# TV-04

# Cote Blanche Hydrologic Restoration
# Summary Data and Graphics

Updated 12/02/02

LDNR/CRD Biological Monitoring Section

# TV-04 Cote Blanche

## Project Objectives

1. Reduce water exchange between marshes of Cote Blanche and West and East Cote Blanche Bays to prevent scouring of interior marsh and protect approximately 31,637 ac (12,803 ha) of fresh marsh.

2. Protect shoreline on southern boundary between Humble and British-American canals from wave erosion.

## Specific Goals

The following goals will contribute to the evaluation of the above objectives:

1. Decrease variability in water level within the project area.
2. Reduce erosion rate of shoreline along southern project boundary.
3. Decrease rate of marsh loss.

# TV-04 Cote Blanche

## Monitoring Elements

Habitat Mapping: To document vegetated and non-vegetated areas, color-infrared aerial photography (1:24,000 scale with ground controls) will be obtained and analyzed following procedures outlined in Steyer et al. (1995). The photography will be obtained in 1996 (pre-construction) and in 2002, 2009, and 2015 post-construction.

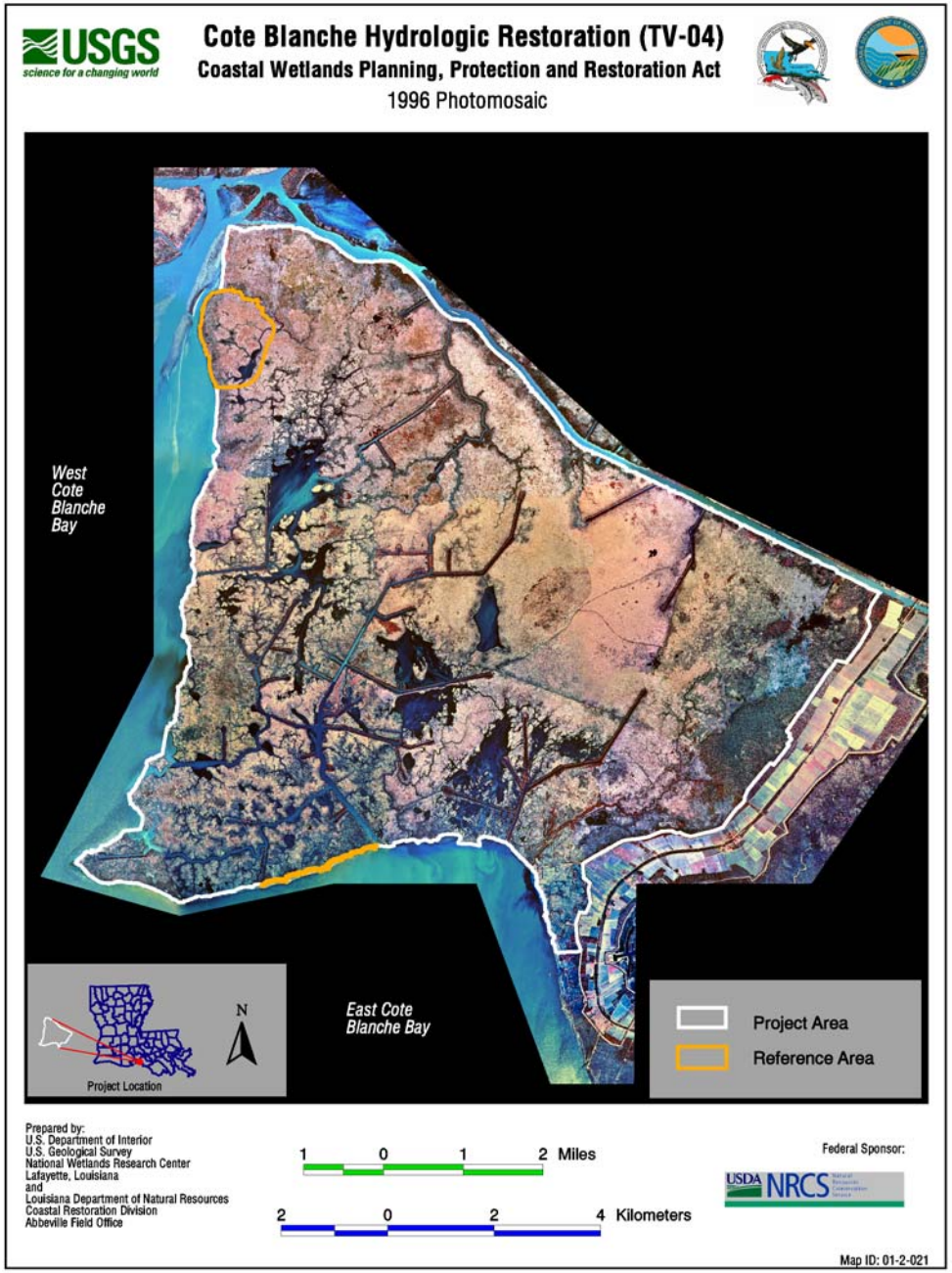
Shoreline Change: Using GPS, shoreline position will be documented as-built in 1998, and in 2001, 2004, 2007, 2010, 2013 and 2016 post-construction to provide a template for mapping shoreline changes and movement over time. Shoreline positions will be compared to historical data sets available in digitized format for years 1952, 1957, 1971, 1979, 1983, and 1990, and shoreline survey information that are available from Miller Engineers and Associates from 1958–1975. Shoreline erosion rate for the project area will also be compared to the shoreline erosion rate of a reference area located west of the foreshore dike.

