BENEFICIAL USE OF DREDGED MATERIAL DISPOSAL HISTORY
MISSISSIPPI RIVER, BATON ROUGE TO THE GULF OF MEXICO, LA
HEAD OF PASSES
HOPPER DREDGE DISPOSAL AREA

Dredged material removed by hopper dredges working in the Lower Mississippi River navigation channel below Venice, Louisiana has been discharged into the open water hopper dredge disposal area (HDDA) located at the heads of Pass a Loutre and South Pass since the early 1900s. The HDDA was originally a deep scour hole that did not require maintenance dredging to enable its continued use by hopper dredges due to the natural scouring action of the Mississippi River that maintained its depth. However, during the 1990s it became apparent that this natural river scouring action was no longer removing enough sediments from the HDDA to allow hopper dredges to safely access this disposal site during maintenance dredging operations of the Southwest Pass channel. In fiscal year (FY) 1998, the New Orleans District (CEMVN) implemented a management plan for the HDDA in order to insure continuous availability of the site for hopper dredge disposal. The management plan consisted of dredging within the existing HDDA boundaries to a maximum depth of -40 feet Mean Low Gulf (MLG) to increase the capacity of this disposal site for future placement of hopper-dredged material removed from the Lower Mississippi River channel below Venice, Louisiana. HDDA dredged material was to be placed unconfined into a 298-acre, shallow, open water area located on the east side of the Mississippi River north of Pass a Loutre within the Delta National Wildlife Refuge (DNWR) in a manner conducive to wetlands development. No vegetative plantings were necessary as these sites vegetated within a single growing season by colonization and seed bank contained in the dredged material.

FY 2015

Under contract **14-C-0055**, the cutterhead dredges CAPTAIN FRANK (working from 25 December 2014 to 13 May 2015) and McCASKILL (working from 21 May 2015 to 6 July 2015) removed a total of 9,646,404 CY from the HDDA and placed this material unconfined in shallow open water areas in the DNWR site and in West Bay (on the west side of the Lower Mississippi River navigation channel).

DNWR Site

In the DNWR site, dredged material was discharged unconfined into two shallow open water areas located between previously constructed peninsulas to a maximum initial elevation of between +4.5 feet and +5.0 feet North American Vertical Datum of 1988 (NAVD88) for marsh habitat creation. The dredging contractor was allowed to use the north-south crown of the FY 2007 and FY 2008 peninsulas as access corridors for pipeline and associated construction equipment. Approximately 645,065 CY were placed at DNWR Site A and resulted in the creation of about 82 acres of marsh habitat. Approximately 1,503,976 CY were placed at DNWR Site B and resulted in the creation of about 139 acres of marsh habitat.

West Bay Site

In West Bay, dredged material was discharged unconfined at two sites to a maximum initial elevation of between +4.5 feet and + 5.0 feet NAVD88 for marsh habitat creation. In order for dredge pipeline to reach the West Bay placement site from the HDDA dredging reach, a trench was excavated across the bottom of the navigation channel at about Mile 1.3 Above Head of Passes (AHP) and the pipeline was laid in this trench and anchored such that it posed no hazard to navigation traffic.

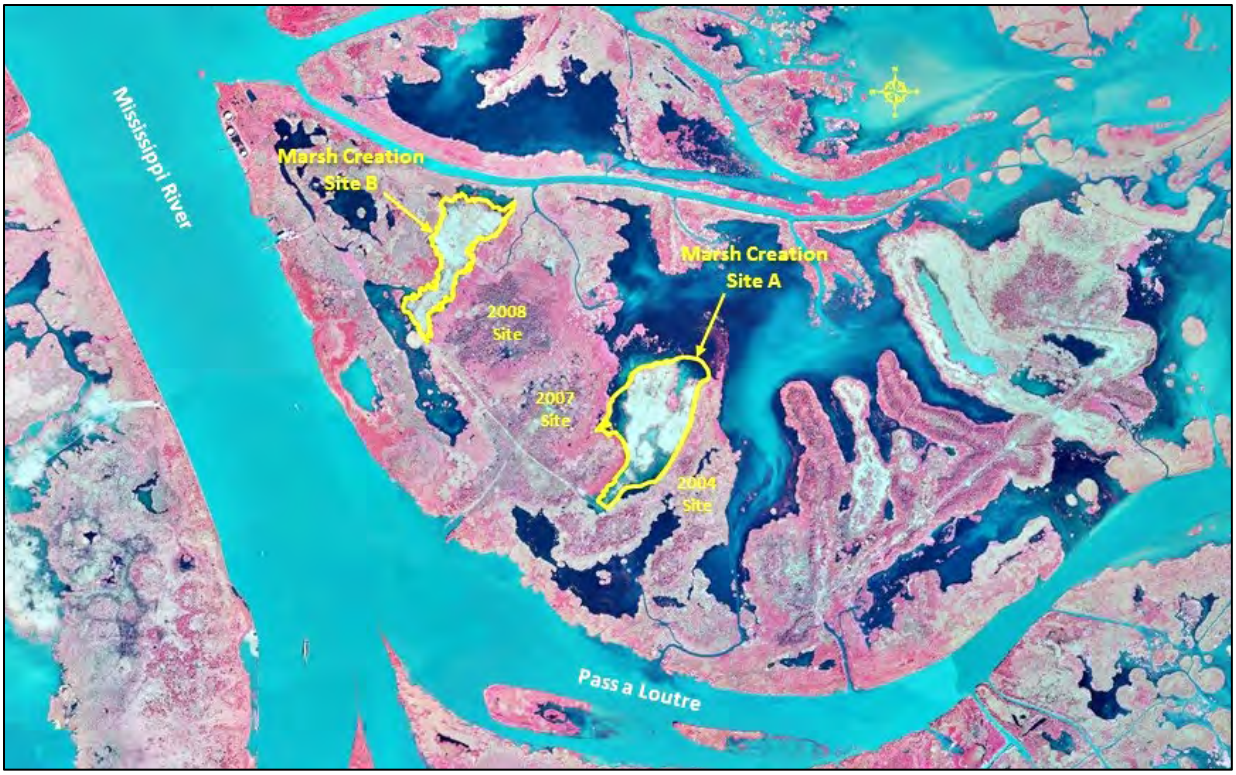
1. West Bay Marsh Creation Site: The initial placement of dredged material in West Bay started from the west side of previously placed dredged material at about Mile 1.3 AHP and proceeded towards the West Bay open waters such that marsh would be created adjacent to and along the bay side of the existing wetlands. While dredged material was not allowed to be placed directly upon existing wetlands, a maximum of 1 foot of dredged material slurry was allowed to overflow upon adjacent existing wetlands for nourishment purposes. Approximately 5,198,068 CY were placed at this West Bay site and resulted in the creation of about 376 acres of marsh habitat.

