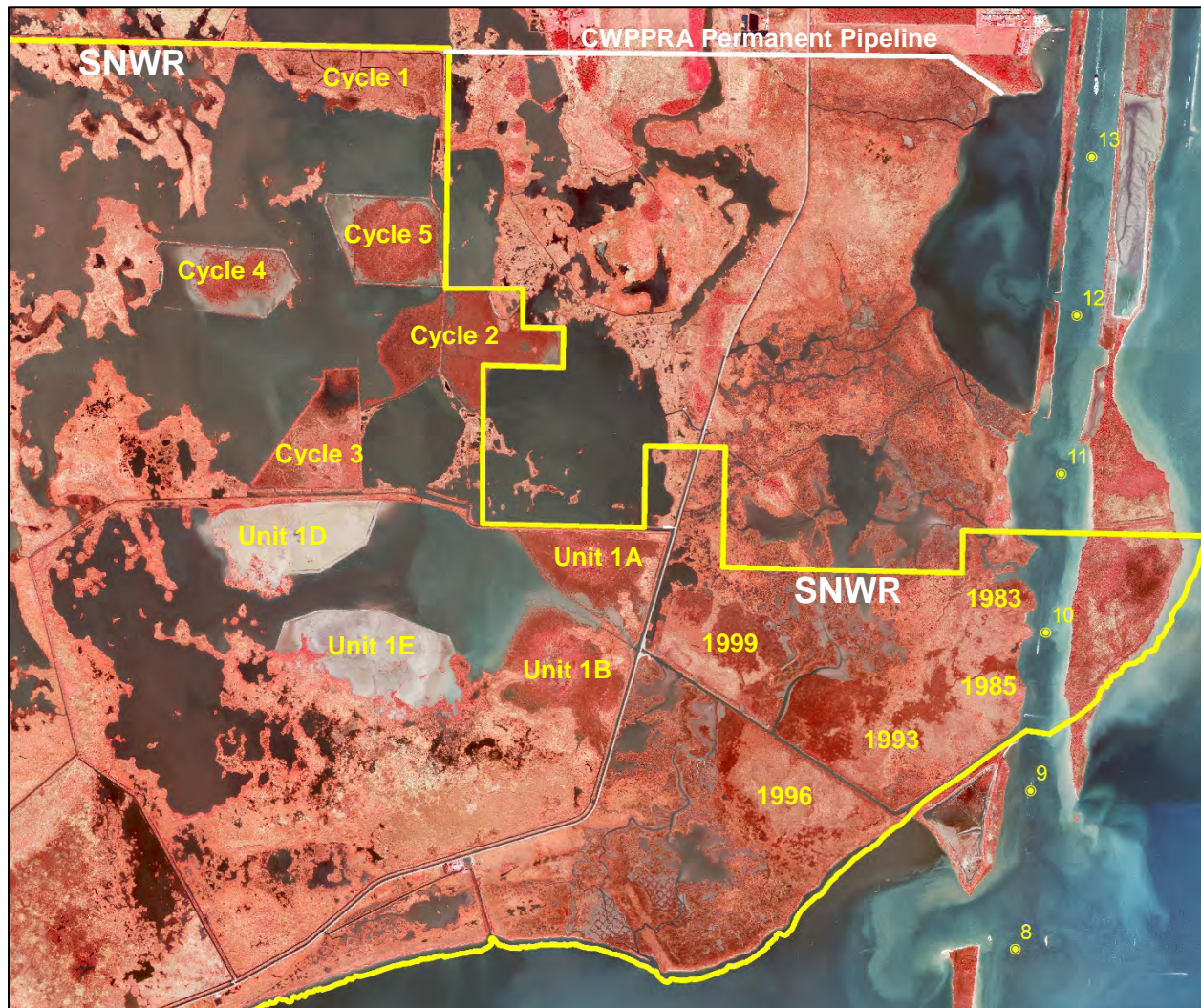


**BENEFICIAL USE OF DREDGED MATERIAL DISPOSAL HISTORY
CALCASIEU RIVER AND PASS, LA
2001 - 2007**

SABINE NATIONAL WILDLIFE REFUGE



SNWR BU Sites

2001

Background:

During the 2001 maintenance event (contract DACW29-01-C-0038: 8 May 2001 – 20 January 2002), dredged material was deposited in the SNWR as part of the Sabine Refuge Marsh Creation (XCS-48/SA-1) Coastal Wetlands, Planning, Protection, and Restoration Act (CWPPRA) project. The CWPPRA project paid for the incremental costs to place Calcasieu

River dredged material at this approximately 203-acre shallow open water and eroded marsh Cycle 1 SNWR site.

