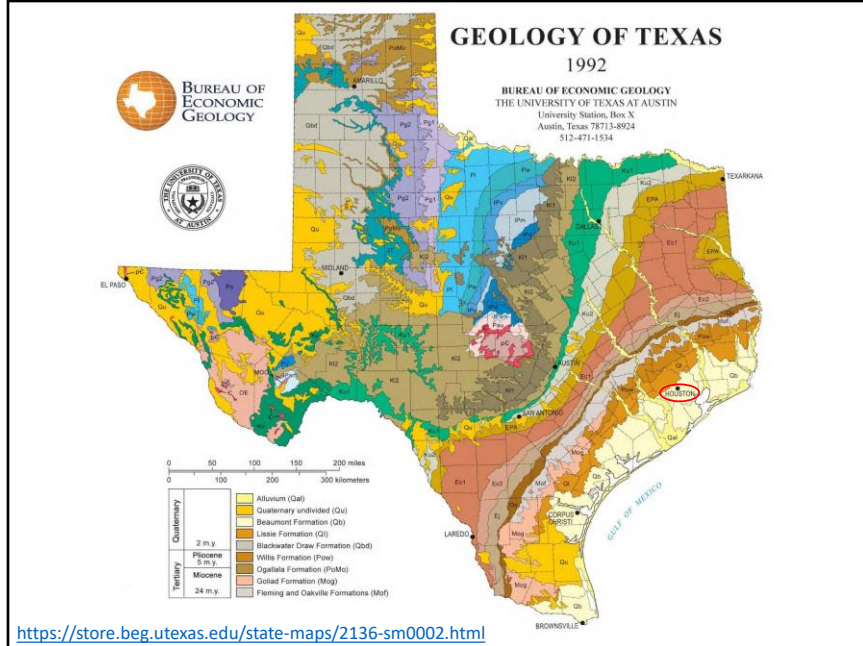


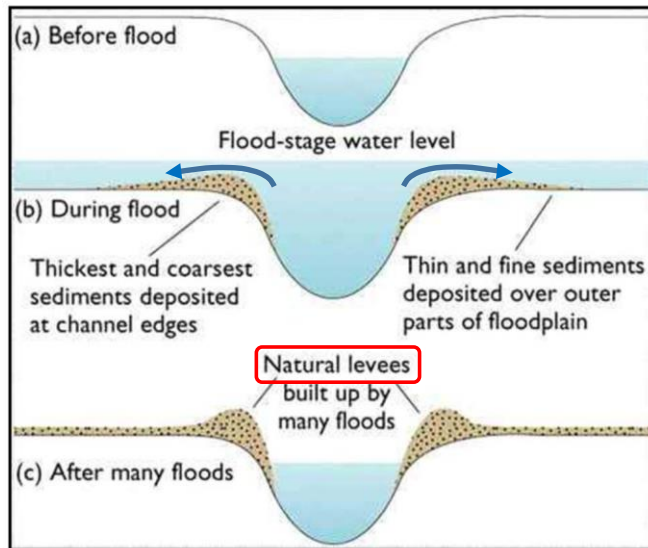


Crimson Clover in bloom at Brays Greenway Park.



