A combined fishery independent gillnet series for juvenile blacktip sharks in the eastern Gulf of Mexico

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SEDAR29-WP-21

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Introduction

After presentation of SEDAR29-WP-01 that combined fishery independent gillnet data from surveys conducted by the NMFS Panama City Laboratory and Mote Marine Laboratory, the group discussed the potential of combining other fishery independent gillnet data sources and performing a similar analysis. Due to the similarities in gear type and survey design, the group felt that it was more appropriate to combine the Mississippi gillet (SEDAR29-WP-13) with the Panama City Laboratory and Mote datasets (SEDAR29-WP-01) to form a more spatially expansive inshore eastern Gulf of Mexico gillnet dataset. As a result, only one index was used from the Mississippi gillet dataset, which included all blacktip sharks except the young-of-the-year (age 0+). Since there were differences in the accessory data included with the three indices, several factors, including monthly rainfall, previous month rainfall, and bottom and surface temperature, salinity, and dissolved oxygen were removed from the dataset. The factors that remained in the dataset included year, month, location, depth, set time, and effort. Additionally, the factor survey (i.e. MS GN, PCLAB, and Mote) was added to the dataset.

Methods

The combined data set was standardized using the delta lognormal model approach (Lo et al. 1992). This method combines separate general linear model (GLM) analyses of the proportion of successful sets (sets that caught blacktip shark) and the catch rates on successful sets to construct a single standardized CPUE index. Factors area, survey, and depth were considered in the analysis. In addition, due to differences in area surveyed among the data sets, the time series was weighed by sample size or area surveyed. The MS gillnet series had a total of sets 224 and surveyed 106 km^2, the Panama City Lab contained 1410 sets and surveyed 423 km^2 and the Mote Laboratory contained 970 sets and surveyed 60 km^2.

Results and Discussion

The model outputs for the series weighed by sample size and area are in Table 1 and 2, respectively. Table 3 contains the standardized abundance series for both weighing schemes and Figure 1illustrates the time series.

Table 1. Model output for the time series weighed by sample size.

Parameters for Normal Distribution		
Parameter	*Symbol*	*Estimate*
Mean	Mu	0.189927
Std Dev	Sigma	0.894088

Goodness-of-Fit Tests for Normal Distribution				
Test	*Statistic*	*p Value*		
Kolmogorov-Smirnov	*D*	0.08168255	*Pr > D*	<0.010
Cramer-von Mises	*W-Sq*	0.94084534	*Pr > W-Sq*	<0.005
Anderson-Darling	*A-Sq*	4.93839447	*Pr > A-Sq*	<0.005

Quantiles for Normal Distribution		
	Quantile	
Percent	*Observed*	*Estimated*
1.0	-2.07944	-1.89003
5.0	-1.09861	-1.28072
10.0	-0.78085	-0.95589
25.0	-0.39429	-0.41313
50.0	0.04604	0.18993
75.0	0.82668	0.79298
90.0	1.45243	1.33575
95.0	1.78976	1.66057
99.0	2.48070	2.26989

Analysis Variable : percpos						

YEAR	N Obs	N	Mean	Std Dev	Minimum	Maximum
1995	71	71	0.1264532	0.2336530	0	1.0000000
1996	56	56	0.2346939	0.3434311	0	1.0000000
1997	40	40	0.2574811	0.3665531	0	1.0000000
1998	46	46	0.3152174	0.4516475	0	1.0000000
1999	54	54	0.3224427	0.4430372	0	1.0000000
2000	49	49	0.3891156	0.4240123	0	1.0000000
2001	68	68	0.2685574	0.3739851	0	1.0000000
2002	70	70	0.2037472	0.3326163	0	1.0000000
2003	82	82	0.1831349	0.2984830	0	1.0000000
2004	79	79	0.3018385	0.3934472	0	1.0000000
2005	69	69	0.2340486	0.3744055	0	1.0000000
2006	84	84	0.2839286	0.3862032	0	1.0000000
2007	78	78	0.3264042	0.4349065	0	1.0000000
2008	82	82	0.2760163	0.3997607	0	1.0000000
2009	62	62	0.2559140	0.3988040	0	1.0000000
2010	62	62	0.2795699	0.4088326	0	1.0000000