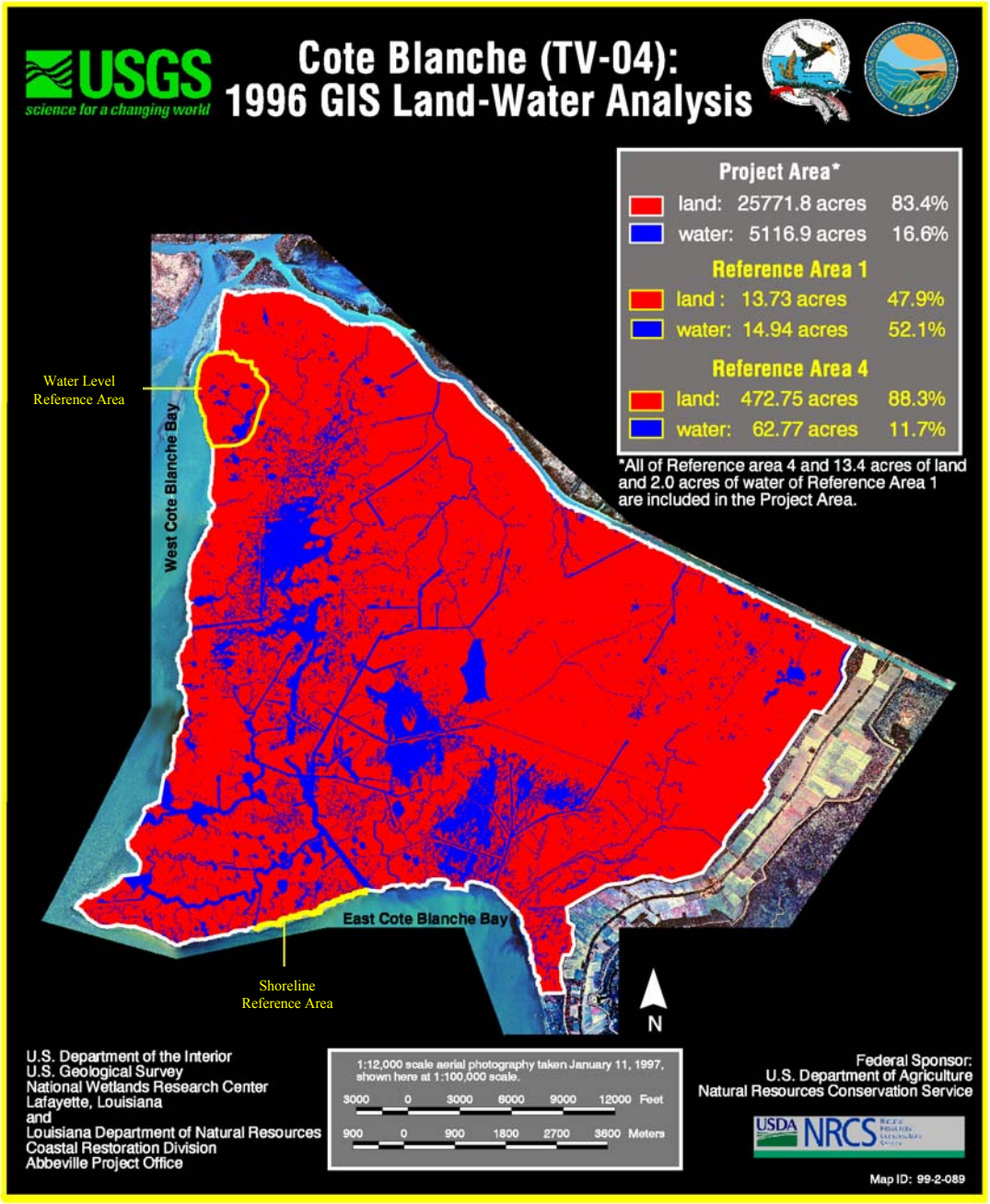
Water Level: To monitor water levels within and adjacent to the project area, 4 continuous recorders were placed in project interior open water areas and reference areas to the north and south. Water-level data will be used to document frequency, magnitude, and duration of marsh inundation. Water level data will be collected every year from 1997-2016.