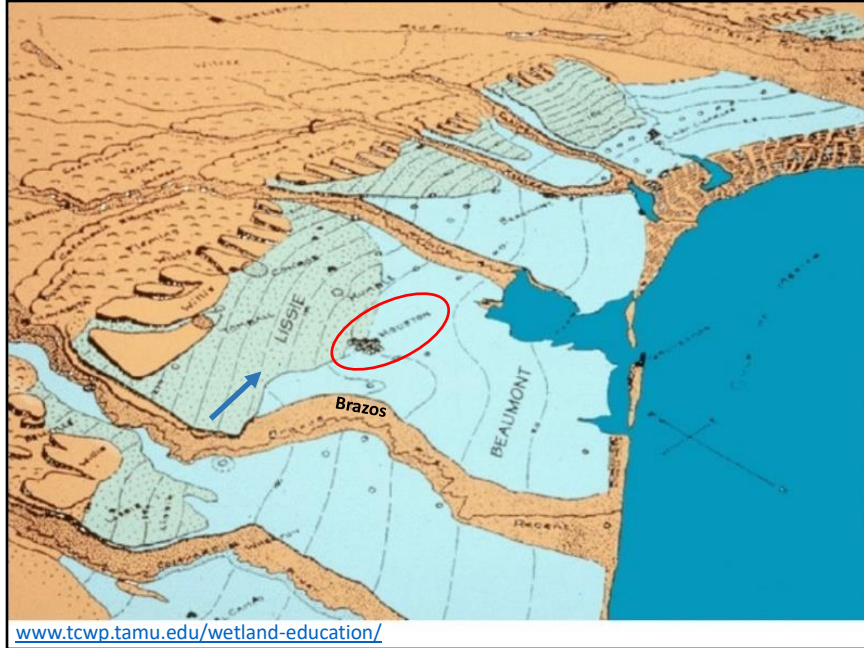
The great majority of the soil in southeast Texas arrived here by being washed down rivers coming from the north and west – from as far away as the North American Cordillera (primarily the Rockies). As rivers approached the Gulf of Mexico, their flow rates slowed, allowing sediments to settle out. The three layers of sediment located closest to the coast, the Willis Formation (shown in medium brown), Lissie Formation (shown in light brown), and Beaumont Formation (shown in yellow), are all represented within Harris County. As one moves from northwest to southeast, the surface layers of these sediments are of progressively younger ages and flatter slopes. Over time, the added weight of the sediments deposited along the coast caused the tilt of the land surface to shift from west→east more to north→south.

