso Bay. It is extremely shallow and has a soft muddy bottom and wetland areas. Local area stakeholders indicate that the Blind Oso is not used for contact recreation but is used extensively by waterfowl since it provides high quality habitat for waterfowl and shorebirds. TAMU-CC collected additional bacteria samples for a special study in 2013. Most of those samples exceeded the standard. The technical report can be found at:

<https://www.tceq.texas.gov/assets/public/waterquality/tmdl/67osobaybacteria/67-osobaybacteria-tmdl-adopted.pdf>

In 2010, TCEQs TMDL Program assessed dissolved oxygen concentrations and prepared a Use Attainability Analysis (UAA) for the bay. Based on data collected for the TMDL, a revision to the DO criteria is being proposed: The TCEQ recommends changing the 24-Hr average criteria from 5.0 mg/l to 4.5 mg/l. The recommended change for the 24-Hr minimum criteria is from 4.0 mg/l to 2.0 mg/l. If the proposed revisions are approved, the bay would meet the DO standard. The project website is: <https://www.tceq.texas.gov/waterquality/tmdl/24-osobayoxygen.html>



Station 13440 – Oso Bay at SPID Bay Bridge



Segment 2485A-D – Oso Creek

Segments 2485A: Oso Creek

Segment Description - Oso Creek flows 29.5 miles from a point 3 miles upstream of SH 44 west of Corpus Christi (pop. 326,554) to the confluence with Oso Bay in Nueces County. Its watershed is 118,380 acres. The southeastern end of the creek flows through highly developed areas of Corpus Christi. The northwestern end is primarily rural, but development is rapidly encroaching.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Oso Creek	13028	01	At SH 286 south of Corpus Christi	NRA	Routine Quarterly
	13029	01	At FM 763 southwest of Corpus Christi	NRA	Routine Quarterly

Water Quality - The creek has had an **impairment** for **bacteria** (enterococcus) for primary contact recreation since 2002. The creek also has concerns for **nitrate**, **chlorophyll-a**, and **total phosphorus** in the 2020 IR Assessment.

Special Studies – In 2016, NRA completed a report called the Riparian Evaluation of Oso Creek and Tributaries in support of Implementation Plan recommendations. For the study, NRA made maps identifying hindrances and constraints of riparian areas and identified evaluation project areas to establish on-going evaluations. The report can be found at:

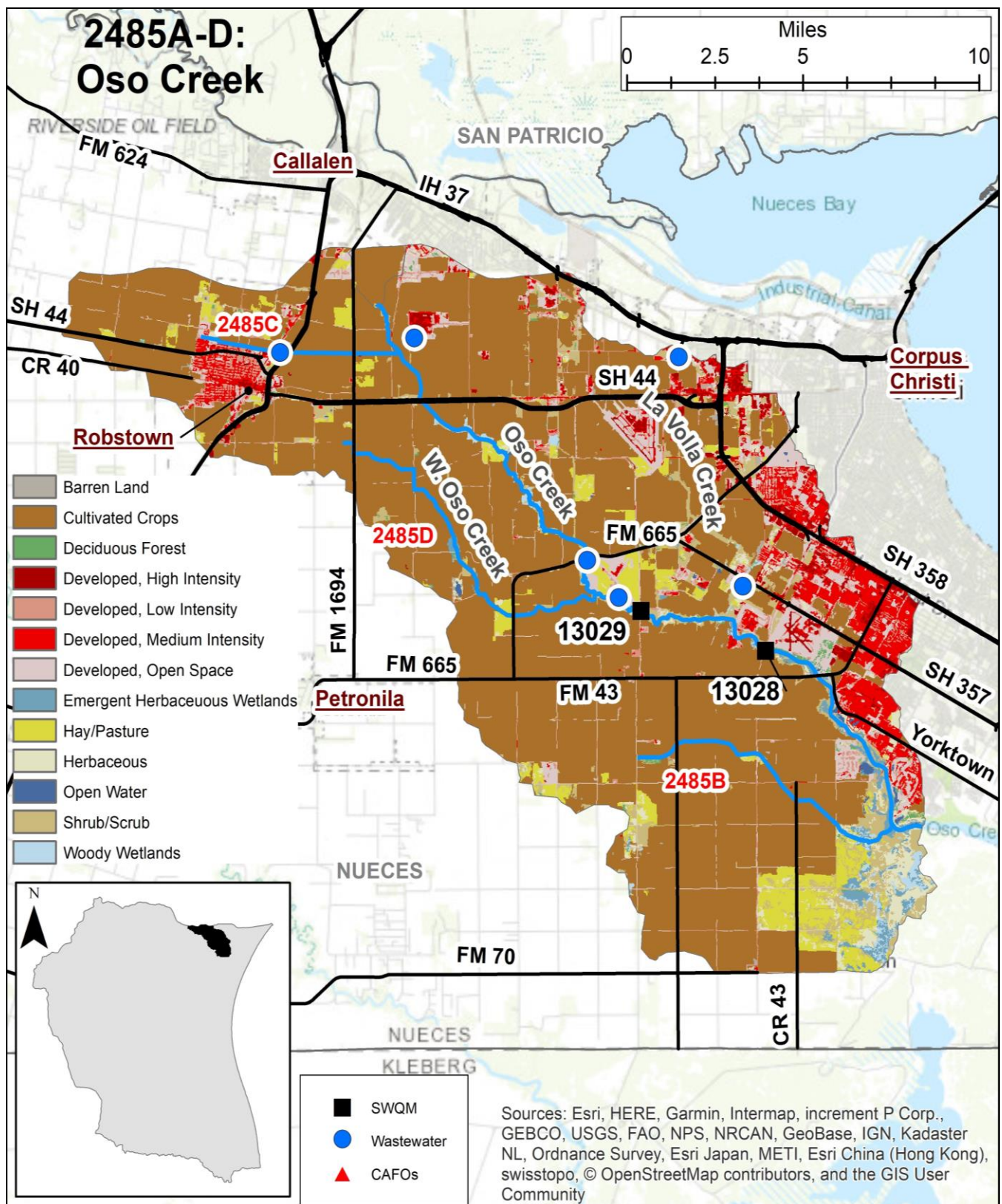
<https://www.tceq.texas.gov/assets/public/waterquality/tmdl/67osocreekbacteria/67-2016OsoRiparianEvaluationReport.pdf>

In 2019, a TMDL for bacteria was conducted and completed by the Texas Institute for Applied Environmental Research (TIAER). TIAER developed a load duration curve (LDC) to quantify pollutant loads and specific TMDL for point and nonpoint sources of bacteria. For more information on the project, visit:

<https://www.tceq.texas.gov/waterquality/tmdl/67-osocreekbacteria>



Station 13028 – Oso Creek at SH 286



Segment 2485A-D – Oso Creek

Segment 2485B: Unnamed Tributary of Oso Creek

Segment Description - The unclassified water body is from a point 3.2 miles west of SH 286 to the confluence with Oso Creek. This tributary is a primarily rural area, but development is rapidly encroaching.

Water Quality - There are no active monitoring sites on the segment. Data for the assessment were collected during the TMDL studies. There is a water quality **concern** for **total phosphorus** in the 2020 IR Assessment. The segment was included in NRA's Oso Riparian Evaluation. <https://www.cbbep.org/manager/wp-content/uploads/1907-Final-Report-9.11.19-Reduce.pdf>



Segment 2485B – Unnamed Tributary of Oso Creek during Riparian Evaluation

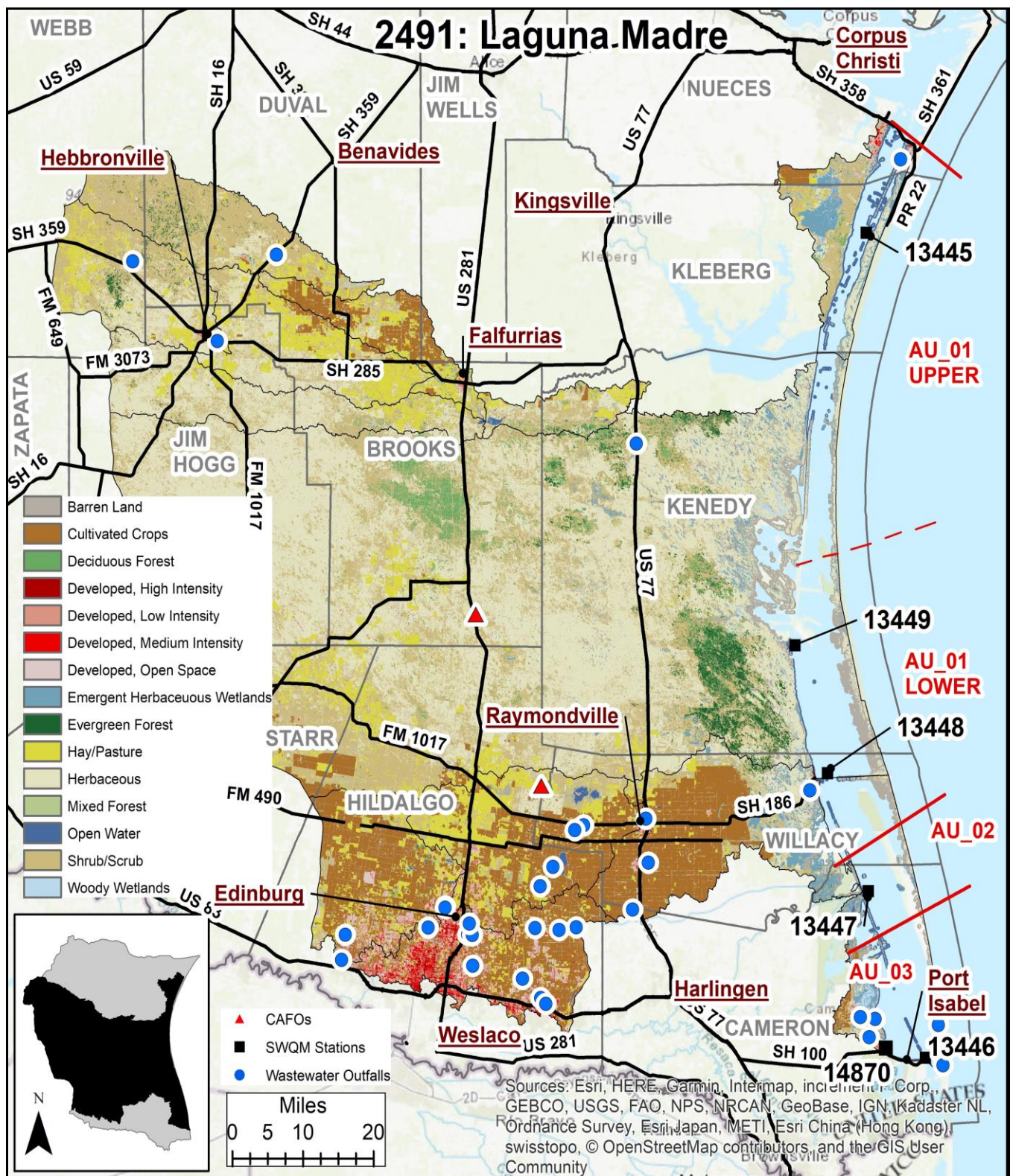
Segment 2485D: West Oso Creek

Segment Description - The unclassified water body is from a point 0.3 miles west of FM 1694 to the confluence with Oso Creek. This tributary is a primarily rural area, but development is rapidly encroaching.

Water Quality - There are no active monitoring sites on the segment. Data for the assessment were collected during the TMDL studies. There is a water quality **concern** for **total phosphorus** in the 2020 IR Assessment. The segment was included in NRA's Oso Creek Riparian Evaluation. <https://www.cbbep.org/manager/wp-content/uploads/1907-Final-Report-9.11.19-Reduce.pdf>



Segment 2485D – West Oso Creek during Riparian Evaluation



Segment 2491 – Laguna Madre

Segment 2491: Laguna Madre

Segment Description - The Laguna Madre runs along the Texas coast from Corpus Christi Bay in Nueces County to the Brownsville Ship Channel in Cameron County. It is divided into three AUs; the upper portion north of the Arroyo Colorado confluence (AU_01), the area adjacent to the Arroyo Colorado confluence (AU_02), and the lower portion south of the Arroyo Colorado confluence (AU_03). Its watershed is 4,222,224 acres. The only development is the very northern and very southern ends: Corpus Christi and Port Isabel, respectively. Padre Island National Seashore encompasses most of the barrier island to the east. The land to the west is predominantly large ranches such as the King Ranch. There are numerous WWTPs permitted to discharge to the Laguna Madre via the North Floodway, some of which are as far west as McAllen.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Laguna Madre	13445	01	Approx. 1.6 km southwest from southernmost point of South Bird Island	TCEQ Region 14	Quarterly Monitoring
	13449	01	At Channel Marker C-225A North of Port Mansfield	TCEQ Region 15	Bi-annually Monitoring
	13448	01	At Intersection of Intracoastal Canal and Port Mansfield Channel	TCEQ Region 15	Bi-annually Monitoring
	13447	02	At Intersection of Intracoastal Canal and Arroyo Colorado	TCEQ Region 15	Quarterly Field Only
	14870	03	200 yds off Laguna Vista Shoreline	TCEQ Region 15	Quarterly Monitoring
	13446	03	At Marker 129 East of Port Isabel	TCEQ Region 15	Quarterly Monitoring

Water Quality – AU_01 has a water quality **impairment** for **depressed dissolved oxygen** (24-hour minimum) and a **concern** for **chlorophyll-a** in the 2020 IR Assessment.