Analysis Variable : percpos						
YEAR	N Obs	N	Mean	Std Dev	Minimum	Maximum
1995	71	71	0.1264532	0.2336530	0	1.0000000
1996	56	56	0.2346939	0.3434311	0	1.0000000
1997	40	40	0.2574811	0.3665531	0	1.0000000
1998	46	46	0.3152174	0.4516475	0	1.0000000
1999	54	54	0.3224427	0.4430372	0	1.0000000
2000	49	49	0.3891156	0.4240123	0	1.0000000
2001	68	68	0.2685574	0.3739851	0	1.0000000
2002	70	70	0.2037472	0.3326163	0	1.0000000
2003	82	82	0.1831349	0.2984830	0	1.0000000
2004	79	79	0.3018385	0.3934472	0	1.0000000
2005	69	69	0.2340486	0.3744055	0	1.0000000
2006	84	84	0.2839286	0.3862032	0	1.0000000
2007	78	78	0.3264042	0.4349065	0	1.0000000
2008	82	82	0.2760163	0.3997607	0	1.0000000

2009	62	62	0.2559140	0.3988040	0	1.0000000
2010	62	62	0.2795699	0.4088326	0	1.0000000

Model Information	
Data Set	WORK._DS
Dependent Variable	_z
Weight Variable	_w
Covariance Structure	Diagonal
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Residual

Class Level Information		
Class	*Levels*	*Values*
YEAR	16	1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010
AREA	9	APDELTA C CIS E SAB SJB T W YT
MONTH	9	3 4 5 6 7 8 9 10 11
depthcat	7	0 3 6 9 12 15 21

Dimensions	
Covariance Parameters	1
Columns in X	39
Columns in Z	0
Subjects	1
Max Obs Per Subject	2604

Number of Observations	
Number of Observations Read	2604
Number of Observations Used	2575
Number of Observations Not Used	29

Parameter Search			
CovP1	Variance	Res Log Like	-2 Res Log Like
1.0710	1.0710	-6381.6539	12763.3078

Covariance Parameter Estimates	
Cov Parm	Estimate
Residual	1.0710

Fit Statistics	
-2 Res Log Likelihood	12763.3
AIC (smaller is better)	12765.3
AICC (smaller is better)	12765.3
BIC (smaller is better)	12771.1

Information Criteria						
Neg2LogLike	Parms	AIC	AICC	HQIC	BIC	CAIC
12763.3	1	12765.3	12765.3	12767.4	12771.1	12772.1

Solution for Fixed Effects												
Effect	*AREA*	*YEAR*	*MONTH*	*depth cat*	*Estimate*	*Standard Error*	*DF*	*t Value*	*Pr > |t|*	*Alpha*	*Lower*	*Upper*
Intercept					-4.0388	0.5091	2540	-7.93	<.0001	0.05	-5.0372	-3.0405
YEAR		1995			0.3750	0.3744	2540	1.00	0.3166	0.05	-0.3591	1.1091
YEAR		1996			0.3100	0.3831	2540	0.81	0.4185	0.05	-0.4413	1.0612
YEAR		1997			0.3305	0.3915	2540	0.84	0.3986	0.05	-0.4372	1.0983
YEAR		1998			0.5682	0.4195	2540	1.35	0.1757	0.05	-0.2544	1.3907
YEAR		1999			0.7216	0.3622	2540	1.99	0.0465	0.05	0.01124	1.4319
YEAR		2000			0.8500	0.3504	2540	2.43	0.0153	0.05	0.1629	1.5371
YEAR		2001			0.6132	0.3418	2540	1.79	0.0729	0.05	-0.05699	1.2834
YEAR		2002			0.3043	0.3339	2540	0.91	0.3622	0.05	-0.3505	0.9591
YEAR		2003			0.3099	0.3285	2540	0.94	0.3457	0.05	-0.3344	0.9541
YEAR		2004			0.8562	0.3234	2540	2.65	0.0082	0.05	0.2220	1.4904
YEAR		2005			0.08349	0.3402	2540	0.25	0.8061	0.05	-0.5836	0.7505
YEAR		2006			0.3540	0.3300	2540	1.07	0.2834	0.05	-0.2930	1.0010
YEAR		2007			0.3567	0.3305	2540	1.08	0.2807	0.05	-0.2915	1.0048
YEAR		2008			0.2423	0.3386	2540	0.72	0.4743	0.05	-0.4216	0.9062
YEAR		2009			0.08652	0.3707	2540	0.23	0.8155	0.05	-0.6404	0.8134
YEAR		2010			0	.	.	.	.	.	.	.
AREA	APDELTA				1.7729	0.2832	2540	6.26	<.0001	0.05	1.2175	2.3283
AREA	C				-0.7000	0.2318	2540	-3.02	0.0026	0.05	-1.1546	-0.2454
AREA	CIS				0.6151	0.2996	2540	2.05	0.0402	0.05	0.02762	1.2025