How a Natural River Levee is Formed

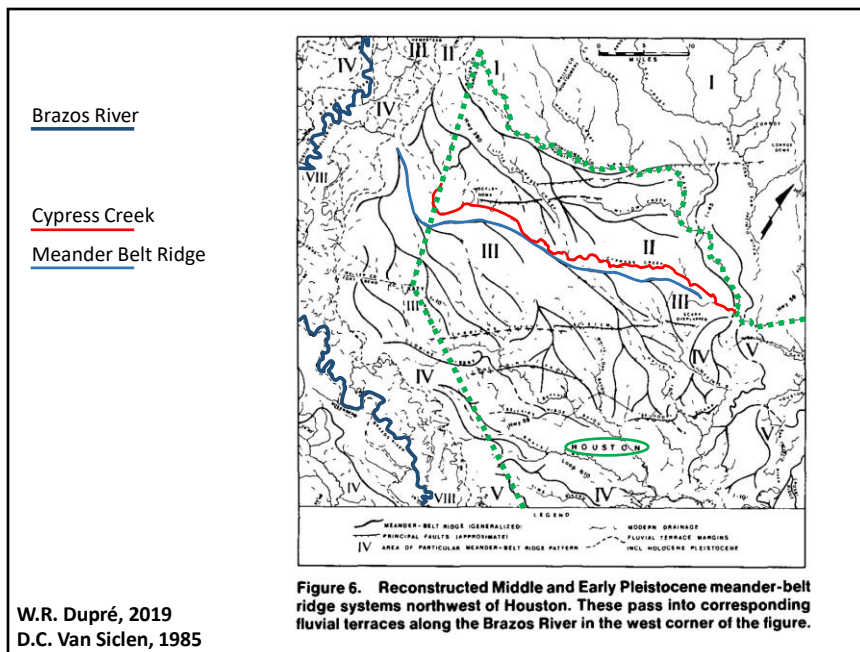


<https://aflam-neeek.blogspot.com/2019/12/natural-levees-diagram.html>

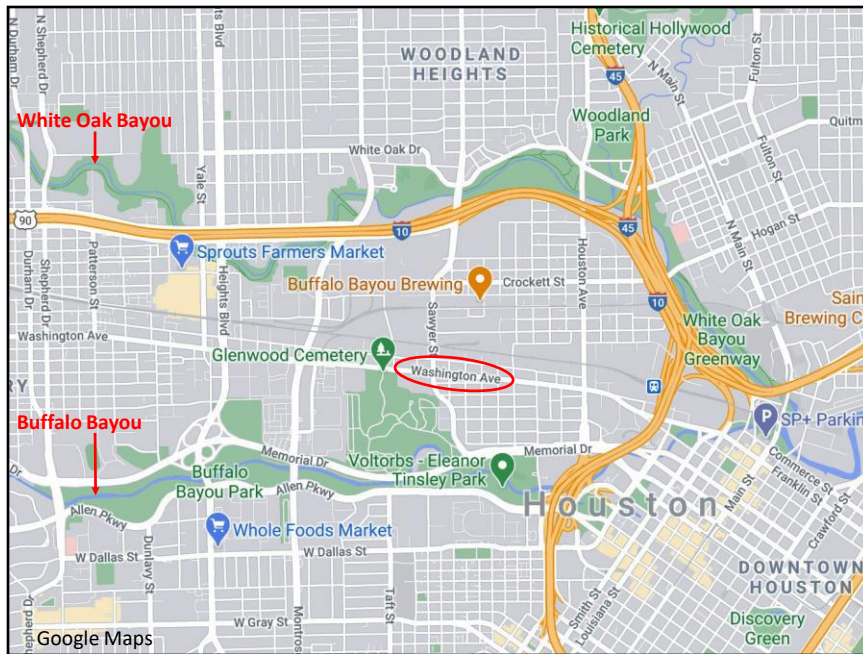
Here is how the deposition of river-borne sediments operates on a much smaller scale. When a river flowing through relatively flat terrain overtops its banks during a flood, the speed of the water's flow rapidly decreases as it spills onto the adjacent floodplain, allowing sediments to drop out of suspension. Over time, the elevation of the resulting natural levees can become significantly higher than that of the surrounding floodplain.



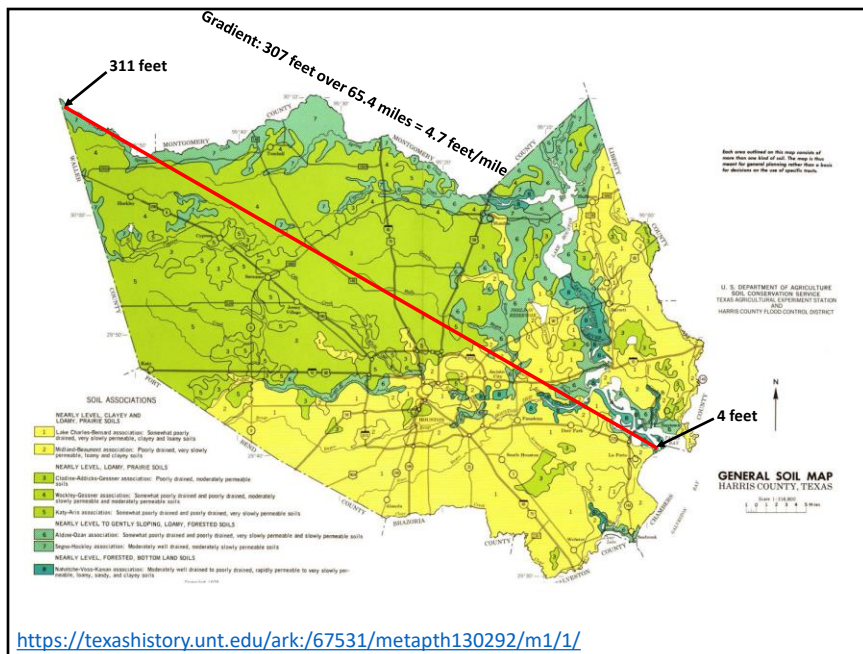
At several different times, the Brazos River broke through its natural levees and headed off to the east across the Lissie and Beaumont Formations (blue arrow). Note the spacing of the contour lines, which reveal how the Beaumont Formation is flatter than the Lissie Formation.



