

DREDGED MATERIAL DISPOSAL HISTORY AVOCA ISLAND LAKE

The Atchafalaya River & Bayous Chene, Boeuf, & Black, Louisiana, project was authorized by the Rivers and Harbors Act of 1968, House Document 155, 90th Congressional Session. It provided for the improvement of a channel 20 feet deep over a bottom width of 400 feet from the vicinity of the US Highway 90 crossing over Bayou Boeuf to the Gulf of Mexico via the Gulf Intercoastal Waterway (GIWW), Bayou Chene, the Avoca Island Cutoff Bayou Drainage channel, the Lower Atchafalaya River, and the existing project across Atchafalaya Bay. This Act also provided for a 20 by 400 foot channel in Bayou Black and the GIWW from the major shipyard on Bayou Black at US Highway 90 to Bayou Chene. Construction on the inland portions of Bayous Boeuf and Black was initiated on April 8, 1977 and completed on January 13, 1978 and June, 1978, respectively. Construction of the final reach, Bayou Chene and Avoca Island Cutoff commenced on October 23, 1980 and was completed on September 28, 1981.

Fiscal Year 1981

Construction of the Bayou Chene navigational channel was performed during Fiscal Year (FY) 1981 (13 November 1980 – 1 October 1981). The cutterhead dredges TOM JAMES and FRITZ JAHNCKE, working under contract 81-C-0043, removed a total of approximately 17,754,281 cubic yards of dredged material from the channel. An unknown amount of this dredged material was placed semi-confined in beneficial use disposal **Site 5**, located on the right descending bank of Bayou Chene in Avoca Island Lake. Earthen retention dikes were constructed/refurbished along the south, east, and west boundaries of disposal **Site 5**.

Dredged material was placed to a maximum height of +3.0 feet Mean Low Gulf (MLG) with the intention of creating marsh “islands” with areas of shallow open water between “islands” that would serve as water fowl habitat. However, the silty nature of the dredged material resulted in placed material flowing away once discharged rather than stacking in place. As a result, disposal **Site 5** consisted primarily of relatively flat low elevation dredged material interspersed with some areas where the dredged material had stacked to achieve an elevation approaching +3.0 feet MLG.

During October 1981, an incidence of avian botulism was discovered in the vicinity of the recently placed dredged material in Avoca Island Lake. An estimated 1,000 ducks and shorebirds had died as a result of this outbreak. U.S. Fish and Wildlife Service personnel determined that a combination of factors, including stagnant water, warm temperatures, and the flat relief of the area, had contributed to the botulism outbreak at this site. It was agreed that future dredged material placement events at the Avoca Island Lake site would take place during the cooler times of the year.