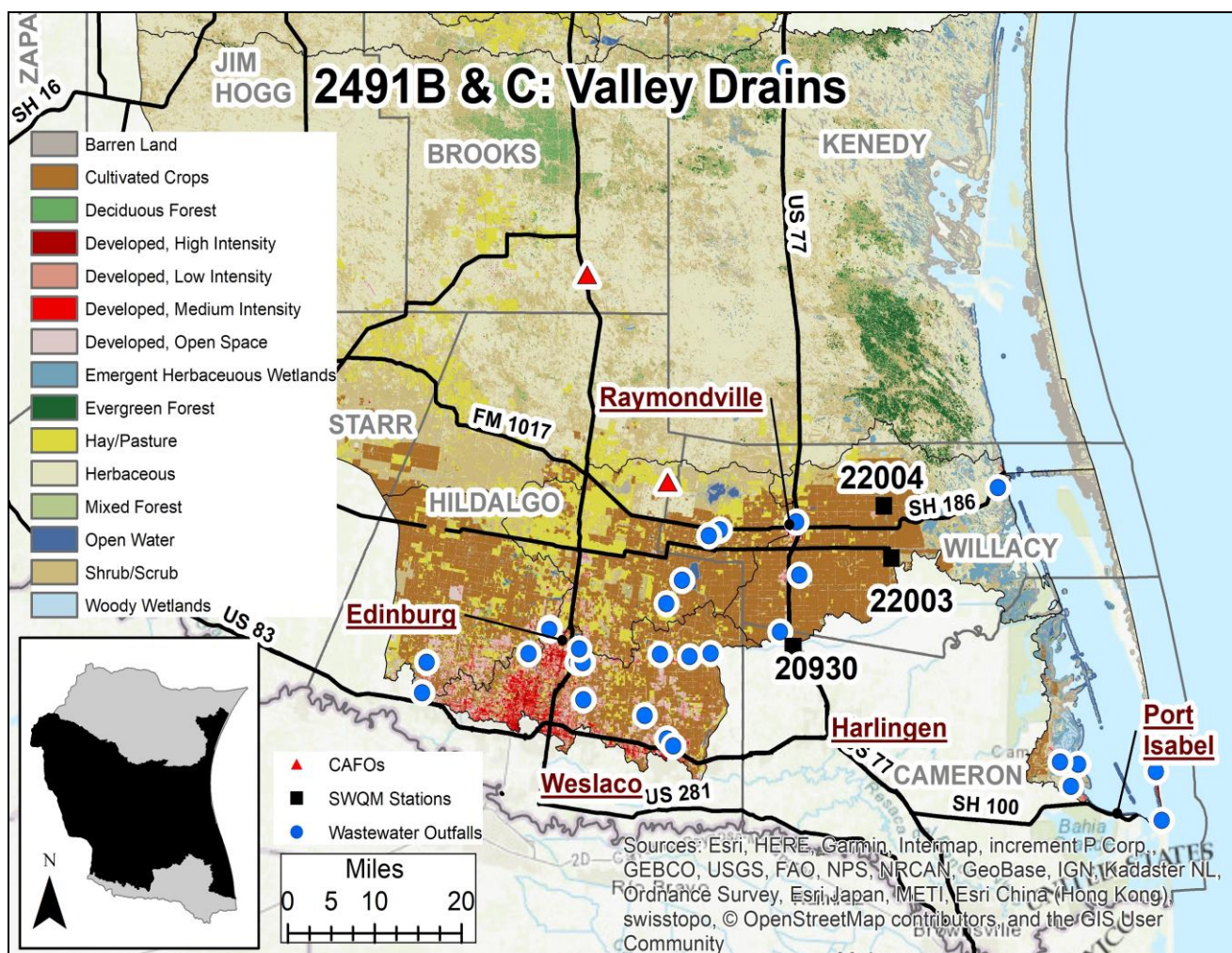
AU_02 has water quality **impairments** for **depressed dissolved oxygen** (24-hour minimum) and **bacteria** (enterococcus) and **concerns** for **ammonia**, **nitrate**, and **chlorophyll-a**. AU_02 has had an impairment for bacteria for primary contact recreation and oyster waters since 2006 and are being carried forward in the 2020 IR Assessment. Due to the eight-hour holding time and because there are no local labs accredited for enterococci analysis, bacteria sample collection has been suspended.

AU_03 has water quality **concerns** for **depressed dissolved oxygen** (grab), and **bacteria** (enterococcus).

Special Studies – To address the dissolved oxygen impairments, water quality standards revisions to the criteria are being proposed: The TCEQ recommends changing the 24-hour average criteria from 5.0 mg/l to 4.5 mg/l, but local stakeholders have requested that they consider 4.0 mg/l. The recommended change for the 24-Hr minimum criteria is from 4.0 mg/l to 2.0 mg/l. If the proposed revisions are approved, the bay would meet the DO standard in all AUs.



Causeway to South Padre Island over the Laguna Madre



Segment 2491B&C – Valley Drains



North Floodway at US 77

Segment 2491B: North Floodway

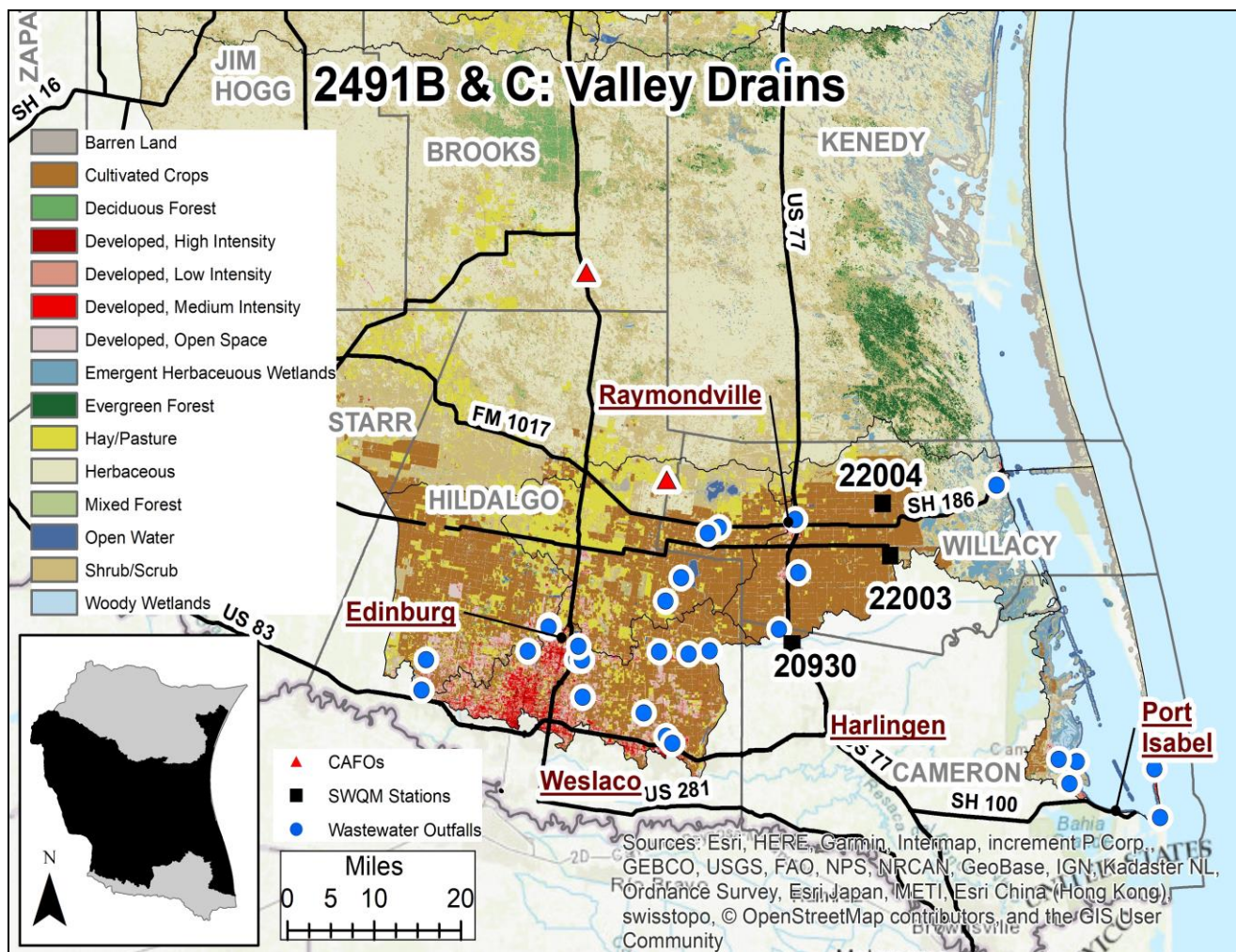
Segment Description – Located in the Lower Rio Grande Valley (LRGV), the North Floodway is used to drain WWTP effluent, return flows from irrigation, and diverted flood water flows from the Arroyo Colorado. It runs from a point 0.04 miles north of Campacuas Lake and 0.32 miles west of FM 491 in Mercedes to the confluence with the Lower Laguna Madre tidal flats.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
North Floodway	20930	01	At Intersection of US 77 and FM 2629 in Sebastian	TCEQ Region 15	Routine Quarterly

Water Quality – Data collection on this water body began in November 2011. Although there are no impairments identified in the 2020 IR Assessment, the segment does have water quality **concerns** for **bacteria** (*E. coli*), **nitrate** and **chlorophyll-a**.



Station 20930 – North Floodway at US 77



Segment 2491B&C – Valley Drains

Segment 2491C: Raymondville Drain

Segment Description – Raymondville Drain flowing into Laguna Madre.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Raymondville Drain	22004	01	At Willacy CR 445 800 m north of intersection with FM 3142 East of Raymondville	NRA	Routine Quarterly

Water Quality – Data collection began in 2018 and there are not enough data points for an assessment.



Station 22004 – Raymondville Drain at CR 445

Segment 2491C_03: Hidalgo Main Drain

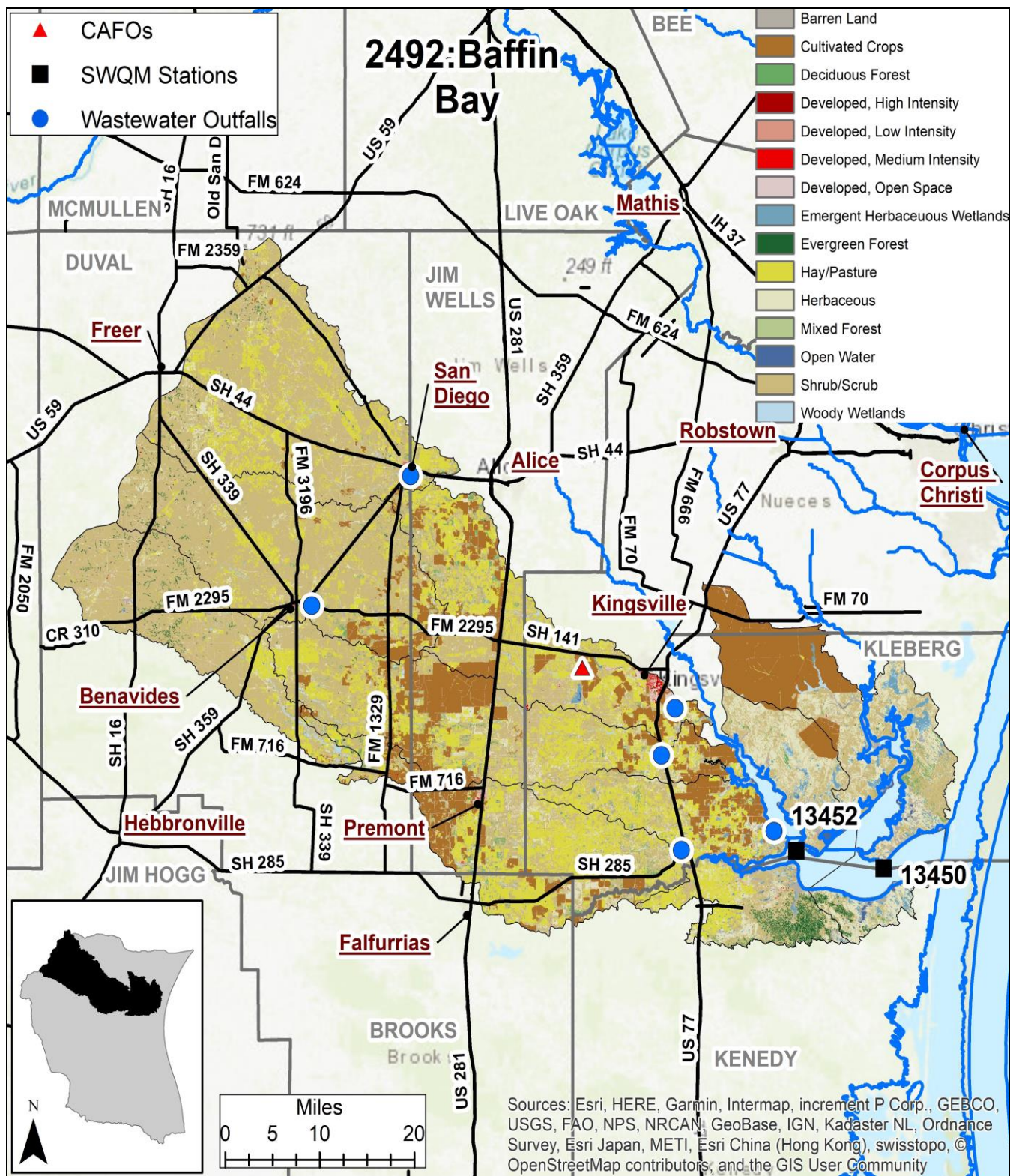
Segment Description – Hidalgo Main Floodwater Channel flowing into Laguna Madre.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Hidalgo Main Drain	22003	01	At FM 1420 1.65 km South of Intersection with FM 490 East of Raymondville	NRA	Routine Quarterly