Later, those channels (branching black or light blue lines) of the Brazos River (dark blue) were abandoned, but the natural levees along their banks remained behind. During times of higher sea level, the old river channels were inundated and filled in with fine sediments. The old, filled-in river channels and their natural levees remained behind as “meander-belt ridges” that were several feet higher than the surrounding surface. Later on, smaller, local streams formed and began their journey southeast toward the Gulf of Mexico. But, when they encountered the old meander-belt ridges, they were rejected and pushed off toward the east until they eventually joined the San Jacinto River or the Galveston Bay System. Cypress Creek (red line) is one such example. Spring Creek (shown as the dashed green line that defines the northern boundary of Harris County) is another. References: D.C. Van Siclen, “Pleistocene Meander-Belt Ridge Patterns in the Vicinity of Houston, Texas”, Gulf Coast Association of Geological Societies, Transactions 35:525-532 (1985) and W.R. Dupré, “Geologic Controls on River Morphology and Flooding in the Southeastern Texas Coastal Region”, GeoGulf Transactions, 69:61-77 (2019).



Most people have seen these meander-belt ridges without realizing their significance. For example, Washington Avenue runs right along the top of one of them. As you go north from Allen Parkway along Montrose Blvd. and then Studemont St., you may notice that you are going uphill until you reach Washington Avenue, but then back downhill until you reach White Oak Bayou near Interstate 10. This is no accident – Washington Avenue and the railroad tracks were intentionally sited on high ground.



The straight-line gradient across Harris County is between 4 and 5 feet per mile. Because the bayous follow meandering courses, their along-stream gradients are only 2 to 3 feet per mile, with bayous near the coast having even shallower gradients.

Texas Paddling Trails

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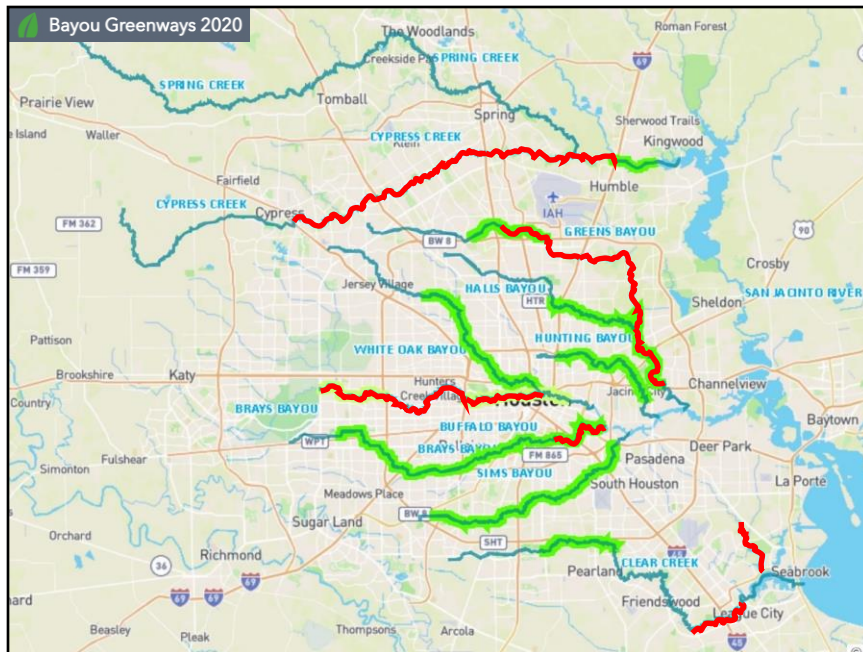
The newest Texas Paddling Trail, the [Sabine Sandbar Paddling Trail](#), offers quiet pools, small riffles, beautiful white bars, and great fishing for up to a full day's paddle on your choice of 4, 15, or 19 miles of trail.



Enjoy improved and maintained fishing and paddling access to rivers, creeks, lakes, ponds, bayous, and bays on any of the 78 official Texas Paddling Trails available throughout the state!!