2. LCA BUDMAT Island Site: The Louisiana Coastal Area, Beneficial Use of Dredged Material (LCA BUDMAT) program provided funds for the performance of additional marsh creation using HDDA dredged material during this contract work. HDDA dredged material was placed unconfined in shallow open water to create a crescent-shaped island with a length of about 5,500 feet. The McCASKILL (working from 21 May 2015 to 6 July 2015) discharged dredged material to a maximum initial elevation of approximately +4.5 to +5.0 feet NAVD88, over a 300-foot crown width with side-slopes of 1V:5H, to achieve an expected final elevation between +2.0 to +2.5 feet NAVD88 (which would be conducive to marsh development in the West Bay area) following dewatering and compaction. An approximately 250-foot gap was left within the marsh island where no dredged material was pumped directly over an existing pipeline that bisected the site.

Approximately 2,299,295 CY were placed at the LCA BUDMAT island site and resulted in the creation of about 80 acres of marsh habitat. Towards the end of the HDDA dredging effort for this LCA BUDMAT project, the McCASKILL encountered rocks in that were part of the submerged mattress sills constructed by Captain Eads across the head of Pass a Loutre in the late 1800s.

A total of about 677 acres of marsh habitat were initially created by this contract placement effort.

Final contract cost was a total of $19,321,756. The LCA BUDMAT project paid for $7,057,396 of this total.

