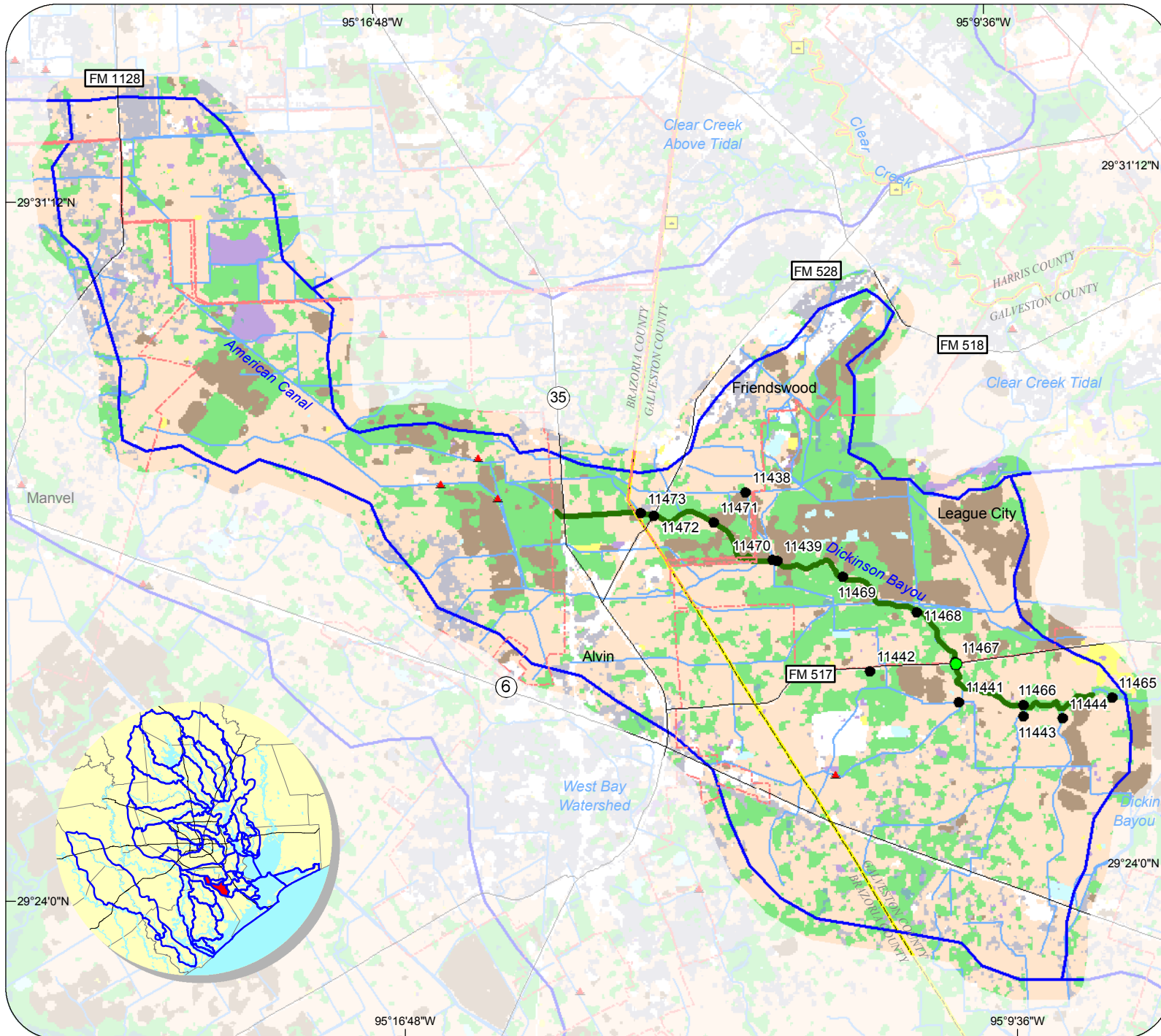
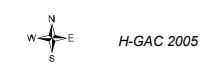
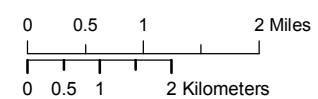


DICKINSON BAYOU ABOVE TIDAL - SEGMENT 1104



- Monitoring Station
- ▲ Wastewater Outfall
- ▲ Stormwater Outfall
- Watershed Boundary
- Major Road or Highway
- County Boundary
- City, Town or Place
- ~ Waterway

- Land Cover [2002]**
- Low Intensity Developed
 - High Intensity Developed
 - Cultivated Land
 - Grassland
 - Forested Land
 - Open Water
 - Woody Wetland
 - Wetland
 - Barren Land / Transitional



Impaired Segments

█ Bacteria

Assessment Station for the 2004 303(d) List and 305(b) Report

Use - Impairment	ID
Contact Recreation - Bacteria	11467

Number of Outfalls	4
Wastewater	4
Total Population	
2000	15,702
2007 (Proj.)	19,862

Name: **DICKINSON BAYOU ABOVE TIDAL**

Segment: 1104

Description of Segment 1104: From a point 4.0 km (2.5 miles) downstream of FM517 in Galveston County to FM 528 in Galveston County