Water Quality - Data collection began in 2018 and there are not enough data points for an assessment. Elevated bacteria concentrations have been recorded during site visits and will likely be listed in a future assessment.



Station 22003 – Hidalgo Drain at FM 1420



Segment 2492 – Baffin Bay

Segment 2492: Baffin Bay / Alazan Bay / Cayo del Grullo / Laguna Salado

Segment Description - Baffin Bay is a hypersaline secondary bay located in Kleberg and Kenedy Counties. Alazan Bay is a tertiary bay located in the northeastern arm of Baffin Bay in Kleberg County, Cayo del Grullo is the northwestern arm in Kleberg County, and Laguna Salado is the western arm in Kleberg and Kenedy Counties. Its watershed is 1,376,310 acres. The City of Kingsville (pop. 25,487) is the only large city in the watershed. Most of the bay is surrounded by large ranches such as the King Ranch. There are only a few public access points.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Baffin Bay	13450	01	Baffin Bay at Channel Marker 14	TCEQ Region 14	Routine Quarterly
	13452	01	Baffin Bay at Channel Marker 36	TCEQ Region 14	Routine Quarterly

Water Quality – Baffin Bay has a water quality **concern** for **chlorophyll-a** listed in the 2020 IR Assessment.

Special Studies – In the last decade, there have been a lot of studies targeting Baffin Bay and its watershed. Although the bay only has a water quality concern for chlorophyll-a, episodes of fish-kills and food web disruptions have caught the attention of a concerned public and researchers alike. The Baffin Bay Stakeholder Group, formed in 2012, is composed of scientists from Harte Research Institute (HRI) at TAMU-CC, CBBEP, USDA-NRCS, TSSWCB, TWRI, TCEQ, Texas Sea Grant, TxGLO, NRA, and a host of concerned citizens, including commercial and recreational fishermen, ranchers, and business owners. In 2013, HRI initiated a volunteer water quality monitoring program. Presently, HRI is conducting an assessment of nutrient loadings to Baffin Bay, a coastal Resiliency Master Plan, and serpulid reef studies. For more information, please visit their project page:

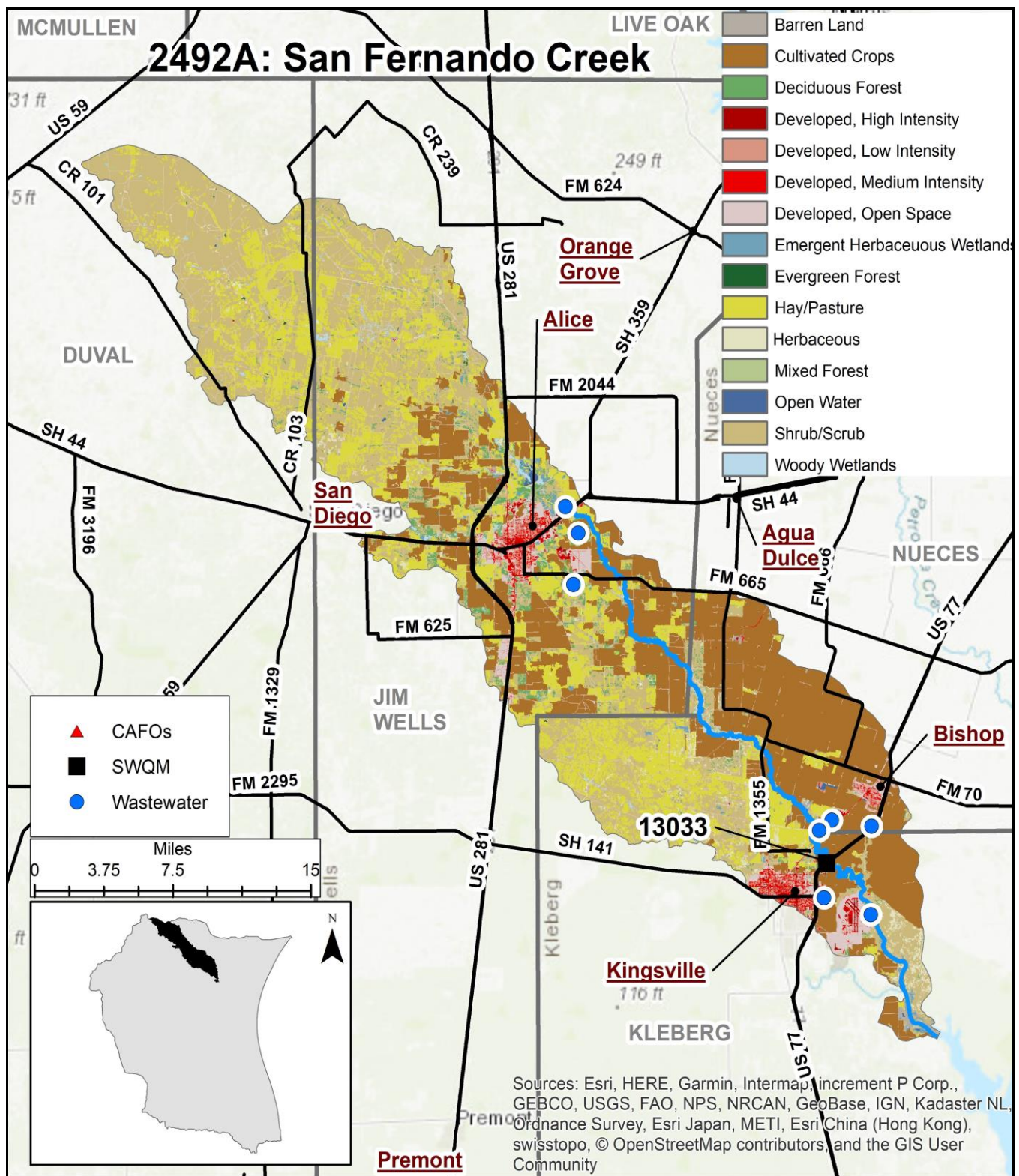
<https://www.tamucc.edu/news/2020/02/021320-hri-coastal-management-plan.html#.YJIRTShYaM8>

Additionally, TWRI received funding for the development of a WPP for Baffin Bay and its tributaries Petronila and San Fernando creeks. The project kicked off in 2020. For more information please visit their project page:

<https://twri.tamu.edu/our-work/restoring-protecting/petronila-san-fernando-creeks-watershed-planning/>



Segment 2492 – Alazan Bay



Segment 2492A – San Fernando Creek

Segment 2492A: San Fernando Creek

Segment Description - San Fernando Creek flows 45.6 miles from a point just east of the Nueces and Jim Wells county line to the confluence of the Cayo del Grullo arm of Baffin Bay in Kleberg County. Its watershed is 288,572 acres. While primarily rural, the creek flows through the City of Alice (pop. 18,887) and the City of Kingsville (pop. 25,487). There are a number WWTPs that discharge into the creek providing consistent flow. The watershed also has several small communities on septic systems.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
San Fernando Creek	13033	01	At US 77 bridge crossing	NRA	Routine Quarterly

Water Quality – San Fernando Creek is currently listed as **impaired** for **bacteria** (*E. coli*) in the 2020 IR Assessment. The creek was previously listed for enterococci bacteria (marine water) but the sampling location was determined to be upstream of the tidal boundary. The creek also has water quality **concerns** for **chlorophyll-a**, **nitrate**, and **total phosphorus**.

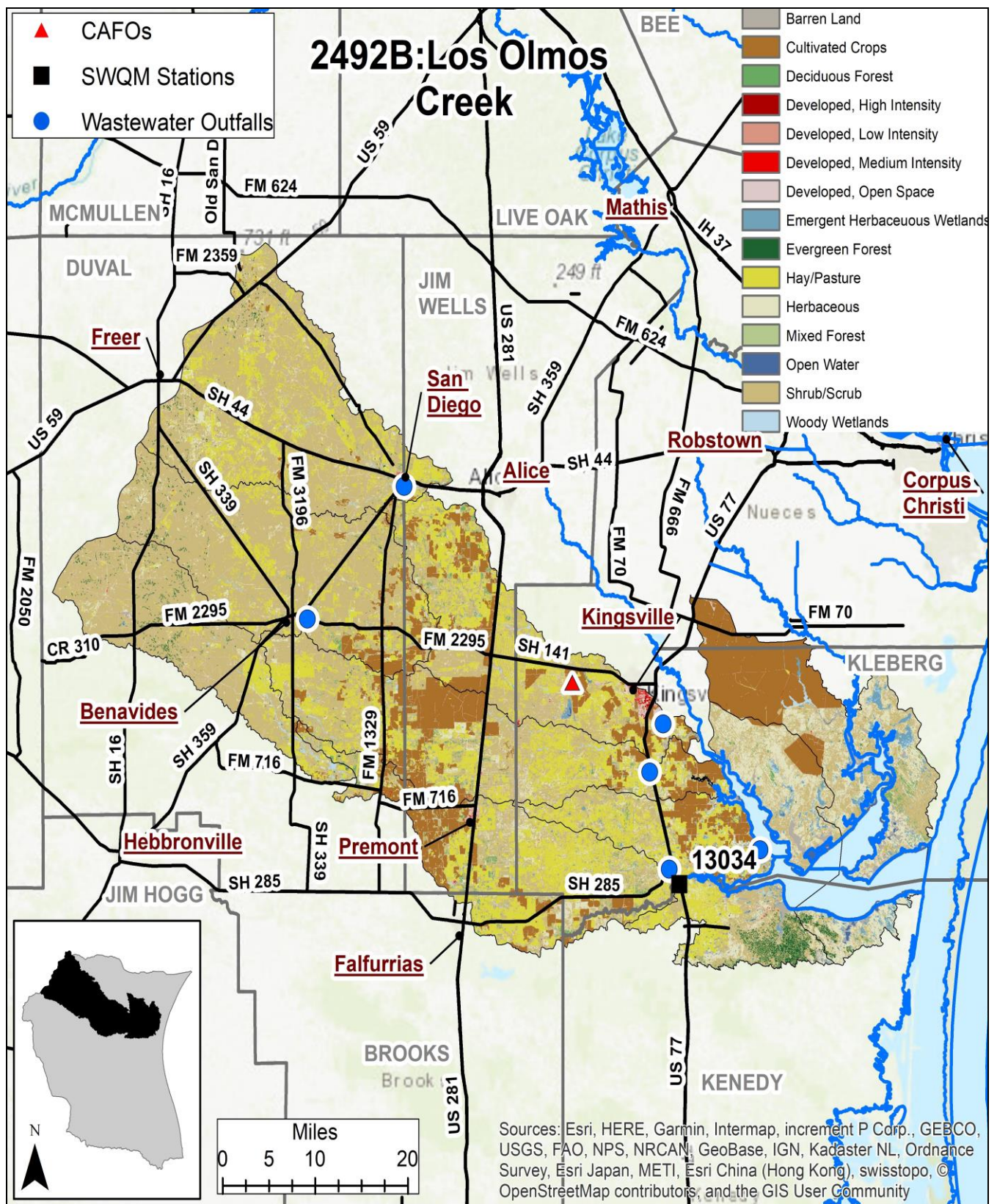
Special Studies - TWRI received funding for the development of a WPP for Baffin Bay and its tributaries Petronila and San Fernando creeks. The project kicked off in 2020 and includes monthly water quality monitoring for bacteria (*E. coli*) and nutrient parameters at San Fernando Creek (Station 13033) and Petronila Creek. For more information or to get involved in the process please visit their project page:

<https://twri.tamu.edu/our-work/restoring-protecting/petronila-san-fernando-creeks-watershed-planning/>

In 2020, NRA conducted a year-long water quality monitoring project funded by TxGLO's Coastal Management Program (CMP). The study included high flow event monitoring on San Fernando, Los Olmos, and Petronila creeks. The final report will be posted to the CMP project page sometime in Summer 2021.