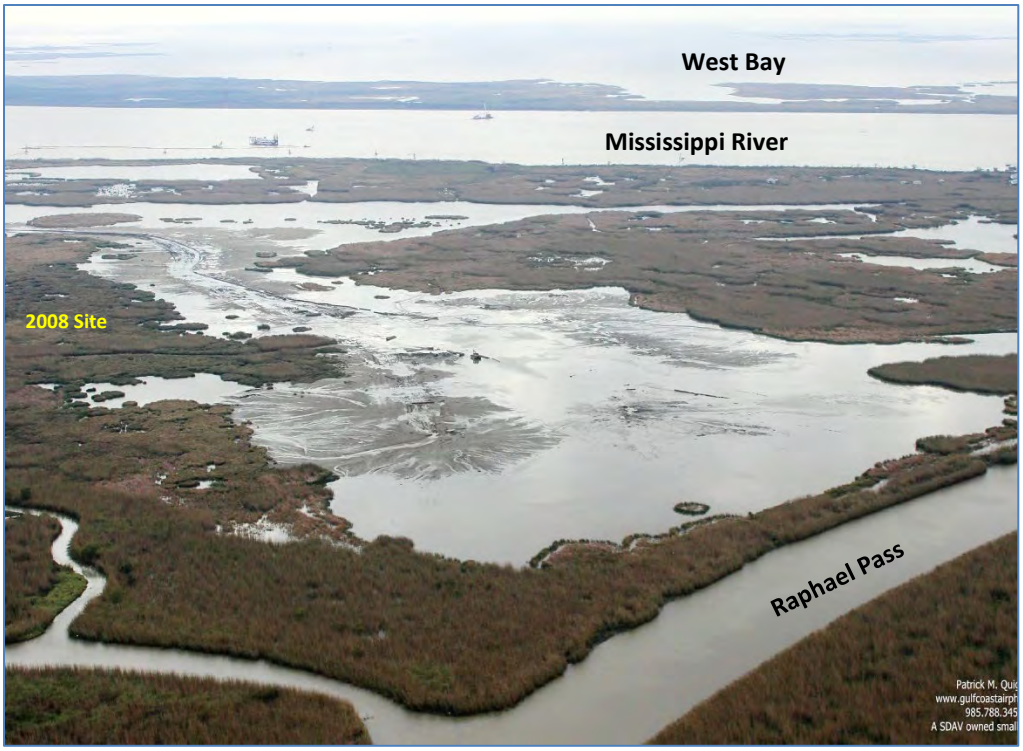


FY 2015 DNWR Marsh Creation Placement Sites

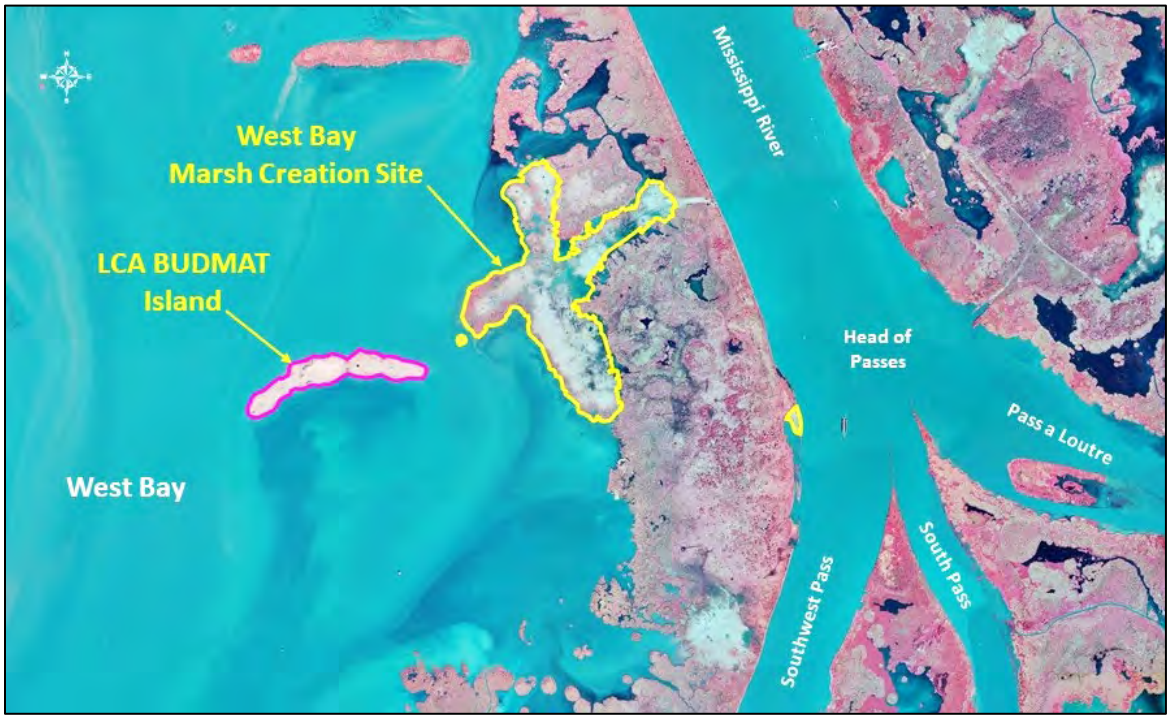
FY 2015 DNWR Placement Site: Marsh Creation Site A (15 November 2014)

FY 2015 DNWR Placement Site: Marsh Creation Site A (8 December 2014)

FY 2015 DNWR Placement Site: Marsh Creation Site A (8 January 2015)



FY 2015 DNWR Placement Site: Marsh Creation Site B (8 January 2015)



FY 2015 West Bay Marsh Placement Sites

FY 2015 West Bay Placement Site (8 January 2015)

FY 2015 West Bay Marsh Creation Site (10 February 2015)

FY 2015 West Bay Marsh Creation Site (28 March 2015)

FY 2015 West Bay Marsh Creation Site (29 April 2015)

FY 2015 LCA BUDMAT Island Site (2 June 2015)

FY 2015 LCA BUDMAT Island Site (2 June 2015)

FY 2017-2018

Under contract **16-C-0054**, the cutterhead dredges CAPTAIN FRANK (working from 8-17 October 2016, 1-23 February 2017, and 9 September 2017 to 19 November 2017), EW ELLEFSEN (working from 18 October 2016 to 31 January 2017), and GD MORGAN (working from 5 January 2018 to 23 February 2018) removed a total of 13,323,560 CY from the HDDA and placed this material unconfined in shallow open water areas in West Bay, the Pass a Loutre Wildlife Management Area (PALWMA), and along the northern bankline of Spanish Pass west of Venice, Louisiana for an LCA BUDMAT coastal restoration project.

West Bay Marsh Creation Site

The initial placement of dredged material in West Bay started from the west side of previously placed FY 2015 dredged material and proceeded towards the West Bay open waters such that marsh would be created adjacent to and along the bay side of the existing wetlands. Dredged material was discharged unconfined to a maximum initial elevation of between +4.5 feet and + 5.0 feet NAVD88 for marsh habitat creation. While dredged material was not allowed to be placed directly upon existing wetlands, a maximum of 1 foot of dredged material slurry was allowed to overflow upon adjacent existing wetlands for nourishment purposes. In order for dredge pipeline to reach the West Bay placement site from the HDDA dredging reach, a trench was excavated across the bottom of the navigation channel at about Mile 1.3 Above Head of Passes (AHP) and the pipeline was laid in this trench and anchored such that it posed no hazard to navigation traffic. Approximately 7,047,051CY were placed at this West Bay site and resulted in the creation of about 226 acres of marsh habitat.

PALWMA Marsh Creation Site

Dredged material was placed at two PALWMA disposal sites (Sawdust Bend North and Sawdust Bend South) and was limited to a maximum initial elevation of approximately +8.0 feet MLG. While dredged material was not allowed to be discharged directly upon existing wetlands, a maximum of about 1-foot of dredged material was allowed to overflow adjacent existing marsh. It was anticipated that the final settled elevation of the dredged material would be approximately +5.0 to +6.0 feet MLG, an elevation conducive to the development of high marsh.

1. Sawdust Bend North: Approximately 1,711,770 CY of dredged material was placed unconfined at the Sawdust Bend North site and resulted in the creation of about 178 acres of marsh habitat.

2. Sawdust Bend South: Approximately 2,596,039 CY of dredged material was placed unconfined at the Sawdust Bend North site and resulted in the creation of about 291 acres of marsh habitat.

