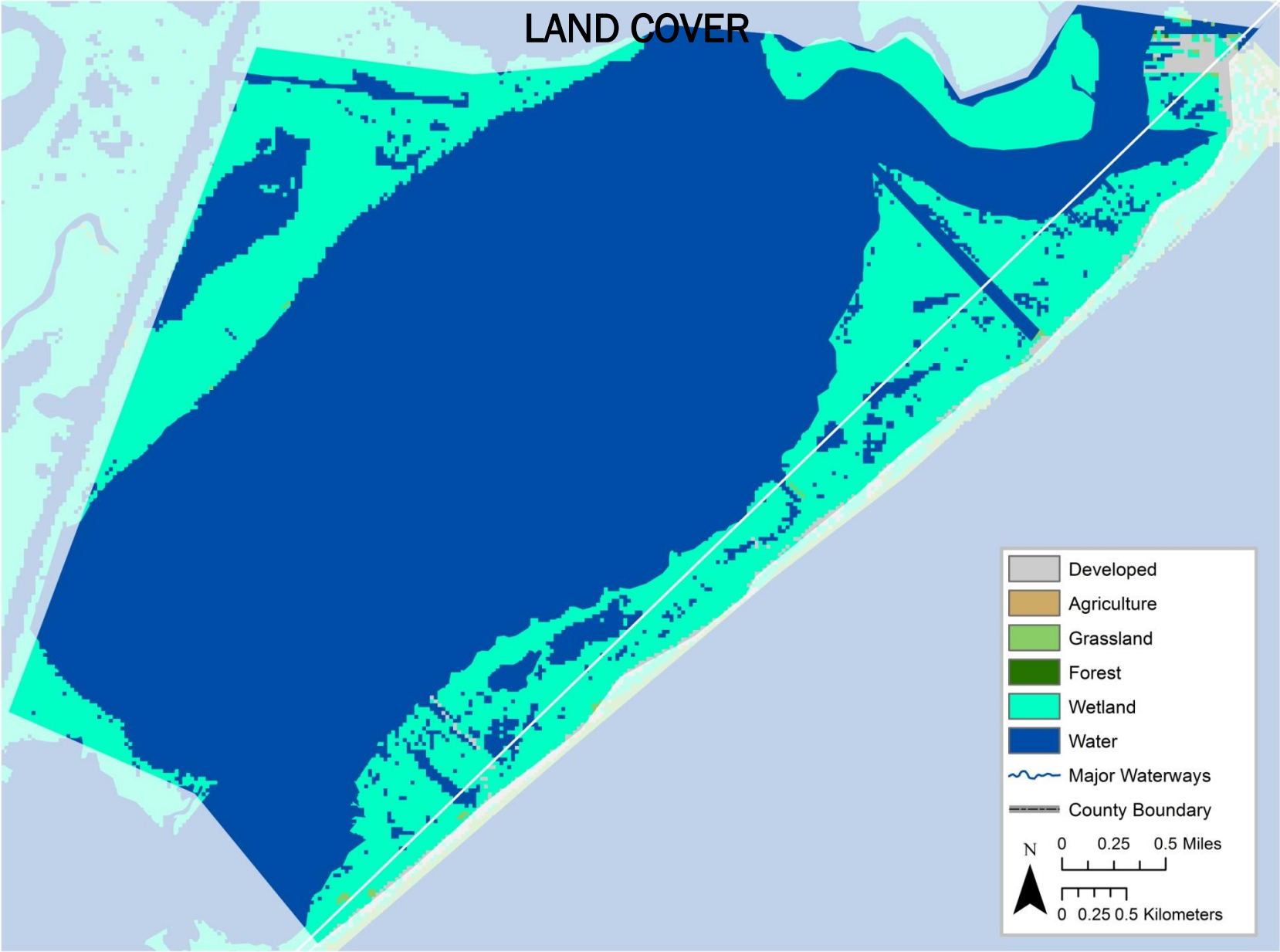


CHRISTMAS BAY - SEGMENT 2434



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LAND COVER



Segment Number:	2434	Name:	Christmas Bay
Area:	9.3 square miles	Miles of Shoreline:	26.1 miles
Designated Uses:	Primary Contact Recreation 1; High Aquatic Life Use; Oyster Waters		
Number of Active Monitoring Stations:	1	Texas Stream Team Monitors:	0
Permitted Outfalls:	0		
Description:	Segment 2434: Located on the landward side of Follet's Island in Brazoria County and southwest of Mud Island, it drains into Bastrop Bay to the northeast or directly to West Galveston Bay via a channel on the south side of Mud Island.		
	Segment 24340W (Oyster Waters)		