Station 13033 – San Fernando Creek at US 77



Segment 2492B: Los Olmos Creek Tidal

Segment Description – Tidal portion of Los Olmos Creek is from the confluence with Laguna Salada upstream 10.9 km (6.8 mi) southwest of Riviera.

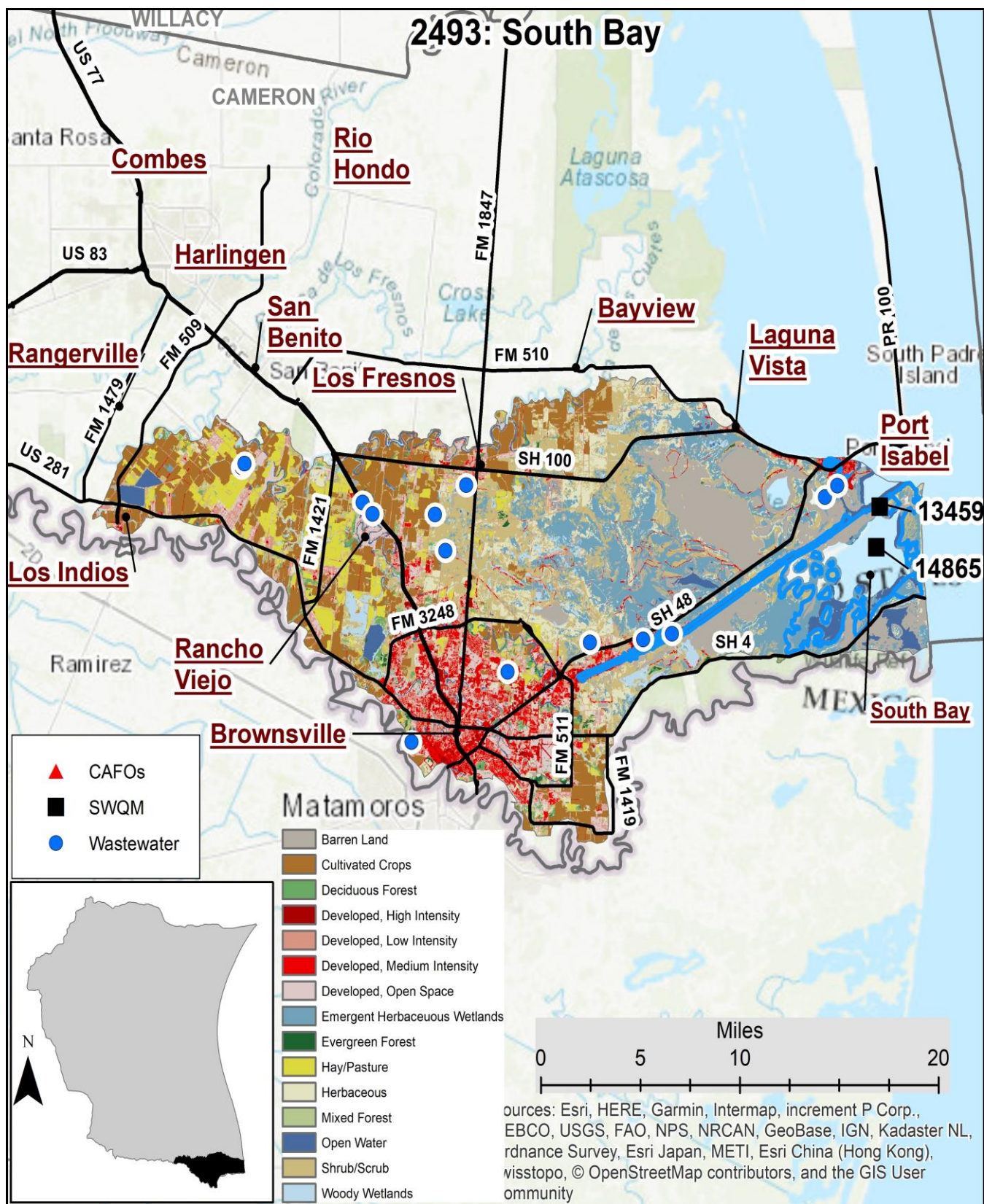
Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Los Olmos Creek	13034	01	At US 77 south of Riviera	NRA	Routine Quarterly

Water Quality – Water quality monitoring began in 2019 and the segment does not have enough data to be assessed in the 2020 IR Assessment.

Special Studies – In 2020, NRA conducted a year-long water quality monitoring project on Los Olmos Creek that was funded by the Texas General Land Office's (TxGLO) Coastal Management Plan (CMP). The purpose of the study was to provide monthly water quality data that TCEQ can use to evaluate the water body and to help researchers determine the contribution of bacteria and nutrient parameters to the creek during rain events. Results of the study indicate concentrations of bacteria (enterococcus), nitrate, and chlorophyll-a were above their criteria and will likely be listed for those parameters in the 2022 IR Assessment. The final report will be posted to the CMP project page sometime in Summer 2021.



Station 13034 – Los Olmos Creek Tidal at US 77



Segment 2493 – South Bay

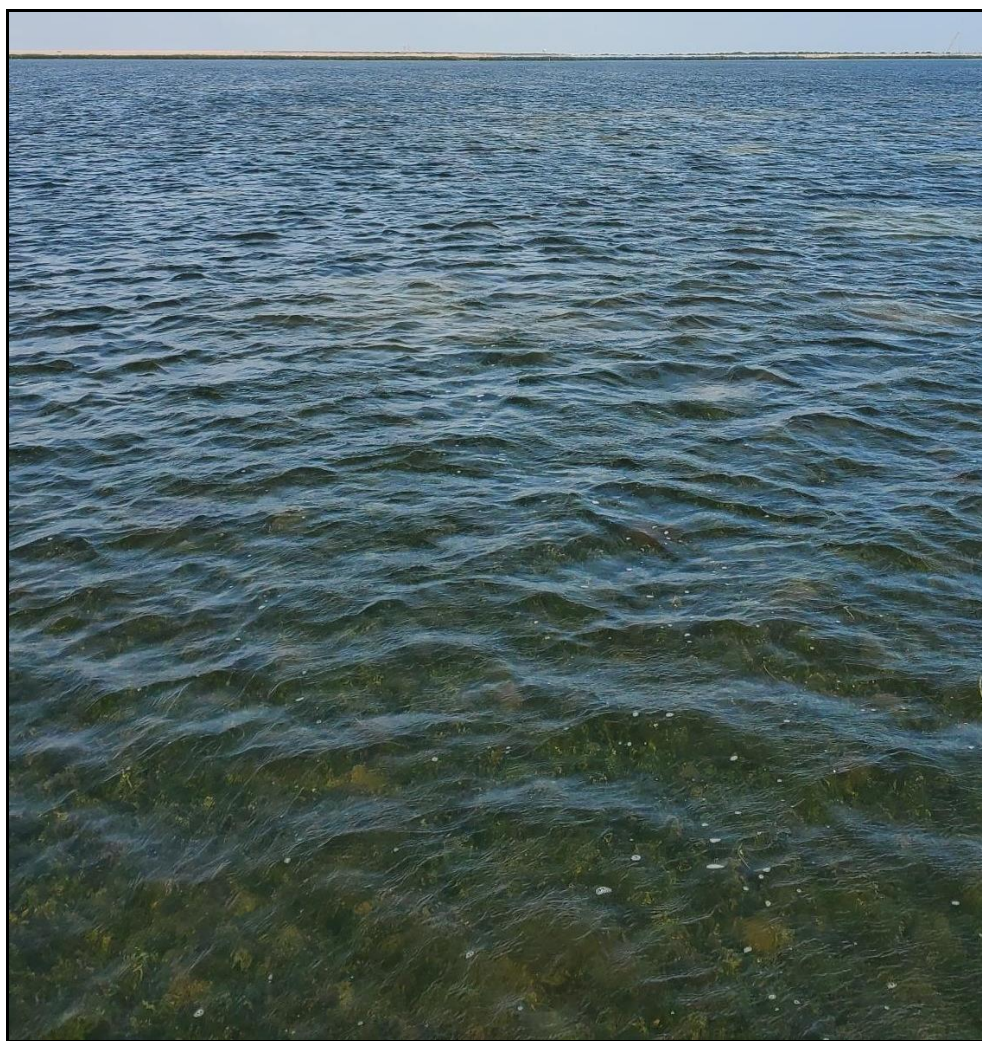
Segment 2493: South Bay

Segment Description - South Bay is located south of the Brownsville Ship Channel in Cameron County. Its watershed, combined with that of the Segment 2493, South Bay, and Segment 2494, the Brownsville Ship Channel is 225,554 acres South Bay is the southernmost bay in Texas and is part of the South Bay Coastal Preserve. It supports the largest concentration of oysters in the Lower Laguna Madre and is relatively inaccessible.

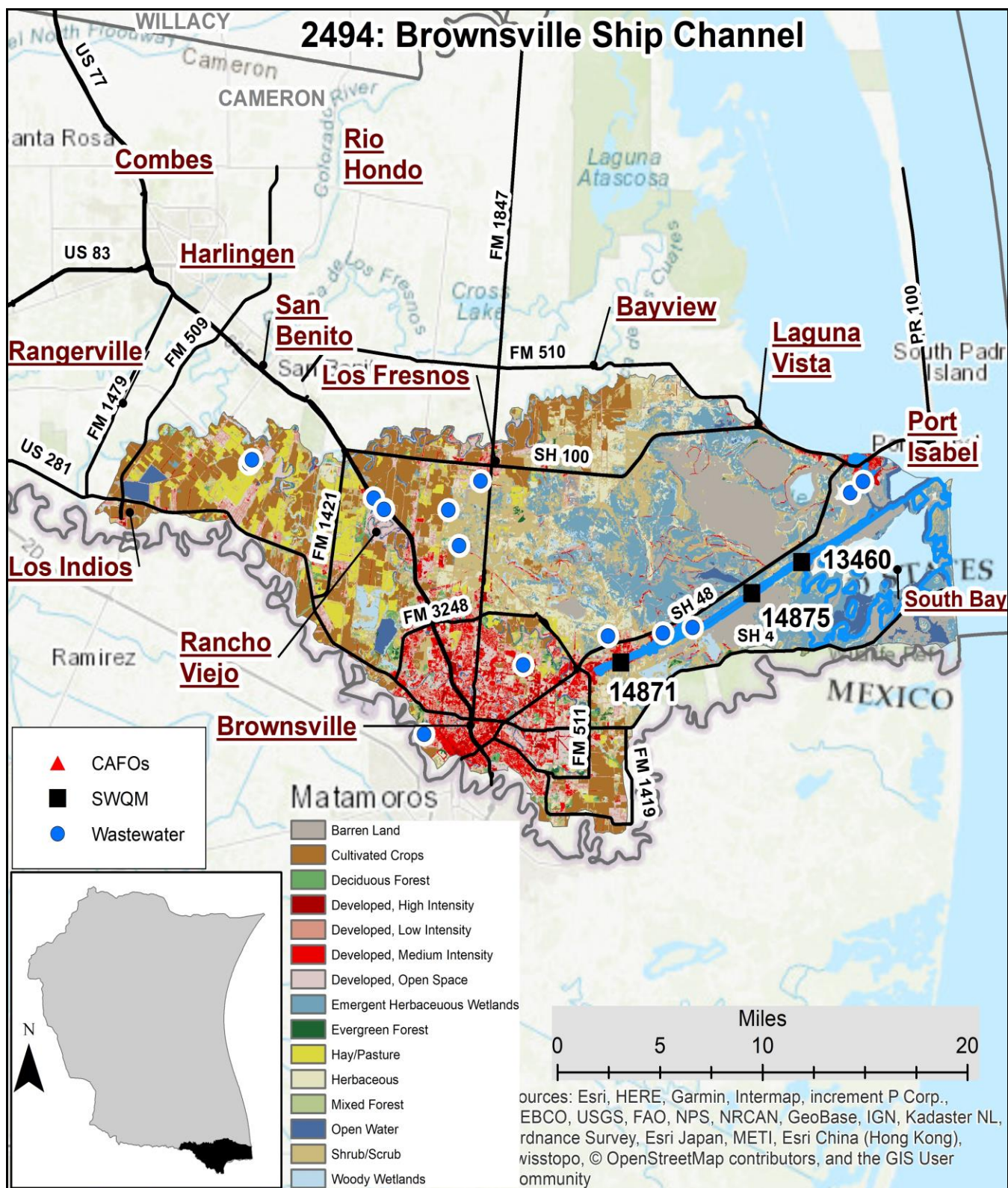
Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
South Bay	13459	01	Approximately 0.1 km west of Clark Island	TCEQ Region 15	Routine Quarterly
	14865	01	Middle of the Bay	TCEQ Region 15	Routine Quarterly

Water Quality - All assessed parameters met the standards in the 2020 IR Assessment.