AREA	E				1.4166	0.3476	2540	4.08	<.0001	0.05	0.7350	2.0982
AREA	SAB				-0.9183	0.3773	2540	-2.43	0.0150	0.05	-1.6581	-0.1785
AREA	SJB				0.04289	0.3042	2540	0.14	0.8879	0.05	-0.5537	0.6395
AREA	T				-0.3894	0.3221	2540	-1.21	0.2268	0.05	-1.0211	0.2422
AREA	W				0.9778	0.3964	2540	2.47	0.0137	0.05	0.2005	1.7551
AREA	YT				0	.	.	.	.	.	.	.
MONTH			3		0.4043	0.4929	2540	0.82	0.4121	0.05	-0.5621	1.3707
MONTH			4		0.7966	0.3078	2540	2.59	0.0097	0.05	0.1930	1.4001
MONTH			5		2.1978	0.2725	2540	8.07	<.0001	0.05	1.6634	2.7321
MONTH			6		1.9486	0.2701	2540	7.21	<.0001	0.05	1.4190	2.4783
MONTH			7		1.4571	0.2728	2540	5.34	<.0001	0.05	0.9221	1.9921
MONTH			8		1.5156	0.2762	2540	5.49	<.0001	0.05	0.9740	2.0573
MONTH			9		1.4594	0.2825	2540	5.17	<.0001	0.05	0.9055	2.0133
MONTH			10		0	.	.	.	.	.	.	.
depthcat				0	-0.3039	0.4223	2540	-0.72	0.4717	0.05	-1.1320	0.5241
depthcat				3	0.7246	0.4019	2540	1.80	0.0715	0.05	-0.06351	1.5127
depthcat				6	0.9145	0.3613	2540	2.53	0.0114	0.05	0.2060	1.6230
depthcat				9	0.8214	0.3587	2540	2.29	0.0221	0.05	0.1179	1.5248
depthcat				12	0	.	.	.	.	.	.	.

Type 3 Tests of Fixed Effects						
Effect	*Num DF*	*Den DF*	*Chi-Square*	*F Value*	*Pr > ChiSq*	*Pr > F*
YEAR	15	2540	20.40	1.36	0.1571	0.1582
AREA	8	2540	182.89	22.86	<.0001	<.0001
MONTH	7	2540	100.12	14.30	<.0001	<.0001
depthcat	4	2540	46.34	11.58	<.0001	<.0001

Least Squares Means									
Effect	*YEAR*	*Estimate*	*Standard Error*	*DF*	*t Value*	*Pr > |t|*	*Alpha*	*Lower*	*Upper*
YEAR	1995	-1.6970	0.2488	2540	-6.82	<.0001	0.05	-2.1850	-1.2091
YEAR	1996	-1.7621	0.2662	2540	-6.62	<.0001	0.05	-2.2840	-1.2401
YEAR	1997	-1.7415	0.2950	2540	-5.90	<.0001	0.05	-2.3200	-1.1631
YEAR	1998	-1.5039	0.3479	2540	-4.32	<.0001	0.05	-2.1861	-0.8217
YEAR	1999	-1.3505	0.2650	2540	-5.10	<.0001	0.05	-1.8701	-0.8309
YEAR	2000	-1.2220	0.2460	2540	-4.97	<.0001	0.05	-1.7044	-0.7397
YEAR	2001	-1.4588	0.2287	2540	-6.38	<.0001	0.05	-1.9072	-1.0105
YEAR	2002	-1.7677	0.2169	2540	-8.15	<.0001	0.05	-2.1930	-1.3425
YEAR	2003	-1.7622	0.2112	2540	-8.34	<.0001	0.05	-2.1764	-1.3480
YEAR	2004	-1.2159	0.2028	2540	-5.99	<.0001	0.05	-1.6136	-0.8182
YEAR	2005	-1.9886	0.2413	2540	-8.24	<.0001	0.05	-2.4617	-1.5154
YEAR	2006	-1.7180	0.2305	2540	-7.45	<.0001	0.05	-2.1700	-1.2661
YEAR	2007	-1.7154	0.2297	2540	-7.47	<.0001	0.05	-2.1658	-1.2650
YEAR	2008	-1.8298	0.2429	2540	-7.53	<.0001	0.05	-2.3061	-1.3535
YEAR	2009	-1.9855	0.2903	2540	-6.84	<.0001	0.05	-2.5549	-1.4162
YEAR	2010	-2.0721	0.2776	2540	-7.46	<.0001	0.05	-2.6165	-1.5276

Description	*Value*
Deviance	2397.9552
Scaled Deviance	2238.9694

Pearson Chi-Square	2720.3615								
Scaled Pearson Chi-Square	2540.0000								
Extra-Dispersion Scale	1.0710								
Model Information									
Data Set	WORK.POSIT								
Dependent Variable	lgcpue								
Covariance Structure	Diagonal								
Estimation Method	REML								
Residual Variance Method	Profile								
Fixed Effects SE Method	Model-Based								
Degrees of Freedom Method	Residual								