Avoca Island Lake Disposal Site 5 – 29 January 1981

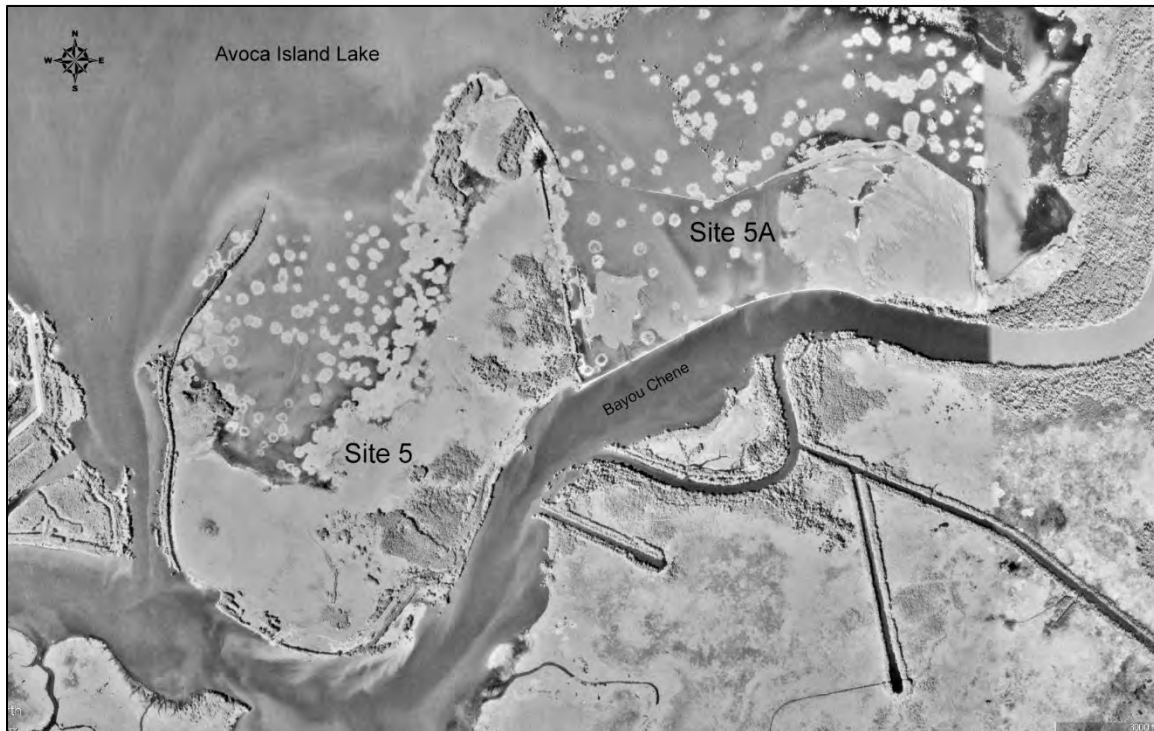


Avoca Island Lake Disposal Site 5 - 1981

Fiscal Year 1989

During the FY 1989 maintenance event (24 May 1989 – 18 August 1989), the cutterhead dredges LOUISIANA and E STROUD, working under contract 89-C-0075, removed a total of about 4,614,434 cubic yards from Bayou Chene curves #2, #4, and #5 as part of a channel bendway widening project. An unknown amount of this material excavated from the curves was placed into Avoca Island Lake beneficial use disposal sites **5** and **5A** for wetland creation. Dredged material was placed semi-confined in a series of mounds in **Site 5** to a maximum initial elevation of +3.5 feet MLG, and placed confined in **Site 5A** to a maximum initial elevation of +5.0 MLG.

By November 1989, a total of approximately 854 acres of wetland habitat had been created in **Site 5**, and a total of approximately 187 acres of wetland habitat had been created in **Site 5A**.



Avoca Island Lake Disposal Sites 5 and 5A – November 1989

Fiscal Year 1998

During the FY 1998 maintenance event (20 June 1998 – 12 October 1998), the cutterhead dredges TOM JAMES and GEORGE D WILLIAMS, working under contract 98-C-0045, removed a total of about 3,827,625 cubic yards of dredged material from Bayou Chene. Dredged material was deposited confined in Avoca Island Lake disposal sites **5** and **5A** for wetland creation. Dredged material was placed to a maximum initial elevation of +4.5 feet MLG.

Approximately 3,342,205 cubic yards of dredged material were placed into wetland creation **Site 5**. Approximately 485,420 cubic yards of dredged material were placed into wetland creation **Site 5A**.