LCA BUDMAT Spanish Pass Ridge Site

The LCA BUDMAT program provided funds for the construction of a coastal habitat restoration project using HDDA dredged material during this contract work. HDDA dredged material was

used to restore an historic ridge that has subsided and eroded over time by constructing an approximately 4,500-foot long ridge backed by an approximately 500-foot wide marsh platform, in an area of open water and broken marsh along the north bankline of Spanish Pass. The ridge would serve as a means to reduce wave energy on the leeward side of the marsh.

The cutterhead dredge GD MORGAN, working in the HDDA, was used to load hopper barges utilizing a spider barge. The loaded barges were transported to a slip in Tiger Pass outside of the navigation channel at the eastern end of Haliburton Road in Venice, Louisiana. An off-loader staged on landside of the slip was used to empty the barges, and transport the material via a temporary dredge material discharge pipeline to the ridge restoration site.

To avoid impacts to 2 existing pipelines, the Spanish Pass Ridge Restoration site was divided into 2 placement cells separated by a no-work corridor between the western and eastern cells.

A ridge feature was constructed along the southern boundaries of both placement cells. An approximately 2,800-foot long ridge was constructed in the western cell, and an approximately 1,700-foot long ridge was constructed in the eastern cell. Ridges were constructed to a maximum initial elevation of about +7.5 feet NAVD88, with an expectation that it would settle to an elevation of about +6.0 feet NAVD88 within 1-2 years following completion of construction activities. Ridges were constructed with a crown width of about 80 feet and side slopes of about 1V on 20H.
A marsh platform was constructed along the north side of the ridge feature in both cells. The marsh platform was constructed to a maximum initial elevation of about +4.0 feet NAVD88, with an expectation that is would settle to an elevation of about +1.5 to +2.0 feet NAVD88 with about 10 years following completion of construction activities.

Construction equipment was used to mechanically shape both the ridge and marsh features as necessary to meet design templates.

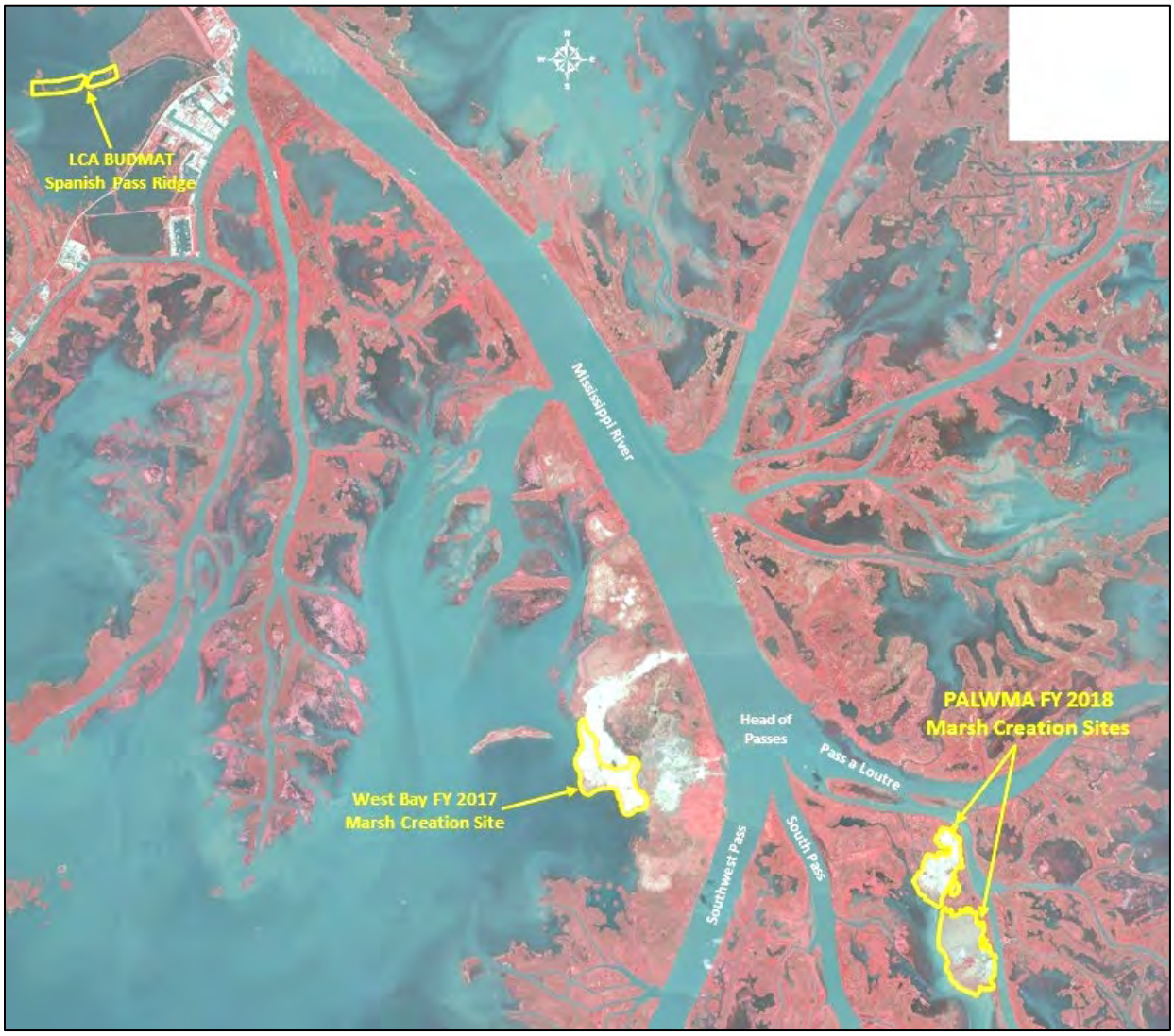
Earthen perimeter dikes were constructed around each cell to an elevation of about +5.0 feet NAVD88, a crown width of 5-feet, and with side slopes no steeper than 1V on 4H. The dikes constructed along the south side of the ridge also included a 25-foot wide stability berm, constructed to elevation 0.0 feet NAVD88, and with slopes no steeper than 1V on 4H.