Class Level Information		
Class	*Levels*	*Values*
YEAR	16	1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010
AREA	9	APDELTA C CIS E SAB SJB T W YT

MONTH	8	3 4 5 6 7 8 9 10
depthcat	5	0 3 6 9 12

Dimensions	
Covariance Parameters	1
Columns in X	39
Columns in Z	0
Subjects	1
Max Obs Per Subject	631

Number of Observations	
Number of Observations Read	631
Number of Observations Used	631
Number of Observations Not Used	0

Covariance Parameter Estimates							
Cov Parm	*Estimate*	*Standard Error*	*Z Value*	*Pr Z*	*Alpha*	*Lower*	*Upper*
Residual	0.6451	0.03737	17.26	<.0001	0.05	0.5777	0.7251

Fit Statistics	
-2 Res Log Likelihood	1554.8
AIC (smaller is better)	1556.8
AICC (smaller is better)	1556.8
BIC (smaller is better)	1561.2

Information Criteria						
Neg2LogLike	*Parms*	*AIC*	*AICC*	*HQIC*	*BIC*	*CAIC*
1554.8	1	1556.8	1556.8	1558.5	1561.2	1562.2

Solution for Fixed Effects												
Effect	*AREA*	*YEAR*	*MONTH*	*depthcat*	*Estimate*	*Standard Error*	*DF*	*t Value*	*Pr > |t|*	*Alpha*	*Lower*	*Upper*
Intercept					-0.4932	0.3534	596	-1.40	0.1634	0.05	-1.1872	0.2008
YEAR		1995			-0.2660	0.2432	596	-1.09	0.2745	0.05	-0.7435	0.2116
YEAR		1996			-0.4567	0.2360	596	-1.94	0.0534	0.05	-0.9202	0.006747
YEAR		1997			-0.3729	0.2403	596	-1.55	0.1212	0.05	-0.8448	0.09901
YEAR		1998			-0.2204	0.2552	596	-0.86	0.3882	0.05	-0.7216	0.2809
YEAR		1999			-0.2019	0.2196	596	-0.92	0.3583	0.05	-0.6331	0.2294
YEAR		2000			0.04507	0.2100	596	0.21	0.8301	0.05	-0.3673	0.4575
YEAR		2001			-0.03285	0.2084	596	-0.16	0.8748	0.05	-0.4421	0.3764
YEAR		2002			0.09393	0.2072	596	0.45	0.6504	0.05	-0.3129	0.5008
YEAR		2003			0.02759	0.2026	596	0.14	0.8917	0.05	-0.3702	0.4254
YEAR		2004			0.2488	0.1976	596	1.26	0.2085	0.05	-0.1392	0.6368
YEAR		2005			0.2977	0.2089	596	1.43	0.1546	0.05	-0.1125	0.7079
YEAR		2006			0.03886	0.2024	596	0.19	0.8478	0.05	-0.3587	0.4365
YEAR		2007			0.4055	0.2005	596	2.02	0.0436	0.05	0.01169	0.7993
YEAR		2008			0.1339	0.2074	596	0.65	0.5188	0.05	-0.2734	0.5411
YEAR		2009			-0.2549	0.2285	596	-1.12	0.2651	0.05	-0.7037	0.1939
YEAR		2010			0	.	.	.	.	.	.	.
AREA	APDELTA				1.0809	0.1764	596	6.13	<.0001	0.05	0.7345	1.4274
AREA	C				0.2876	0.1703	596	1.69	0.0917	0.05	-0.04675	0.6220
AREA	CIS				0.6697	0.1958	596	3.42	0.0007	0.05	0.2850	1.0543