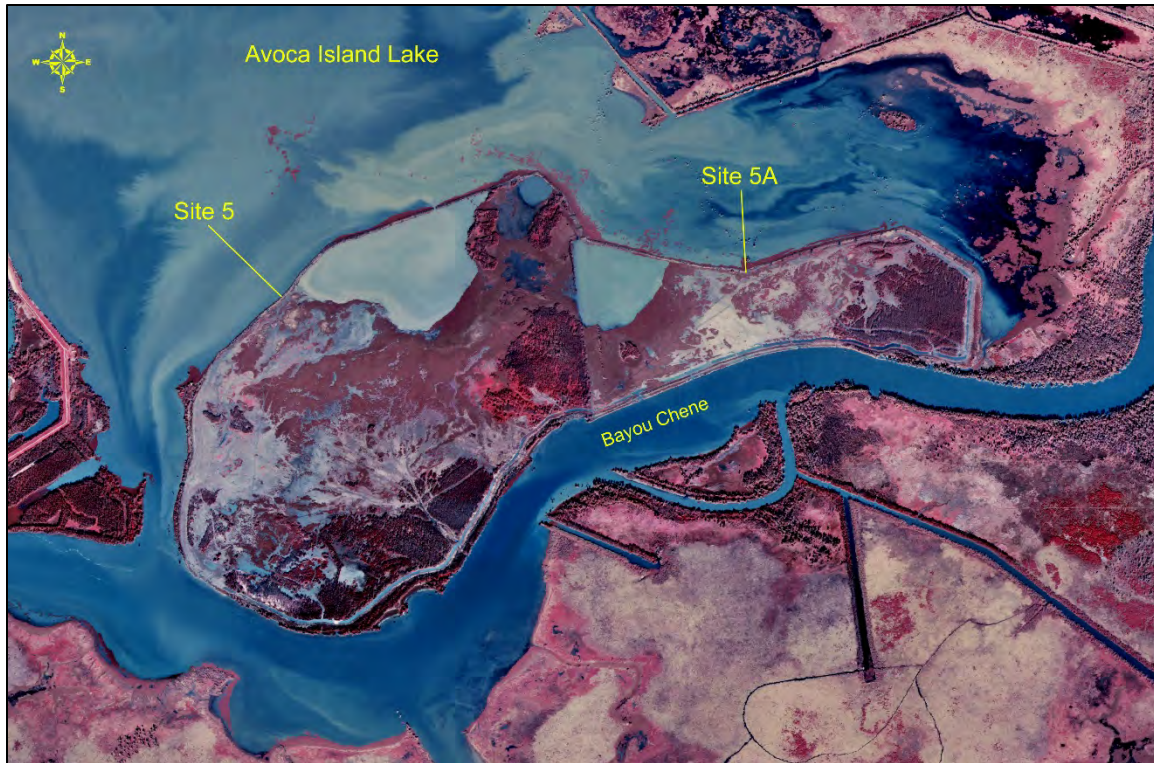
Approximately 223 acres of wetland habitat were created in **Site 5**, and approximately 154 acres of wetland habitat were created in **Site 5A** by this placement effort.



Avoca Island Site 5 – June 1998



Avoca Island Site 5 – August 1998



Avoca Island Lake – November 1998

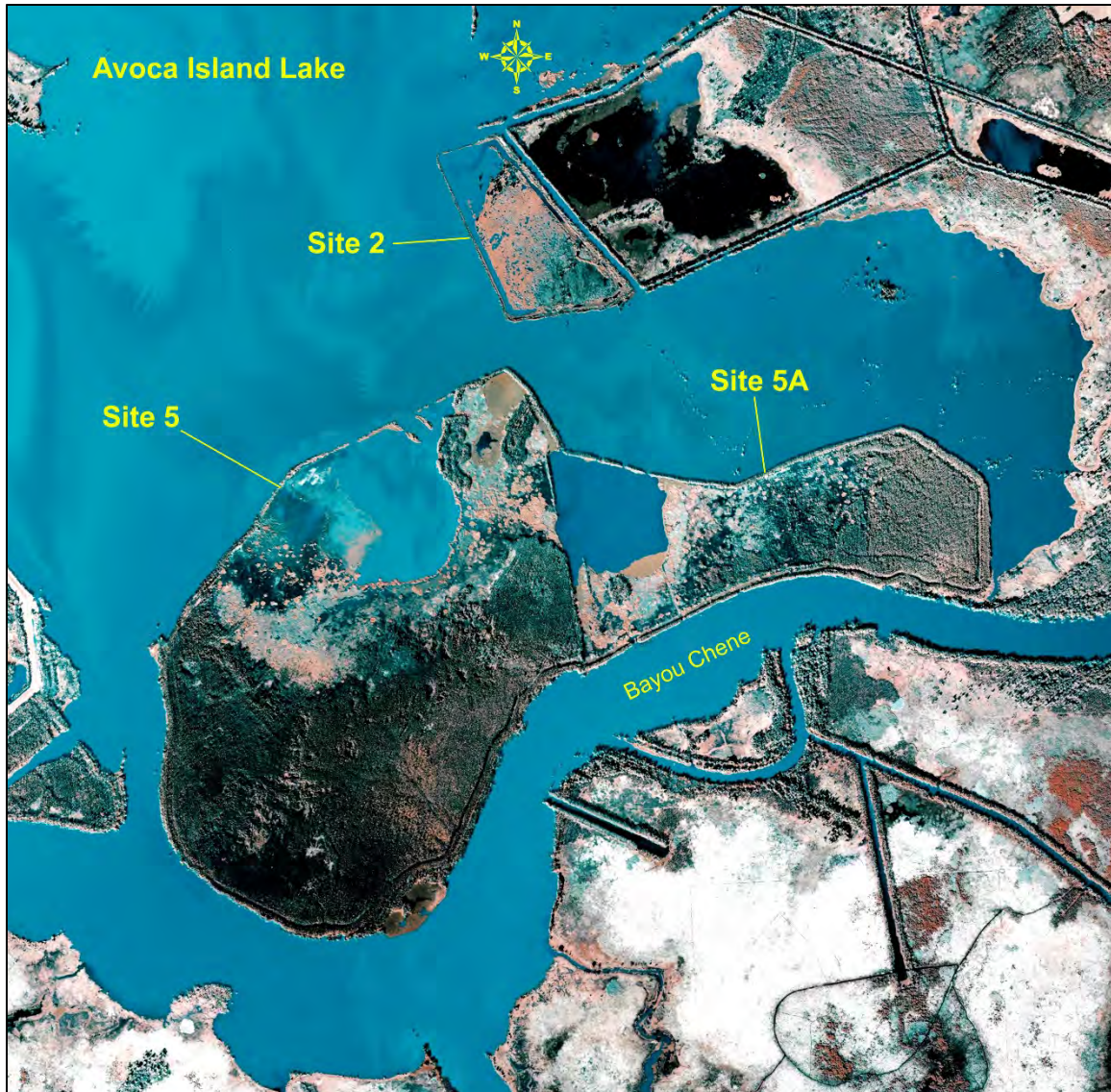
There was no maintenance of this reach of the waterway from FY 1999 through FY 2002.