Borrow for dike construction came from shallow open water areas located both interior and exterior to the dike alignment. Priority was placed on borrowing from the exterior of the confined disposal site where possible. The exception to exterior borrow was to the east of the easternmost dike and the pipeline corridor where the 2 Plains All American pipelines traversed. No borrow was allowed within the pipeline corridor and the outside dike toes were no closer than 50 feet from the pipelines.

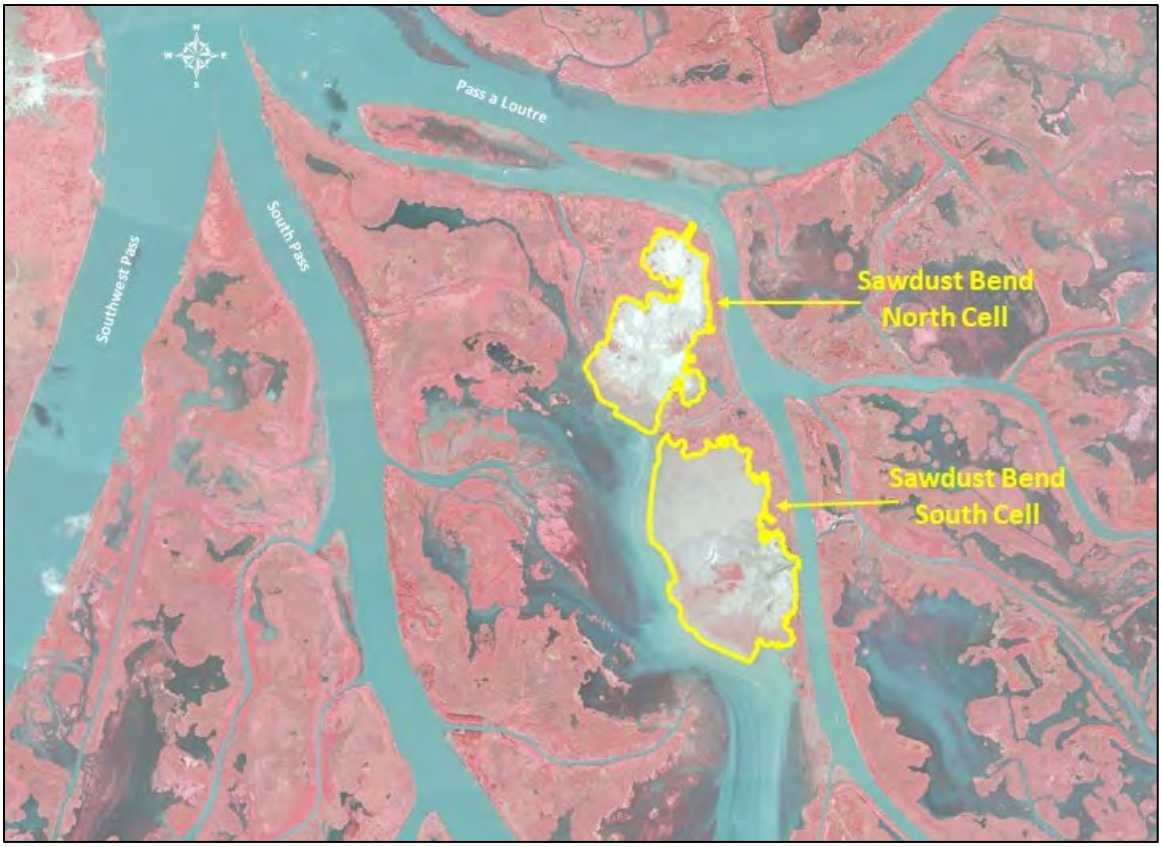
Post construction, the dikes were allowed to settle and/or erode, as well as vegetate naturally over time. If necessary, these perimeter dikes would later be breached or degraded to the settled elevations of the disposal area by the project Non-Federal Sponsor.

Approximately 1,968,700 CY of dredged material placed at the Spanish Pass Ridge Restoration site resulted in the restoration of about 18 acres of maritime forest ridge habitat, and about 69 acres of marsh habitat.

Final contract cost was a total of $48,509,740. The LCA BUDMAT project paid for $13,384,740 of this total.



