

1.10.6 Pine Island Bayou

Pine Island Bayou begins in east Liberty County and flows southeasterly through Hardin County where it joins the Neches River about six miles north of Beaumont. The bayou is a low gradient, slow-moving stream with relatively clear water that flows about 92 miles over a predominantly sand substrate. The bayou has a drainage area of 657 square miles and the only major tributary to this segment is Little Pine Island Bayou (Adsit and Hagen 1978). The confluence of Pine Island Bayou and the Neches River is surrounded by extensive palustrine and riverine freshwater wetlands composed primarily of palmetto thickets and cypress sloughs (USFWS 2005). Dominant riparian vegetation observed at the SH 105 road crossing included bald cypress (*Taxodium distichum*), sweet gum (*Liquidambar styraciflua*), water oak (*Quercus nigra*), willow oak (*Quercus phellos*), and dwarf palmetto (*Sabal minor*). Historically, the narrow channel and dense overhanging vegetation shaded much of the waters surface and provided abundant woody debris for instream cover (Adsit and Hagen 1978). However, development within much of the riparian zone has decreased the density of vegetation, resulting in an increase in the amount of light penetration and a decrease in the amount of woody debris within the stream channel (Rizzo et al 2000). The Bayou's close proximity to the city of Beaumont has made it a popular waterway for recreational activities and has likely contributed to historical water quality concerns. Rizzo et al. (2000) found Pine Island Bayou to have the poorest water quality of seven streams studied within the Big Thicket National Preserve. Water quality concerns have been attributed to the naturally slow currents within the bayou, saltwater intrusion, substantial development within the riparian zone, and nutrient inputs from sewage outfalls and septic tanks within the basin (Harrel 1975, Hughes et al 1986, Rizzo et al 2000). Historical pollution in Pine Island Bayou has greatly reduced freshwater mussel populations (Harrel 1993) and few living mussels were found in 1994 during surveys performed by TPWD (Howells 1997). Despite historic water quality concerns, Halstead (1981) reported the occurrence of 86 species of fish within the Pine Island Bayou watershed (Appendix C). However, only 29 fish species were collected from four sites on Pine Island Bayou in August 1987 (Kleinsasser and Linam 1987) (Appendix C). The ecologically significant stream segment is from the confluence with the Neches River in Hardin/Jefferson County upstream to FM 787 in Hardin County (TCEQ stream segment 0607).

- **Riparian conservation area-** fringed to the north by the 5,955-acre Beaumont Unit of the Big Thicket National Preserve.
- **Threatened or endangered species/unique communities-** significant due to the presence of the alligator snapping turtle (*Macroclmys temminckii*) (SOC/St.T) (Rudolph et al. 2002), creek chubsucker (*Erimyzon oblongus*) (SOC/St.T) and blue sucker (*Cycleptus elongatus*) (ST.T.) (Halstead 1981).



Figure 27. Pine Island Bayou north of SH 105 in Hardin County (8/15/01).



Figure 28. Pine Island Bayou south of SH 105 in Hardin County (8/15/01).