Fiscal Year 2003

During the FY 2003 maintenance event (14 July 2003 – 17 January 2004), the cutterhead dredges DREDGE 32 and E STROUD, working under contract 03-C-0047, removed a total of approximately 4,426,582 cubic yards of dredged material from the Avoca Island Cutoff – Bayou Chene channel. A total of approximately 1,012,181 cubic yards of the material were placed into two confined wetland development sites within the Avoca Island Lake dredged material placement area.

Disposal **Site 2**, a 137-acre placement site, received approximately 517,943 cubic yards of material, and disposal **Site 5** received approximately 494,238 cubic yards of material. The maximum initial slurry height within both placement sites was +4.5 feet MLG. Although **Site 2** retained additional capacity for placement of dredged material, problems with earthen retention dike settling below grade resulted in placement of dredged material into **Site 5**.

Approximately 93 acres of wetland habitat were created in **Site 2**, and approximately 56 acres of wetland habitat were created in **Site 5** with this placement effort.



Avoca Island Lake – 26 December 2004

Fiscal Year 2009

During the FY 2009 maintenance event (20 August 2009 – 10 November 2009), the cutterhead dredge DREDGE 32, working under contract 09-C-0099, removed a total of approximately 1,879,545 cubic yards of dredged material from the Bayou Chene channel. A total of approximately 875,964 cubic yards of dredged material were placed confined in the remaining shallow open water portion of Avoca Island Lake disposal **Site 5A** to a maximum initial elevation of about +4.5 feet MLG. Dredged material was allowed to flow over the **Site 5A** northern earthen retention dike and be deposited in the shallow open water area of Avoca Island Lake adjacent to, and north of, disposal **Site 5A** to a maximum initial elevation of about +4.5 feet MLG. The average elevation of these placement sites upon completion of dredging/disposal activities was about +4.0 feet MLG.

To help concentrate placement of this dredged material in the open water placement site on the north side of the existing **Site 5A** earthen retention dike, a silt curtain was installed across the western side of the open water placement site extending from the northern tip of **Site 5** to the southwestern tip of **Site 2**. Following completion of disposal activities, the silt curtain was removed.

Approximately 127 acres of wetland habitat was created by this placement effort.



