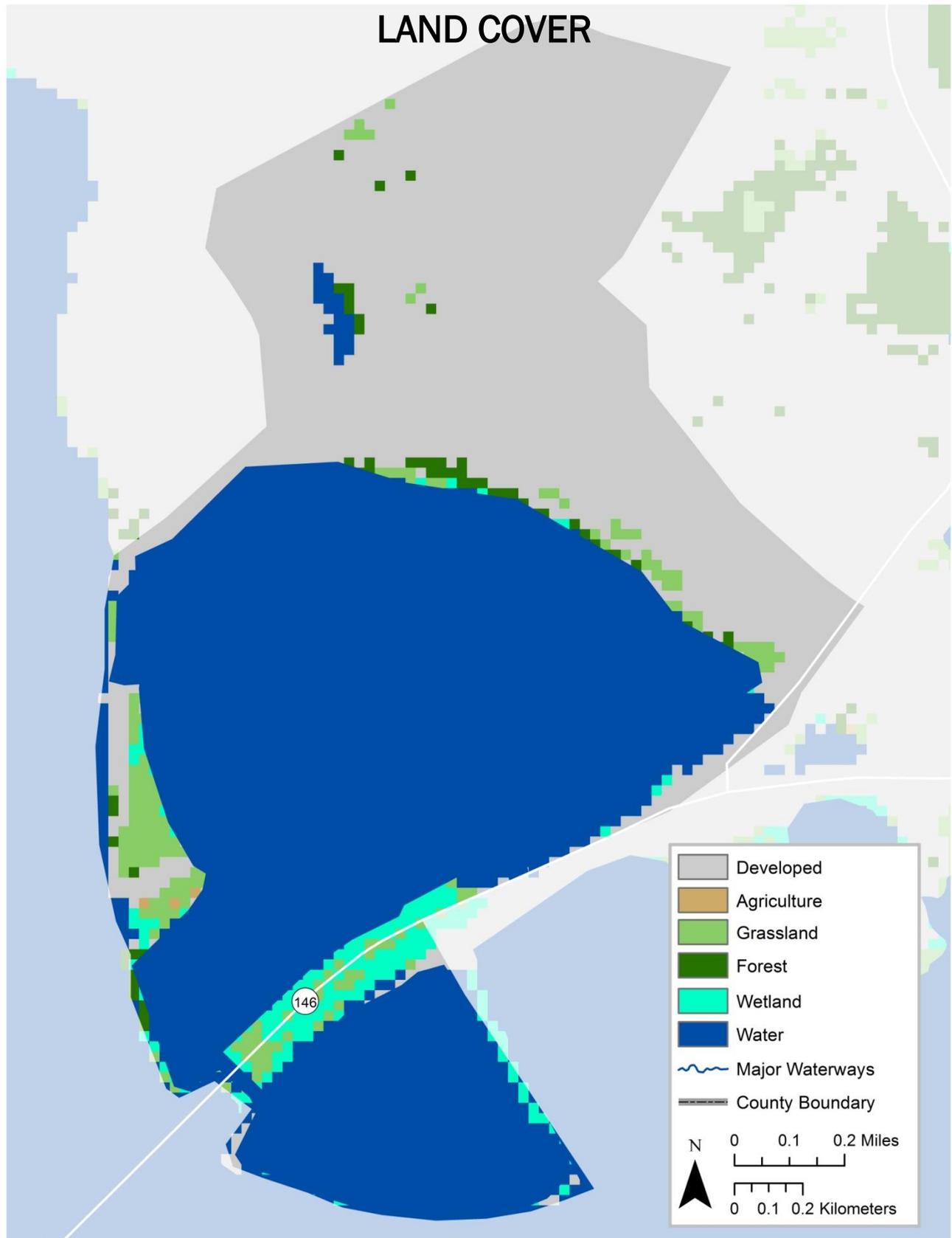


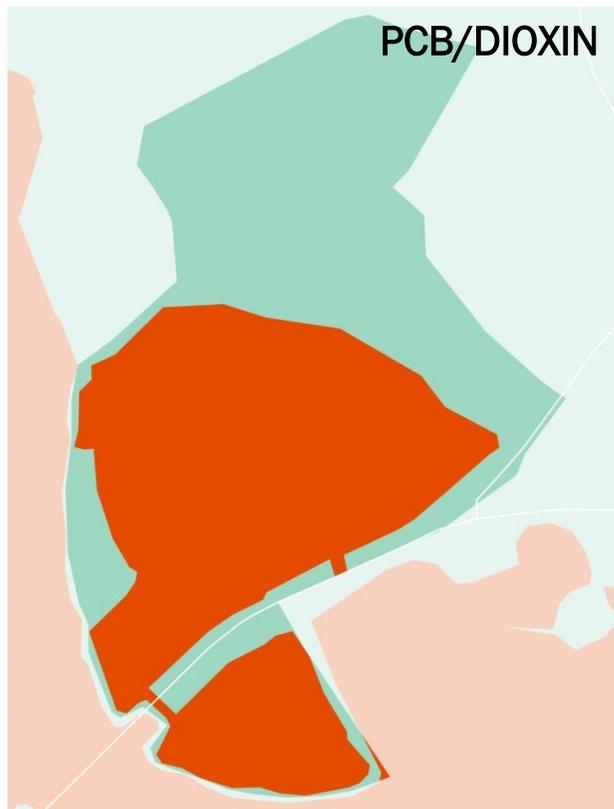
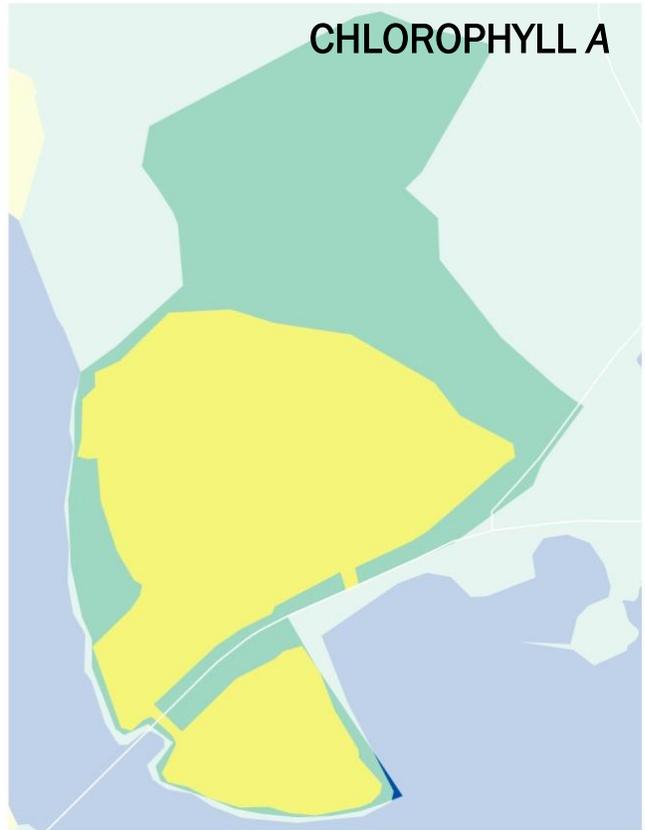
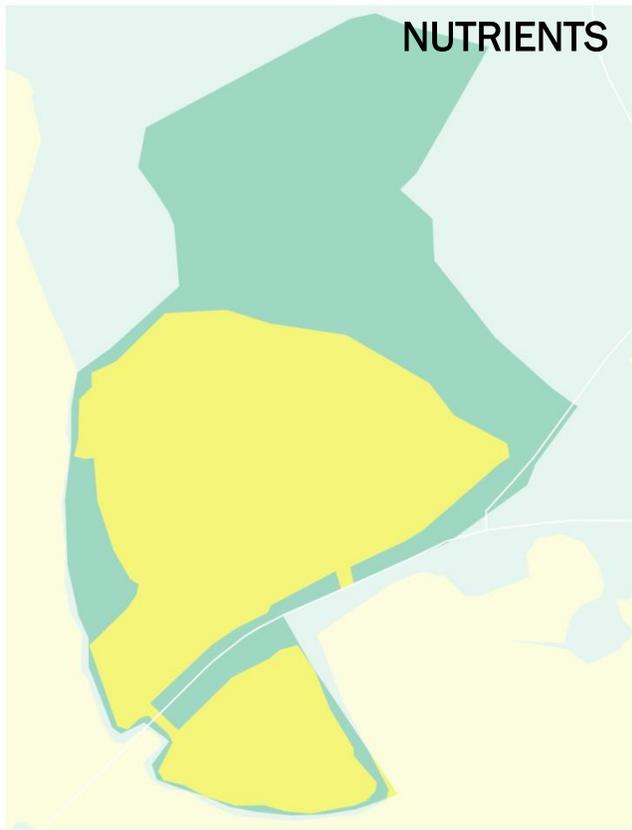
# BLACK DUCK BAY - SEGMENT 2428



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## LAND COVER





 Impairment     Concern     No Impairments or Concerns

<b>Segment Number:</b>	<b>2428</b>	<b>Name:</b>	<b>Black Duck Bay</b>			
<b>Area:</b>	1 square miles	<b>Miles of Shoreline:</b>	5.1 miles	<b>Designated Uses:</b>	Primary Contact Recreation 1; High Aquatic Life Use	
<b>Number of Active Monitoring Stations:</b>	1	<b>Texas Stream Team Monitors:</b>	0	<b>Permitted Outfalls:</b>	0	
<b>Description:</b>	A side bay located east of the Houston Ship Channel/tidal San Jacinto River intersected by the Highway 146 bridge crossing into the City of Baytown.					