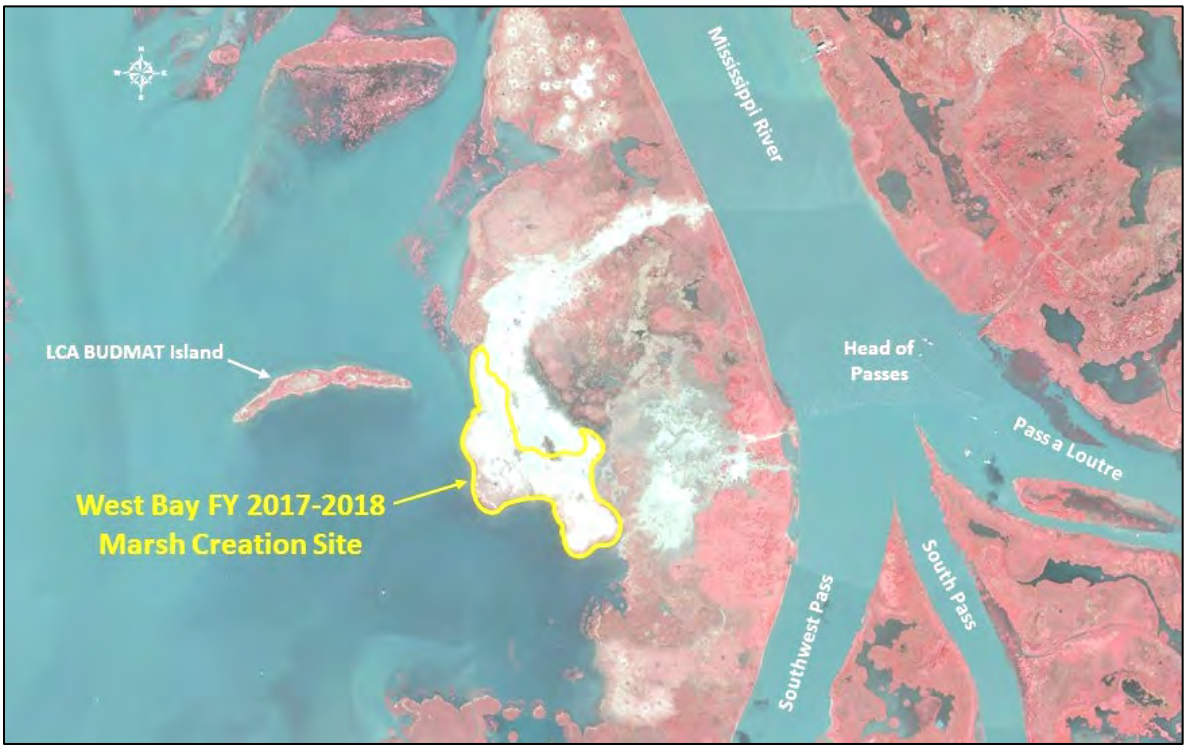
FY 2017-2018 Southwest Pass & HDDA Placement Sites



FY 2017 PALWMA Sawdust Bend Placement Site

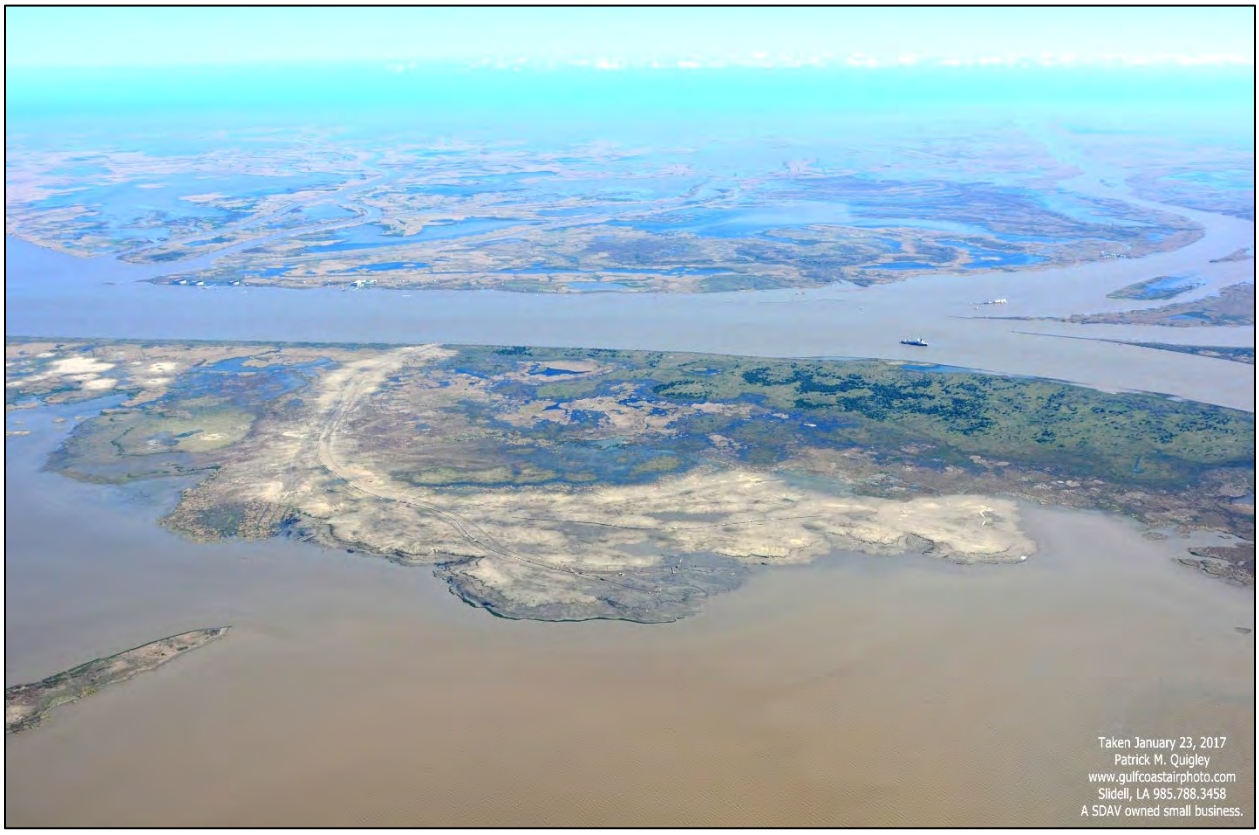
FY 2017 PALWMA Sawdust Bend Placement Site (31 October 2017)