Dredged Material Placement Event:

From 1 January 2002 through 20 January 2002, the cutterhead dredge CALIFORNIA placed approximately 834,416 cubic yards of dredged material from the Mile 11.5 to Mile 14.0 reach of the navigational channel in the SNWR Cycle 1 wetlands development site. Dredged material was placed at this site to a maximum height of about +4.5 feet MLG (with an anticipated final elevation following dewatering and compaction of about +2.5 feet MLG). About 450,000 cubic yards were pumped into the eastern cell (125 acres) to about +4.4 feet MLG slurry height. About 235,000 cubic yards were pumped into the western cell (78 acres) to a maximum elevation of about +4.0 feet MLG slurry height.

Containment and Access:

The existing North Starks Canal levee formed the northern boundary of the Cycle 1 site, and the eastern boundary was formed by an existing SNWR boundary levee. North and east perimeter dikes were refurbished to a maximum elevation of +6.5 feet MLG. West and south perimeter dikes were constructed to a maximum elevation of +5.0 – 5.5 feet MLG. The Cycle 1 placement site was separated into two cells by an interior dike running north and south constructed to an elevation of about +5.5 feet MLG. Borrow material for earthen dikes was taken from within the SNWR marsh restoration disposal area.

A series of interior ditches (trenasses) were excavated prior to discharge of dredged material to a depth of about -5.0 feet MLG and a width of about 25 feet. Trenasses were intended to function as artificial tidal creeks within the Cycle 1 marsh creation site. Trenasse material was placed about 40 feet outside of the cuts and staggered on opposite sides every 500 feet to a maximum elevation of about +5.0 feet MLG.

The interior dike and south perimeter dike were breached at various locations to enhance flow of material to the west cell and towards the overflow weir in the south perimeter dike located at the southwestern corner of the west cell, to allow creation of mud flats outside of the Cycle 1 site, and to prevent a buildup of material in the east cell above elevation +4.5 feet MLG. About 150,000 cubic yards of dredged material were allowed to flow out of the south perimeter dike.

Prior to the start of construction work on this contract, the dredge pipeline access corridor was modified from the original plan to run the pipeline through West Cove Canal into the SNWR Cycle 1 site. Following the dredging contractor's request to modify this access corridor to an alternate route that they had conceived, the CEMVN obtained environmental clearances and landowner permissions to use this new pipeline access corridor. Use of the SNWR Cycle 1 site was delayed by approximately six months while environmental clearances and real estate agreements were obtained.

The new 100-foot wide by 19,350-foot long access corridor for pipeline placement called for temporary pipeline to be laid from the Calcasieu River to the SNWR Cycle 1 site via an overland route. The pipeline extended from the navigation channel at about Mile 13.5, crossing over the existing upland confined disposal areas at Dugas Landing, across the shallow open water area

Calcasieu River Contract 01-C-0038 As Built: CWPPRA SNWR Cycle 1 Placement Site



SNWR BU Site: CWPPRA Cycle 1 Post-Placement (April 2003)



SNWR BU Site: CWPPRA Cycle 1 Post-Placement (April 2003)



