Total Maximum Daily Load for Mary's Creek Bypass 1102F_01

Hanadi Rifai, Rose Sobel, and Amin Kiaghadi
Civil and Environmental Engineering
University of Houston

Houston Galveston Area Council
Bacteria Implementation Group Spring Meeting

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UNIVERSITY of HOUSTON

Project Objectives

- Develop TMDL for Assessment Unit:
  - 1102F_01: Mary's Creek Bypass
- Support Public Participation

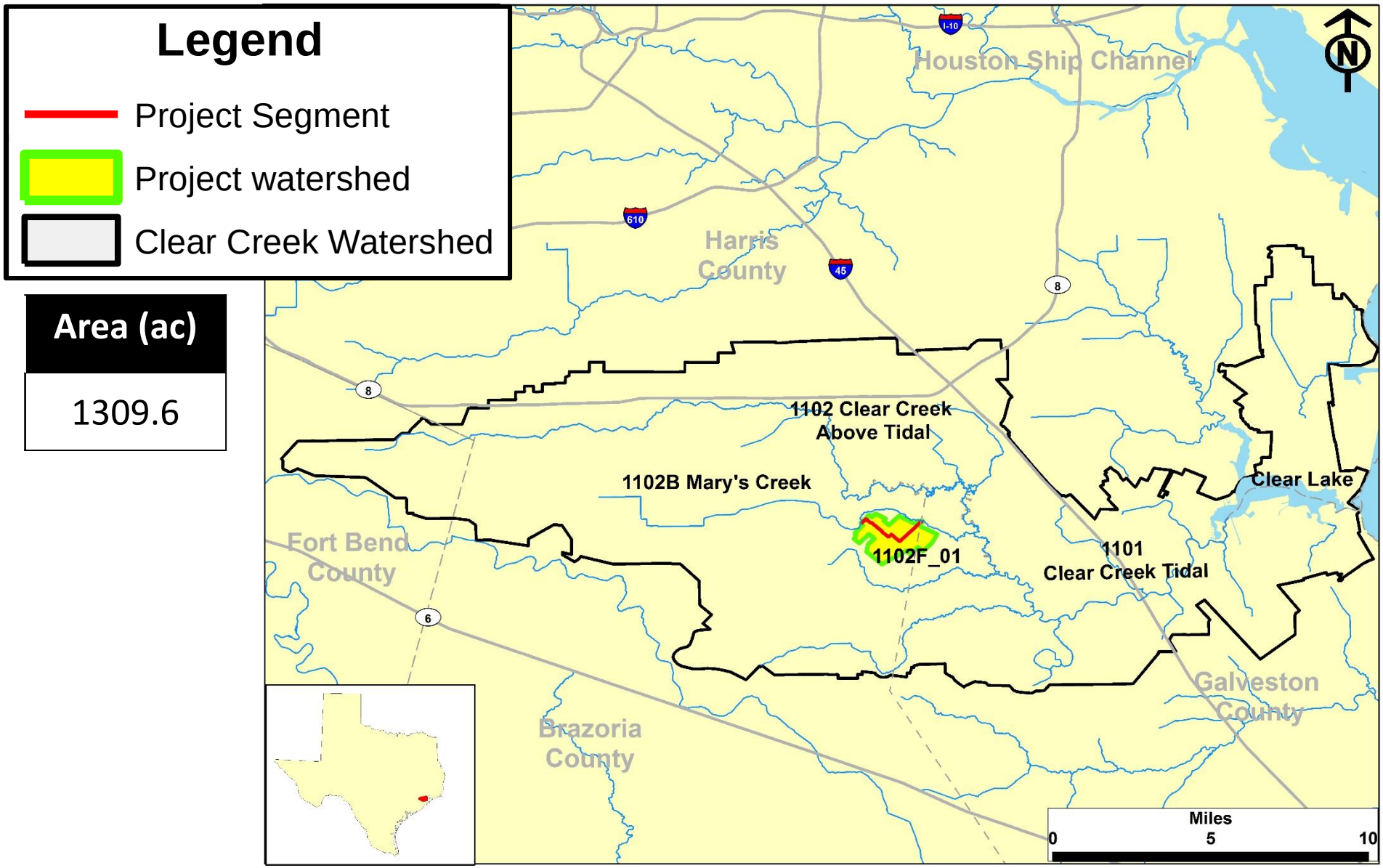
Key Steps in TMDL Development

- Data compilation and analysis
- Pollution source assessment
- Development of Flow Duration Curves (FDCs) and Load Duration Curves (LDCs)
- Development of Total Maximum Daily Load

