Green Space Reduction
In Brunswick County, North Carolina

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Remote Sensing in Environmental Analysis

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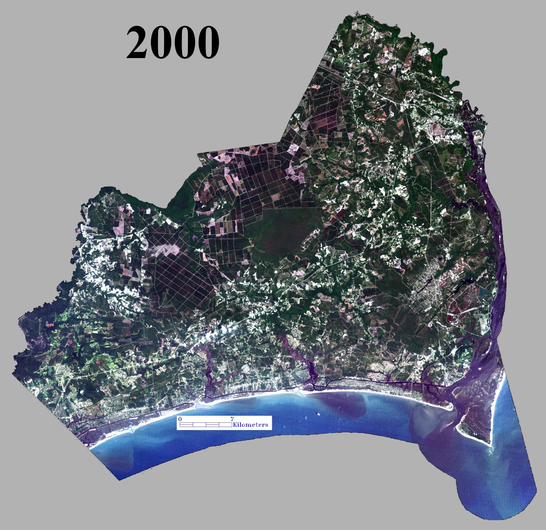
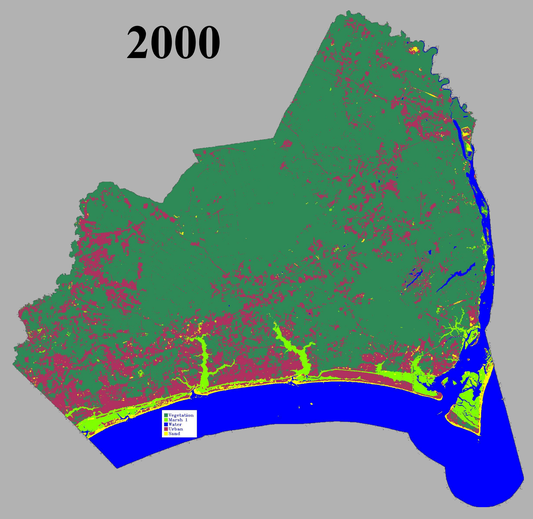
2000