AREA	E				0.5878	0.2143	596	2.74	0.0063	0.05	0.1670	1.0085
AREA	SAB				0.1866	0.2771	596	0.67	0.5010	0.05	-0.3577	0.7308
AREA	SJB				0.5205	0.2015	596	2.58	0.0100	0.05	0.1247	0.9162
AREA	T				0.3843	0.2266	596	1.70	0.0903	0.05	-0.06060	0.8293
AREA	W				0.1337	0.2444	596	0.55	0.5845	0.05	-0.3463	0.6138
AREA	YT				0	.	.	.	.	.	.	.
MONTH			3		0.3281	0.3636	596	0.90	0.3672	0.05	-0.3859	1.0422
MONTH			4		0.1934	0.2183	596	0.89	0.3759	0.05	-0.2353	0.6221
MONTH			5		0.7182	0.1879	596	3.82	0.0001	0.05	0.3492	1.0871
MONTH			6		0.6673	0.1884	596	3.54	0.0004	0.05	0.2973	1.0373
MONTH			7		0.4967	0.1927	596	2.58	0.0102	0.05	0.1183	0.8751
MONTH			8		0.6292	0.1957	596	3.22	0.0014	0.05	0.2449	1.0135
MONTH			9		0.6938	0.1983	596	3.50	0.0005	0.05	0.3042	1.0833
MONTH			10		0	.	.	.	.	.	.	.
depthcat				0	-0.5212	0.3064	596	-1.70	0.0894	0.05	-1.1229	0.08053
depthcat				3	-0.7406	0.2883	596	-2.57	0.0105	0.05	-1.3069	-0.1743
depthcat				6	-0.2853	0.2655	596	-1.07	0.2830	0.05	-0.8067	0.2361
depthcat				9	-0.08351	0.2588	596	-0.32	0.7471	0.05	-0.5918	0.4248
depthcat				12	0	.	.	.	.	.	.	.

Type 3 Tests of Fixed Effects				
Effect	*Num DF*	*Den DF*	*F Value*	*Pr > F*
YEAR	15	596	2.91	0.0002
AREA	8	596	10.51	<.0001
MONTH	7	596	4.08	0.0002
depthcat	4	596	5.00	0.0006

Least Squares Means										
Effect	*YEAR*	*Margins*	*Estimate*	*Standard Error*	*DF*	*t Value*	*Pr > |t|*	*Alpha*	*Lower*	*Upper*
YEAR	1995	WORK.POSIT	-0.09501	0.1621	596	-0.59	0.5580	0.05	-0.4133	0.2233
YEAR	1996	WORK.POSIT	-0.2858	0.1564	596	-1.83	0.0682	0.05	-0.5929	0.02139
YEAR	1997	WORK.POSIT	-0.2019	0.1673	596	-1.21	0.2281	0.05	-0.5306	0.1267
YEAR	1998	WORK.POSIT	-0.04942	0.1995	596	-0.25	0.8044	0.05	-0.4413	0.3424
YEAR	1999	WORK.POSIT	-0.03091	0.1444	596	-0.21	0.8305	0.05	-0.3145	0.2526
YEAR	2000	WORK.POSIT	0.2160	0.1312	596	1.65	0.1002	0.05	-0.04164	0.4737
YEAR	2001	WORK.POSIT	0.1381	0.1207	596	1.14	0.2531	0.05	-0.09902	0.3752
YEAR	2002	WORK.POSIT	0.2649	0.1129	596	2.35	0.0193	0.05	0.04322	0.4865
YEAR	2003	WORK.POSIT	0.1985	0.1118	596	1.78	0.0762	0.05	-0.02095	0.4180
YEAR	2004	WOR	0.419	0.099	596	4.22	<.000	0.05	0.224	0.615

		K.POSIT	7	57			1		2	3
YEAR	2005	WORK.POSIT	0.4687	0.1354	596	3.46	0.0006	0.05	0.2027	0.7346
YEAR	2006	WORK.POSIT	0.2098	0.1277	596	1.64	0.1010	0.05	-0.04102	0.4607
YEAR	2007	WORK.POSIT	0.5764	0.1217	596	4.73	<.0001	0.05	0.3373	0.8156
YEAR	2008	WORK.POSIT	0.3048	0.1289	596	2.36	0.0184	0.05	0.05163	0.5580
YEAR	2009	WORK.POSIT	-0.08395	0.1641	596	-0.51	0.6091	0.05	-0.4062	0.2383
YEAR	2010	WORK.POSIT	0.1710	0.1659	596	1.03	0.3033	0.05	-0.1549	0.4968
2 Variables:	ppos cpue									

Simple Statistics						
Variable	*N*	*Mean*	*Std Dev*	*Median*	*Minimum*	*Maximum*
ppos	16	0.16070	0.03596	0.15062	0.11184	0.22867
cpue	16	1.19309	0.28966	1.21507	0.76069	1.79294

Kendall Tau b Correlation Coefficients, N = 16 Prob > |r| under H0: Rho=0													
	ppos	*cpue*											
ppos	1.00	0.01											

	000	6670.9283											
cpue	0.016670.9283	1.000000											

Obs	*_TYPE_*	*_NAME_*	*ppos*	*cpue*
1	MEAN		0.16007	1.19231
2	STD		0.03360	0.28297
3	N		16.0000	16.0000
4	CORR	ppos	1.00000	0.01667
5	CORR	cpue	0.01667	1.00000