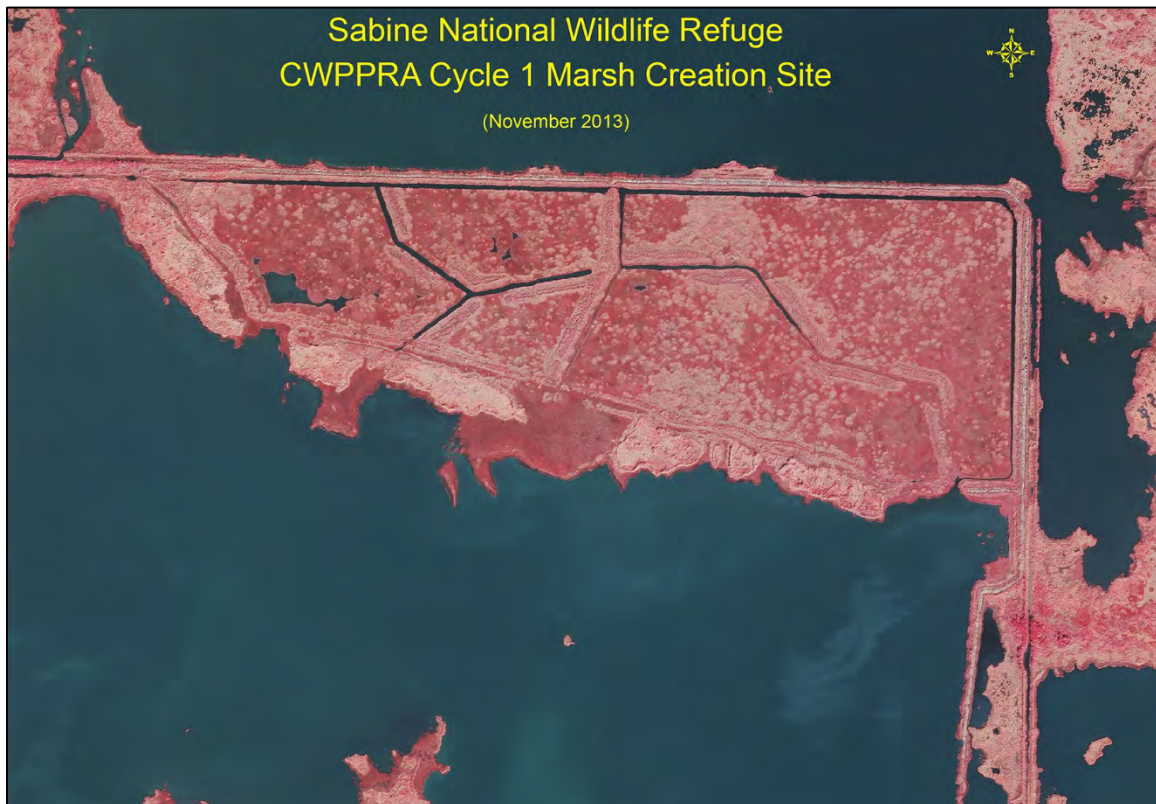
SNWR BU Site: CWPPRA Cycle 1 Post-Placement (April 2003)



SNWR BU Site: CWPPRA Cycle 1 Post-Placement (April 2003)



SNWR BU Site: CWPPRA Cycle 1 Post-Placement (2004)



SNWR BU Site: CWPPRA Cycle 1 Post-Placement (2013)



SNWR BU Site: CWPPRA Cycle 1 Post-Placement (2019)

2007

Background:

During the 2007 maintenance event (contract W912P8-06-C-0192: 25 October 2006 – 29 August 2007), dredged material was deposited in the SNWR as part of the Sabine Refuge Marsh Creation CWPPRA project. The approximately 230-acre SNWR Cycle 3 site was composed of shallow open water and eroded marsh. The CWPPRA project paid for the incremental costs to place Calcasieu River dredged material to the SNWR Cycle 3 site.

Dredged Material Placement Event:

From 12 February 2007 through 31 March 2007, the cutterhead dredge DREDGE 32 placed approximately 828,767 cubic yards of dredged material removed from the Mile 8.3 to Mile 11.8 reach of the Calcasieu River navigation channel into the SNWR CWPPRA Cycle 3 marsh creation disposal site located west of the channel.

Dredged material slurry was pumped into the Cycle 3 site to a maximum elevation of about +4.2 feet MLG at the end of the discharge pipeline (maximum allowable initial elevation +4.5 feet MLG with an expected target elevation following dewatering and compaction of approximately +2.5 feet MLG). From the discharge location, dredged material elevations tapered off to a height of about +2.6 feet MLG, with the slurry reaching a height of about +3.2 feet MLG in the far northwest corner of the Cycle 3 site. Pumping of dredged material was interrupted from 23 February 2007 through 3 March 2007 due to the dredge encountered sandy material that was undesirable for placement in the Cycle 3 marsh creation site.