Percent of Stream Impaired or of Concern						
Segment ID	PCBs/Dioxin	Bacteria	Dissolved Oxygen	Nutrients	Chlorophyll a	Other
2428	100	-	-	100	100	-

Segment 2428			
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		

FY 2016 Active Monitoring Stations				
Site ID	Site Description	Frequency	Monitoring Entity	Parameter Groups
13340	Black Duck Bay at mid bay	Bi-Monthly	HCPHES	Field, Conventional, Bacteria, Chlorophyll a (Qtrly)

Water Quality Issues Summary			
Issue	2014 Assessment <i>I – Impaired</i> <i>C – Of Concern</i>	Possible Causes / Influences / Concerns Voiced by Stakeholders	Possible Solutions / Actions To Be Taken
Elevated Nutrients	2428 C	<ul style="list-style-type: none"> <li>▪ Fertilizer runoff from urbanized properties, such as landscaped areas, residential lawns, and sport fields</li> <li>▪ Agricultural runoff from row crops, fallow fields, and animal operations</li> <li>▪ Nutrient loading from WWTF effluent, sanitary sewer overflows, and malfunctioning OSSFs</li> </ul>	<ul style="list-style-type: none"> <li>▪ Implement YardWise and Watersmart landscape practices</li> <li>▪ Encourage Water Quality Management Plans or similar projects for agricultural properties</li> <li>▪ Install and/or maintain riparian buffer areas between agricultural fields and waterways</li> <li>▪ Monitor phosphorus levels at WWTFs to determine if controls are needed</li> </ul>
PCBs/Dioxin in Edible Fish Tissue	2428 I	<ul style="list-style-type: none"> <li>▪ Concentrated deposits outside boundaries of the waste pits located adjacent to San Jacinto River and I-10 bridge</li> <li>▪ Unknown industrial or urban sources</li> </ul>	<ul style="list-style-type: none"> <li>▪ Remove or contain contamination from locations already identified</li> <li>▪ Encourage additional testing to locate all unknown sources/deposits</li> </ul>
Chlorophyll a	2428 C	<ul style="list-style-type: none"> <li>▪ Fertilizer runoff from surrounding watershed promotes algal growth in waterways</li> <li>▪ Nutrient loading from WWTF effluent, sanitary sewer overflows, and malfunctioning OSSFs promotes algal growth</li> </ul>	<ul style="list-style-type: none"> <li>▪ Improve compliance and enforcement of existing stormwater quality permits</li> <li>▪ Improve stormwater controls in new developments</li> <li>▪ More public education regarding nutrients and consequences</li> </ul>

**Segment Discussion:**

**Watershed Characteristics:** This watershed is just south of the City of Baytown which is highly developed with mixed residential, commercial, and industrial land uses scattered throughout. Small plots of undeveloped wetland and forested land are present in areas adjacent to the Black Duck Bay shoreline. The Houston Ship Channel (HSC) also supports heavy boat and barge traffic on a consistent basis throughout the year.

**Water Quality Issues:** Fish consumption use is not supported in the segment. High levels of dioxin and PCBs in edible tissue led the Texas Department of State Health Services to issue a Limited Consumption Fish Advisory for this water body. Black Duck Bay is listed on the 2014 IR for concerns for water quality based upon screening criteria levels for total phosphorus, nitrate nitrogen, and chlorophyll a. Over 67 percent of total phosphorus, 39 percent of nitrate nitrogen, and 54 percent of chlorophyll a samples were above the screening criteria levels.

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**Special Studies/Projects:** This segment is included in two TMDL projects, the Houston Ship Channel and Upper Galveston Bay TMDL for PCBs in Fish Tissue and the Houston Ship Channel TMDL for Dioxin, which are currently under way. For more information, please refer to the detailed discussions located in the Public Involvement and Outreach section of the 2016 Basin Summary Report regarding dioxin and PCB TMDLs.

**Trends:** Regression analysis of water quality data revealed five statistically significant parameter trends for Black Duck Bay including increasing [nitrate](#), salinity, specific conductance (SPCond), and total dissolved solids (TDS) while chlorophyll *a* is the only parameter that is decreasing over time. The 2014 Texas Integrated Report lists this segment as impaired for PCB/dioxin in edible fish tissue and has a concern for elevated nutrient and chlorophyll *a* concentrations. Ammonia and [total phosphorous](#) have shown relatively stable trends over time, but most samples collected during the period of record are greater than the set screening criteria for each parameter. [Chlorophyll \*a\*](#) levels seem to be improving but concentrations greater than the 11.6 µg/L screening criteria are still common.

### 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.

Support additional sampling to investigate sources of elevated dioxin and PCB levels.

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