

**BENEFICIAL USE OF DREDGED MATERIAL DISPOSAL HISTORY
ATCHAFALAYA RIVER AND BAYOUS CHENE, BOEUF AND BLACK, LA
HORSESHOE - CREWBOAT CUT**

The Rivers and Harbors Act of 25 June 1910 authorized the CEMVN to construct and maintain a navigation channel through the Atchafalaya River from Morgan City to the Gulf of Mexico with project dimensions 20 feet deep, 200 feet wide and 15.75 miles long from the 20 foot contour in the Atchafalaya Bay, approximately 4 miles beyond the mouth of the Atchafalaya River, to the 20 foot contour in the Gulf of Mexico. Traffic sufficient to warrant maintenance of the authorized navigation channel to full project dimensions did not immediately develop. The channel was progressively enlarged during maintenance events from 10 by 100-feet in 1939 to 20 by 200-feet in 1974.

The Rivers and Harbors Act of 1968 authorized construction and maintenance of the Atchafalaya River and Bayous Chene, Boeuf, and Black, Louisiana project which provided an increase in channel width to 400 feet for the navigation channel in the Lower Atchafalaya River-Horseshoe reach from the junction of Avoca Island Cutoff Bayou channel to the Atchafalaya Bay. Construction of the channel in the bay and Gulf was initiated in April, 1974 and was completed in December of the same year. Maintenance in Lower Atchafalaya River - Horseshoe channel was not required prior to FY 1990 because channel depth historically was in excess of authorized channel dimensions. Dredging records dating back to 1989 indicate that discontinuous segments of this channel reach, or the intersection of Bayou Chene and the Lower Atchafalaya River, have been maintained annually with disposal of dredged material taking place in the Lower Atchafalaya River (LAR) since FY 1990. Since maintenance of the Lower Atchafalaya River began, dredged material has been deposited unconfined in open water and unconfined in open water adjacent to the existing river banks for wetlands development. No dredged material was placed on the existing shoreline.



Lower Atchafalaya River – Horseshoe (1985)

Fiscal Year 1989

During 1989, shoaling occurred in the LAR Horseshoe segment between Miles 131.4 and 131.8. A 5-acre open water disposal area in excess of -50 feet NGVD was designated for placement of LAR Horseshoe dredged material located approximately 2000' below the lower limit of dredging. Working under contract 89-C-0015, the cutterhead dredge E STROUD removed approximately 109,510 cubic yards of dredged material from this Horseshoe channel segment and placed it all unconfined in the open water disposal site.



Lower Atchafalaya River – Horseshoe (1990)

Fiscal Year 1991 - 1992

Prior to the start of the 1991 maintenance dredging season, the U.S. Fish and Wildlife Service (FWS) recommended that dredged material be placed in shallow water areas located adjacent to the Horseshoe channel in unconnected mounds for wetland development. Both the FWS and the Louisiana Department of Wildlife and Fisheries agreed that the maximum initial height of dredged material placed at these disposal sites could be +4.22 feet NGVD (+5.0 feet Mean Low Gulf (MLG)).

Fiscal Year 1993

During the 1993 maintenance event (1 August 1993 – 8 September 1993), working under contract 93-C-0092, the cutterhead dredge GALVESTON removed approximately 638,175 cubic yards of material dredged from the LAR Horseshoe channel and placed it all unconfined into wetland development site **B** located on the east bank of the channel. Material was deposited to a maximum initial elevation of approximately +5 feet MLG. Approximately 15 acres of marsh habitat were created by this placement effort at wetland development site **B**.

Fiscal Year 1994

During the 1994 maintenance event (8 July 1994 – 8 August 1994), the cutterhead dredge DREDGE 32, working under contract 94-C-0078, removed a total of approximately 533,495 cubic yards of dredged material from the LAR Horseshoe channel. Dredged material was placed unconfined in four wetland development sites (**A**, **C**, **D** and **G1**) located adjacent to the east and west banks of the channel and just north of the LAR and Bayou Chene intersection. Material was deposited to an initial elevation not to exceed +5 feet MLG.

Approximately 89,680 cubic yards of dredged material were placed at wetland development site **A**. Approximately 297,905 cubic yards of dredged material were placed at wetland development site **C**. Approximately 96,090 cubic yards of dredged material were placed at wetland development site **D**. Approximately 49,820 cubic yards of dredged material were placed at wetland development site **G1**.