# TV-04 Habitat Mapping

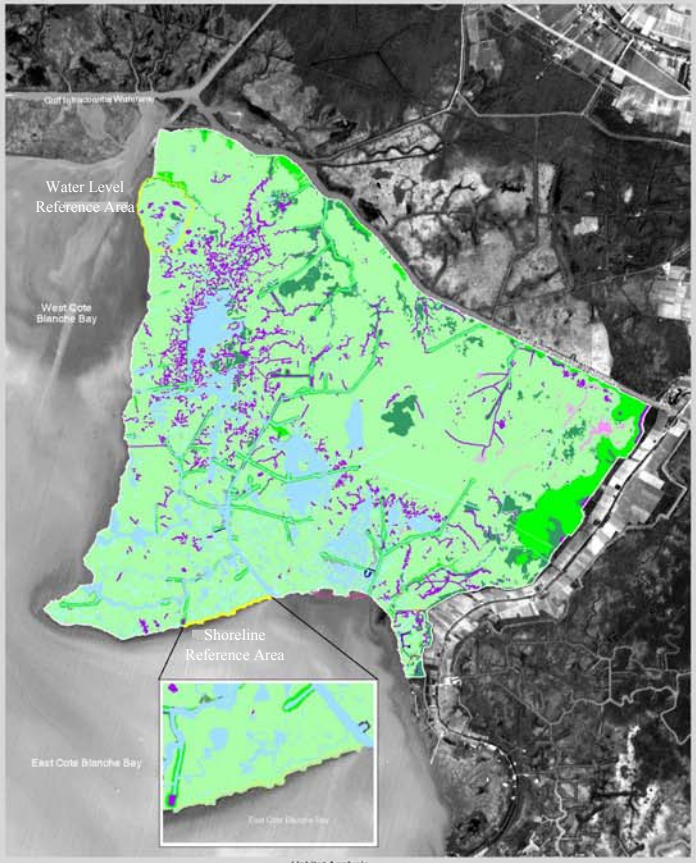
Aerial photography collected in Jan 97, and fall 2002. Will also be collected in 2009 and 2015. 2002 photography is currently being processed.

- 1996 Photomosaic (1/11/97)
- 1996 Land:Water (1/11/97)
- 1996 Land:Water and Habitat Analysis (1/11/97)
- Satellite Imagery: November 24, 1990 and October 24, 1999
- Satellite Imagery: February 2, 2002 and October 16, 2002
- Satellite Imagery: Land:Water change February 2 – October 16, 2002 (pre-post hurricane Lili 10/3/02)


USGS
science for a changing world
Cote Blanche Hydrologic Restoration (TV-04)
Coastal Wetlands Planning, Protection and Restoration Act
1996 Photomosaic
West Cote Blanche Bay
East Cote Blanche Bay
Project Location
N
Project Area
Reference Area
Prepared by:
U.S. Department of Interior
U.S. Geological Survey
National Wetlands Research Center
Lafayette, Louisiana
and
Louisiana Department of Natural Resources
Coastal Restoration Division
Abbeville Field Office
1 0 1 2 Miles
2 0 2 4 Kilometers
Federal Sponsor:
USDA NRCS
Map ID: 01-2-021


