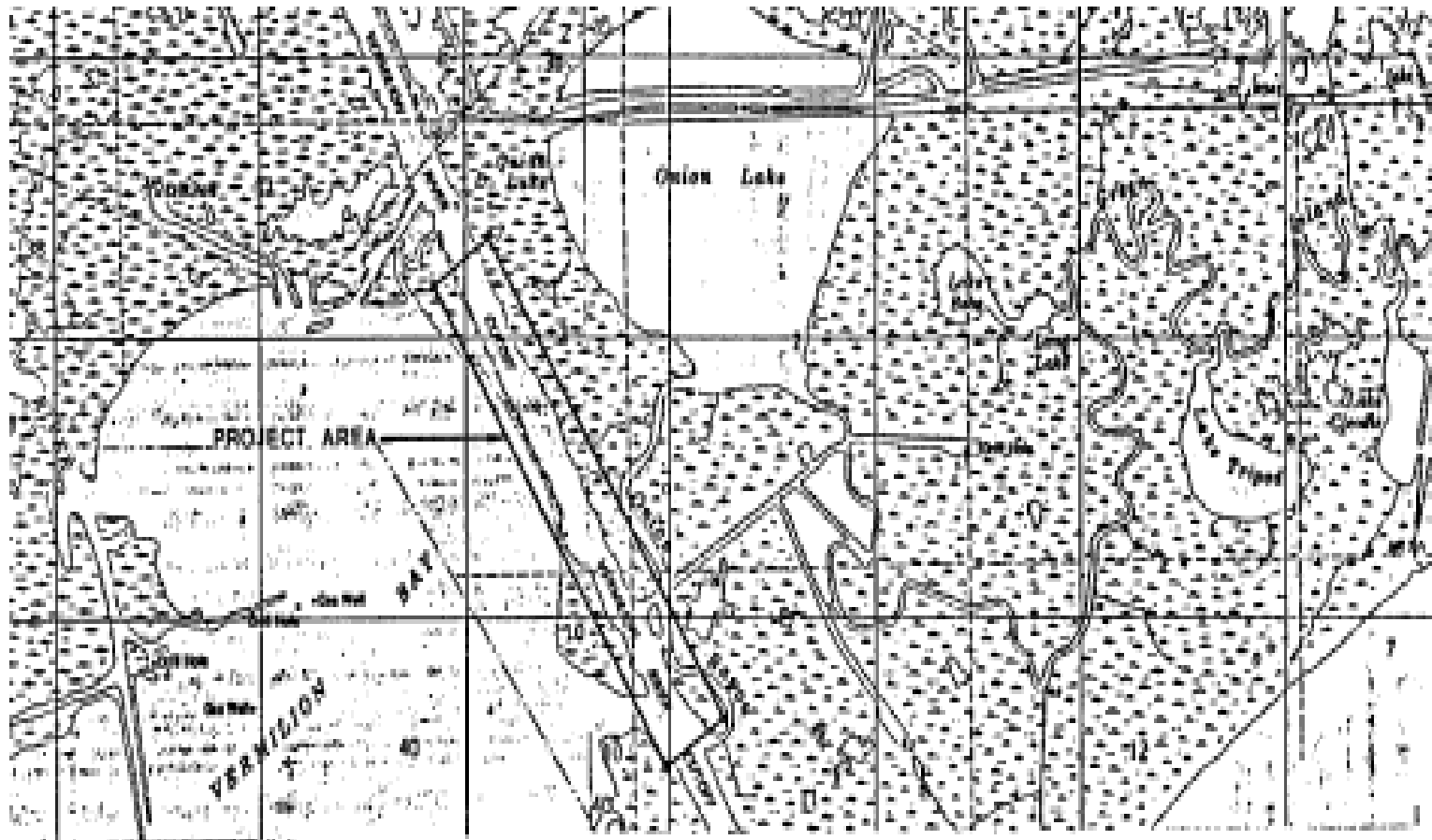


Vermilion River Cutoff (TV-03)

- Selected on the 1st Priority Project List
- Construction finished February 1996
- Location: East bank of the Vermilion River Cutoff in Vermilion Parish in the vicinity of Onion Lake and Onion Bayou



Original Project Map



Project Number TV-3

Project Location



Project Features

- A continuous foreshore rock dike along 6,269 feet of the east bank of the Vermilion River Cutoff

Planning

- Assumed Causes of Loss:
 1. Wind-generated wave erosion
 2. Vessel-generated wave erosion