Approximately 67 acres of marsh habitat were created at wetland development site **A**, approximately 54 acres of marsh habitat at wetland development site **C**, approximately 26 acres of marsh habitat were created at wetland development site **D**, and approximately 3 acres of marsh habitat at wetland development site **G1** by this placement effort.

Fiscal Year 1995

During the 1995 maintenance event (21 May 1995 – 21 June 1995), the cutterhead dredge TOM JAMES, working under contract 95-C-0033, removed a total of approximately 1,392,376 cubic yards from the LAR Horseshoe channel. Dredged material was placed unconfined at three wetland development sites (**B**, **D**, and **E**) located adjacent to the east and west banks of the LAR Horseshoe channel. Dredged material was deposited to a maximum initial elevation of no higher than +5 feet MLG.

Approximately 24 acres of marsh habitat were created at wetland development site **B**, approximately 101 acres of marsh habitat at wetland development site **D**, and approximately 17 acres of marsh habitat at wetland development site **E** by this placement effort.



Lower Atchafalaya River - Horseshoe (28 October 1995)

Fiscal Year 1996

1. During the 1996 maintenance event (18 April 1996 – 16 May 1996), the cutterhead dredge **GEORGE D WILLIAMS**, working under contract 96-C-0033, removed a total of approximately 1,006,432 cubic yards of dredged material from the LAR Horseshoe channel. Dredged material was placed unconfined at four wetland development sites (**A**, **B**, **D**, and **E**) located adjacent to the east and west banks of the LAR Horseshoe channel. Dredged material was deposited to a maximum initial elevation of no higher than +5 feet MLG.

Approximately 17,950 cubic yards of dredged material were placed at wetland development site **A**. Approximately 1,680,231 cubic yards of dredged material were placed at wetland development site **B**. Approximately 208,649 cubic yards of dredged material were placed at wetland development site **D**. Approximately 838,168 cubic yards of dredged material were placed at wetland development site **E**.

Approximately 7 acres of marsh habitat were created at wetland development site **A**, approximately 142 acres of marsh habitat at wetland development site **B**, approximately 10 acres of marsh habitat were created at wetland development site **D**, and approximately 16 acres of marsh habitat at wetland development site **E** by this placement effort.

2. During the 1996-1997 maintenance event (17 August 1996 – 25 October 1996), the cutterhead dredge **MISSOURI H**, working under contract 96-C-0070, removed a total of 1,004,878 cubic yards from the LAR Horseshoe channel. All dredged material was placed unconfined at wetland development site **B** resulting in the creation of approximately 93 acres of marsh habitat.



Lower Atchafalaya River – Horseshoe (10 November 1996)

Fiscal Year 1997

During the 1997 maintenance event (24 May 1997 – 25 July 1997), the cutterhead dredge MISSOURI H, working under contract 97-C-0051, removed a total of approximately 1,117,411 cubic yards of dredged material from the LAR Horseshoe channel. All dredged material was placed unconfined at wetland development site **B** located adjacent to the east bank of the channel. Approximately 87 acres of marsh habitat were created by this placement effort.



Lower Atchafalaya River – Horseshoe (17 October 1997)

Fiscal Year 1998

During the 1998 maintenance event (9 Oct 1997 – 7 November 1997), the cutterhead dredge TOM JAMES, working under contract 97-C-0091, removed a total of approximately 944,300 cubic yards of dredged material from the LAR Horseshoe channel. All dredged material was placed unconfined at wetland development site **B**. Dredged material was deposited to a maximum initial elevation of about +5 feet MLG. Approximately 101 acres of marsh habitat were created by this placement effort.



Lower Atchafalaya River – Horseshoe (1998)

Fiscal Year 1999

1. During the 1998 maintenance event (12 October 1998 – 29 December 1998), the cutterhead dredge GEORGE D WILLIAMS, working under contract 98-C-0061, removed a total of approximately 748,000 cubic yards of dredged material from the LAR Horseshoe channel. All dredged material was placed unconfined at wetland development site **F** located adjacent to the northern bank of the channel. Dredged material was deposited to a maximum initial elevation of about +5 feet MLG. Approximately 142 acres of marsh habitat were created by this placement effort.