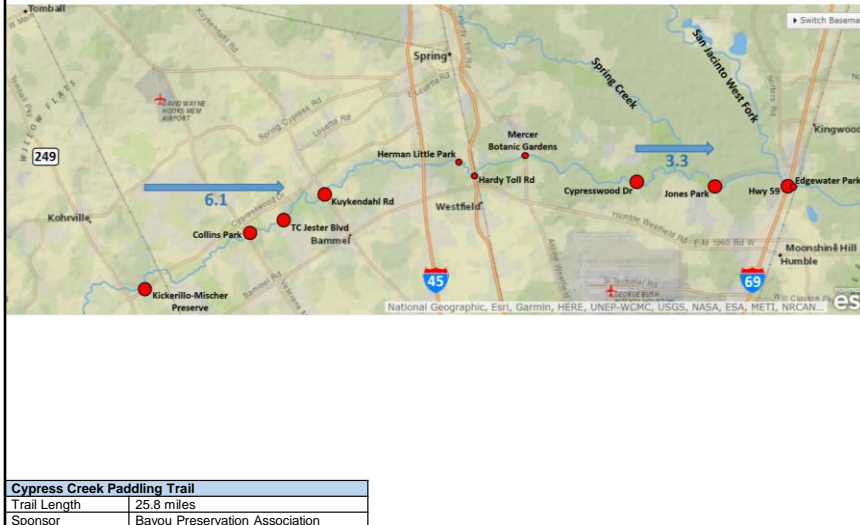
<https://tpwd.texas.gov/fishboat/boat/paddlingtrails/>

The six paddling trails in our area are all related to the Texas Paddling Trail program, with Brays Bayou being at the earliest stage of development (a formal application to the Texas Parks and Wildlife Department is currently in preparation) and Buffalo Bayou being at the most mature stage (open since 2009). Other paddling trails included in this presentation (from north to south) are Cypress Creek, Greens Bayou, Armand Bayou, and Clear Creek.

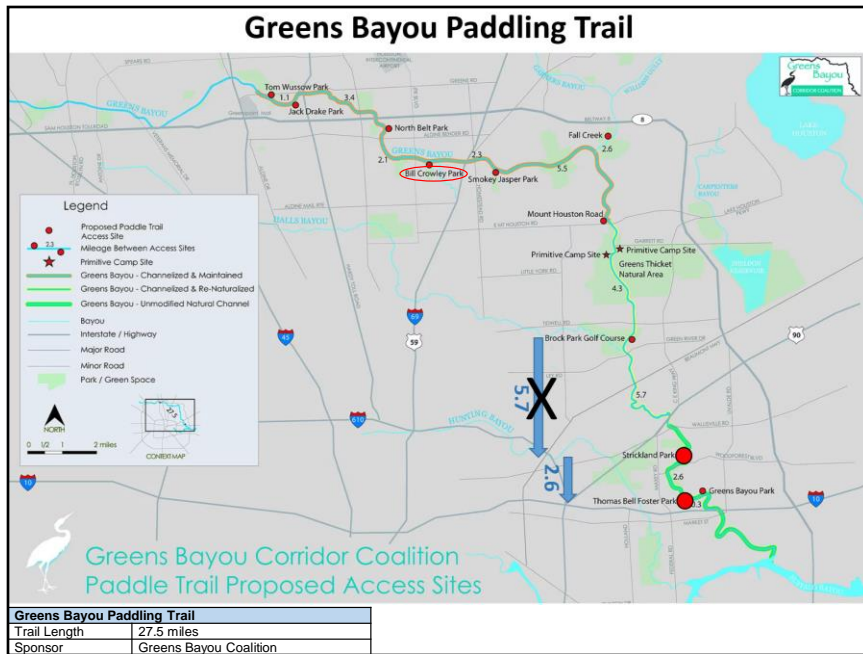


Here, the six paddling trails (red) are superimposed on the map of Bayou Greenways 2020 projects (green).