FY 2017 PALWMA Sawdust Bend Placement Site (30 November 2017)



FY 2017-2018 West Bay Placement Site (December 2017)

FY 2017-2018 West Bay Placement Site (15 December 2016)



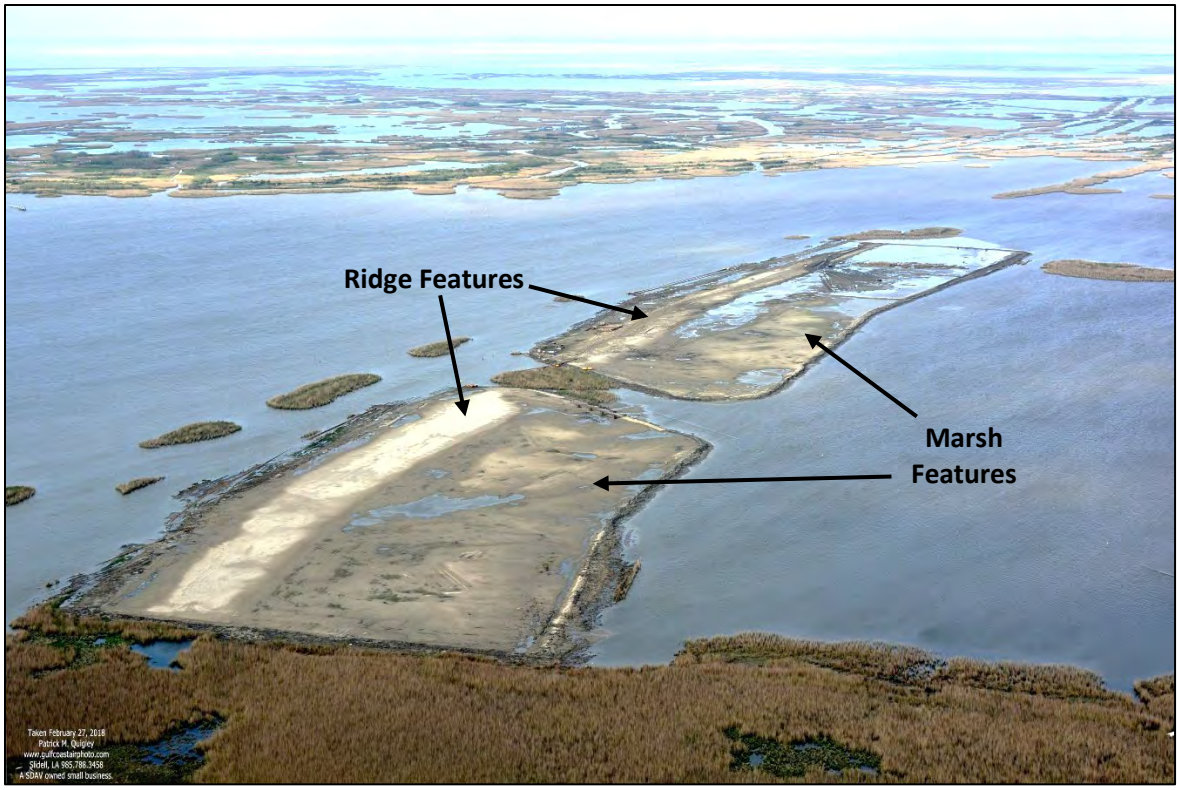
FY 2017-2018 West Bay Placement Site (25 January 2017)

FY 2017-2018 West Bay Placement Site (25 January 2017)

FY 2017-2018 West Bay Placement Site (17 March 2017)

FY 2018 LCA BUDMAT SPANISH PASS RIDGE SITE

FY 2018 LCA BUDMAT Spanish Pass Ridge Construction (13 September 2017)



FY 2018 LCA BUDMAT Spanish Pass Ridge Construction (28 February 2018)

FY 2018 LCA BUDMAT Spanish Pass Ridge (8 January 2019)

FY 2019-2020

Under contract **18-C-0045**, the cutterhead dredges RS WEEKS (working from 3 November 2018 to 20 October 2019), JS CHATRY (working from 21 October 2019 to 14 January 2020), and ELLEFSEN (working from 20 April 2020 to 23 April 2020) removed a total of 13,431,063 CY from the HDDA and placed this material unconfined in 2 shallow open water areas in the PALWMA and at the Coast Guard East Range Light station located at Pilottown at about Mile 1.5 AHP on the east bank of the river.

The RS WEEKS worked from 3 November 2018 through 15 December 2018 before moving temporarily away from maintenance dredging the HDDA. The RS WEEKS returned to dredging the HDDA on 26 April 2019 and remained on this job through 20 October 2019 when it was replaced by the JS CHATRY, which performed work in the HDDA until 14 January 2020. The ELLEFSEN then replaced the JS CHATRY to complete the HDDA dredging work during April 2020.

Because of the interruption in HDDA dredging work extending from 15 December 2018 to 26 April 2019, the western half of the HDDA had shoaled in such that the larger hopper dredges were no longer able to safely use this disposal site. As a solution to this issue, the cutterhead dredge CAPTAIN FRANK (working under contract **19-C-0010**) was brought in to dredge out this portion of the HDDA while the RS WEEKS continued to dredge the middle portion of the HDDA with disposal into the PALWMA Sawdust Bend South Cell. The CAPTAIN FRANK worked from 2 May 2019 through 15 May 2019 and removed approximately 985,955 CY from the shoaled-in portion of the HDDA and discharged this material back into the lower middle portion of the HDDA on the east side of the Head of Passes East Jetty Light where it would subsequently be removed by the RS WEEKS as part of its HDDA dredging work. Completion of this work allowed the larger hopper dredges to once again safely utilize the HDDA.