Obs	*cpue*	*lcpu*	*selcpu*	*mc*	*margPos*	*year*	*Effect*	*Estimate*	*Std Err*	*DF*	*tValue*	*Probt*	*Alpha*
1	0.92139	-0.09501	0.16208	596	WORK.POSIT	1995	YEAR	-1.6970	0.2488	2540	-6.82	<.0001	0.05
2	0.76069	-0.28575	0.15639	596	WORK.POSIT	1996	YEAR	-1.7621	0.2662	2540	-6.62	<.0001	0.05
3	0.82869	-0.20192	0.16735	596	WORK.POSIT	1997	YEAR	-1.7415	0.2950	2540	-5.90	<.0001	0.05
4	0.97091	-0.04942	0.19952	596	WORK.POSIT	1998	YEAR	-1.5039	0.3479	2540	-4.32	<.0001	0.05
5	0.97972	-0.03091	0.14438	596	WORK.POSIT	1999	YEAR	-1.3505	0.2650	2540	-5.10	<.0001	0.05
6	1.25186	0.21603	0.13120	596	WORK.POSIT	2000	YEAR	-1.2220	0.2460	2540	-4.97	<.0001	0.05

7	1.15650	0.13811	0.12074	596	WORK.POSIT	2001	YEAR	-1.45488	0.2287	2540	-6.38	<.0001	0.05
8	1.31161	0.26488	0.11287	596	WORK.POSIT	2002	YEAR	-1.7677	0.2169	2540	-8.15	<.0001	0.05
9	1.22726	0.19854	0.11176	596	WORK.POSIT	2003	YEAR	-1.7622	0.2112	2540	-8.34	<.0001	0.05
10	1.52912	0.41973	0.09957	596	WORK.POSIT	2004	YEAR	-1.2159	0.2028	2540	-5.99	<.0001	0.05
11	1.61257	0.46866	0.13540	596	WORK.POSIT	2005	YEAR	-1.9886	0.2413	2540	-8.24	<.0001	0.05
12	1.24356	0.20982	0.12772	596	WORK.POSIT	2006	YEAR	-1.7180	0.2305	2540	-7.45	<.0001	0.05
13	1.79294	0.57645	0.12175	596	WORK.POSIT	2007	YEAR	-1.7154	0.2297	2540	-7.47	<.0001	0.05
14	1.36773	0.30484	0.12893	596	WORK.POSIT	2008	YEAR	-1.8298	0.2429	2540	-7.53	<.0001	0.05
15	0.93194	-0.08395	0.16409	596	WORK.POSIT	2009	YEAR	-1.9855	0.2903	2540	-6.84	<.0001	0.05
16	1.20288	0.17096	0.16592	596	WORK.POSIT	2010	YEAR	-2.0721	0.2776	2540	-7.46	<.0001	0.05

Obs	*Lower*	*Upper*	*stderreta*	*mu*	*dmu*	*stderrmu*	*lowerrmu*	*upperrmu*	*lpos*	*selpos*	*ppos*	*mp*
1	-2.1850	-1.2091	0.24885	0.15485	0.13087	0.032567	0.10111	0.22986	-1.69704	0.24885	0.15485	2540
2	-2.2840	-1.2401	0.26618	0.14653	0.12506	0.033288	0.09246	0.22441	-1.76207	0.26618	0.14653	2540

3	-2.32000	-1.16031	0.29500	0.14912	0.12688	0.037431	0.08948	0.23811	-1.74152	0.29500	0.14912	2540
4	-2.18061	-0.82017	0.34793	0.18185	0.14878	0.051763	0.10100	0.30541	-1.50390	0.34793	0.18185	2540
5	-1.87001	-0.83009	0.26498	0.20579	0.16344	0.043308	0.13353	0.30346	-1.35048	0.26498	0.20579	2540
6	-1.70044	-0.73997	0.24596	0.22758	0.17579	0.043236	0.15390	0.32306	-1.22205	0.24596	0.22758	2540
7	-1.90072	-1.01005	0.22866	0.18865	0.15306	0.034998	0.12930	0.26689	-1.45883	0.22866	0.18865	2540
8	-2.19030	-1.34025	0.21686	0.14582	0.12456	0.027012	0.10038	0.20710	-1.76775	0.21686	0.14582	2540
9	-2.17064	-1.34080	0.21123	0.14652	0.12505	0.026414	0.10189	0.20620	-1.76219	0.21123	0.14652	2540
10	-1.61036	-0.81882	0.20281	0.22867	0.17638	0.035772	0.16609	0.30615	-1.21586	0.20281	0.22867	2540
11	-2.46017	-1.51054	0.24130	0.12041	0.10591	0.025556	0.07859	0.18014	-1.98856	0.24130	0.12041	2540
12	-2.17000	-1.26061	0.23047	0.15212	0.12898	0.029727	0.10248	0.21992	-1.71805	0.23047	0.15212	2540
13	-2.16058	-1.26050	0.22968	0.15246	0.12922	0.029679	0.10287	0.22011	-1.71540	0.22968	0.15246	2540
14	-2.30061	-1.35035	0.24289	0.13827	0.11915	0.028940	0.09062	0.20530	-1.82977	0.24289	0.13827	2540
15	-2.55049	-1.41062	0.29034	0.12073	0.10615	0.030821	0.07210	0.19526	-1.98553	0.29034	0.12073	2540
16	-2.61065	-1.52076	0.27764	0.11184	0.09933	0.027579	0.06809	0.17834	-2.07205	0.27764	0.11184	2540