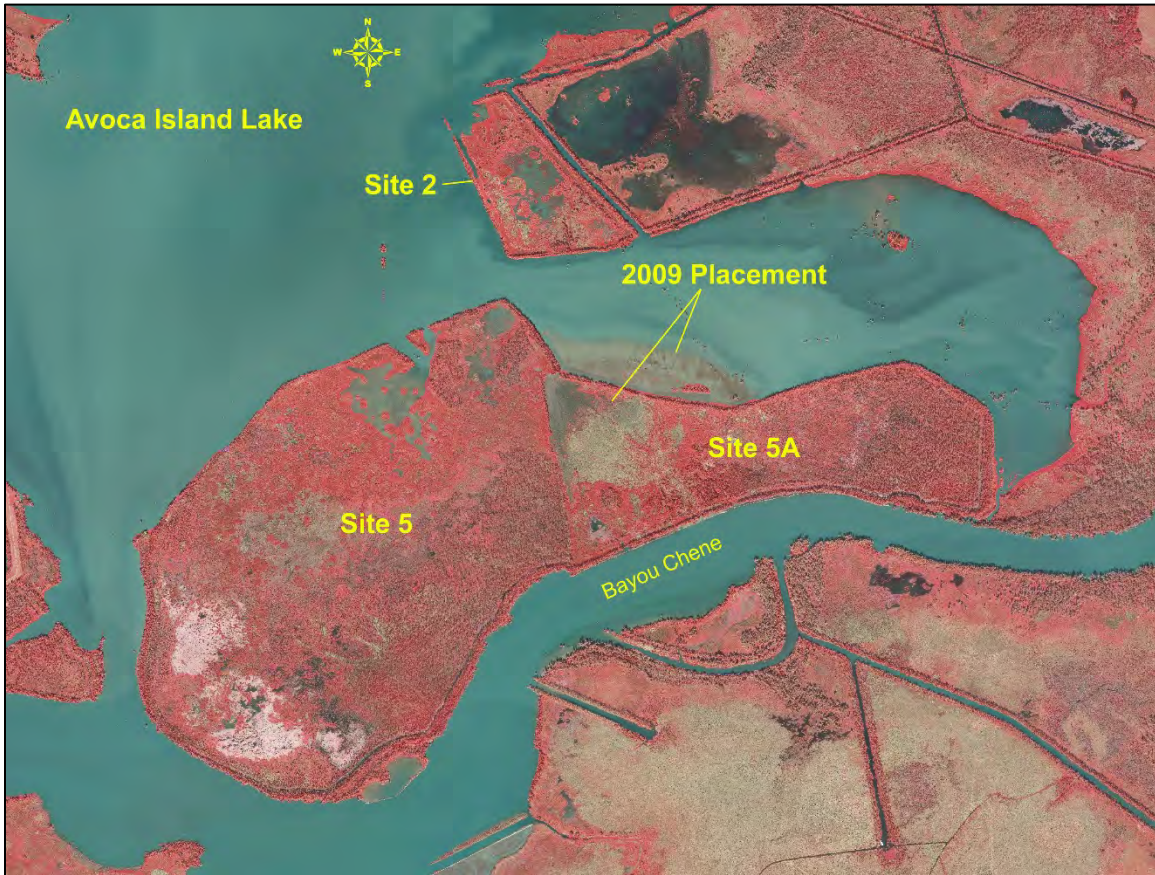
Avoca Island Site 5A Silt Curtain – September 2009