PALWMA Sawdust Bend (South Cell) Placement Site

Working discontinuously from 3 November 2018 through 25 December 2019, approximately 12,569,840 CY of dredged material was placed unconfined at the Sawdust Bend South Cell site and resulted in the creation of about 486 acres of marsh habitat. Dredged material was placed unconfined in shallow open water at the Sawdust Bend South Cell site to a maximum initial elevation of approximately +8.0 feet MLG. It was anticipated that the final settled elevation of the dredged material would be approximately +5.0 to +6.0 feet MLG, an elevation conducive to the development of high marsh. While dredged material was not allowed to be discharged directly upon existing wetlands, a maximum of about 1-foot of dredged material was allowed to overflow adjacent existing marsh. Earthen training dikes were built where the disposal site interfaced with adjacent waterways to prevent dredged material from entering these areas.

In early May 2019, about 20 nesting pairs of Least Terns were observed on the northern portion of the Sawdust Bend South Cell site. At the time, no disposal activities were being performed on the northern portion of this site. Bird nesting prevention and avoidance measures were quickly implemented to prevent disturbance of these nest sites, and to prevent additional birds from nesting on the active disposal site.

Cadro Pass Shoaling: On 9 December 2019, personnel from the Louisiana Department of Wildlife and Fisheries managing the PALWMA notified the CEMVN that dredged material had escaped the boundaries of the Sawdust Bend South Cell site and partially filled in Cadro Pass (located at the southern end of this site) as well as shoaling in a smaller area of Dennis Pass adjacent to Cadro Pass. The shoaling in Cadro Pass posed an immediate safety risk to recreational hunters and fishermen that regularly use this waterway. The dredging contractor immediately began to wheel wash and mechanically dredge out the spilled dredged material from Cadro Pass and Dennis Pass to restore their navigable depths. Shoal material was placed on the adjacent banks of Cadro Pass and Dennis Pass. While conducting clean-out dredging operations of Cadro Pass, the contractor constructed more robust earthen containment dikes along the southern boundary of the Sawdust Bend South Cell site to prevent the possibility of additional dredged material escaping into Cadro Pass and/or Dennis Pass. Cadro Pass/Dennis Pass clean out operations were completed on 1 January 2020.

PALWMA Dennis Pass Placement Site

The JS CHATRY placed approximately 565,259 cubic yards of HDDA dredged material into the Dennis Pass site from 26 December 2019 to 14 January 2020, and the ELLEFSEN placed approximately 48,425 cubic yards into the Dennis Pass site from 20 April through 23 April 2020. Approximately 62 acres of marsh habitat were created in the Dennis Pass placement site. Dredged material was placed unconfined in shallow open water at the Dennis Pass site to a maximum initial elevation of approximately +8.0 feet MLG. It was anticipated that the final settled elevation of the dredged material would be approximately +5.0 to +6.0 feet MLG, an elevation conducive to the development of high marsh. While dredged material was not allowed to be discharged directly upon existing wetlands, a maximum of about 1-foot of dredged material was allowed to overflow adjacent existing marsh.

Coast Guard East Range Light Pilottown Site

When the contractor stopped work in the HDDA on 15 December 2019, they left a submerged discharge pipe in place within the HDDA leading to the Sawdust Bend South Cell disposal site. The plan was to re-utilize that line upon returning to HDDA and dredging the westernmost portion of the HDDA (that portion of the HDDA located closest to the Southwest Pass navigation channel). However, due to multiple hopper dredges using the westernmost portion of the HDDA, the RS WEEKS could not safely operate in this part of the HDDA. It became necessary to pick up the submerged discharge line and re-configure it to allow dredging of the more eastern portion of the HDDA not being utilized by hopper dredges.

Upon return to the HDDA, the contractor discovered that the submerged discharge line was buried under about 12 feet of shoal material which prevented them from picking the line up off the bottom. Removal of this shoal material required the use of an additional disposal site nearer to the submerged pipeline location than the Sawdust Bend South Cell site. It was decided, at the request of the US Coast Guard (USCG), to place this shoal material at the USCG East Range Light at Pilottown located on the east bank of the river at about Mile 1.5 AHP. The contractor used this disposal site until they could complete construction of another submerged pipeline to tie into the existing pipeline being used for the Sawdust Bend South Cell placement site.

The USCG had been having great difficulty in accessing this range light for maintenance purposes as the land around the light had subsided and eroded over time to become very "swampy", which made it difficult to access from the river bankline. The USCG had requested that the CEMVN placed dredged material at this site to elevate the surrounding land to marsh elevations that would allow their personnel to safely access this light by foot. Responding to this need, the RS WEEKS (working from 26 April 2019 through 2 May 2019) placed approximately 247,539 CY of HDDA dredged material unconfined at the USCG East Range Light site at Pilottown. Dredged material was placed from the Mississippi River bankline to the range light location to a maximum initial elevation of about +4.5 feet NAVD88. About 20 acres of marsh were restored and nourished by this placement effort.

HDDA FY 2019-2020 BU Placement Sites

FY 2019-2020 PALWMA Sawdust Bend South Cell Placement Site (8 January 2019)

FY 2019-2020 PALWMA Sawdust Bend South Cell Placement Site (5 September 2019)

FY 2019-2020 PALWMA Sawdust Bend South Cell Placement Site (28 October 2019)