Special Studies – South Bay was included in the Lower Laguna Madre/Brownsville Ship Channel Watershed Characterization that was conducted by a collaboration of the University of Texas – Rio Grande Valley Brownsville, TWRI, TCEQ, and TIAER in 2018. The report discusses water quality in San Martin Lake, the Brownsville Ship Channel, and the Lower Laguna Madre. The full report can be found at the following website: https://arroyocolorado.org/media/zqjpi1e0/llm_wc_102618_forstakeholderreview.pdf



Segment 2493 - South Bay



Segment 2494 – Brownsville Ship Channel

Segment 2494: Brownsville Ship Channel

Segment Description – The Brownsville Ship Channel extends from the Port of Brownsville to the Laguna Madre. Its watershed, combined with that of the Segment 2493, South Bay, and Segment 2494A, the Port Isabel Fishing Harbor is 225,554 acres. The ship channel is part of the Port of Brownsville, a major center of industrial development with over 230 companies doing business there.

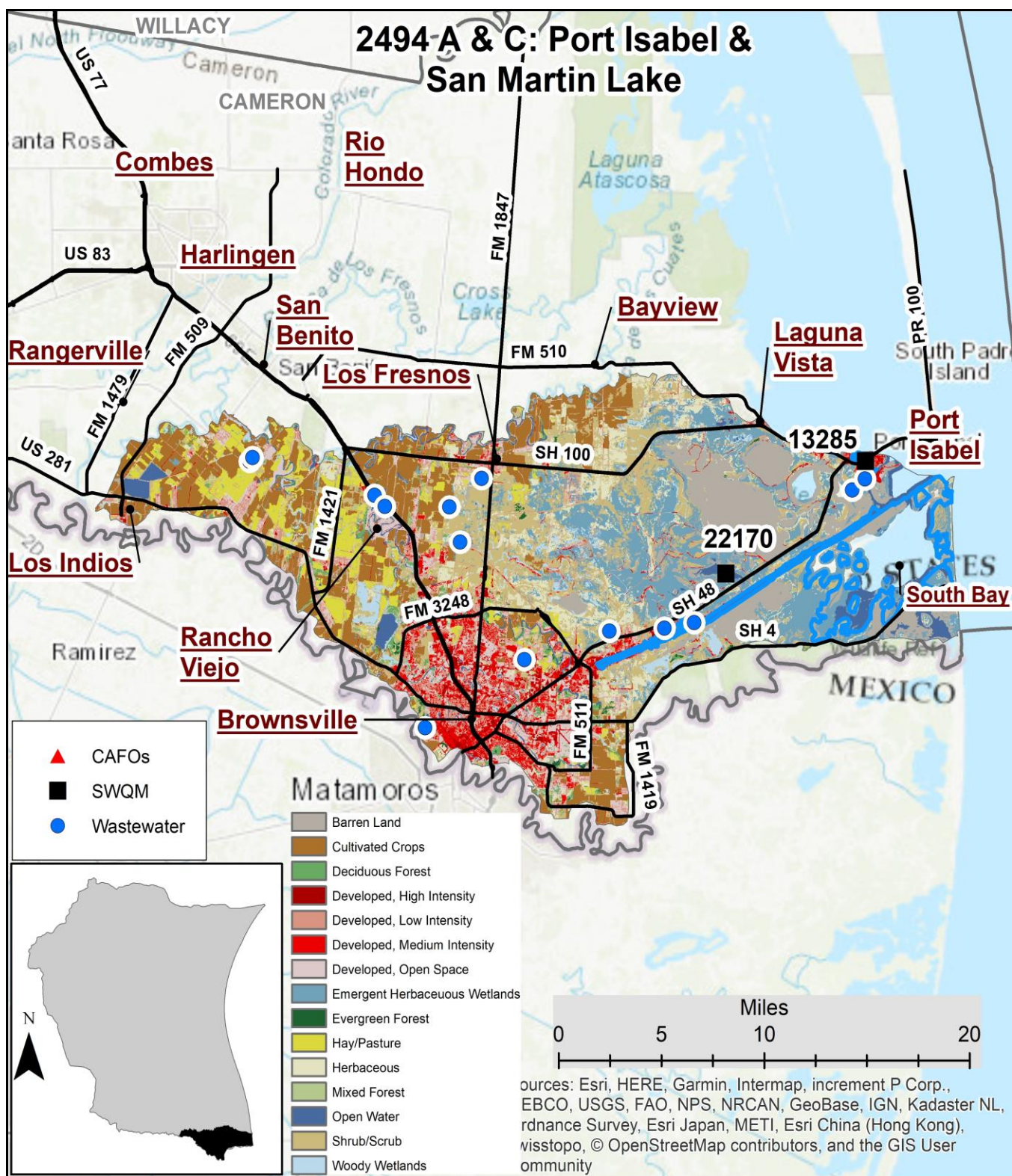
Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Brownsville Ship Channel	13460	01	Near Channel Marker 35/Black Buoy	TCEQ Region 15	Routine Quarterly
	14875	01	At Entrance to San Martin Lake	TCEQ Region 15	Routine Quarterly
	14871	01	Mid Channel 595 M East of SH 48 at Foust Road	TCEQ Region 15	Routine Quarterly

Water Quality - The segment is listed as having a water quality **concern** for **depressed dissolved oxygen** (grab) in the 2020 IR Assessment.

Special Studies – The Brownsville Ship Channel (BSC) was included in the Lower Laguna Madre/Brownsville Ship Channel Watershed Characterization that was conducted by a collaboration of the University of Texas – Rio Grande Valley Brownsville, TWRI, TCEQ, and TIAER in 2018. The report discusses water quality in San Martin Lake, Brownsville Ship Channel and the Lower Laguna Madre. The full report can be found at the following website: https://arroyocolorado.org/media/zqjpi1e0/llm_wc_102618_forstakeholderreview.pdf



Brownsville Ship Channel



Segment 2494A - Port Isabel and Segment 2494C - San Martin Lake

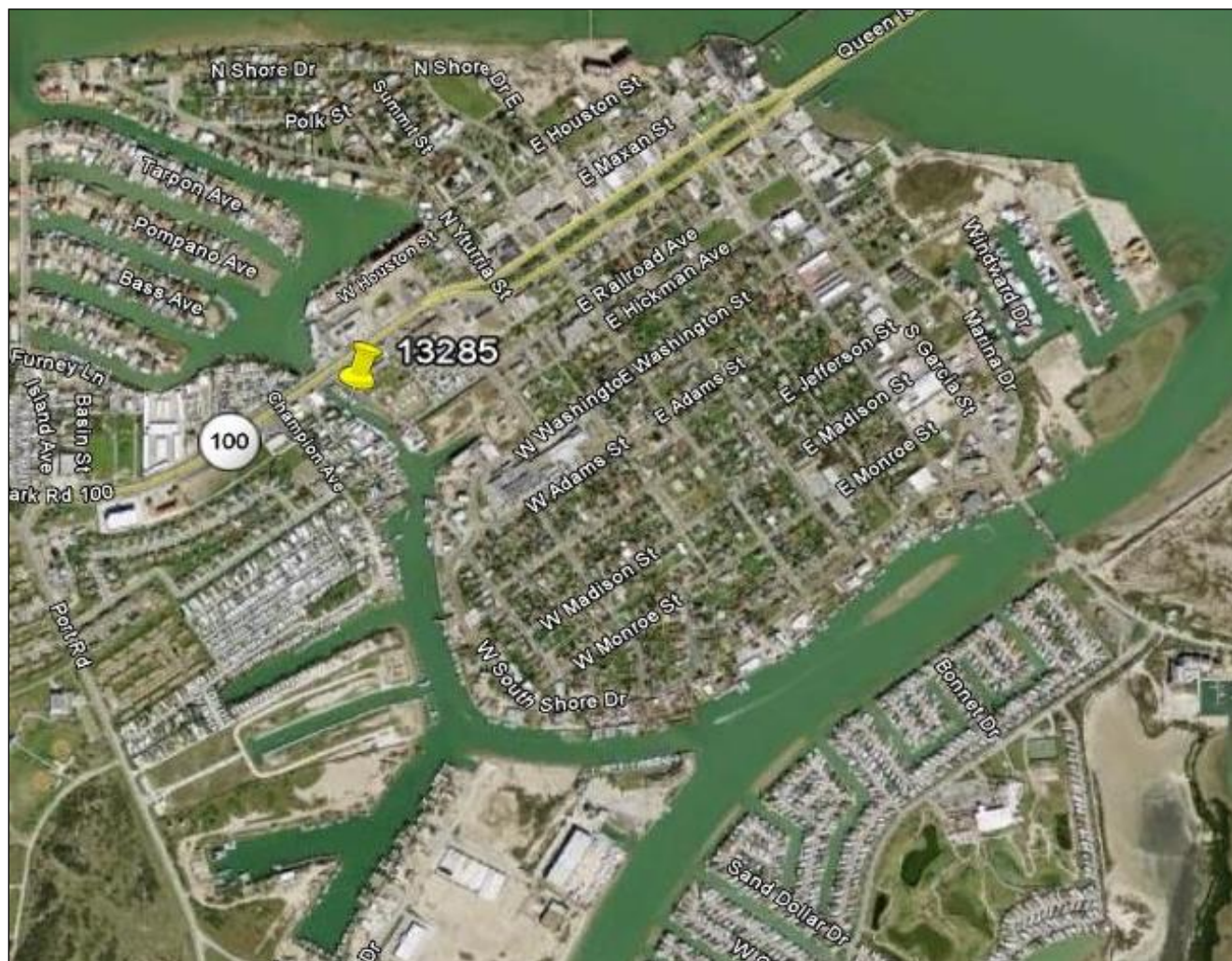
Segment 2494A: Port Isabel Fishing Harbor

Segment Description – The Port Isabel Fishing Harbor is located within the City of Port Isabel in Cameron County. It is connected to the Laguna Madre to the north and to the Brownsville Ship Channel to the south. Its watershed, combined with that of the Segment 2493, South Bay, and Segment 2494, the Brownsville Ship Channel is 225,554 acres. The properties along the canals are a combination of businesses and residential properties.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Port Isabel Fishing Harbor	13285	01	Approximately 60 m downstream of SH 100 Bridge	TCEQ Region 15	Routine Quarterly

Water Quality – The water body is listed as being **impaired** for **bacteria** (enterococcus) for primary contact recreation since the 2010 IR Assessment. The impairment carries forward in the 2020 IR Assessment. The source of the bacteria is thought to be from nonpoint source runoff since there are no permitted discharges into the harbor. Due to the eight-hour holding time and because there are no local labs accredited for enterococcus analysis, bacteria sample collection has been suspended.

Special Studies – Port Isabel Fishing Harbor was included in the Lower Laguna Madre/Brownsville Ship Channel Watershed Characterization that was conducted by a collaboration of the University of Texas – Rio Grande Valley Brownsville, TWRI, TCEQ, and TIAER in 2018. The report discusses water quality in San Martin Lake, Brownsville Ship Channel and the Lower Laguna Madre. The full report can be found at the following website: https://arroyocolorado.org/media/zqjpi1e0/llm_wc_102618_forstakeholderreview.pdf



Segment 2494C: San Martin Lake Tidal

Segment Description – San Martin Lake is from the confluence with the Brownsville Ship Channel upstream to the confluence with drainage ditches flowing into San Martin Lakes.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
San Martin Lake Tidal	22170	01	2.04 km east and 0.80 km north of the HWY 48 Bridge northeast of Brownsville	NRA	Routine Quarterly

Water Quality – San Martin Lake is a new sampling location for FY 2020 and does not yet have enough data for an assessment.