Avoca Island Site 5A – September 2009



Avoca Island Lake – 17 November 2009



Avoca Island Lake – 17 November 2010



Avoca Island Site 5A 2009 Overflow Site – 7 June 2011



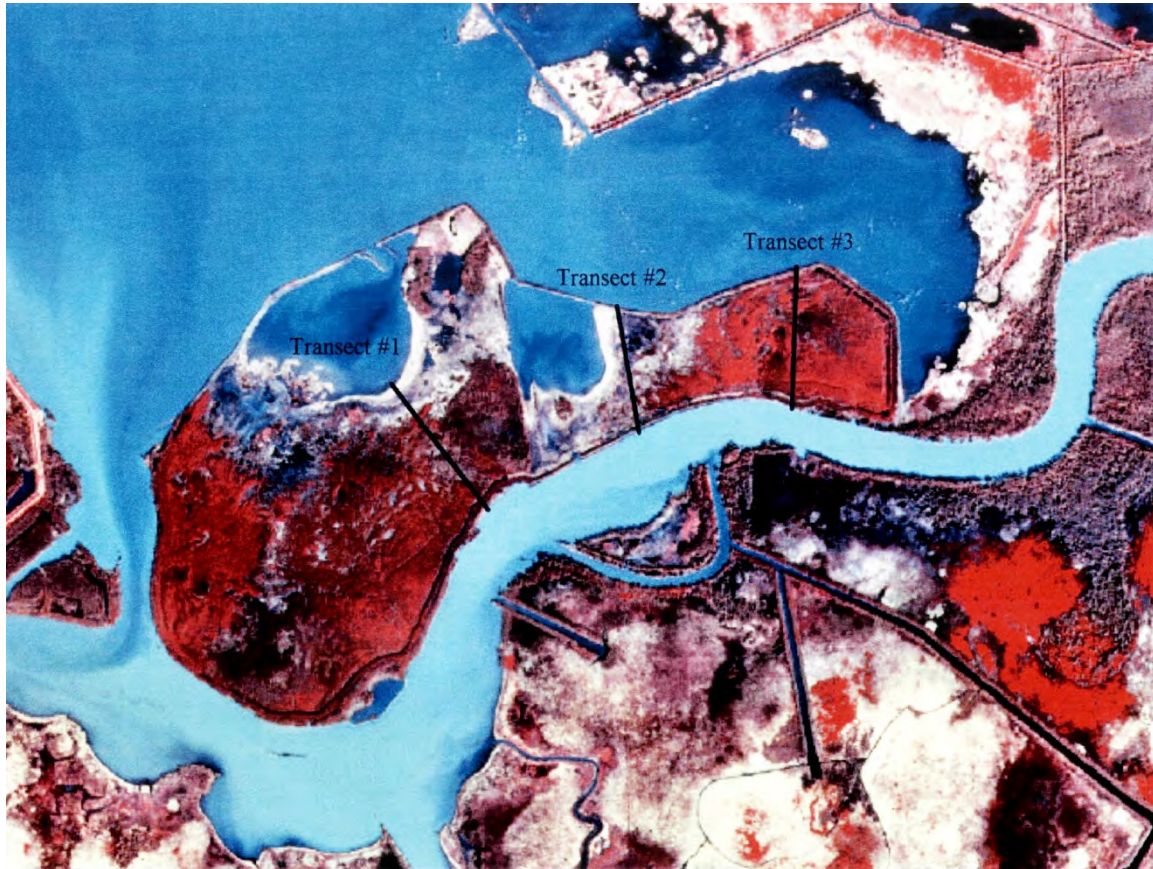
Avoca Island Site 5A 2009 Overflow Site – 7 June 2011



Avoca Island Site 2 – 7 June 2011

2002 Elevation and Vegetation Survey Effort

An elevation and vegetation survey was conducted on Avoca Island Lake placement sites **5** and **5A** during 2002.



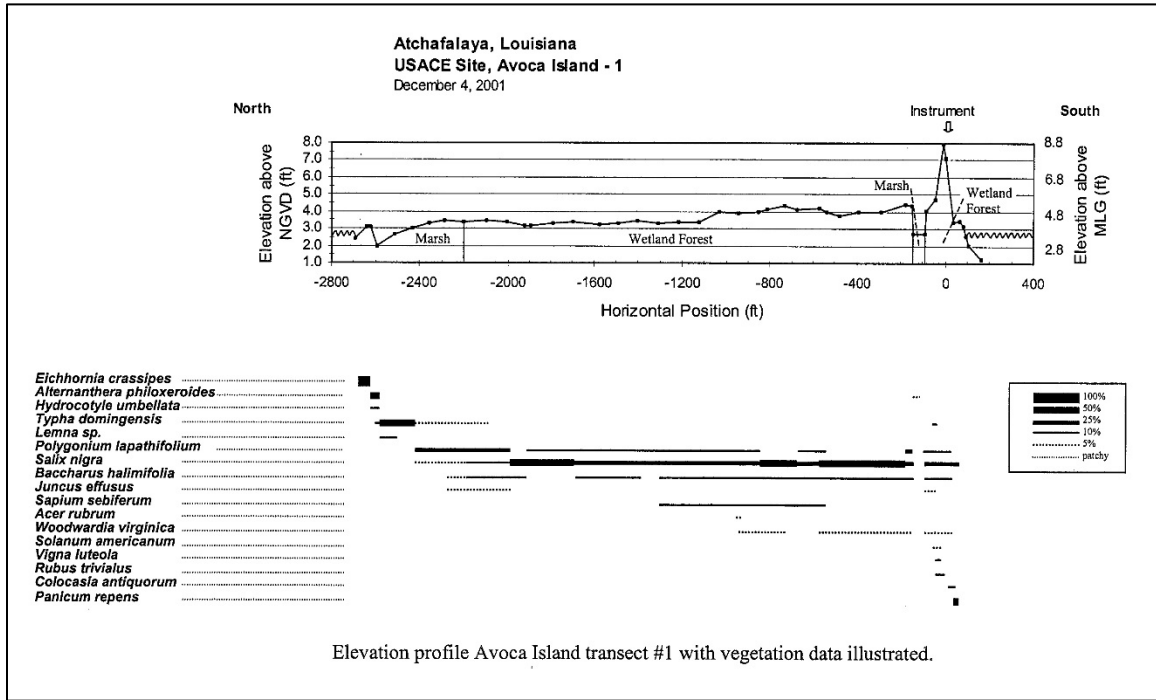
Infrared, vertical aerial photography taken in December 2001 of the Atchafalaya – Avoca Island Cutoff BUMP study area showing the location of the three transects visited in 2002.