Segment Length: 7 miles

Watershed Area: 45 square miles

Designated Uses: Contact Recreation
Intermediate Aquatic Life

Standards for Segment 1104:

Temperature (°C):	35
Dissolved Oxygen (<i>24-Hr Average</i>) (mg/L):	4.0
Dissolved Oxygen (<i>Absolute Minima</i>) (mg/L):	3.0
pH (standard units):	6.5 – 9.0
<i>E. coli</i> (mpn/100 mL) (grab):	394
Fecal Coliform (#/100 mL) (grab):	400
Chloride (mg/L as Cl):	200
Sulfate (mg/L as SO ₄):	100
Total Dissolved Solids (mg/L):	600

Nutrient Screening Criteria for Segment 1104:

Ammonia (mg/L):	0.33
Nitrite + Nitrate (mg/L):	1.95
Orthophosphate Phosphorus (mg/L):	0.37
Total Phosphorus (mg/L):	0.69
Chlorophyll- <i>a</i> (µg/L):	14.1

Number of Active Surface Water Monitoring Stations: 3

Monitoring Agencies: Environmental Institute of Houston – UHCL

Texas Watch Volunteer Monitoring Stations: 0

Number of Permitted Outfalls: Wastewater 4
Industrial Stormwater 0

TCEQ Assessment Summary:

2004 303(d):	Bacteria – 1104
2002 303(d):	Bacteria – 1104
2004 305(b):	Bacteria – 1104
2002 305(b):	Bacteria – 1104 Depressed Dissolved Oxygen – 1104 Nutrient Enrichment (ammonia) – 1104

Narrative: The watershed includes portions of the Cities of Alvin, Friendswood, League City and Santa Fe. Rapid growth is occurring throughout the undeveloped watershed. Residential, mixed commercial development and agriculture are the predominant land uses with high intensity developments

and business districts found adjacent to and at the intersections of Hwy 6, Hwy 35 and FM 528. Ranchettes, small acreage farms or ranches, are common throughout the rural areas, with large tracts of land used for grazing and agricultural operations are still common in the southern and western areas of the watershed.

Development in more than 70% of the watershed relies on septic systems to dispose of wastewater. Failing septic systems are not concentrated in one location, but found throughout the entire watershed. Brazoria and Galveston County Health Departments are the authorized agents of the State of Texas to regulate on-site wastewater disposal systems through an inspection and permitting program. Problematic systems are addressed through complaint investigation. Successful resolutions are usually achieved through notices, plan review, inspection, permitting and, if necessary, court intervention. Municipal sanitary sewer services are available in the developed areas of Alvin, Friendswood, League City and Santa Fe.

This segment is currently monitored by the Environmental Institute of Houston - UHCL and TCEQ in one location only. Limited access to other parts of the bayou and intermittent flows upstream preclude sampling at other locations.

All routine data for these segments was reviewed and a trends analysis performed. **Dickinson Bayou Above Tidal (segment 1104)** has one monitoring station with sufficient data for a trends analysis. Three trends were found in the data from site 11467 located at FM517. This station is located midway in the segment at FM 517, east of the City of Alvin and may not be indicative of the entire segment. Total phosphorus and total suspended solids concentrations are decreasing which would indicate an improvement in water quality but *E. coli* concentrations appear to be increasing. It should also be noted that this trend is not conclusive since there is only three years of *E. coli* data. Failing septic systems and pasture lands are probably the most likely sources of the bacteria contamination in the area because large animals such as horses and cows are common throughout the watershed. There is also an exotic animal ranch bordering Dickinson Bayou south of FM517. Domestic pets, wildlife and avian populations are also probable sources of the bacteria.

This segment is included in the 2002 and 2004 305(b) Reports and 303(d) Lists for bacteria. It is also included in the 2002 305(b) Report for depressed DO and nutrient enrichment, specifically ammonia. Two sites have data to compare against the water quality standards and the January 2006 nutrient screening criteria. Bacteria concentrations are a concern or actual impairment at both locations (11467 & 11465). All fecal coliform data from sample site 11467 (FM517) shows that 25 out of 48 samples (52%) exceeded the contact recreation standards. This data was collected between December 1994 and November 2001. The *E.coli* data collected at this site since December 2001 indicates a concern but is compliant. Two out of 15 samples (13%) collected exceeded the standard. More data is needed to make a full assessment with the new indicator bacteria.

In response to the elevated bacteria levels found in the bayou, the TCEQ will initiate a Bacteria TMDL to determine the measures necessary to support recreational uses in these water bodies. There are several Bacteria TMDLs currently underway on various water bodies throughout the region. Hopefully, the lessons learned from those projects will be applicable to Dickinson Bayou for facilitating restoration of water quality. In the meantime, the start date for this TMDL has not yet been determined.

H-GAC's current assessment of grab sample data does not show a concern for depressed DO nor ammonia levels. Only site 11467 had enough ammonia data to compare against the nutrient screening criteria. Only four out of 64 results (6%) exceeded 0.33 mg/L. Likewise, only site 11467 had enough instantaneous DO data. Of the 93 measurements collected between March 1992 and January 2005, only 2 results (2%) exceeded the absolute minima standard for the segment.

Next Steps: Continue routine monitoring at all locations. Monitor progress with the TMDL and watershed protection plan development process.