Percent of Stream Impaired or of Concern						
Segment ID	PCBs/Dioxin	Bacteria	Dissolved Oxygen	Nutrients	Chlorophyll a	Other
2434	-	-	-	-	-	-
24340W	-	100	-	-	-	-

Segment 2434			
Standards	Bays & Estuaries	Screening Levels	Bays & Estuaries
Temperature (°C/°F):	35 / 95	Ammonia-N (mg/L):	0.10
Dissolved Oxygen (24-Hr Average) (mg/L):	4.0	Nitrate-N (mg/L):	0.17
Dissolved Oxygen (Absolute Minima) (mg/L):	3.0	Orthophosphate Phosphorus (mg/L):	0.19
pH (standard units):	6.5-9.0	Total Phosphorus-P (mg/L):	0.21
Enterococci (MPN/100mL) (grab):	104	Chlorophyll a (µg/L):	11.6
Enterococci (MPN/100mL) (geometric mean):	35		
Fecal Coliform in Oyster Waters (CFU/100mL) (median/grab):	14/43		

FY 2016 Active Monitoring Stations				
Site ID	Site Description	Frequency	Monitoring Entity	Parameter Groups
13351	Christmas Bay at Christmas Pt	Quarterly	TCEQ	Field, Conventional, Bacteria, Chlorophyll a

Water Quality Issues Summary			
Issue	2014 Assessment <i>I - Impaired C - Of Concern</i>	Possible Causes / Influences / Concerns Voiced by Stakeholders	Possible Solutions / Actions To Be Taken
Elevated Levels of Indicator Bacteria in Oyster Waters	24340W I	<ul style="list-style-type: none"> ▪ Animal waste from cattle grazing ▪ Developments with malfunctioning OSSFs ▪ Year-round and migratory bird populations ▪ Improper or no pet waste disposal ▪ Waste haulers illegal discharges/improper disposal ▪ Direct and dry weather discharges 	<ul style="list-style-type: none"> ▪ Implement stream fencing or alternative water supplies to keep livestock out of or away from waterways ▪ Encourage Water Quality Management Plans or similar projects for agricultural properties ▪ Install and/or conserve vegetative buffer areas along all waterways ▪ Improve construction oversight to minimize TSS discharges to waterways ▪ Add water quality features to stormwater systems ▪ More public education regarding OSSF operation and maintenance ▪ Ensure proper citing of new or replacement OSSFs ▪ More public education on pet waste disposal ▪ Regionalize chronically non-compliant WWTFs

Segment Discussion:

Watershed Characteristics: Christmas Bay is surrounded by herbaceous wetlands and is bordered by Mud Island and Follets Island, a barrier island, to the southwest. To the northwest the Bay is bordered by the Brazoria National Wildlife Refuge. Christmas Bay is isolated from the other surrounding Bays with no direct access to the Intracoastal Waterway. Christmas Bay is a Coastal Preserve and is part of the Texas General Land Office/Texas Parks and Wildlife Department Coastal Preserves Program. The Bay is one of the most pristine areas in the Galveston Bay system and is home to numerous species of birds, fish, crustaceans, mollusks, and several species of seagrass. While isolated from most development, there are two canal communities on Follets Island which drain directly to the bay. These communities exclusively use OSSFs.

Water Quality Issues: Assessment unit 24340W_01, which is the area of Christmas Bay adjacent to West Bay, is listed in the 2014 IR as impaired for oyster waters due to elevated levels of fecal coliform bacteria. This assessment unity is closed by the Seafood Safety Division of the Texas Department of State Health Services for the harvesting of oysters and other shellfish for direct marketing. This segment fully supports the primary contact and high aquatic life use designations.

Special Studies/Projects: Christmas Bay is included in the Oyster Waters I-Plan for bacteria which began in 2010 after the TMDL was approved by the EPA. The final draft I-Plan was submitted to the TCEQ in August of 2014 and final approval of the draft was given in August of 2015. For more information about the project, please refer to the detailed discussion located in the Public Involvement and Outreach section of the 2016 Basin Summary Report.

Trends: Regression analysis of water quality data for Christmas Bay identified two statistically significant parameter trends – increasing pH and decreasing total Kjeldahl nitrogen (TKN). The only impairment listed in the 2014 Texas Integrated Report for this segment is for elevated levels of fecal coliform bacteria in oyster waters. The clean rivers program does not collect fecal coliform data, but regression analysis of [enterococci](#) shows healthy concentrations that remain consistently below the 35 MPN/100 mL water quality standard during the period of record which supports this segments primary contact recreation and high aquatic life use designations.

Recommendations

Continue collecting water quality data to support actions associated with any future watershed protection plan development and possible modeling.

Coordinate education efforts with other local TMDL and watershed protection plan efforts.

Pursue a new local partner to Clean Rivers Program to collect additional data that would help better isolate problem areas.