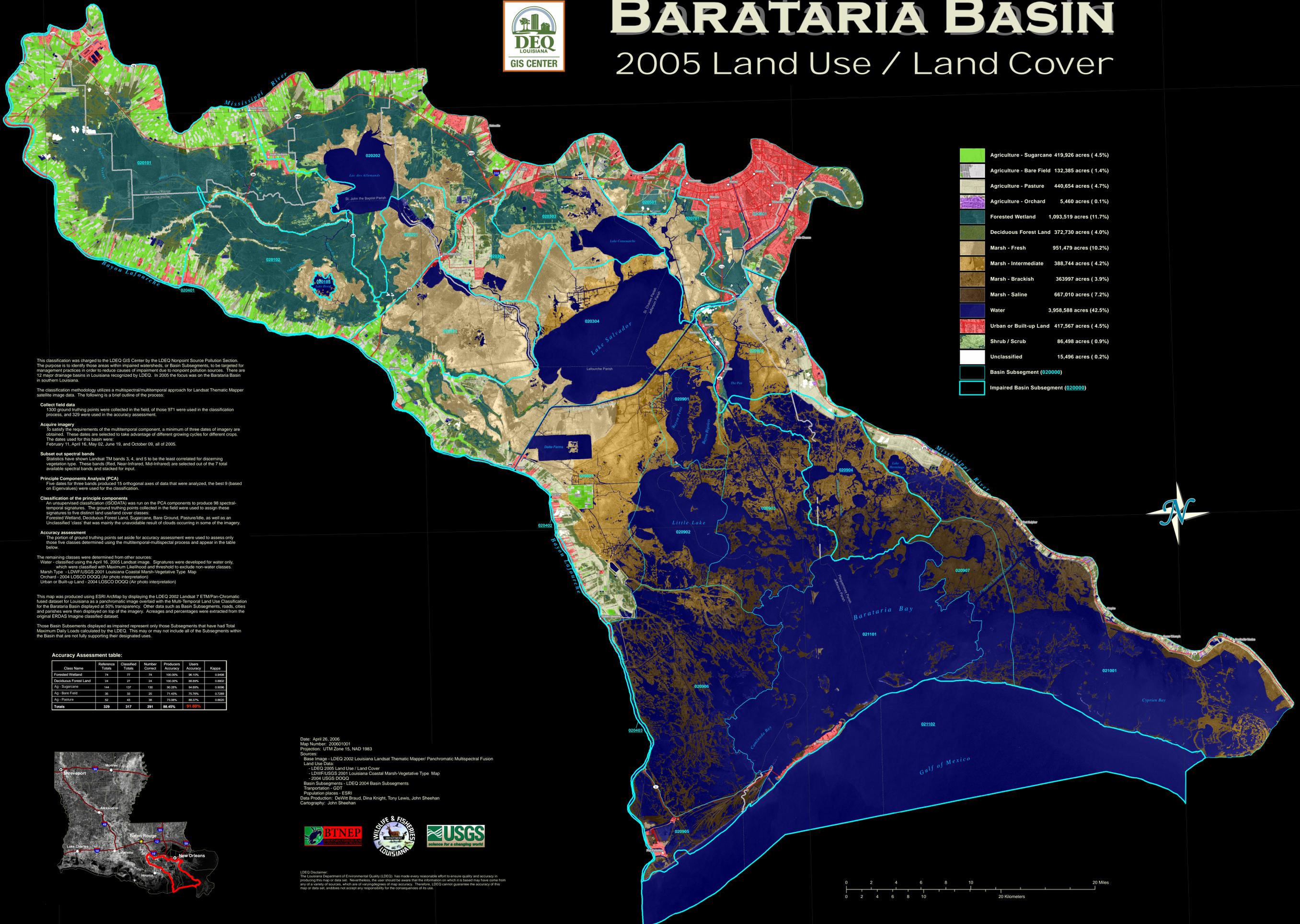




BARATARIA BASIN

2005 Land Use / Land Cover



	Agriculture - Sugarcane	419,926 acres (4.5%)
	Agriculture - Bare Field	132,385 acres (1.4%)
	Agriculture - Pasture	440,654 acres (4.7%)
	Agriculture - Orchard	5,460 acres (0.1%)
	Forested Wetland	1,093,519 acres (11.7%)
	Deciduous Forest Land	372,730 acres (4.0%)
	Marsh - Fresh	951,479 acres (10.2%)
	Marsh - Intermediate	388,744 acres (4.2%)
	Marsh - Brackish	363,997 acres (3.9%)
	Marsh - Saline	667,010 acres (7.2%)
	Water	3,958,588 acres (42.5%)
	Urban or Built-up Land	417,567 acres (4.5%)
	Shrub / Scrub	86,498 acres (0.9%)
	Unclassified	15,496 acres (0.2%)
	Basin Subsegment (020000)	
	Impaired Basin Subsegment (020000)	

This classification was charged to the LDEQ GIS Center by the LDEQ Nonpoint Source Pollution Section. The purpose is to identify those areas within impaired watersheds, or Basin Subsegments, to be targeted for management practices in order to reduce causes of impairment due to nonpoint pollution sources. There are 12 major drainage basins in Louisiana recognized by LDEQ. In 2005 the focus was on the Barataria Basin in southern Louisiana.