USGS
science for a changing world
Cote Blanche (TV-04):
1996 GIS Land-Water Analysis
Project Area*
land: 25771.8 acres 83.4%
water: 5116.9 acres 16.6%
Reference Area 1
land : 13.73 acres 47.9%
water: 14.94 acres 52.1%
Reference Area 4
land: 472.75 acres 88.3%
water: 62.77 acres 11.7%
*All of Reference area 4 and 13.4 acres of land and 2.0 acres of water of Reference Area 1 are included in the Project Area.
Water Level Reference Area
West Cote Blanche Bay
East Cote Blanche Bay
Shoreline Reference Area
N
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Lafayette, Louisiana
and
Louisiana Department of Natural Resources
Coastal Restoration Division
Abbeville Project Office
1:12,000 scale aerial photography taken January 11, 1997, shown here at 1:100,000 scale.
3000 0 3000 6000 9000 12000 Feet
900 0 900 1800 2700 3600 Meters
Federal Sponsor:
U.S. Department of Agriculture
Natural Resources Conservation Service
USDA NRCS
Map ID: 99-2-089

# Cote Blanche Hydrologic Restoration (T/V-04)
# Coastal Wetlands Planning, Protection and Restoration Act




Habitat Analysis

The Cote Blanche project area is a 30,898 ac (12,503 ha) freshwater marsh located in St. Mary Parish. The project boundaries include the Gulf Intracoastal Waterway to the north, Highway 317 to the east, East Cote Blanch Bay to the south and West Cote Blanche Bay to the west. Construction of the GIWW and numerous oilfield canals have resulted in increased tidal action and rapid water exchange between the interior marsh and East and West Cote Blanche Bays. Water exchange through canal systems have contributed to marsh deterioration resulting in the erosion of organic soils. Utilizing historic aerial photography, from 1957 to 1990, the land loss rate for the area has been estimated to average 75 ac/year (29 ha/yr). Shoreline erosion rates on the southern project boundary resulting from wave energy and breaches in adjacent canals averaged 10-12 ft/yr (3.0-3.7m/yr) from 1941 to 1978 and increased to an average of 20-25 ft/yr (6.1-7.6m/yr) from 1978 to 1983.

The Cote Blanche Hydrologic Restoration Project contains measures to improve hydrologic conditions in 30,898 ac (12,503 ha) of fresh marsh through low-level weirs placed at major water exchange avenues and through shoreline protection on the southern boundary of the project area. The first objective of these measures includes reducing water exchange between marshes of Cote Blanche and West and East Cote Blanche Bays to prevent scouring of interior marsh and protect fresh marsh. The second objective is to protect shoreline on the southern project boundary between Humble and British-American canals from wave erosion.

### 1997 Land-Water Analysis Results

| Acres | Project Area | Reference 1 | Reference 4 |
|---|---|---|---|
| Land | 28771.6 | 32.7 | 410.6 |
| Water | 5126.9 | 24.5 | 92.4 |
| Total | 33898.7 | 26.8 | 516.9 |

| Percent | Project Area | Reference 1 | Reference 4 |
|---|---|---|---|
| Land | 85.0% | 47.3% | 80.1% |
| Water | 15.0% | 52.1% | 19.7% |

