

Fox, Lori

CAHA # 1789

**From:** Mansfield, Carol A. [carolm@rti.org]  
**Sent:** Tuesday, October 27, 2009 12:28 PM  
**To:** Sandra\_Hamilton@nps.gov; Fox, Lori; Loomis, Ross; Mansfield, Carol A.  
**Subject:** FW: Regression write up.

Hi Sandy and Lori,

Here is a brief write up of a regression (one of several) that we ran on the last 20 years of CAHA visitation -- hurricanes, gas prices and unemployment all affect visitation, but the consent decree being in place does not have a significant effect. We ran some other regressions using data from other NC national parks and found similar results. We didn't include the regression results in the socioeconomic write up because we think the visitation stats. by themselves convey the same point -- visitation did not go down by any unusual amount in 2007 or 2008 (or 2009). The visitation stats are easier to understand and to explain than a regression. But I wanted you to know that we have the results if we decide we want to include them at some later stage.

Thanks,  
 Carol

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**From:** Loomis, Ross  
**Sent:** Monday, October 26, 2009 9:08 AM  
**To:** Mansfield, Carol A.  
**Subject:** Regression write up.

An analysis of historical data reveals that several factors influence visitation at the Seashore. The presence of a hurricane crossing the Seashore is expected to reduce visitation for the month by -15.45%, and a 1 cent increase in gasoline price is expected to reduce visitation by -0.18%. The national unemployment rate has is significant at the  $p=.10$  level ( $p=.067$ ), and a one percent increase in the unemployment rate is expected to reduce visitation by -8.33% for the month. A dummy representing implementation of the consent decree since April 2008 does not show statistical significance on visitation.

Results of Regression on Natural Log of Recreational Visits from August, 1990 to September, 2009

Variable	Coefficient	Standard Error	t	P> t	95% Confidence Interval	
Consent Decree in Place	0.07	0.14	0.53	0.595	-19.45%	33.84%
Hurricane During Month	-15.45%	0.08	-1.97	0.050	-30.89%	-0.02%
Gas Prices (\$2008)	-0.18%	0.00	-2.83	0.005	-0.31%	-0.06%
Unemployment Rate	-8.33%	0.05	-1.84	0.067	-17.25%	0.59%
Dummy for 1991	0.09	0.11	0.80	0.423	-0.12	0.30
Dummy for 1992	0.09	0.12	0.79	0.431	-0.14	0.33
Dummy for 1993	0.12	0.11	1.10	0.271	-0.10	0.34

Dummy for 1994	0.08	0.10	0.72	0.472	-0.13	0.28
Dummy for 1995	0.06	0.11	0.52	0.607	-0.16	0.27
Dummy for 1996	0.02	0.11	0.22	0.825	-0.19	0.24
Dummy for 1997	0.08	0.12	0.65	0.518	-0.16	0.31
Dummy for 1998	0.09	0.13	0.70	0.487	-0.17	0.36
Dummy for 1999	0.06	0.14	0.45	0.653	-0.21	0.34
Dummy for 2000	0.10	0.14	0.76	0.447	-0.17	0.38
Dummy for 2001	0.11	0.12	0.94	0.347	-0.12	0.35
Dummy for 2002	0.25	0.10	2.43	0.016	0.05	0.46
Dummy for 2003	0.26	0.10	2.57	0.011	0.06	0.46
Dummy for 2004	0.18	0.10	1.81	0.072	-0.02	0.38
Dummy for 2005	0.24	0.11	2.24	0.026	0.03	0.45
Dummy for 2006	0.19	0.12	1.58	0.117	-0.05	0.42
Dummy for 2007	0.19	0.12	1.57	0.118	-0.05	0.43
Dummy for 2008	0.24	0.16	1.53	0.128	-0.07	0.55
Dummy for 2009	0.38	0.19	2.04	0.043	0.01	0.75
Dummy for February	-0.03	0.06	-0.57	0.572	-0.15	0.08
Dummy for March	0.76	0.06	12.73	0.000	0.64	0.88
Dummy for April	1.18	0.06	19.36	0.000	1.06	1.30
Dummy for May	1.53	0.06	24.64	0.000	1.41	1.65
Dummy for June	1.91	0.06	30.40	0.000	1.78	2.03
Dummy for July	2.08	0.06	33.46	0.000	1.96	2.21
Dummy for August	2.01	0.06	32.22	0.000	1.89	2.13
Dummy for September	1.66	0.06	26.52	0.000	1.53	1.78
Dummy for October	1.25	0.06	20.55	0.000	1.13	1.37
Dummy for November	0.85	0.06	14.16	0.000	0.73	0.97
Dummy for December	0.38	0.06	6.27	0.000	0.26	0.50
Intercept	11.52	0.34	34.08	0.000	10.85	12.19

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