Containment and Access:

Approximately 8,000 feet of perimeter earthen retention dikes were constructed along the

southern and eastern boundaries of the Cycle 3 site to a maximum height of about + 6.5 feet MLG, with a minimum of 1:3 side slopes, and with a 5-foot crown width. Approximately 5,800 feet of low level earthen dikes/weirs were constructed along the western and northern boundaries of the Cycle 3 site to a maximum height of about +3.5 feet MLG. Dredged material was allowed to overflow these low level earthen dikes/weirs to form mud flats on the outside of the Cycle 3 site. Borrow material for dike construction was taken from shallow open water areas located within the Cycle 3 site.

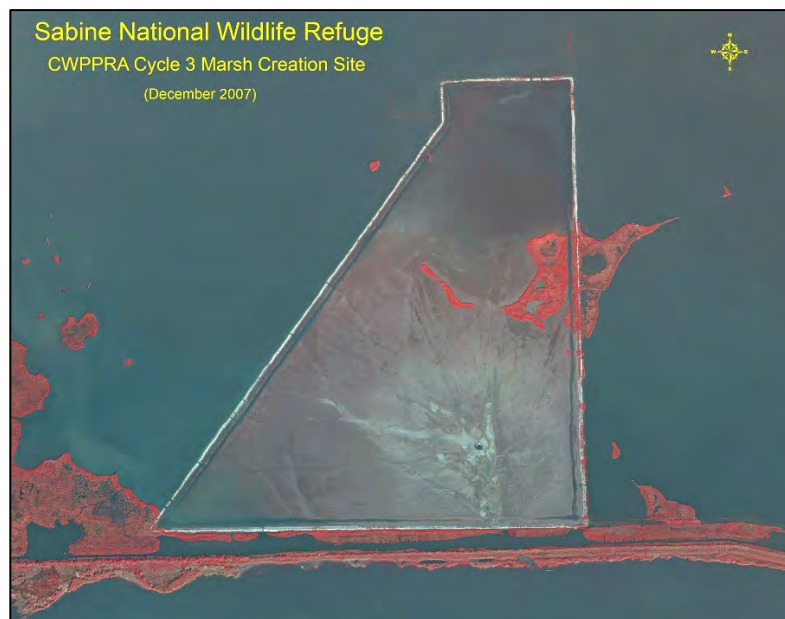
Approximately 41,470 feet of floating and submerged pipeline was used to reach the Cycle 3 site from the channel dredging reach. The pipeline route from the channel to the Cycle 3 site followed West Cove Canal, went around a water control structure, under Highway 27, and through the SNWR Unit 1A impoundment area. Approximately 800 feet of shore pipeline was added at the end of the discharge in the Cycle 3 site. Following completion of dredged material pumping activities, the overflow dike/weir was also breached every 500 feet to an elevation of about +3.0 feet MLG at the request of the refuge personnel.

Result:

Approximately 180 acres of marsh and mud flats were created at the SNWR Cycle 3 site as a result of this BU effort using about 828,767 cubic yards of dredged material.

During the 2010 Calcasieu River maintenance event, the SNWR Cycle 3 site perimeter dikes were degraded to an elevation of about +2.0 feet MLG to facilitate tidal/fisheries access to the interior of this marsh creation site. In addition, six 50-foot wide gaps were constructed in the perimeter dikes to an elevation of about +1.5 feet MLG. Dike degradation work began on 19 July 2010 and was completed on 30 July 2010 at a cost of about \$55,674.

As of 2010, the dominant vegetation at the SNWR Cycle 3 site was composed of *Spartina alterniflora* and *Salicornia depressa*.



SNWR BU Site: CWPPRA Cycle 3 Post-Placement (2007)



SNWR BU Site: CWPPRA Cycle 3 Post-Placement (2008)



SNWR BU Site: CWPPRA Cycle 3 Post-Placement (2019)