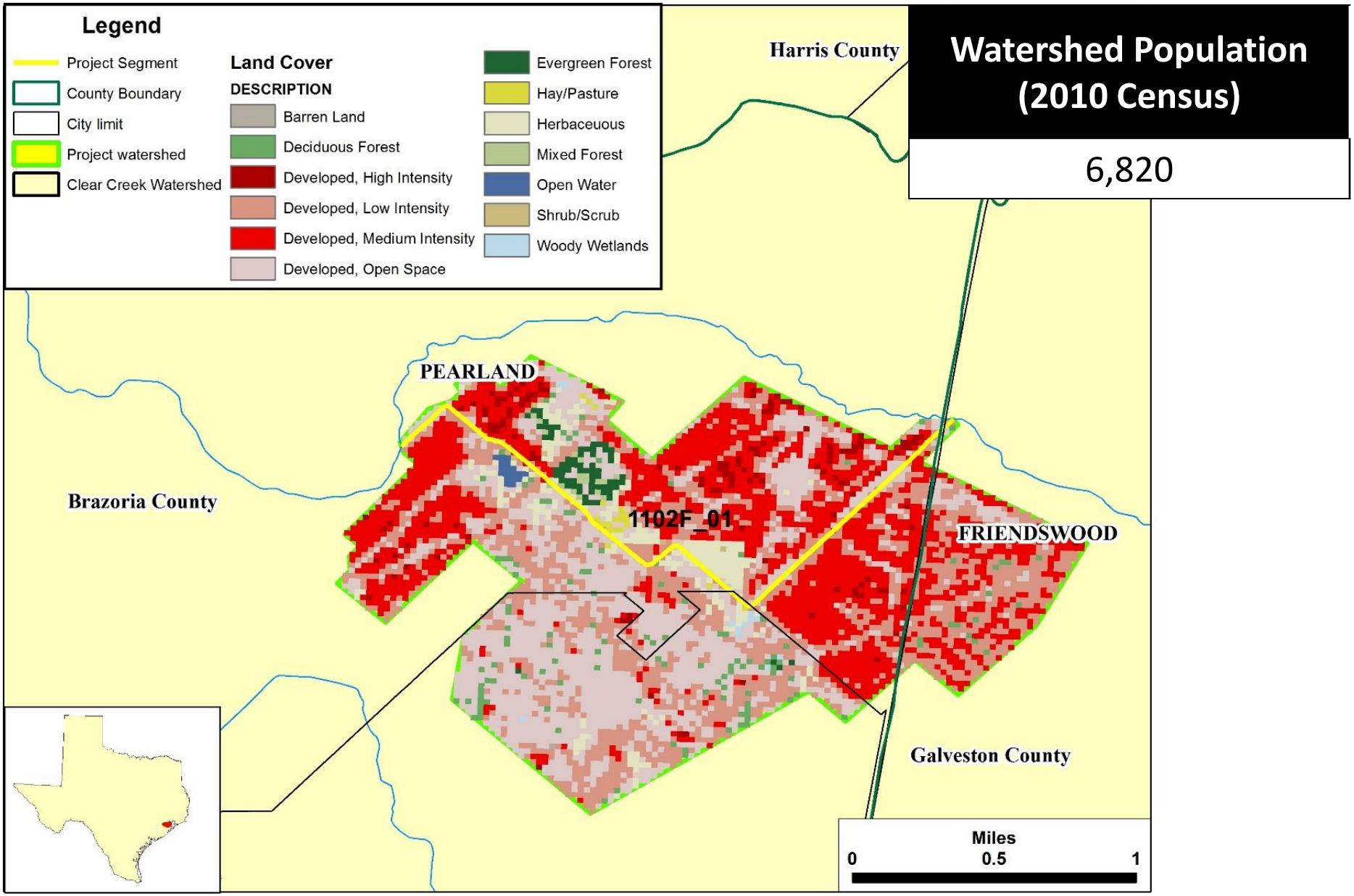
Data compilation and analysis

WATERSHED CHARACTERISTICS

Mary's Creek Bypass



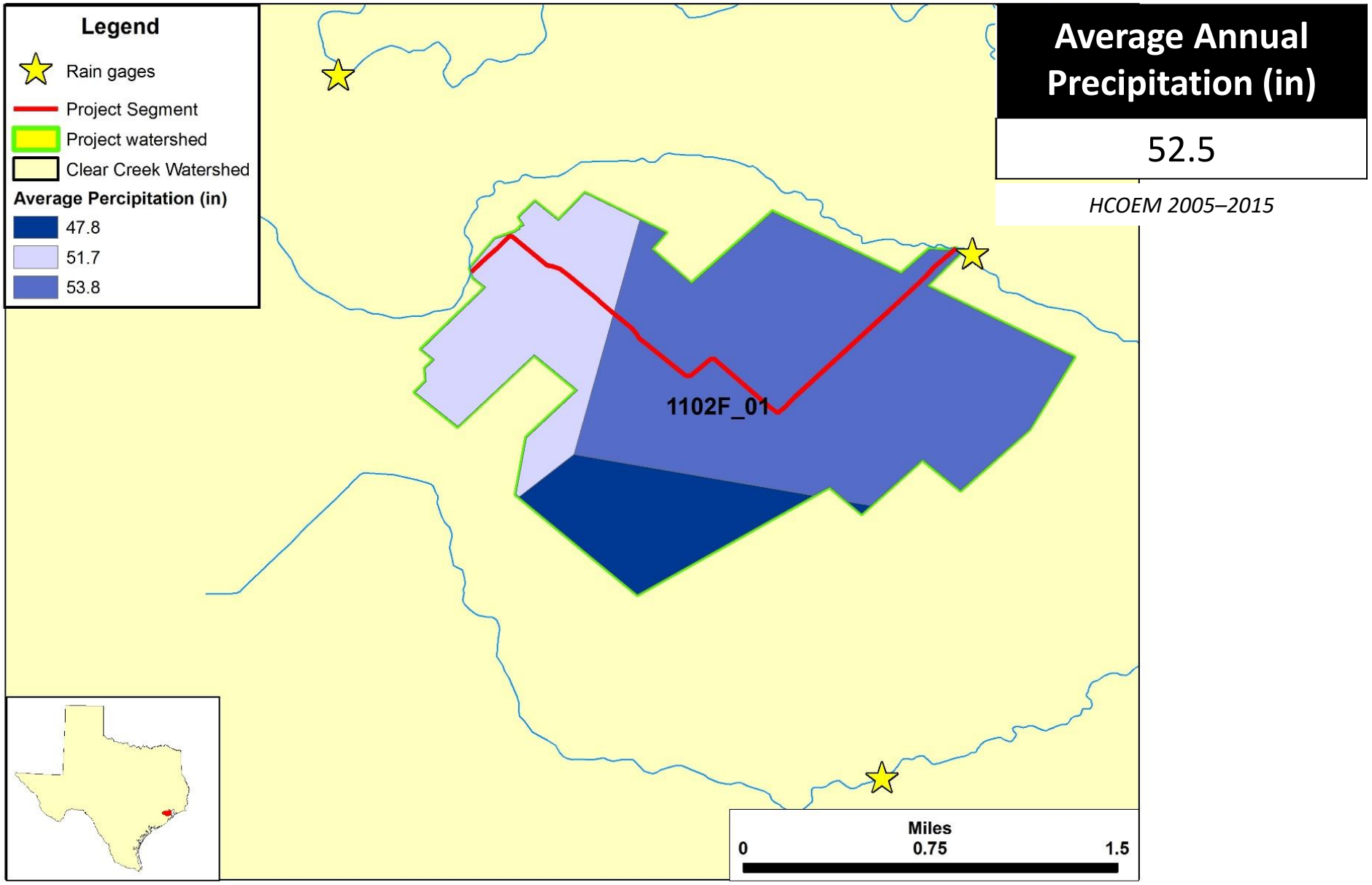
Land Cover and Population



Watershed Population (2010 Census)

6,820

Precipitation



Average Annual Precipitation (in)