Lower Atchafalaya River – Horseshoe (5 January 1999)

2. During the 1999 maintenance event (30 August 1999 – 18 September 1999), the cutterhead dredge TOM JAMES, working under contract 99-C-0057, removed a total of approximately 528,769 cubic yards of dredged material from the LAR Horseshoe channel. Dredged material was placed unconfined at two wetland development sites (sites **B** and **H**) located adjacent to the east bank of the channel. Dredged material was deposited to a maximum initial elevation of about +5 feet MLG.

Approximately 209,700 cubic yards were placed at wetland development site **B**, and 319,069 cubic yards of dredged material were placed at wetland development site **H**.

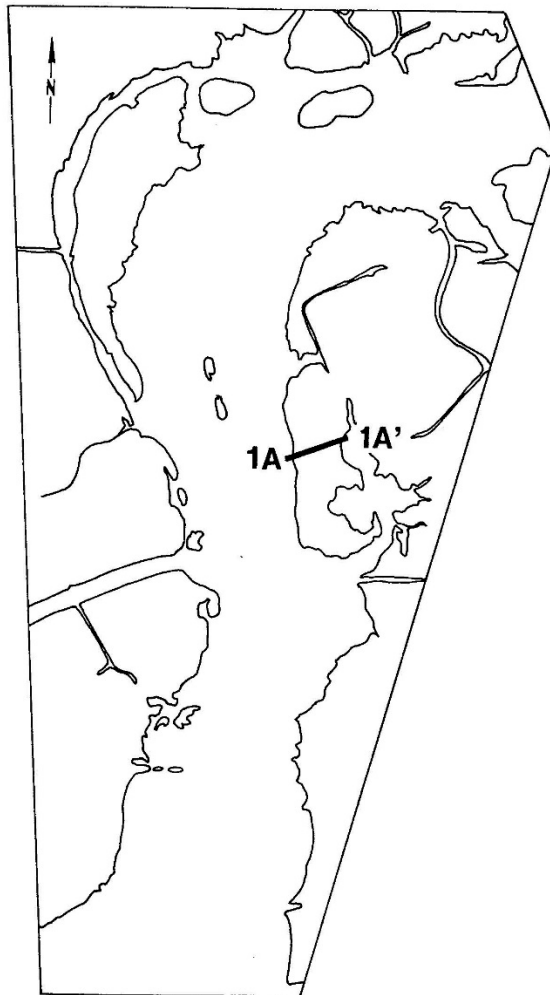
Approximately 39 acres of marsh habitat were created at wetland development site **B**, and approximately 50 acres of marsh habitat at wetland development site **H** by this placement effort.



Lower Atchafalaya River – Horseshoe (14 January 2000)

1996 Elevation and Vegetation Survey Effort

An elevation and vegetation survey was conducted on LAR Horseshoe placement site **B** during 1996.



Location of the transect at the Lower Atchafalaya River Horseshoe BUMP study site.