Cypress Creek Paddling Trail

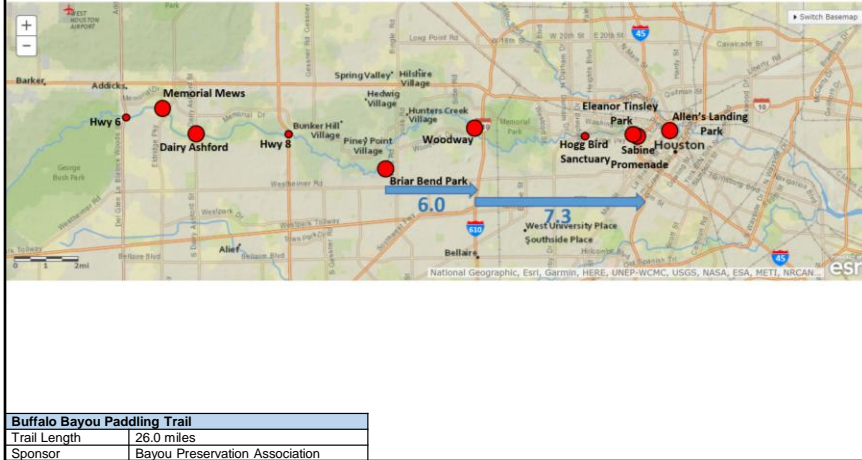


Blue arrows indicate recommended paddling trips. Paddling in the central portion of the trail is not currently recommended due to the presence of several active construction projects. The proposal for a Texas Paddling Trail on Cypress Creek has been approved by the Texas Parks and Wildlife Department. The next step will be formal opening of the trail.



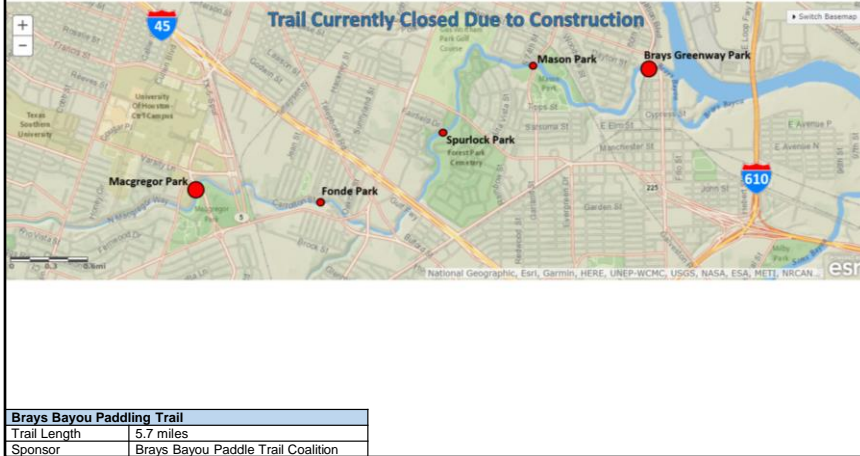
Planning is underway for a new launch site at Bill Crowley Park (red oval). The launch site at Brock Park Golf Course Park is currently closed due to construction. The Greens Bayou Coalition has worked with the National Park Service to develop its plan for a Texas Paddling Trail. The next step will be for a team of TPWD staff members to visit the site of the proposed trail.