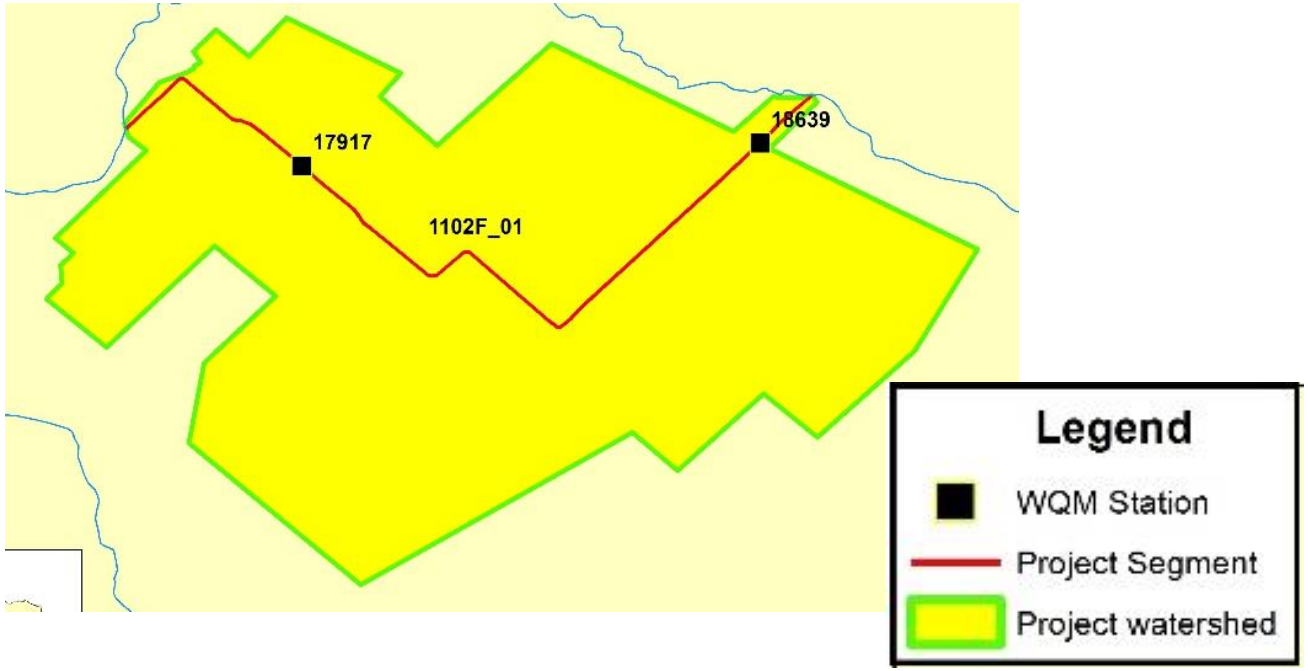
52.5

HCOEM 2005–2015

Data compilation and analysis

INDICATOR BACTERIA

Station Locations & Impairment History



Contact Recreation Use	**NS**
Year 1st on 303(d) list	2014
Stream Length (mi)	2.37

NS= Not Supporting

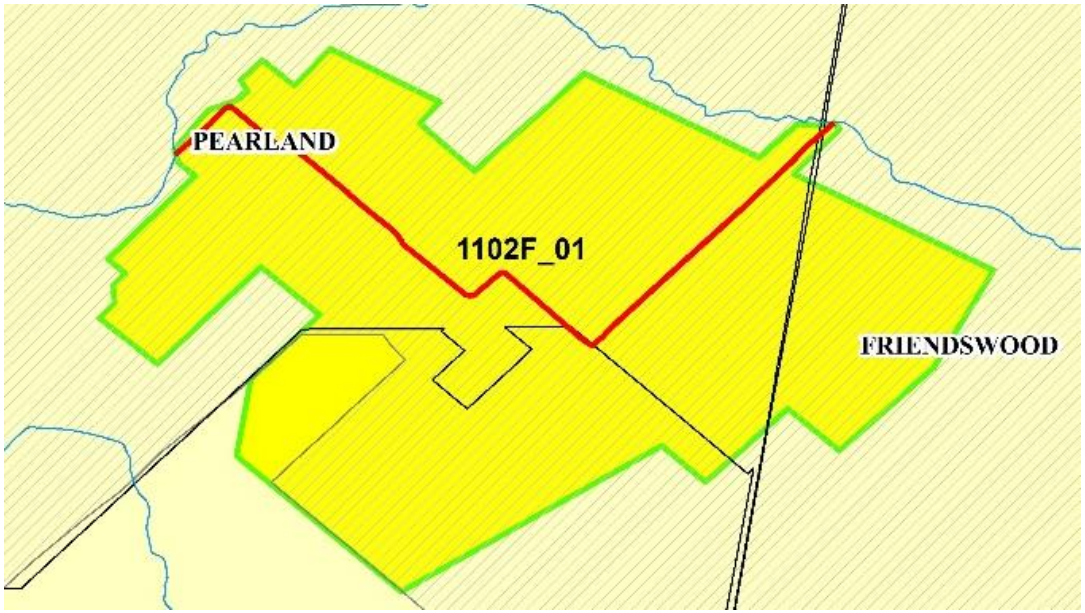
AU ID	Station ID	Geometric Mean Concentration (MPN/100ml)	Number of Samples	% of Samples Exceeding
1102F_01	17917	159.39	10	10%
	18639		10	10%