Special Studies – San Martin Lake was included in the Lower Laguna Madre/Brownsville Ship Channel Watershed Characterization that was conducted by a collaboration of the University of Texas – Rio Grande Valley Brownsville, TWRI, TCEQ, and TIAER in 2018. The report discusses water quality in San Martin Lake, Brownsville Ship Channel and the Lower Laguna Madre. The full report can be found at the following website: https://arroyocolorado.org/media/zqjpi1e0/llm_wc_102618_forstakeholderreview.pdf



Station 22170 – San Martin Lake Tidal

2501: Gulf of Mexico

Segment Description - The Gulf of Mexico along the entire Texas Coast. Segment 2501 is broken up into 10 AUs AU_01 is from Sabine Pass to Sea Rim Park area, AU_02 is from Jefferson-Chambers County line area, AU_03 is from Bolivar Point to San Luis Pass area, AU_04 is the Freeport area, AU_05 is the area between Freeport and Port Aransas, AU_06 is the Port Aransas area, AU_07 is between Port Aransas and Port Mansfield, AU_08 is the Port Mansfield area, AU_09 is the between Port Mansfield and Port Isabel, and AU_10 is the Port Isabel area.

Segment Name	Station ID	AU	Site Description	Monitoring Entity	Sampling Type
Gulf of Mexico	13468	06	At Aransas Pass 165 m south and 413 m east of Tip of south Jetty near Marker R-7	TCEQ Region 14	Routine Quarterly
	13470	10	At Port Isabel 1.18 km east and 35 m south of Brazos Santiago Pass north jetty	TCEQ Region 15	Routine Quarterly

Water Quality – Segment 2501 has been listed by the DSHS as being **impaired** for **mercury in edible tissue** (King Mackerel > 43") since 1998. The impairment carries forward on the 2020 IR Assessment



Segment 2501 – Gulf of Mexico

List of Impairments and Concerns in the Bays and Estuaries and Gulf of Mexico

Segment Name	AU	Description	Impairments	Concerns
2462 San Antonio Bay / Hynes Bay/ Guadalupe Bay	01	Entire segment	Bacteria (oyster waters)	Chlorophyll-a
2463 Mesquite Bay	01	Entire segment	none	none
2471 Aransas Bay	01	Entire segment	none	none
2471A Little Bay	01	Entire segment	none	Chlorophyll-a
2471RB	01	Rockport (Recreational Beaches)	none	none
2472 Copano Bay / Port Bay / Mission Bay	01	East part of Copano Bay	Bacteria (oyster waters)	none
	02	Copano Bay	none	none
	03	Port Bay	none	Chlorophyll-a
2473 St. Charles Bay	01	Entire segment	none	none
2481 Corpus Christi Bay	01	From the CCSC east to Pelican Island, south to Demit Island including the La Quinta Channel and the CCSC adjacent to Redfish Bay	none	none
	02)	From the CCSC east to Pelican Island, south to Demit Island including the area from the CCSC to Demit Island (Oso Bay and City of Corpus Christi area).	none	none
	03	From Pelican Island south to Demit Island, to Mustang Island and the area along Mustang Island State Park to the CCSC	none	none
	04	From the JFK Causeway to a line from Demit Island across to Mustang Island State Park	none	none
2481CB	01	Corpus Christi Marina	none	none
	02	Corpus Christi Beach - Main	none	none
	03	Cole Park	Bacteria	none
	04	Ropes Park	Bacteria	none
	05	McGee Beach	none	none
	06	Poenisch Park	Bacteria	none
	07	Emerald Beach	none	none
	08	University Beach	none	none
	09	Packery Channel Park	none	none
2482 Nueces Bay	01	Entire segment	Copper in water, Zinc in edible oyster tissue	Chlorophyll-a
2483 Redfish Bay	01	Entire segment	none	none
2483A Conn Brown Harbor	01	Entire segment	none	Copper in Water
2484 Corpus Christi Inner Harbor	01	Entire segment	Copper in Water	Ammonia, Nitrate

List of Impairments and Concerns in the Bays and Estuaries and Gulf of Mexico (cont.)

Segment Name	AU	Description	Impairments	Concerns
2485 Oso Bay	01	Upper bay (Holly Road to CR 24)	none	Chlorophyll-a
	02	Middle bay (SH 358 to Holly Road)	DO	Bacteria, Chlorophyll-a, Total Phosphorus
	03	Lower portion of bay (Ocean Drive to State Park Road 22)	Bacteria	Chlorophyll-a, Total Phosphorus
2485A Oso Creek	01	Entire segment	Bacteria	Chlorophyll-a, Nitrate, Total Phosphorus
2485B Tributary of Oso Creek	01	Entire segment	none	Total Phosphorus
2485D West Oso Creek	01	Entire segment	none	Total Phosphorus
2491 Laguna Madre	01	Upper portion north of the Arroyo Colorado confluence	DO	Chlorophyll-a
	02	Area adjacent to the Arroyo Colorado confluence	Bacteria, DO	Chlorophyll-a, Ammonia, Nitrate
	03	Lower portion south of the Arroyo Colorado confluence	none	DO, bacteria
2491B North Floodway	01	Entire Segment	none	Chlorophyll-a, Nitrate, Bacteria
2491C_01 Raymondville Drain	01	Entire Segment	none	none
2491C_03 Hildalgo Drain	01	Entire Segment	none	none
2492 Baffin Bay / Alazan Bay / Cayo Del Grullo / Laguna Salada	01	Entire Segment	none	Chlorophyll-a
2492A San Fernando Creek	01	Entire segment	Bacteria	Chlorophyll-a, Nitrate, Total Phosphorus
2492B Los Olmos Creek	01	Entire segment	none	none
2493 South Bay	01	Entire segment	none	none
2494 Brownsville Ship Channel	01	Entire segment	none	DO
2494A Port Isabel Fishing Harbor	01	Entire segment	Bacteria	none
2501 Gulf of Mexico	06	Port Aransas area	Mercury in edible tissue	none
	10	Port Isabel area	Mercury in edible tissue	none

STAKEHOLDER PARTICIPATION and PUBLIC OUTREACH

Stakeholder Participation

CRP depends on public involvement and input from stakeholders to assist in understanding the needs of the basins and the areas of concern. The NRA steering committee serves as the focus for public input and assists with:

- Creation of specific achievable water quality objectives and basin priorities
- Review and development of work plans and allocation of resources
- Development and review of major reports
- Establishing monitoring priorities and developing monitoring plans
- Improving awareness of water quality, water resources, and pollutant source issues
- Increasing opportunities for citizens to identify pressing issues, concerns, and contributing ideas to the CRP process
- Expanding the public's role in water quality management issues

The steering committee includes stakeholder volunteers from across NRA's area of responsibility, representing:

- Private citizens
- Fee-payers (identified in Texas Water Code 26.0135(h))
- Political subdivisions (including local, regional, and state officials)
- TSSWCB
- Other appropriate state agencies including: TPWD, Texas Water Development Board, TGLO, DSHS, Texas Department of Agriculture, RRC, and Texas Department of Transportation
- Other entities interested in water quality matters including: TCEQ regional staff, business and industry, agriculture, environmental and other public interest groups

NRA encourages stakeholder participation to provide suggestions for additional monitoring, special studies, outreach opportunities, and to be a voice for local concerns. For more information about stakeholder participation, the steering committee process, or how to become a steering committee member, visit our web page at <http://www.nueces-ra.org/CP/CRP/public.php>, or contact NRA using the contact information at the end of this report.

Public Outreach and Education

NRA participates in numerous CRP supported activities to help educate students and adults on pollution sources, the importance of keeping our waters clean, and what they can do help protect our rivers, lakes, and bays.

Watershed Model Demonstrations

NRA has two watershed models of the Nueces River Basin, and a third model is owned by the City of the Corpus Christi. NRA also has a model of the Arroyo Colorado Watershed, which is on loan to the Arroyo Colorado Watershed Protection Partnership, and a second one was completed in summer 2010. An Oso Creek Watershed Model will be finished in late 2021. These models are taken to classrooms and outreach events and are used to demonstrate point and nonpoint source pollution. Primarily geared for 5th and 7th graders, participants of all ages enjoy participating in the demonstrations. Food coloring is dripped onto the model to simulate oil leaks, fertilized lawns, illegal dump sites, etc. water is then squirted onto the model using spray bottles to simulate rain. Being an actual scale model of the basin, students locate where they live in the basin, and can see how pollution upstream can reach their communities and how pollution in their communities affect those downstream. This education program reaches about 13,000 students each year.



Other Education Tools

NRA also used an **Aquifer model** in school presentations to show demonstrate how water recharges a sand or karst aquifer, how wells tap an aquifer and how a plume of pollution can move through the ground and impact water quality coming from a water supply well. Students learn about groundwater aquifers, recharge and personal responsibility.

We have two **Rainfall-Runoff-Recharge models** to illustrate the role of land cover on water quality and quantity. These are delivered mostly at County Ag Fairs and Stock shows and support the 4th grade study of erosion and weathering. Different types of vegetative cover are demonstrated along with bare ground and impervious cover. In the demonstration, Eastern gamma, a native riparian grass generates 100% clear ground water with no run-off.

Our **Red Rain Barn** is a miniature barn is equipped with gutters and a rain water collection system calibrated to show how much water can be collected by a simple system. It is an engaging tool delivered at County Fairs and festivals.



Up2U Campaign

NRA, with guidance from local partners, designed and launched print and media components of the Up2U CRP in 2004 in the headwaters of the Nueces River Basin. It was expanded to include the coastal area in 2009. Partners now include the City of Corpus Christi, the City of Port Aransas, the City of Rockport, CBBEP, Friends of the Frio, Nueces County, Port Aransas Chamber of Commerce, and TCEQ. The cornerstone of the campaign is a logo emblazoned mesh litter bag which is both a litter prevention tool and an advertizing tool. These bags are now being distributed to beach goers, boaters, students and litter prevention advocates from the Nueces headwaters to the coast. NRA received the Governor's 2008 Environmental Excellence Award for Education for this project.



Riparian Network

NRA facilitates riparian landowner education focusing on how riparian areas work and what activities can hinder this function. Often misunderstood, the basic riparian dynamics are illustrated via multimedia lessons delivered on www.remarkableriparian.org. This program also resulted in the publication of the *Your Remarkable Riparian Field Guide*, a field guide to riparian plants within the Nueces River Basin, (now on its third edition) and a companion booklet *Managing Riparian Areas*. NRA works to integrate riparian understanding into all stakeholder processes associated with WPP's, RUAA's, and other Special studies. Copies are available for purchase from the website.



CONTACT INFORMATION

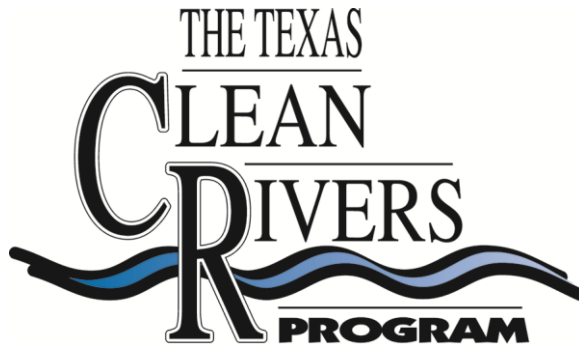
For More information on CRP, other activities of NRA, or to obtain additional copies of this report, contact:

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539 HWY S US-83
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Sam Sugarek, Director of Water Quality Programs, Corpus Christi Office: ssugarek@nueces-ra.org
Sky Lewey, Resource Protection and Education Director, General Office: slewey@nueces-ra.org

NRA would like to recognize and thank our CRP partners for their support and contributions to the program.