Land
Water

### 1997 Habitat Analysis Results

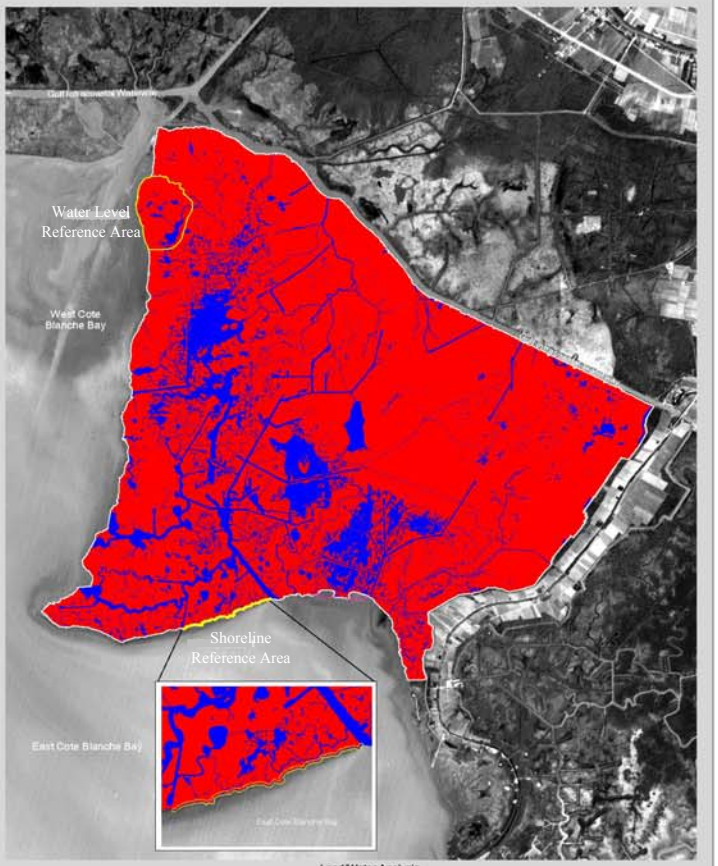
| Acres | Project area | Reference 1 | Reference 4 |
|---|---|---|---|
| Agriculture/Range | 22.4413 | 0.0000 | 0.0000 |
| Floating Aquatics - Fresh | 979.487 | 0.0000 | 16.1396 |
| Fresh Marsh | 22632.7279 | 13.6714 | 448.9594 |
| Open Water - Fresh | 3995.4748 | 13.6531 | 39.6472 |
| Submerged Aquatics - Fresh | 110.6338 | 0.0000 | 0.0000 |
| Upland Forested | 15.1865 | 0.0000 | 0.0000 |
| Upland Scrub Shrub | 1.9317 | 0.0000 | 0.0000 |
| Urban | 9.2565 | 0.0000 | 0.0000 |
| Vegetated Mud Flat - Fresh | 17.0793 | 0.0000 | 0.0000 |
| Wetland Forested - Fresh | 1942.2812 | 0.0000 | 16.1571 |
| Wetland Scrub-Shrub - Fresh | 1359.5595 | 0.0000 | 19.3484 |
| Total | 30859.7577 | 27.3247 | 534.3917 |

### 1996 Habitat Classes

- Agriculture/Range
- Floating Aquatics - Fresh
- Fresh Marsh
- Open Water - Fresh
- Submerged Aquatics - Fresh
- Upland Forested
- Upland Scrub-Shrub
- Urban
- Vegetated Mud Flat - Fresh
- Wetland Forested - Fresh
- Wetland Scrub-Shrub - Fresh

Project area
Reference area

Habitat data were derived from 1:24,000 scale color-infrared photography. Preconstruction photography was obtained January 11, 1997. Classes are based on "Classification of Wetlands and Deepwater Habitats of the United States," Cowardin et al. 1979, as modified for the National Wetlands Inventory Mapping Conventions. The data were overlaid on a 1995 SPOT Satellite image at 1:70,000 scale.