Goals and Objectives

- Objective - Maintain and protect approximately 54 acres of brackish marsh along the eastern side of the VRC that will contribute to the integrity of several thousand acres of the Onion Lake wetland complex
- Objective - Prevent the VRC from widening into adjacent marshes
- Goal - Decrease the rate of shoreline erosion along the east bank of the Vermilion River Cutoff adjacent to Onion Lake through the use of a rock breakwater

Construction

- Final Features

- A rock dike was used to address shoreline erosion from vessel waves and from wind-blown waves
- A dike with a +3.5 foot (+1.1 meter) NGVD elevation, a 7-foot (2.1 meter) berm on the channel side, and crown width of 4 feet (1.2 meters) was built, although a larger dike was planned

Construction (continued)

- Final Features (continued)
 - Vibracores were taken during construction to determine if the high initial settlement rate was due to a localized problem area or the general condition along the bankline
 - The southernmost 915 feet of shoreline protection and the protection of points on the west side of the VRC were deleted from the project during construction

Monitoring Variables

- **Aerial photography** - To measure vegetated and non-vegetated areas for the project area (to include near-vertical, color-infrared aerial photography at a 1:12,000 maximum scale and reference markers). Will be georectified by NRWC and it will be obtained prior to construction in 1993 and in post-construction years 2002 and 2011
- **Shoreline changes** - Shoreline markers established at the vegetated marsh edge along the original shoreline adjacent to the breakwater; shoreline position will be documented in pre-construction (1995) and in post-construction years 1999, 2002, 2006, 2011, and 2015, and compared to historical data

Physical Response

- The monitoring plan does not have a goal for protecting anything but the shoreline from erosion
- The project was not meant to affect marsh elevation, soils, hydrology, or salinity
- Marshes in the project area are relatively stable, except that they are being lost to chronic shoreline erosion

Physical Response (continued)

- GPS points taken in 1993 and 1999, showed an apparent loss of shoreline, but it is not known how much erosion occurred between 1993 and project construction
- Field measurements were made at the 5 settlement plate locations along the dike in 1998 and 2000. Two locations showed accretion and three showed no change
- Field measurements were made again in July 2002. Three locations showed accretion and two showed no change

Biological Response

- There were no specific project goals and objectives written before development of the monitoring program. There are no goals in the monitoring program addressing biological response

Landscape Response

- Pre-construction photography was collected in 1993 in the project area and was classified into land and water. The 194.3-acre project area contained 148 acres of land and 26.3 acres of water
- Post-construction photography scheduled for Fall 2002 and 2011

Project Adaptive Management

- Implemented Changes
 - No action has been taken to improve the project
 - The project was completely redesigned during project planning and construction and the monitoring plan does not match the project as constructed
 - Success criteria should be stabilization of the shoreline behind the rock dike
 - Surveys of the rock dike and the shoreline will be conducted in the near future to determine if the dike has stopped erosion of the shoreline

Project Adaptive Management

- Recommended Improvements
 - Add more rock to the existing dike as determined necessary through the maintenance and monitoring programs to maintain the elevation of the dike
 - Extend the rock dike to the south to protect the area that would have been protected if cost overruns hadn't occurred
 - Armor the three points of land along the west side of the VRC that would have been protected if cost overruns hadn't occurred
 - Revise the monitoring plan to reflect the current project design

Adaptive Management

- Recommended Improvements (continued)
 - Aerial photography is being flown in years 2,9, and 17 to document the land/water ratio in an area for which there are no project goals. Either the photography needs to be discontinued or a goal needs to be added to assess project effects in that area
 - On all shoreline protection projects, maintenance surveys should be used to monitor and evaluate shoreline protection features. The maintenance survey would need to include a DGPS shoreline survey of the vegetated marsh edge in both the project and a reference area (if available)

Lessons Learned for Future Projects

- Incorporated in the CWPPRA process
 - Up to date surveys should be taken before projects are constructed
 - Datum planes need to be decided upon and agreed to by all parties involved before project construction. This problem has been solved for PPL9 and subsequent projects. For those projects, monuments will be constructed within or near the project area
 - Borings need to be taken in order to design the project properly. This is a straightforward requirement that should not be overlooked in order to save money or time
 - The cross section of rock dikes may be reduced from the designs originally proposed by the USACE.

Lessons Learned for Future Projects

- Recommended for incorporation
 - Need to update WVA's and monitoring plans to reflect the project as actually constructed. There should be some guidance from the CWPPRA Task Force, Technical Committee, or Planning and Evaluation Subcommittee related to the need to revise WVA's
 - For projects that were modified during construction, the monitoring plans need to be revised to reflect the actual project design
 - Projects shouldn't be modified during construction because of cost overruns. There are methods that can be used to provide additional funding for project construction if overruns occur during construction