Bandera County
River Authority & Groundwater District
Protecting & Preserving our Natural Resources

Appendix A
Wastewater Discharge Permit Information

2001 Mission River Tidal

WQ0010156-001 – Town of Woodsboro: 250,000 gpd via Willow Creek

2002 Mission River Above Tidal

WQ0010255-001 – Town of Refugio: 576,000 gpd with provision for beneficial land application and storm water

WQ0010748-001 – Pettus Municipal Utility District (MUD): 105,000 gpd via Medio Creek

2003 Aransas River Tidal**2003A Chiltipin Creek**

WQ0010055-001 – City of Sinton: 800,000 gpd via Chiltipin Creek

WQ0013412-001 – TxDOT: 3,800 gpd via Chiltipin Creek

WQ0013641-001 – City of Sinton Rob and Bessie Welder Park: 15,000 gpd via Chiltipin Creek

WQ0014119-001 – St. Paul Water Supply Corporation (WSC): 50,000 gpd via Chiltipin Creek

WQ0005283-000 – Steel Dynamics Southwest: 1,560,000 gpd via Chiltipin Creek

2004 Aransas River Above Tidal

WQ0010124-004 – City of Beeville, Chase Field: 2,500,000 gpd

WQ0014112-001 – Skidmore WSC: 131,000 gpd via unnamed tributary

WQ0014123-001 – Tynan WSC: 45,000 gpd via Papalote Creek

2004B Poesta Creek

WQ0010124-002 – City of Beeville: 3,000,000 gpd with provision for irrigation

2101 Nueces River Tidal

WQ0000531-000 – Flint Hill Resources Limited Partnership (LP): storm water

WQ0001255-000 – Lon C Hill: 1,098,000 gpd

WQ0004934-000 – City of Corpus Christi: WTP sludge

WQ0010401-006 – City of Corpus Christi (Allison Plant): 5,000,000 gpd

WQ0013644-001 – San Patricio County MUD No. 1: 75,000 gpd via Hondo Creek

2103 Lake Corpus Christi

WQ0004859-000 – Bar Ranch: WWTF sludge and domestic septic

WQ0010015-001 – City of Mathis: 947,000 gpd via unnamed tributary

WQ0010455-002 – City of George West: 539,000 gpd via Nueces River

WQ0011165-001 – Texas Parks and Wildlife Department – Lake Corpus Christi State Park: 67,000 gpd via evaporation and surface irrigation

2104 Nueces River Above Frio River

WQ0004184-000 – Webb County – Colorado Acres Water Plant: 28,800 gpd via evaporation

WQ0005091-000 – MultiChem Group Three Rives Facility – 11,500 gpd reverse osmosis reject water via 001

WQ0010088-001 – Freer Water Control and Improvement District (WCID) : 280,000 gpd via surface irrigation on nonpublic access agriculture land

WQ0013461-001 – US Department of Justice (DOJ): 300,000 gpd

WQ0013943-001 – Encinal WSC: 95,000 gpd via irrigation

2105 Nueces River Above Holland Dam

WQ0000546-000 – Del Monte Foods (Crystal City Plant) 1,800,000 gpd via irrigation

WQ0010098-001 – City of Crystal City: 1,200,000 gpd via Line Oak Slough

WQ0010145-001 – City of Carrizo Springs: 950,000 gpd via Soldier Slough

WQ0010153-001 – City of Cotulla: 990,000 gpd via Mustang Creek

WQ0013746-001 – City of Asherton: 200,000 gpd via Soldier Slough

WQ0013782-001 – City of Big Wells: 150,000 gpd via Arroyo Negro

WQ0013943-001 – Encinal Water Supply Corporation: 95,000 gpd via surface irrigation

WQ0014006-001 – Zavala County (Crystal City Land Fill): 50,000 gpd via Soldier Slough

WQ0015047-001 – MacBain Properties Inc.: 14,000 gpd via irrigation

WQ0015049-001 – Quail Run Services LLC: 300,000 gpd

2106 Nueces River / Lower Frio River

WQ0001353-000 – Diamond Shamrock Refining Company: 1,500,000 gpd via unnamed ditch

WQ0010301-003 – City of Three Rivers: 400,000 gpd (pending)

2107 Atascosa River

WQ0002043-000 – San Miguel Electric Cooperative: 62,000 gpd (nine outfalls) via evaporation (one outfall in San Miguel Creek Segment 2108)
WQ0002601-000 – San Miguel Electric Cooperative: coal pile runoff and storm water
WQ0010096-001 – City of Lytle: 450,000 gpd via West Prong Atascosa River
WQ0010418-001 – City of Jourdanton: 980,000 gpd via Metate Creek
WQ0010598-001 – City of Pleasanton: 1,420,000 gpd
WQ0013630-001 – City of Poteet: 640,000 gpd via Rutledge Hollow
WQ0014767-001 – TxDOT (Northbound rest stop): 10,000 gpd via unnamed tributary
WQ0014768-001 – TxDOT (Southbound rest stop): 10,000 gpd via Salt Branch Creek
WQ0015400-001 – Benton City: 15,000,000 gpd via unnamed tributary

2108 San Miguel Creek

WQ0002043-000 – San Miguel Electric Cooperative: 62,000 gpd (nine outfalls) via evaporation (eight outfalls in Atascosa River Segment 2107)
WQ0010142-001 – City of Charlotte: 220,000 gpd via Lagunillas Creek
WQ0010160-001 – City of Devine: 650,000 gpd via San Francisco Perez Creek
WQ0011806-001 – City of Natalia: 260,000 gpd via Chacon Creek
WQ0014239-001 – Moore WSC: 65,000 gpd via Black Creek

2109 Leona River

WQ0010306-001 – City of Uvalde: 970,000 gpd
WQ0014394-001 – Batesville WSC: 184,000 gpd via Gallina Slough

2110 Lower Sabinal River

WQ0014689-001 – City of Sabinal: 340,000 gpd

2111 Upper Sabinal River

WQ0011951-001 – Lost Maples State Park: 8,000 gpd via irrigation
WQ0015892-001 – Young Life: 60,000 gpd

2112 Upper Nueces River

WQ0012334-001 – City of Camp Wood: 101,000 gpd via irrigation
WQ0014367-002 – Zavala County WCID: 330,000 gpd via irrigation

2113 Upper Frio River

WQ0011683-001 – Alto Frio Baptist Encampment: 20,000 gpd via irrigation
WQ0015083-001 – NRA: 360,000 gpd via irrigation

2114 Hondo Creek

WQ0010189-001 – City of Hondo: 1,800,000 gpd via Elm Slough

2115 Seco Creek

WQ0011144-001 – Medina County WCID 002: 80,000 gpd

2116 Choke Canyon Reservoir

WQ0013100-001 – Texas Parks and Wildlife Department – Choke Canyon State Park, Calliham Unit: 13,000 gpd via evaporation
WQ0013461-001 – US DOJ – Federal Corrections Institution at Three Rivers: 300,000 gpd via irrigation plus effluent line to the Nueces River Segment 2104

2117 Frio River Above Choke Canyon Reservoir

WQ0010360-001 – City of Pearsall: 1,950,000 gpd via Buck Creek
WQ0010404-002 – City of Dilley: 300,000 gpd via Cibolo Creek
WQ0010404-003 – City of Dilley: 800,000 gpd
WQ0010404-005 – City of Dilley: 30,000 gpd
WQ0011962-001 – Garner State Park: 60,000 gpd via irrigation
WQ0014945-001 – McMullen County WCID No. 1 and McMullen County: 96,000 gpd via unnamed tributary
WQ0015016-001 – Qual Run Services: 300,000 gpd
WQ0015043-001 – Seventy Seven Land Company LCC: 24,000 gpd
WQ0015084-001 – La Salle Oil Field Services: 120,000 gpd via irrigation

2201 Arroyo Colorado Tidal

WQ0003596-000 – Taiwan Shrimp Village Association and Arroyo Aquaculture Association: 100,000,000 gpd
WQ0004792-000 – Military Highway WSC: 1,440,000 gpd via Resaca Del Rancho Viejo
WQ0005137-000 – La Paloma Energy Center LLC: 1,634,000 gpd
WQ0005226-000 – Denali Water Solutions, LLC: land application of WWTP and WTP sludge on 909 acres
WQ0010475-002 – City of Rio Hondo: 400,000 gpd
WQ0013462-008 – Military Highway WSC Lago: 510,000 gpd via Resaca Del Rancho Viejo
WQ0014558-001 – East Rio Hondo WSC: 180,000 gpd
WQ0015265-001 – City of San Benito

2201A Harding Ranch Drainage Ditch Tributary

WQ0005179-000 – Denali Water Solutions LLC: sludge on 1,048 acres

2201B Unnamed Drainage Ditch Tributary in Cameron Co. Drainage District #3

WQ0005025-000 – Military Highway WSC: 1,440,000 gpd of reverse osmosis reject water

2202 Arroyo Colorado Above Tidal

WQ0004051-000 – Frontera Generation Ltd.: 1,400,000 gpd via Main Floodway
WQ0004257-000 – Watermill Express: 1,000 gpd via subsurface drainfield
WQ0004754-000 – Military Highway WSC Progreso WTP: 520,000 gpd to Llano Grande Lake
WQ0004782-000 – North Alamo WSC: 2,000,000 gpd to the North Floodway
WQ0004789-000 – North Alamo WSC: 2,000,000 gpd to the North Floodway
WQ0004861-000 – Denali Water: WWTF and WTP sludge
WQ0004924-000 – Denali Water: WWTF and WTP sludge
WQ0005186-000 – Denali Water: WWTF and WTP sludge
WQ0010347-001 – City of Mercedes: 5,000,000 gpd via Arroyo Anacuitas
WQ0010484-001 – City of Mission: 9,000,000 gpd
WQ0010490-003 – City of Harlingen Water Works Facility #2: 10,000,000 gpd
WQ0010504-001 – City of Donna: 2,300,000 gpd to the Llano Grande Lake
WQ0010596-001 – City of Pharr: 5,000,000 gpd via Main Floodway
WQ0010619-005 – City of Weslaco South Plant: 2,500,000 gpd via South Donna Drain
WQ0010633-003 – City of McAllen Facility No. 2: 10,000,000 gpd via unnamed ditch
WQ0010697-001 – City of La Feria: 500,000 gpd via ditch
WQ0010697-002 – City of La Feria: 1,250,000 gpd via ditch
WQ0010972-002 – Palm Valley Estates: 280,000 gpd via irrigation
WQ0011080-001 – City of Hidalgo: 2,700,000 gpd via Hidalgo County drainage ditch
WQ0011512-001 – City of San Juan: 4,000,000 gpd via Outfall 001 and 200,000 gpd via Outfall 002 to Main Floodway
WQ0011628-001 – Winter Garden Park Corporation: 11,000 gpd into Reba Bass Lake
WQ0013462-001 – Military Highway WSC Progreso: 750,000 gpd
WQ0013462-002 – Military Highway WSC La Paloma: 210,000 gpd via irrigation
WQ0013462-003 – Military Highway WSC Santa Maria: 230,000 gpd via irrigation
WQ0013462-004 – Military Highway WSC San Pedro: 160,000 gpd via irrigation
WQ0013462-005 – Military Highway WSC Los Indios: 135,000 gpd via irrigation
WQ0013462-006 – Military Highway WSC South Alamo: 510,000 gpd
WQ0013523-007 – La Joya ISD: 12,570 gpd via subsurface low pressure dosed drainfields
WQ0013523-009 – La Joya ISD: 12,500 gpd via subsurface low pressure dosed drainfields
WQ0013523-010 – La Joya ISD: 20,000 gpd via subsurface low pressure dosed drainfields
WQ0013523-012 – La Joya ISD: 9,000 gpd via subsurface low pressure dosing drainfields
WQ0013523-013 – La Joya ISD: 35,000 gpd via subsurface low pressure dosed drainfields
WQ0013523-016 – La Joya ISD: 12,000 gpd via subsurface low pressure dosing drainfields
WQ0013633-001 – City of Alamo: 2,000,000 gpd via Hidalgo County drainage ditch
WQ0013680-002 – Donna ISD Munoz Elementary: 2,500 gpd via subsurface drainfields
WQ0013680-003 – Donna ISD Garza Elementary: 12,500 gpd via subsurface drainfields
WQ0014178-001 – US Fish and Wildlife Service Santa Ana National Wildlife Refuge: 1,500 gpd via evaporation
WQ0014415-001 – Agua Special Utility District: 1,400,000 gpd
WQ0014415-003 – Agua Special Utility District: 7,550,000 gpd (pending)
WQ0015265-001 – City of San Benito: 3,750,000 gpd via Arroyo Colorado

2202A Donna Reservoir

WQ0015513-001 – North Alamo WSC: 700,000 gpd (pending)

2204 Petronila Creek Above Tidal

WQ0002888-000 – US Ecology Texas: storm water via Nueces County drainage ditch
WQ0010140-001 – City of Agua Dulce: 160,000 gpd via Agua Dulce Creek
WQ0010592-001 – City of Orange Grove: 200,000 gpd via Agua Dulce Creek
WQ0011541-001 – City of Driscoll: 100,000 gpd
WQ0011583-002 – Nueces County WCID #5: 8,000,000 gpd via Banquete Creek
WQ0011754-001 – Bishop Consolidated ISD: 8,000 gpd via drainage ditch
WQ0014802-001 – Geo Group: 150,000 gpd via drainage ditch
WQ0014981-002 – KB Foundation of Texas: 9,000 gpd

2462 San Antonio Bay / Hynes Bay

WQ0003995-000 – Austwell Aqua Farm, Inc.: 3,700,000 gpd
WQ0004917-000 – Aransas National Wildlife Refuge: 937 gpd via subsurface application
WQ0010256-001 – Refugio WCID No. 1: 75,000 gpd
WQ0011117-001 – City of Austwell: 60,000 gpd

2471 Aransas Bay

WQ0011624-001 – Aransas County MUD #1: 263,000 gpd via irrigation

2471A Little Bay

WQ0010054-001 – City of Rockport: 2,500,000 gpd to Little Bay to Aransas Bay and via irrigation

2472 Copano Bay / Port Bay / Mission Bay

WQ0004290-000 – Holiday Beach WSC: 120,000 gpd via mud flats
WQ0004788-000 – Sherwin Alumina Inc. sludge
WQ0004956-000 – Aransas Bay Utilities Co.: 61,000 gpd
WQ0010705-001 – City of Taft: 900,000 gpd via mud flats
WQ0013892-001 – Town of Bayside: 64,200 gpd
WQ0014925-001 – City of Rockport, Port Bay.: 550,000 gpd
WQ0011624-001 – Aransas County MUD #1: 263,000 gpd via irrigation (Interim II and Final Phases)