Land/Water Analysis

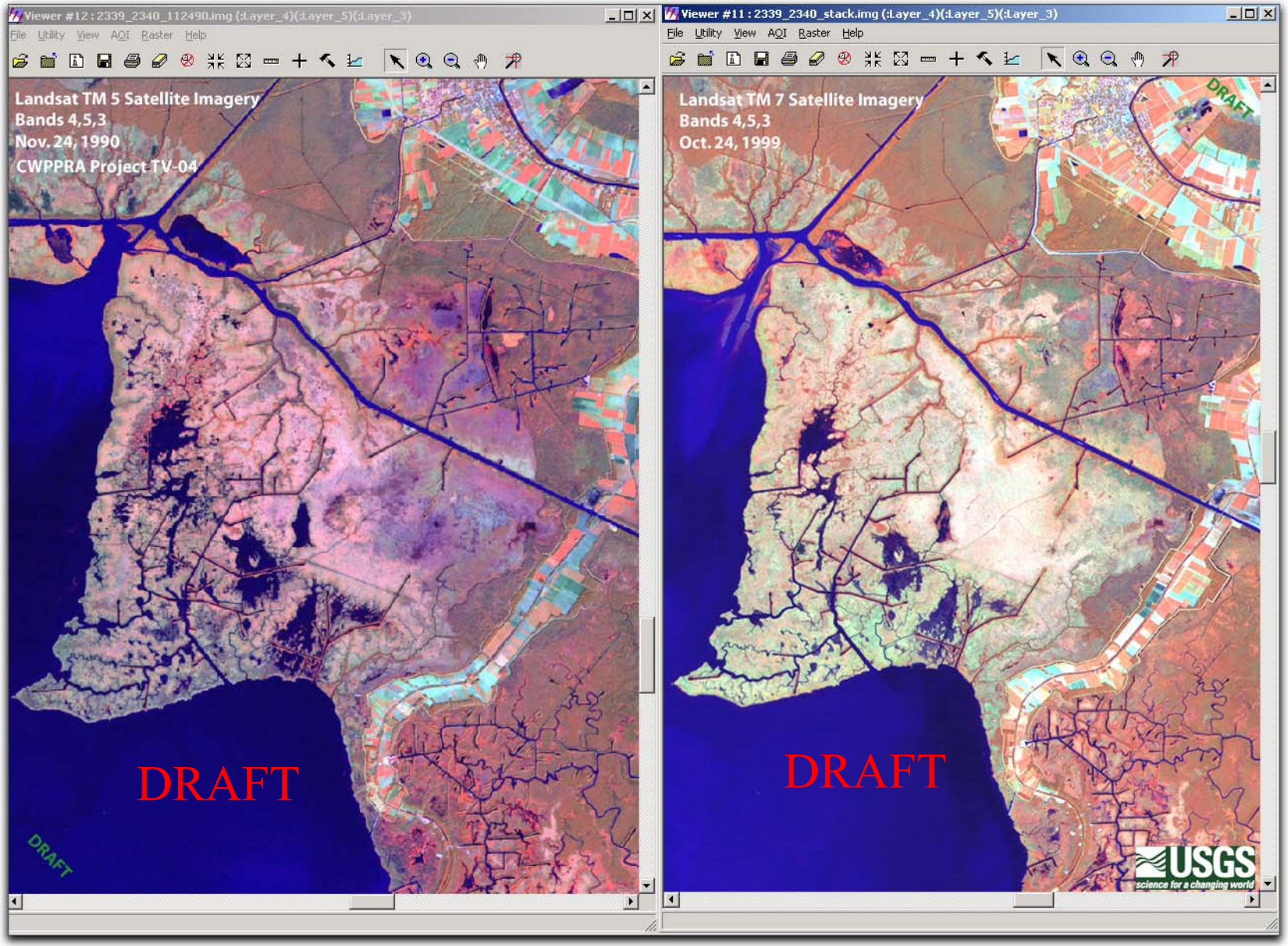
Prepared by:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Lafayette, Louisiana
and
Louisiana Department of Natural Resources
Coastal Restoration Division
Abbeville Field Office