Date range: 2006 to 2007	Geometric Mean Criterion:	126 MPN/100 ml

Pollution source assessment

PERMITTED AND NON-PERMITTED SOURCES

Permitted Sources



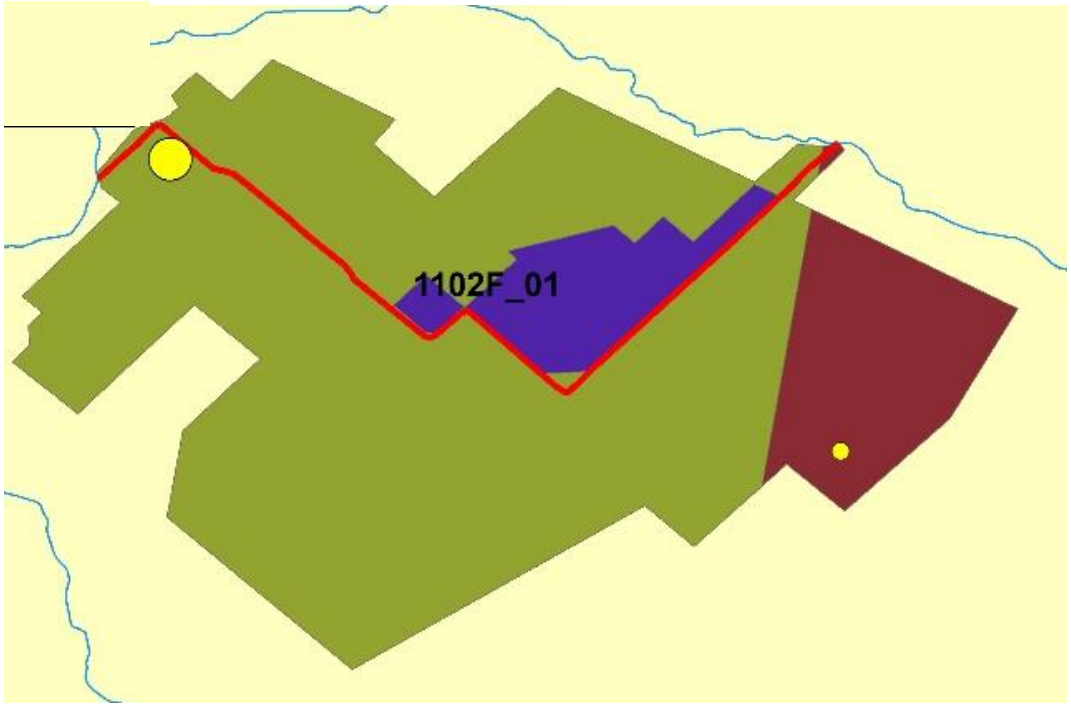
Legend

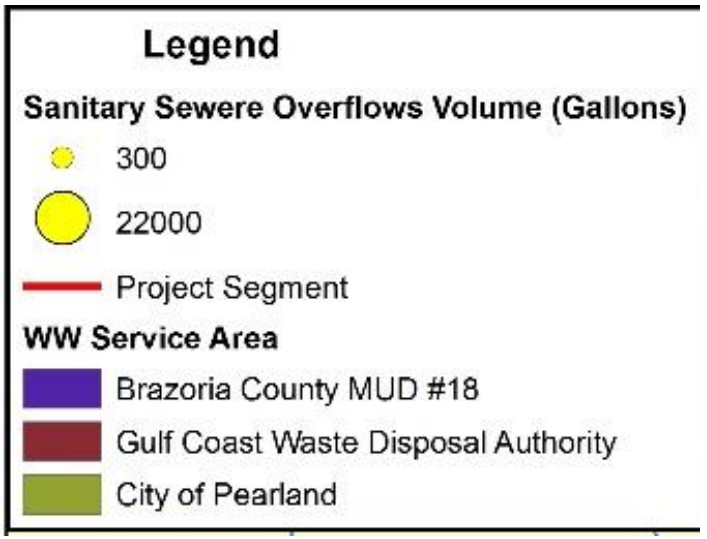
- Project Segment
- Project watershed
- City limit
- MS4 Permitted Area

No TPDES permitted facilities discharging to 1102F_01

Regulated Entity Name	Permit Number	Total Area (acres)	Area under MS4 Permit (Acres)	% Watershed under MS4 Jurisdiction
City of Pearland MS4	TXR040208	1309.6	1241.3	95%
Brazoria Drainage District 4	TXR040144			
City of Friendswood	TXR040233			
Galveston County Consolidated Drainage District	TXR040067			