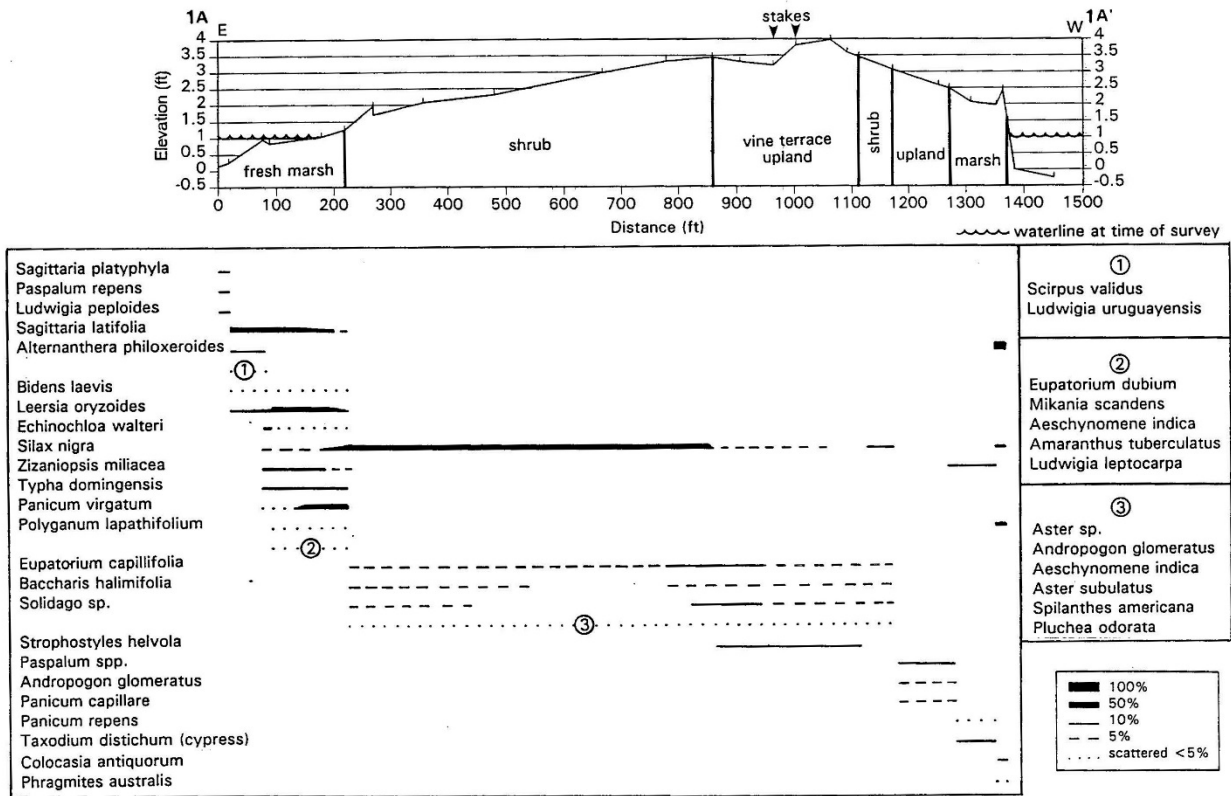
A single transect was oriented across placement site **B** such that it surveyed dredged material placed during 1995 and earlier. The average elevation of site **B** was about +2.21 feet MLG, with a high point reaching approximately +4.0 feet MLG. The majority of site **B** was classified as shrub/upland habitat with marsh present along the shoreline areas. The overall dominant vegetation was black willow (*Salix nigra*). Young willows were profusely represented along the survey transect. Upland areas within site **B** were represented by grasslands, herbaceous meadows, vine terraces, and potential shrub/scrub. Mist Grass (*Panicum capillare*), bushy broomsedge (*Andropogon glomeratus*), and *Paspalum* spp. were the most common grass species, with purple aster (*Aster* spp), yankee weed dogfennel (*Eupatorium capillifolium*), and goldenrod (*Solidago* sp.), as common herbaceous plants, with a profusion of trailing wild bean

(*Strophostyles helvola*) vines twining over all. Older deposits supported additional species and the beginnings of shrub habitats.

Marsh species occurred most commonly at an elevation below +2.0 feet MLG. Dominant species of the low fresh marsh included duck-potato (*Sagittaria latifolia*, *Sagittaria platyphyla*), *Paspalum repens*, alligator weed (*Alternanthera philoxeroides*), and flowering *Ludwigia* spp. Significant species of the high marsh were wild rice (*Zizaniopsis miliacea*), cattails (*Typha latifolia*), and Walter's millet (*Echinochloa walterii*). Numerous young willow trees and a few cypress seedlings (*Taxodium distichum*) were present, scattered in many areas of the marsh, but were too small to be considered a forested wetland habitat. Water hyacinth (*Eichhornia crassipes*) was found along the shore, rafted against the windward side and stranded thickly by a previous high water event.

Since the first placement of dredged material at site **B** in 1993, much of this site has remained at elevations more conducive to upland habitat rather than marsh habitat after three years of dewatering and compaction. Some of this may be due to repeated placement of dredged material on the same portion of site **B** and more time is needed for the site to lose elevation as it continues to dewater and compact in order to meet the goal of attaining marsh habitat elevations. It should be noted that a majority of the material removed from the LAR Horseshoe channel tends to be fairly sandy material that tends to stack quickly when discharged from a dredge pipeline and does not show the same degree of compaction over time as would sediments that are composed of a greater percentage of silts and clays.

ATCHAFALAYA, LOUISIANA
USACE Site, Horseshoe (AHI-1-0).HI-1-0)
October 29, 1996



Elevation profile of the Lower Atchafalaya River Horseshoe BUMP study site with vegetation data illustrated.