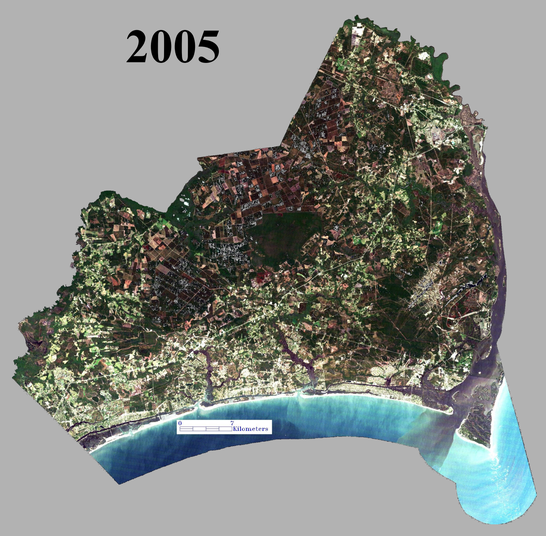


2000

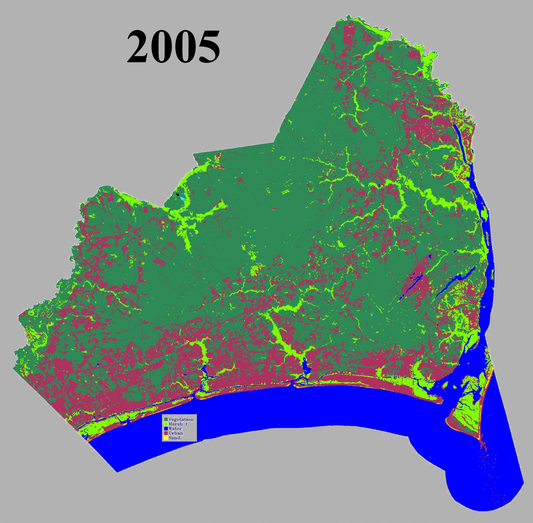


Overall Accuracy = (2000/2194) 91.1577%
Kappa Coefficient = 0.8851

2005



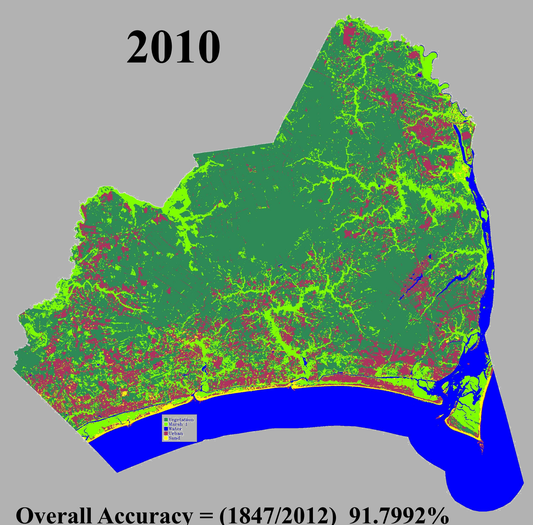
2005



Overall Accuracy = (2057/2186) 94.0988%
Kappa Coefficient = 0.9170

2010

2010



Overall Accuracy = (1847/2012) 91.7992%
Kappa Coefficient = 0.8955

Study Area:

Brunswick County is located in the south eastern corner of North Carolina. During the housing boom from approximately 2003 to 2008, Brunswick County experienced tremendous residential and commercial development. A Census Bureau report listed Brunswick County as the 19th fastest growing county in the US between 2000 and 2009. A huge reduction in vegetated area had to accompany this massive urban expansion. Using Envi software and satellite images, I try to determine how much green space was lost between 2000 and 2005 as well as 2005 and 2010.

Methodology:

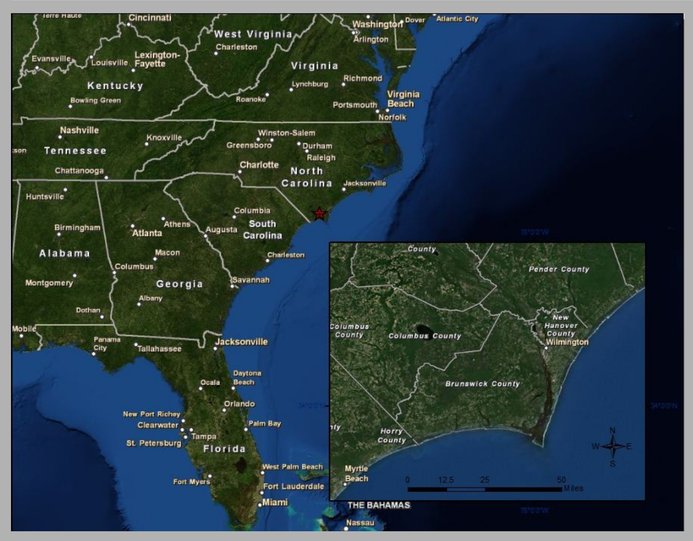
I started by downloading two Land Sat TM 4-5 images for the years 2000, 2005, and 2010 from the USGS Glovis web site. I combined the images and clipped Brunswick county. The images were downloaded with Digital Numbers. I performed a supervised and an unsupervised classification. The vegetation, marsh, and fallow lands were not distinguished correctly. I changed the image to reflectance values. I used a NDVI classification, and the vegetation was once again mixed with other types of terrain. Finally, I performed a supervised classification with reflectance values. This provided the separation of classes that I needed.

Conclusions:

In 2000 there was 1,640 sq. km. of vegetation. In 2005 there was 1,429 sq. km. of vegetation. And in 2010 there was 1,351 sq. km. of vegetation. From 2000 to 2005 there was a 12.87 percent loss of vegetation. From 2005 to 2010 there was a 5.5 percent loss of vegetation.

References:

. (US Census Housing Tables 2005)
. (Money.com 2006)



Acknowledgments:

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