Buffalo Bayou Paddling Trail

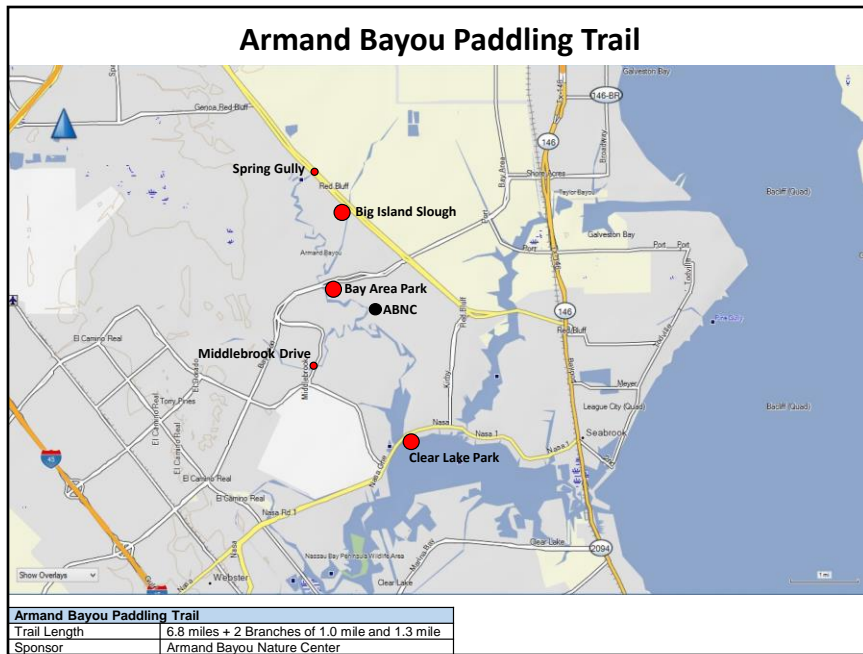


Having received full approval from the Texas Parks and Wildlife Department and in operation since 2009, the paddling trail on Buffalo Bayou is the oldest in our area. Blue arrows indicate recommended paddling trips. Recently, an additional launch site has been created adjacent to the Lost Lake/Dunlavy Café, between the sites at Hogg Bird Sanctuary and Eleanor Tinsley Park.

Brays Bayou Paddling Trail

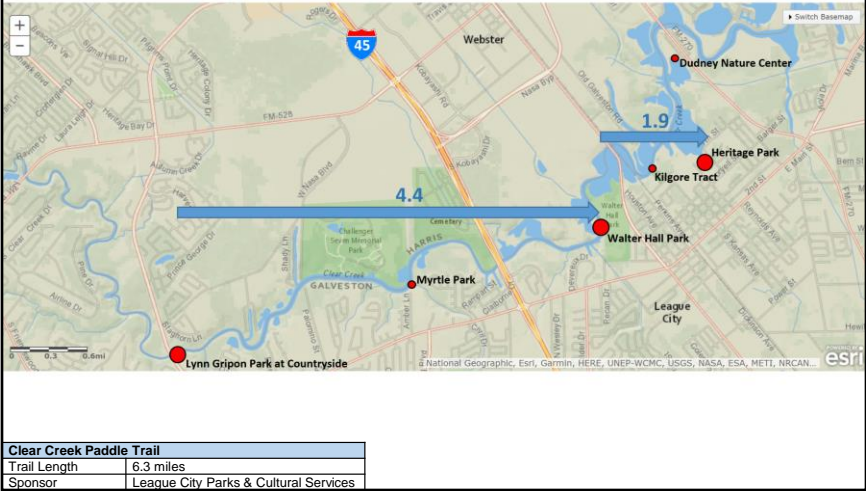


The Brays Bayou Paddling Trail is currently closed to paddlers due to construction on several of the bridges. The Brays Bayou Paddle Trail Coalition has been partnering with private organizations and elected officials to prepare the way for eventual approval as a Texas Paddling Trail.



Given its close proximity to the Galveston Bay System (of which Clear Lake is a part), the Armand Bayou Paddling Trail is classified by Texas Parks and Wildlife Department as a Coastal Paddling Trail. Most self-guided outings begin at Bay Area Park, and explore either upstream or downstream. Guided trips, offered by the Armand Bayou Nature Center, launch from the ABNC boat dock, which is indicated by a black circle.

Clear Creek Paddle Trail



Three launch sites are already established, and three others (indicated by small red symbols) are included in League City’s Parks Master Plan. This is expected to be a strong point as plans go forward for approval as a Texas Paddling Trail. Blue arrows indicate recommended paddling trips.



On a guided trip, many arrangements will have been made in advance by the organizer. Still, there are several things you will need to provide for yourself.



If you guide your own trip, you will need to make some additional arrangements. If you are planning to go on a guided trip, be sure to confirm ahead of time which items are being provided by the organizer.



Be sure to leave a "Float Plan" with someone who will not be joining you on the trip. In the event that the trip does not finish up as expected, the first step is usually to establish phone contact between the paddlers and the person with whom the float plan was shared. Failing in that, the appropriate emergency number to call is usually the sheriff's department, so be sure to know which county you will be in. (Some of our paddling trails, such as the one on Clear Creek, run along county lines, so two different sheriff's departments may be involved.)



A short distance upstream from Walter Hall Park, a group organized by the Houston Association of Sea Kayakers nears the end of an enjoyable day paddling on the Clear Creek Paddling Trail.



Many other wonders await paddlers in coastal wetlands, such as this patch of lotus flowers in Lake Miller, a river swamp associated with the Lower Trinity River in Chambers County.