The classification methodology utilizes a multispectral/multitemporal approach for Landsat Thematic Mapper satellite image data. The following is a brief outline of the process:

Collect field data
1300 ground truthing points were collected in the field, of those 971 were used in the classification process, and 329 were used in the accuracy assessment.

Acquire imagery
To satisfy the requirements of the multitemporal component, a minimum of three dates of imagery are obtained. These dates are selected to take advantage of different growing cycles for different crops. The dates used for this basin were February 11, April 16, May 02, June 19, and October 09, all of 2005.

Subsat out spectral bands
Statistics have shown Landsat TM bands 3, 4, and 5 to be the least correlated for discerning vegetation type. These bands (Red, Near-Infrared, Mid-Infrared) are selected out of the 7 total available spectral bands and stacked for input.

Principle Components Analysis (PCA)
Five dates for three bands produced 15 orthogonal axes of data that were analyzed, the best 9 (based on Eigenvalues) were used for the classification.

Classification of the principle components
An unsupervised classification (ISODATA) was run on the PCA components to produce 98 spectral-temporal signatures. The ground truthing points collected in the field were used to assign these signatures to five distinct land use/land cover classes: Forested Wetland, Deciduous Forest Land, Sugarcane, Bare Ground, Pasture/Idle, as well as an Unclassified class that was mainly the unavoidable result of clouds occurring in some of the imagery.

Accuracy assessment
The portion of ground truthing points set aside for accuracy assessment were used to assess only those five classes determined using the multitemporal-multispectral process and appear in the table below.

The remaining classes were determined from other sources:
Water - classified using the April 16, 2005 Landsat image. Signatures were developed for water only, which were classified with Maximum Likelihood and threshold to exclude non-water classes.
Marsh Type - LDWF/USGS 2001 Louisiana Coastal Marsh-Vegetative Type Map
Orchard - 2004 LOSCO DOCC (Air photo interpretation)
Urban or Built-up Land - 2004 LOSCO DOCC (Air photo interpretation)

This map was produced using ESRI ArcMap by displaying the LDEQ 2002 Landsat 7 ETM/Pan-Chromatic fused dataset for Louisiana as a panchromatic image overlaid with the Multi-Temporal Land Use Classification for the Barataria Basin displayed at 50% transparency. Other data such as Basin Subsegments, roads, cities and parishes were then displayed on top of the imagery. Acreages and percentages were extracted from the original ERDAS Imagine classified dataset.

Those Basin Subsegments displayed as impaired represent only those Subsegments that have had Total Maximum Daily Loads calculated by the LDEQ. This may or may not include all of the Subsegments within the Basin that are not fully supporting their designated uses.

Accuracy Assessment table:

Class Name	Reference Totals	Classified Totals	Number Correct	Producers Accuracy	Users Accuracy	Kappa
Forested Wetland	74	77	74	100.00%	96.10%	0.9488
Deciduous Forest Land	24	27	24	100.00%	89.63%	0.8802
Ag - Sugarcane	144	137	130	90.28%	94.89%	0.9096
Ag - Bare Field	35	33	25	71.43%	75.76%	0.7288
Ag - Pasture	43	43	39	90.69%	88.37%	0.8922
Totals	329	317	281	88.45%	91.80%	

Date: April 26, 2006
Map Number: 200601001
Projection: UTM Zone 15, NAD 1983
Sources:
Base Image - LDEQ 2002 Louisiana Landsat Thematic Mapper/ Panchromatic Multispectral Fusion
Land Use Data:
- LDEQ 2005 Land Use / Land Cover
- LDWF/USGS 2001 Louisiana Coastal Marsh-Vegetative Type Map
- 2004 USGS DOCC
Basin Subsegments - LDEQ 2004 Basin Subsegments
Transportation - GDT
Population places - ESRI
Data Production: DeWitt Braud, Dina Knight, Tony Lewis, John Sheehan
Cartography: John Sheehan



LDEQ Disclaimer:
The Louisiana Department of Environmental Quality (LDEQ) has made every reasonable effort to ensure quality and accuracy in producing this map or data set. Nevertheless, the user should be aware that the information on which it is based may have come from any of a variety of sources, which are of varying degrees of map accuracy. Therefore, LDEQ cannot guarantee the accuracy of the map or data set, and does not accept any responsibility for the consequences of its use.