Obs	*cor*	*cpu_var*	*pos_var*	*obcpue*	*obppos*	*nobs*	*obcppos*	*ncppos*	*JOIN*	*c_var*	*tc*	*td*	*gc*
1	0.01666	0.64	1.07	0.15	0.14	250	1.11	35	1	0.02627	0.30	0.59	1.36

	7	514	101	599	000		424			1	996	360	244
2	0.01666667	0.64514	1.07101	0.24456	0.17742	186	1.37843	33	1	0.024458	0.31086	0.59723	1.36367
3	0.01666667	0.64514	1.07101	0.24454	0.17778	135	1.37551	24	1	0.028006	0.30909	0.59012	1.36126
4	0.01666667	0.64514	1.07101	0.26169	0.20482	83	1.27767	17	1	0.039808	0.30317	0.56647	1.35326
5	0.01666667	0.64514	1.07101	0.42292	0.27350	117	1.54630	32	1	0.020845	0.31267	0.60447	1.36614
6	0.01666667	0.64514	1.07101	0.46271	0.31250	128	1.48067	40	1	0.017213	0.31449	0.61174	1.36862
7	0.01666667	0.64514	1.07101	0.54068	0.26705	176	2.02469	47	1	0.014579	0.31581	0.61702	1.37042
8	0.01666667	0.64514	1.07101	0.48003	0.24348	230	1.97157	56	1	0.012739	0.31673	0.62070	1.37168
9	0.01666667	0.64514	1.07101	0.34698	0.22785	237	1.52284	54	1	0.012490	0.31686	0.62120	1.37185
10	0.01666667	0.64514	1.07101	0.70937	0.33014	209	2.14867	69	1	0.009914	0.31815	0.62636	1.37361
11	0.01666667	0.64514	1.07101	0.55132	0.23457	162	2.35038	38	1	0.018333	0.31393	0.60950	1.36785
12	0.01666667	0.64514	1.07101	0.42762	0.26190	168	1.63274	44	1	0.016313	0.31494	0.61354	1.36923
13	0.01666667	0.64514	1.07101	0.87769	0.29012	162	3.02524	47	1	0.014822	0.31569	0.61653	1.37025
14	0.01666667	0.64514	1.07101	0.76151	0.28000	150	2.71966	42	1	0.016622	0.31479	0.61293	1.36902
15	0.01666667	0.64514	1.07101	0.31196	0.24510	102	1.27280	25	1	0.026926	0.30963	0.59228	1.36199
16	0.01666667	0.64514	1.07101	0.41330	0.25688	109	1.60891	28	1	0.027529	0.30932	0.59107	1.36158

Obs	gd	d	pi	p	a	b	c	cc	cd	prgc	prgd	cverge
1	1.80763	6.5669E27	9	9	5.8262E27	0.98503	362880	7.2766E-11	2.5215E-8	1.36244	1.80763	9
2	1.81418	6.5669E27	9	9	5.8262E27	0.98503	362880	7.4706E-11	2.6637E-8	1.36367	1.81418	9
3	1.80138	6.5669E27	9	9	5.8262E27	0.98503	362880	7.095E-11	2.3917E-8	1.36126	1.80138	9
4	1.75943	6.5669E27	9	9	5.8262E27	0.98503	362880	5.9632E-11	1.6552E-8	1.35326	1.75943	9
5	1.82731	6.5669E27	9	9	5.8262E27	0.98503	362880	7.8713E-11	2.9688E-8	1.36614	1.82731	9
6	1.84061	6.5669E27	9	9	5.8262E27	0.98503	362880	8.2932E-11	3.3064E-8	1.36862	1.84061	9
7	1.85031	6.5669E27	9	9	5.8262E27	0.98503	362880	8.6116E-11	3.5721E-8	1.37042	1.85031	9
8	1.85712	6.5669E27	9	9	5.8262E27	0.98503	362880	8.8404E-11	3.7688E-8	1.37168	1.85712	9
9	1.85804	6.5669E27	9	9	5.8262E27	0.98503	362880	8.8717E-11	3.7961E-8	1.37185	1.85804	9
10	1.86762	6.5669E27	9	9	5.8262E27	0.98503	362880	9.2022E-11	4.0896E-8	1.37361	1.86762	9
11	1.83649	6.5669E27	9	9	5.8262E27	0.98503	362880	8.1609E-11	3.1988E-8	1.36785	1.83649	9
12	1.84391	6.5669E27	9	9	5.8262E27	0.98503	362880	8.4007E-11	3.3951E-8	1.36923	1.84391	9
13	1.84941	6.5669E27	9	9	5.8262E27	0.98503	362880	8.5816E-11	3.5467E-8	1.37025	1.84941	9
14	1.84278	6.5669E27	9	9	5.8262E27	0.98503	362880	8.3636E-11	3.3644E-8	1.36902	1.84278	9
15	1.80526	6.5669E27	9	9	5.8262E27	0.98503	362880	7.2075E-11	2.4717E-8	1.36199	1.80526	9