Site 5

A single transect (Transect #1) was oriented across **Site 5** to cross areas where dredged material had been placed from 1981 through 1998. The average elevation of **Site 5** was about +4.4 feet MLG. The majority of **Site 5** was classified as wetland forest with elevations ranging from about +3.1 feet MLG to about 5.3 feet MLG. Dominant vegetation in this habitat was composed of black willow (*Salix nigra*) and Chinese tallow (*Sapium sebiferum*) trees with the groundcover composed primarily of willow-weed (*Polygonum lapathifolium*). Marsh habitat was found primarily at the lower elevation edges of **Site 5**. The dominant marsh vegetation was composed of southern cattail (*Typha domingensis*) and alligator weed (*Alternanthera philoxeroides*).

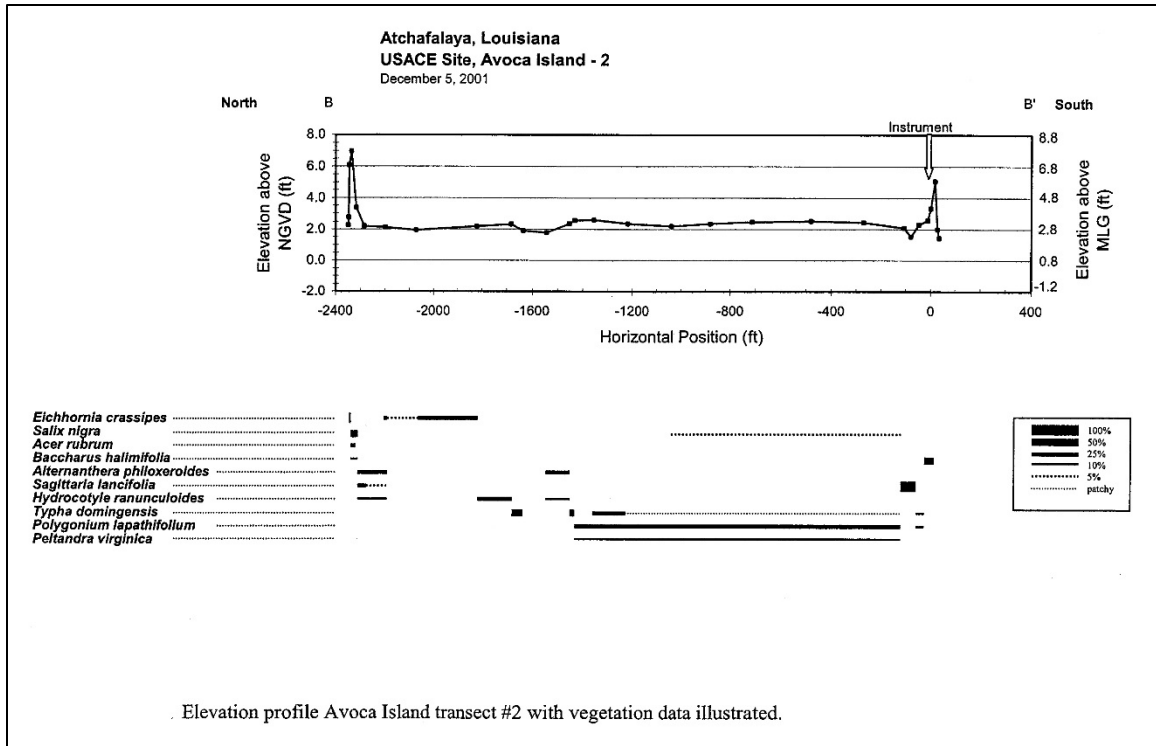
Results of this survey effort revealed that dredging contractors had, at some point, exceeded the original placement elevation restrictions for **Site 5**. It is very likely that

these placement elevations were exceeded during the 1989 Bayou Chene bendway widening dredging.