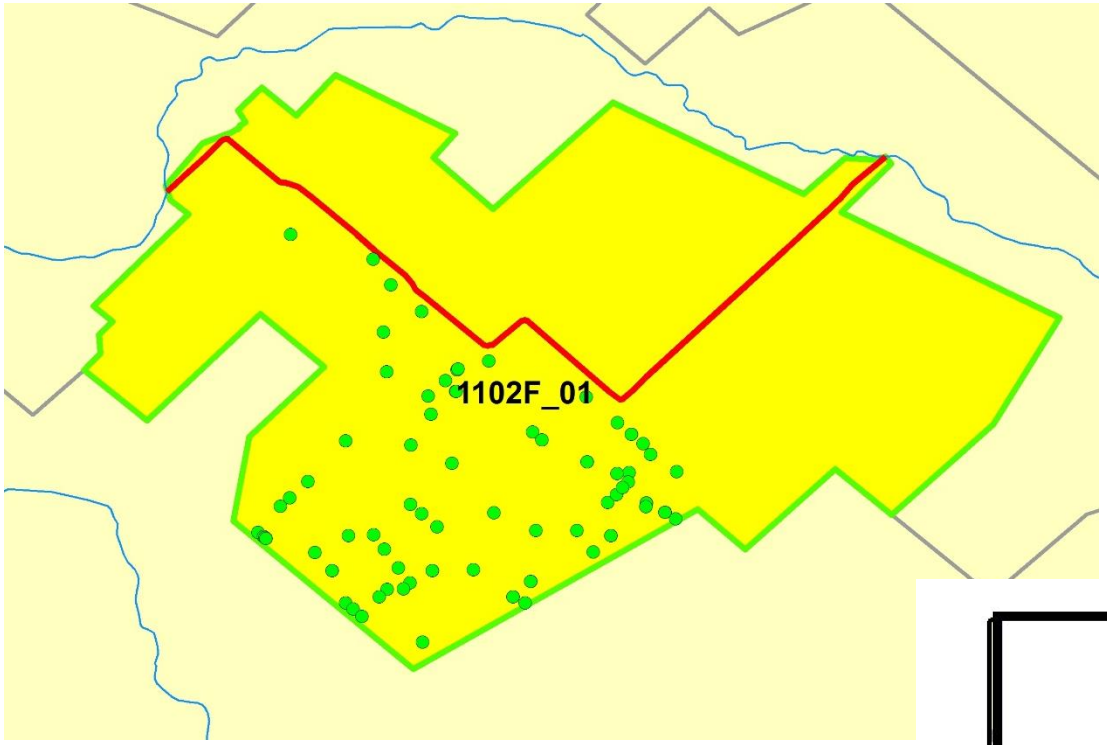
Sanitary Sewer Overflows



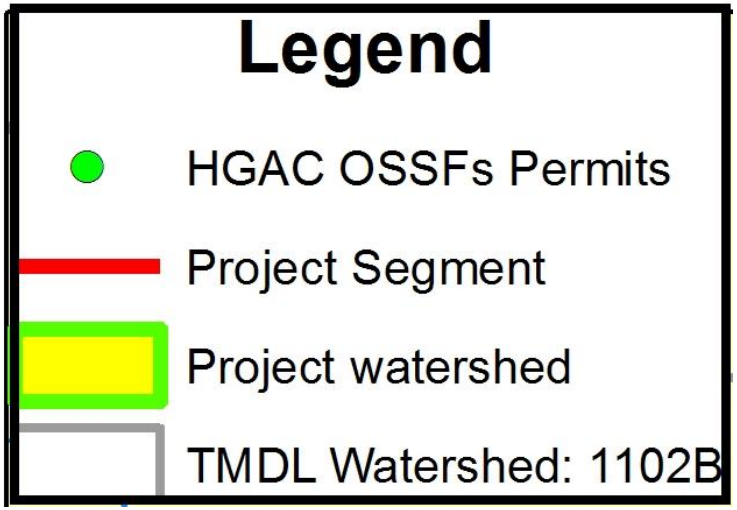


Facility Name	NPDES Permit No.	Facility ID	Number	Date	Amount (Gallons)
City of Pearland	TX0032743	10134-003	1	12/13/2001	22,000
Gulf Coast Waste Disposal Authority	TX0069728	11571-001	1	4/17/2008	300