2473 St. Charles Bay

WQ0011624-001 – Aransas County MUD #1: 263,000 gpd via irrigation (Interim I Phase)

2481 Corpus Christi Bay

WQ0001651-000 – E. I. Du Pont De Nemours & Co.: 4,610,000 gpd via submerged pipe in La Quinta Channel and storm water
WQ0002317-000 – US Department of the Navy Corpus Christi Naval Air Station (NAS): 1,500,000 gpd
WQ0003083-000 – Occidental Chemical Corporation: 2,790,000 gpd via submerged pipeline in La Quinta Channel
WQ0003966-000 – Reynolds Metal Company: 1,000 metric tons per year on closed bauxite tailing beds
WQ0004606-000 – Reynolds Metals Co.: storm water and leachate
WQ0004646-000 – Sherwin Alumina LP: storm water
WQ0005097-000 – voestalpine: 6,020,000 gpd
WQ0005218-000 – Nashtec: storm water (new permit)
WQ0005219-000 – Gregory Power Partners LLC: 918,000 gpd
WQ0010092-001 – City of Gregory: 320,000 gpd via Green Lake
WQ0010422-001 – City of Ingleside: 1,200,000 gpd via Kinney Bayou
WQ0010846-001 – Nueces Co. WCID No. 4 Mustang Island North Plant: 1,880,000 gpd via mud flats
WQ0010846-002 – Nueces Co. WCID No. 4 Mustang Island South Plant: 1,200,000 gpd to Shamrock Cove

2482 Nueces Bay

WQ0001244-000 – Nueces Bay WLE LP: 500,000,000 gpd once through cooling water and previously monitored effluent
WQ0010237-002 – City of Odem: 475,000 gpd via Rincon Bayou
WQ0010478-001 – City of Portland WWTP: 2,500,000 gpd via drainage ditch
WQ0011096-001 – Sublight Enterprises, Inc. (Portland Inn): 9,000 gpd.

2483 Redfish Bay

WQ0002077-000 – Evonik Degussa Corporation: storm water
WQ0003012-000 – Gulf Marine Fabricators: 4,000 gpd
WQ0005162-000 – Mile 533 Marine Ways: 5,000 gpd
WQ0010521-002 – City of Aransas Pass: 1,600,000 gpd.
WQ0012064-001 – Gulf Marine Fabricators: 12,000 gpd via drainage ditch
WQ0012731-001 – Martin Operating Partnership, LP: 3,800 gpd

2484 Corpus Christi Inner Harbor

WQ0000349-000 – Elementis Chromium LP: 20,000,000 gpd
WQ0000457-000 – Flint Hills Resources LP: 2,160,000 gpd
WQ0000465-000 – Valero Refining-Texas LP: 3,000,000 gpd and storm water
WQ0000467-000 – Citgo Refining and Chemicals: 5,300,000 gpd and storm water
WQ0000531-000 – Flint Hills Resources LP: 145,000 gpd via irrigation and storm water
WQ0001909-000 – Valero Refining Company-Texas: storm water
WQ0002070-000 – Magellen Terminals Holdings: 1,060,000 gpd via drainage ditch
WQ0002075-000 – Equistar Chemicals LP: 2,000,000 gpd (1 outfall; 2 outfalls in 2485A)
WQ0002540-000 – Valero Refining and Marketing: storm water
WQ0002614-000 – Citgo Refining and Chemicals: storm water
WQ0002720-000 – BTB Refining LCC: 120,000 gpd via underground pipe and storm water
WQ0003137-000 – Markwest Company: 288,000 gpd plus 100,000 gpd via irrigation
WQ0003562-000 – Citgo Refining and Chemicals: storm water
WQ0004158-000 – Corpus Christi Cogeneration: 11,000,000 gpd.
WQ0004889-000 – John Bludworth Shipyard, LLC: ballast water
WQ0004977-000 – Citgo Refining and Chemical Co, LPP : ballast water
WQ0005024-000 – EF90 Mini Refinery: 197,600 gpd
WQ0005019-000 – M&G Resins: - 38,500,000 reject and filtration water
WQ0005217-000 – Koch Sulfur Products Company LLC: 600,000 gpd
WQ0010401-005 – City of Corpus Christi Broadway Plant: 10,000,000 gpd

2485 Oso Bay

WQ0001490-000 – AEP Texas Central Barney M. Davis Plant: 540,000,000 gpd
WQ0010401-004 – City of Corpus Christi Oso Facility: 16,200,000 gpd

2485A Oso Creek

WQ0002075-000 – Equistar Chemicals LP – Corpus Christi Plant: storm water (2 outfalls; 1 outfall in 2484)
WQ0010261-001 – City of Robstown: 3,000,000 gpd via unnamed ditch
WQ0010401-003 – City of Corpus Christi – Greenwood Plant: 16,000,000 gpd via La Volla Creek
WQ0011134-002 – Corpus Christi Peoples Baptist Church: 20,000 gpd directly to Oso Creek.
WQ0014228-001 – MPB Properties, Cuddihy Airfield: 60,000 gpd

2491 Laguna Madre

WQ0001752-000 – Rio Grande Valley Sugar Growers: 289,000 gpd via North Floodway Pilot Channel
WQ0002525-000 – Azteca Milling: 300,000 gpd via irrigation
WQ0002803-000 – Value Frozen Foods: 6.9 acre feet/acre/year via irrigation
WQ0003946-000 – Fresh Aquatics, LLC: 8,000,000 gpd via tidal ditch
WQ0004040-000 – Calpine Construction Finance: 1,110,000 gpd via North Floodway Pilot Channel
WQ0004126-000 – Texas Pack, Inc: 150,000 gpd via outfall 001
WQ0004138-000 – Calpine Hidalgo Energy Center: 920,000 gpd via North Floodway Pilot Channel
WQ0004480-000 – North Alamo WSC: 1,000,000 gpd via East Main Drain
WQ0004758-000 – P.E.N. Joint Tenants and North Cameron Regional WSC: 2,000,000 gpd: via North Floodway
WQ0004782-000 – North Alamo WSC: 2,000,000 gpd via Donna Drain
WQ0004789-000 – North Alamo WSC: 2,000,000 gpd via Donna
WQ0004915-000 – North Alamo WSC: 1,000,000 gpd
WQ0005159-000 – Denali Water Solutions LLC: sludge
WQ0010330-001 – City of Santa Rosa: 390,000 gpd via North Floodway
WQ0010365-001 – City of Raymondville: 1,500,000 gpd via Delta Irrigation Ditch
WQ0010401-008 – City of Corpus Christi Laguna Madre: 3,000,000 gpd via pipeline
WQ0010401-009 – City of Corpus Christi Whitecap: 2,500,000 gpd
WQ0010503-002 – City of Edinburg: 5,900,000 gpd via North Floodway
WQ0010619-001 – City of Weslaco: 250,000 gpd via North Floodway
WQ0010619-003 – City of Weslaco: 3,000,000 gpd via North Floodway
WQ0010633-004 – City of McAllen: 15,000,000 gpd via North Floodway
WQ0010682-003 – Willacy Co. Navigation District: 221,000 gpd via Four Mile Slough
WQ0010757-001 – Laguna Madre Water District Isla Blanca Plant: 2,600,000 gpd via irrigation
WQ0010799-001 – Jim Hogg County WCID No. 2 (Hebbronville Plant): 796,000 gpd: via drainage ditch
WQ0010973-002 – County of Hidalgo Delta Lake Park: 5,000 gpd via Willacy WCID Ditch No. 1 (pending)
WQ0011210-001 – City of Lyford: 270,000 gpd via North Floodway
WQ0011510-002 – City of Elsa: 800,000 gpd via North Floodway

2491 Laguna Madre (cont.)

WQ0012321-001 – U.S. Department of Homeland Security Immigration and Customs Enforcement: 160,000 gpd via Cameron County WCID No. 11 Drainage Ditch
WQ0013344-002 – US Department of the Interior: 25,000 gpd via wetland
WQ0013523-014 – La Joya ISD: 13,500 gpd
WQ0013742-001 – Sebastian MUD: 225,000 gpd via North Floodway
WQ0013747-001 – North Alamo WSC: 100,000 gpd via drainage ditches
WQ0013747-002 – North Alamo WSC: 210,000 gpd via surface irrigation
WQ0013747-003 – North Alamo WSC: 122,000 gpd via surface irrigation
WQ0013747-004 – North Alamo WSC: 300,000 gpd via drainage
WQ0013772-001 – Laguna Madre Water District Andy Bowie Park Plant: 1,500,000 gpd via wetland
WQ0013924-001 – Bruni Rural WSC: 62,500 gpd
WQ0014069-001 – Laguna Madre Water District Laguna WWTP: 650,000 gpd via City of Port Isabel Reservoir
WQ0014076-001 – City of San Perlita: 100,000 gpd via evaporation and percolation
WQ0014698-001 – TxDOT: 13,000 gpd via drainage ditches
WQ0014781-002 – City of La Villa: 780,000 gpd via North Floodway
WQ0014919-001 – City of Edcouch: 310,000 gpd via North Floodway Pilot Channel
WQ0014950-001 – Hidalgo County MUD #1: 950,000 gpd
WQ0015163-002 – North Alamo: 500,000 gpd
WQ0015513-001 – North Alamo: 700,000 gpd via North Floodway

2492 Baffin Bay / Alazan Bay / Cayo del Grullo / Laguna Salado

WQ0010067-002 – Duval County Conservation and Reclamation District: 40,000 gpd via Los Olmos Creek
WQ0010084-001 – Utility Board of Falfurrias: 460,000 gpd via surface irrigation
WQ0010253-001 – City of Premont: 350,000 gpd via surface irrigation
WQ0011515-001 – Riviera ISD: 16,000 gpd via surface irrigation
WQ0013361-002 – Kenedy County Sarita Sewer Service and WSC: 44,000 gpd via evaporation
WQ0013374-001 – Kleberg County Kaufer Hubert Memorial Park: 33,000 gpd via Cayo Del Grullo.
WQ0013374-002 – Riviera WCID: 60,000 gpd via Los Olmos Creek
WQ0013374-003 – County of Kleberg Ricardo WWTP: 48,500 gpd via Jaboncillos Creek
WQ0014808-001 – King Ranch Inc.: 25,500 gpd via evaporation

2492A San Fernando Creek

WQ0000579-000 – Ticona Polymers, Inc. (Celanese): storm water
WQ0004819-000 – SNBL USA Ltd.: 35,000 gpd via evaporation
WQ0010067-001 – Duval County Conservation and Reclamation District: 250,000 gpd via Santa Gertrudis Creek
WQ0010270-001 – San Diego MUD: 750,000 gpd via San Diego Creek
WQ0010427-001 – City of Bishop: 320,000 gpd via Carreta Creek
WQ0010536-002 – City of Alice: 2,600,000 gpd via Lattas Creek
WQ0010536-004 – City of Alice: 2,020,000 gpd and irrigation
WQ0010696-001 – City of Kingsville – Plant 1: 3,000,000 gpd via Tranquitas Creek
WQ0010696-004 – City of Kingsville: 1,000,000 gpd via Santa Gertrudis Creek and irrigation
WQ0012035-001 – US Department of the Navy (Kingsville NAS): 400,000 gpd

2494 Brownsville Ship Channel

WQ0002597-000 – Brownsville Navigation District: 100,000 gpd via evaporation
WQ0002817-000 – Brownsville Navigation District Fishing Harbor: 250,000 gpd
WQ0003936-000 – Valley MUD No. 2: 540,000 gpd via San Martin Lake
WQ0004126-000 – Texas Pack, Inc: 150,000 gpd via irrigation
WQ0004541-000 – Southmost Regional Water Authority and Brownsville Public Utilities Board: 4,000,000 gpd via San Martin Lake
WQ0005005-000 – Tenaska Brownsville Partners: storm water
WQ0005209-000 – Maverick Fuel Oil Terminal: storm water (pending)
WQ0010332-001 – Brownsville Navigation District Northside Plant: 98,000 gpd via drainage ditch to BSC
WQ0010350-001 – Laguna Madre Water District Port Isabel Plant: 1,100,000 gpd via Vadia Ancha and monofill sludge on permittee property
WQ0010397-005 – Brownsville Public Utilities N. Robindale Plant: 14,500,000 gpd via San Martin Lake
WQ0010590-002 – City of Los Fresnos: 1,000,000 gpd via San Martin Lake
WQ0015162-001 – East Rio Hondo Water Supply: 100,000 gpd
WQ0011348-001 – Valley MUD No. 2: 400,000 gpd via San Martin Lake
WQ0013817-001 – Olmito WSC (Olmito Plant): 750,000 gpd via San Martin Lake
WQ0014355-001 – Brownsville Navigation District: 100,000 gpd via San Martin Lake