N

2 0 2 4 Miles
3 0 3 6 Kilometers

Federal Sponsor:
USDA NRCS

Map ID: 99-02-060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File Utility View AOI Raster Help
Landsat TM 5 Satellite Imagery
Bands 4,5,3
Nov. 24, 1990
CWPPRA Project TV-04
DRAFT
DRAFT
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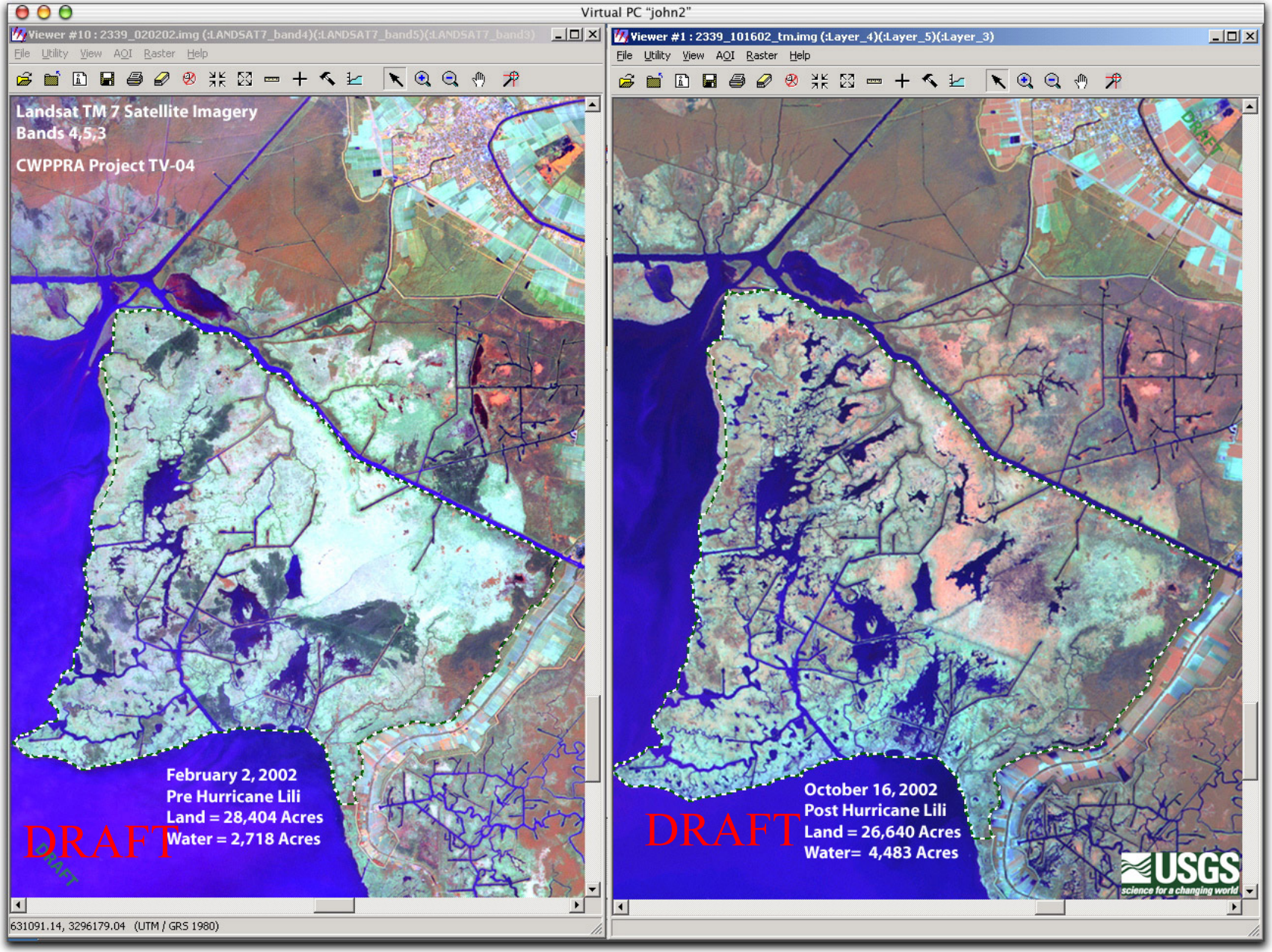
File Utility View AOI Raster Help
Landsat TM 7 Satellite Imagery
Bands 4,5,3
Oct. 24, 1999
DRAFT
DRAFT
USGS
science for a changing world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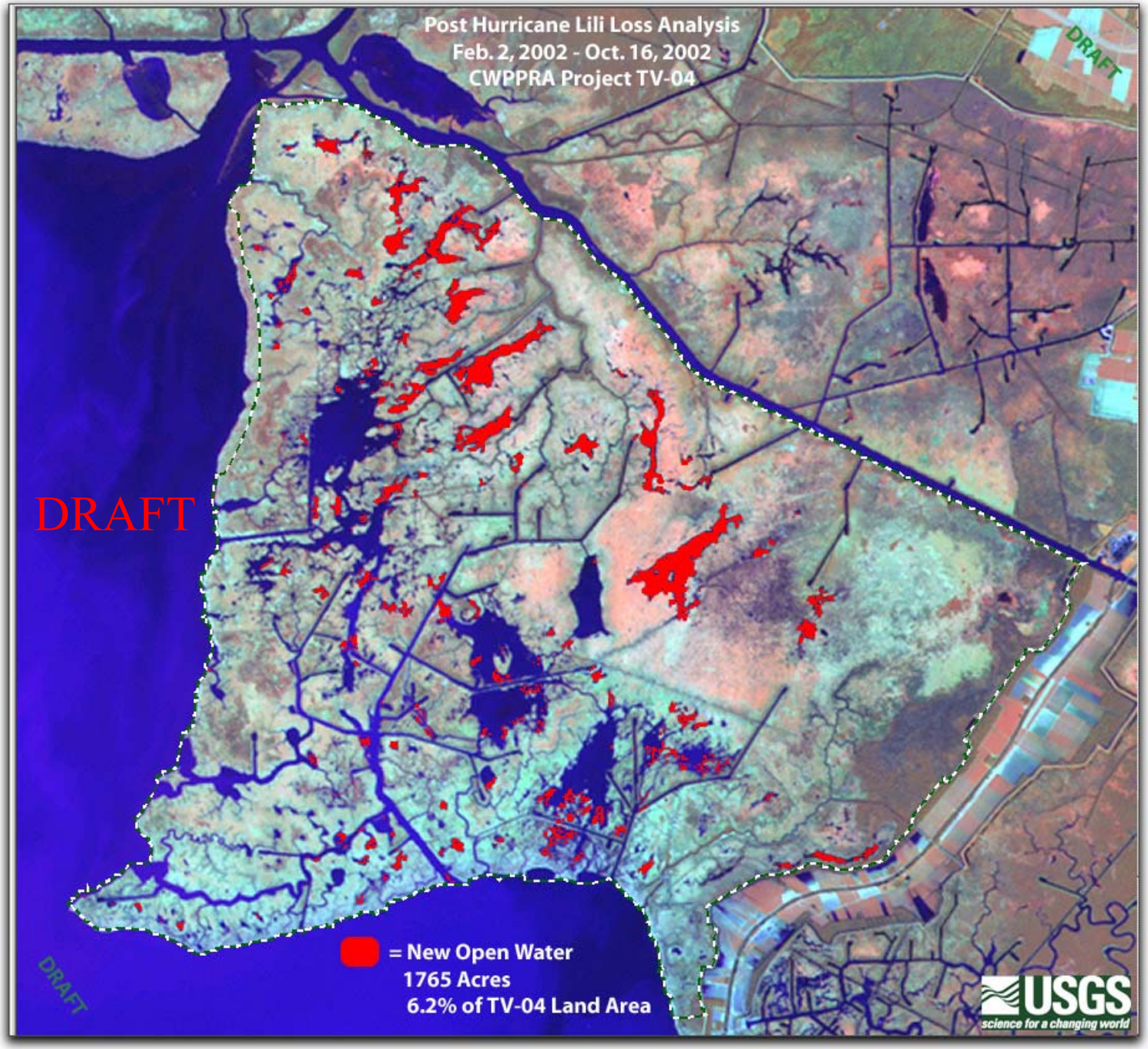
File Utility View AOI Raster Help
Landsat TM 7 Satellite Imagery
Bands 4,5,3
CWPPRA Project TV-04
February 2, 2002
Pre Hurricane Lili
Land = 28,404 Acres
Water = 2,718 Acres
DRAFT
631091.14, 3296179.04 (UTM / GRS 1980)
Viewer #1 : 2339_101602_tm.img (:Layer_4)(:Layer_5)(:Layer_3)
File Utility View AOI Raster Help
October 16, 2002
Post Hurricane Lili
Land = 26,640 Acres
Water= 4,483 Acres
DRAFT
USGS
science for a changing world


Post Hurricane Lili Loss Analysis
Feb. 2, 2002 - Oct. 16, 2002
CWPPRA Project TV-04
DRAFT
DRAFT
DRAFT
= New Open Water
1765 Acres
6.2% of TV-04 Land Area
USGS
science for a changing world

# TV-04 Shoreline Change Data

- Shoreline Position was collected in 1998 and 2001, however these data are not presented in this report. They are currently being processed and will be presented in the next update.