On Site Sewage Facilities



On-Site Sewage Facilities (OSSFs)
82



Non-Permitted Sources: Animals

Pets	
Dogs	Cats
1,411	1606

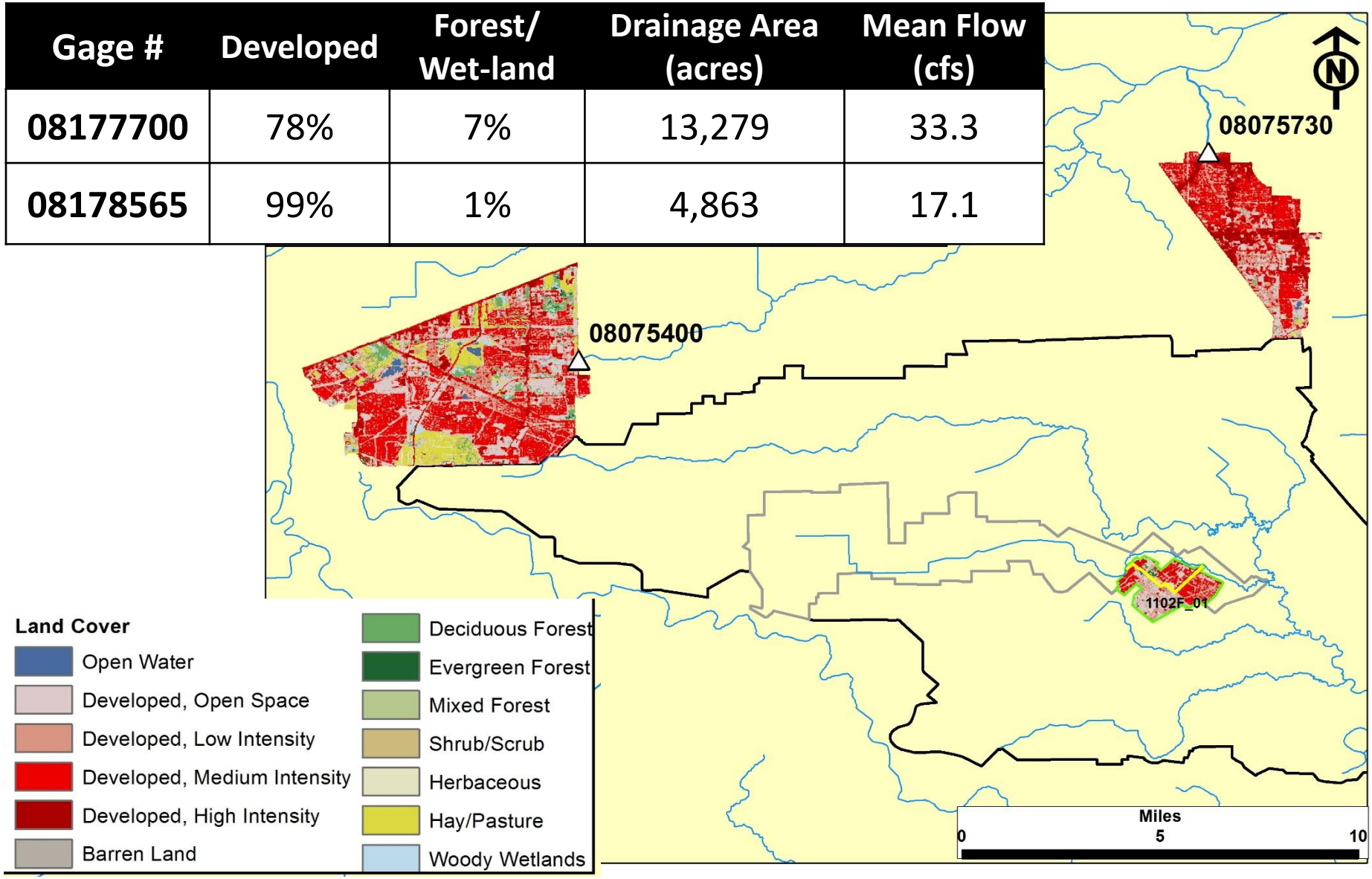
Livestock not a significant source

USDA

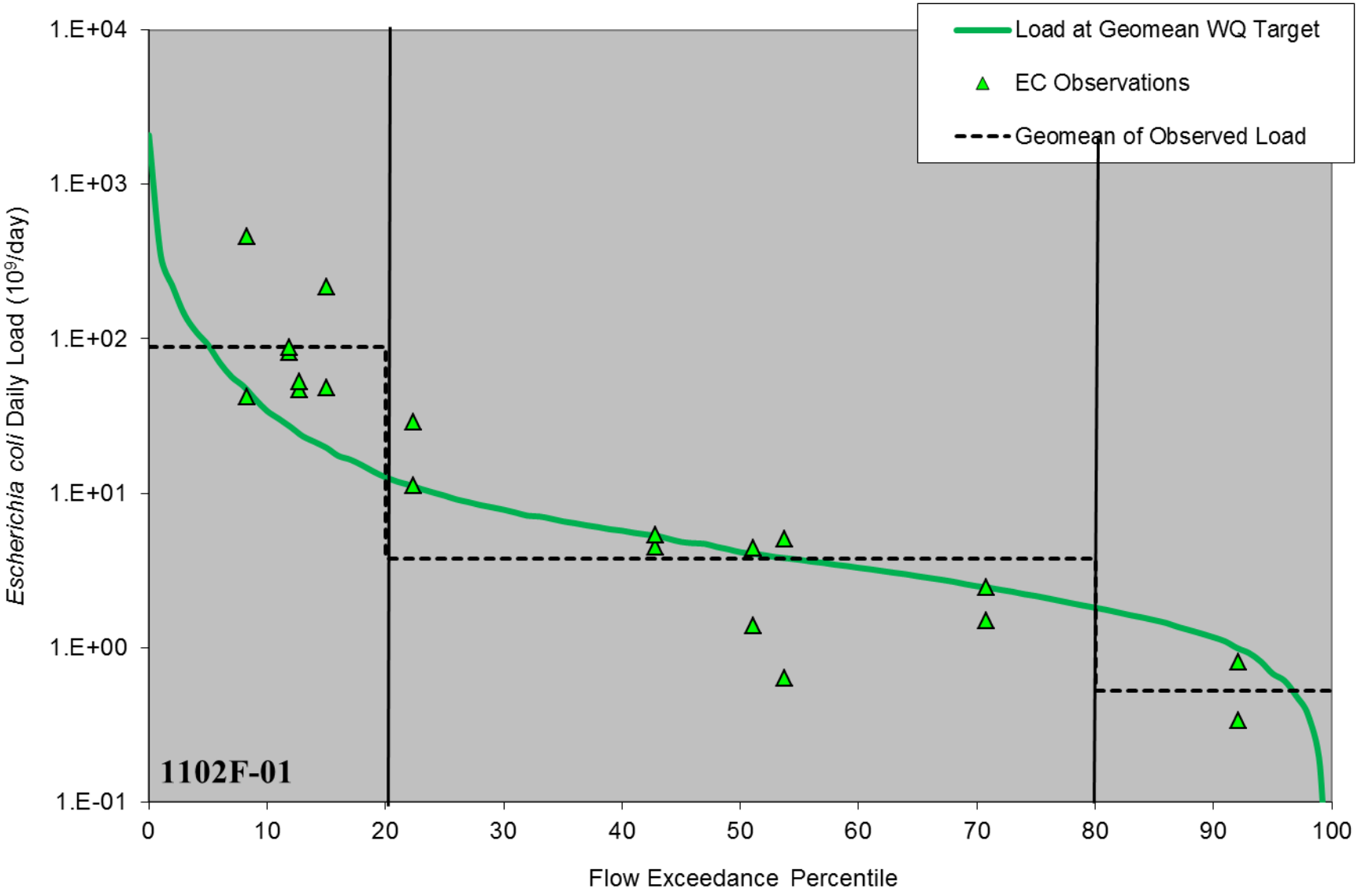
DEVELOPMENT OF FDC, LDC, AND TMDL

USGS Gages for Flow Projection

Gage #	Developed	Forest/ Wet-land	Drainage Area (acres)	Mean Flow (cfs)
08177700	78%	7%	13,279	33.3
08178565	99%	1%	4,863	17.1



Load Duration Curve for Mary's Creek



TMDL Calculations for Mary's Creek Bypass

Segment	TMDL	WLA_{WWTF}	$WLA_{STORM\ WATER}$	LA	MOS	Future Growth
	(Billion MPN/day)					
1102F_01	20.739	0.0	18.717	0.985	1.037	0.0

TMDL = Maximum allowable load

MOS (margin of Safety) = TMDL x 0.05

WLA_{WWTF} *= Sum of loads from the WWTF discharging*

$WLA_{STORMWATER}$ *= (TMDL – MOS –WLA_{WWTF})*(% of drainage area under MS4 permits)*

LA = TMDL – MOS –WLA_{WWTF} –$WLA_{STORMWATER}$-Future growth

*Future Growth = Projected increase in WWTF permitted flows*126*conversion factor*

Next Steps

- Support TMDL program in development of draft WQMP update for Mary's Creek Bypass

Photo of Mary's Creek Bypass