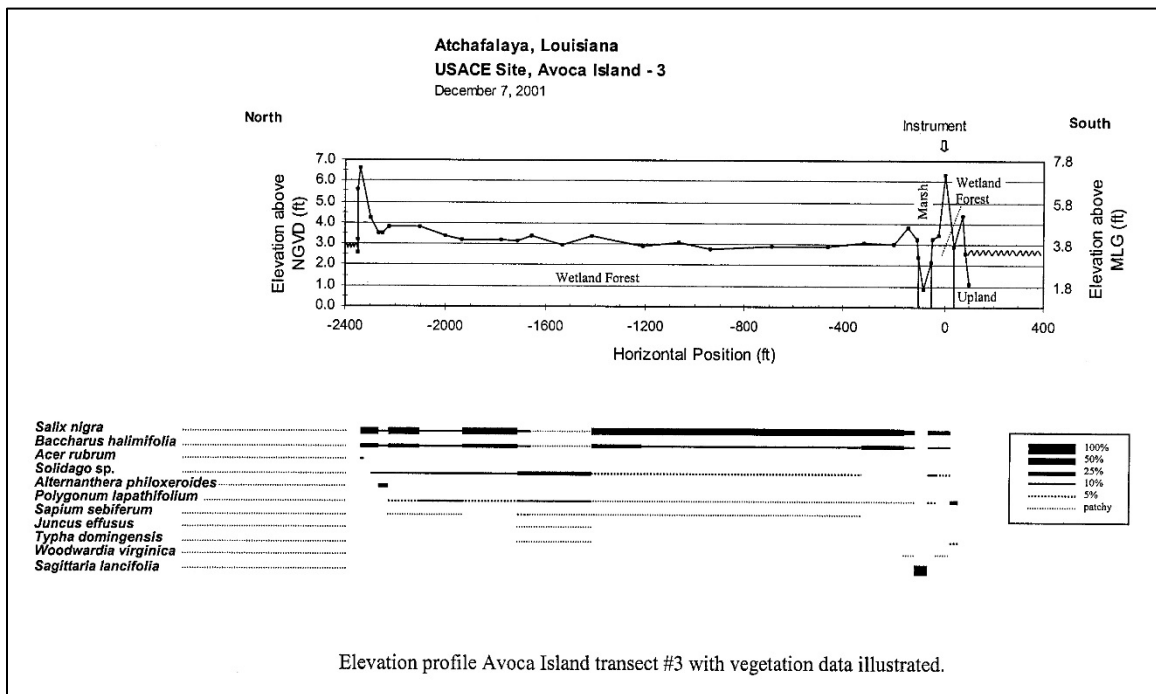


Site 5A

Two transects were located across **Site 5A** such that they crossed areas where dredged material had been placed from 1988 to 1998. The first transect (Transect #2) crossed the more-or-less central, unforested portion of this site. The average elevation of this **Site 5A** transect was about +3.0 feet MLG and was dominated by marsh vegetation. Vegetation included water hyacinth (*Eichhornia crassipes*), pennywort (*Hydrocotyle ranunculoides*), southern cattail, alligator weed, willow-weed, arrow arum (*Peltandra virginica*), and black willow.



The second transect (Transect #3) was located across the forested eastern part of **Site 5A**. The average elevation of this **Site 5A** transect was about +3.9 feet MLG and classified as wetland forest habitat. Dominant vegetation was composed primarily of black willow and groundsel bush (*Baccharis halimifolia*). Marsh habitat was found along the lower elevation northern end of **Site 5A**.



Although there was no evidence that dredging contractors had exceeded dredged material placement elevations in **Site 5A**, it should be noted that 2001 elevations were not as low as had been anticipated during disposal design planning. A final average target elevation for these Avoca Island Lake placement sites, following compaction and dewatering of dredged material, was expected to be about +2.0 to +2.5 feet MLG.