16	1.80309	6.5669E27	9	9	5.8262E27	0.98503	362880	7.1444E-11	2.4267E-8	1.36158	1.80309	9

Obs	*tol*	*tol2*	*var_c*	*var_p*	*index*	*bc_pos*	*bc_cpu*	*var_i*	*se_i*	*cv_i*
1	6.3592E-11	2.2036E-8	0.040198	.001060629	0.19186	0.15485	1.23896	.002700828	0.051969	0.27088
2	6.5288E-11	2.3279E-8	0.025649	.001108091	0.15015	0.14653	1.02473	.001803150	0.042464	0.28280
3	6.2005E-11	2.0901E-8	0.034486	.001401053	0.16588	0.14912	1.11237	.002616344	0.051150	0.30836
4	5.2113E-11	1.4466E-8	0.065105	.002679449	0.23422	0.18185	1.28800	.006818065	0.082572	0.35254
5	6.8789E-11	2.5945E-8	0.036677	.001875604	0.27258	0.20579	1.32455	.004982149	0.070584	0.25895
6	7.2476E-11	2.8895E-8	0.050070	.001869348	0.38657	0.22758	1.69864	.008148191	0.090267	0.23351
7	7.5259E-11	3.1217E-8	0.036562	.001224855	0.29681	0.18865	1.57338	.004444840	0.066670	0.22462
8	7.7258E-11	3.2937E-8	0.041419	.000729624	0.26068	0.14582	1.78768	.003304091	0.057481	0.22050
9	7.7532E-11	3.3175E-8	0.035597	.000697692	0.24514	0.14652	1.67314	.002800332	0.052918	0.21587
10	8.042E-11	3.574E-8	0.044455	.001279625	0.47792	0.22867	2.09003	.008039856	0.089665	0.18762
11	7.132E-11	2.7955E-8	0.088136	.000653116	0.26317	0.12041	2.18562	.004524181	0.067262	0.25559
12	7.3416E-11	2.967E-8	0.046982	.000883682	0.25692	0.15212	1.68888	.003715178	0.060952	0.23724
13	7.4997E-11	3.0996E-8	0.089256	.000880824	0.37181	0.15246	2.43864	.007460803	0.086376	0.23231
14	7.3092E-11	2.9402E-8	0.057843	.000837516	0.25675	0.13827	1.85695	.004109775	0.064108	0.24969
15	6.2988E-11	2.1601E-8	0.042068	.000949934	0.15119	0.12073	1.25232	.002208332	0.046993	0.31081
16	6.2437E-11	2.1207E-8	0.071527	.000760611	0.18068	0.11184	1.61543	.003002573	0.054796	0.30328

Moments			
N	631	*Sum Weights*	631
Mean	0	*Sum Observations*	0

Std Deviation	0.78123325	*Variance*	0.6103254
Skewness	0.3499187	*Kurtosis*	0.11420812
Uncorrected SS	384.505	*Corrected SS*	384.505
Coeff Variation	.	*Std Error Mean*	0.0311004

Basic Statistical Measures			
Location	*Variability*		
Mean	0.00000	*Std Deviation*	0.78123
Median	-0.10393	*Variance*	0.61033
Mode	-0.31679	*Range*	5.11356
		Interquartile Range	1.06174

Tests for Location: Mu0=0				
Test	*Statistic*	*p Value*		
Student's t	*t*	0	*Pr* > |*t*|	1.0000
Sign	*M*	-32.5	*Pr* >= |*M*|	0.0108
Signed Rank	*S*	-4517	*Pr* >= |*S*|	0.3245

Quantiles (Definition 5)	
Quantile	*Estimate*
100% Max	2.758278
99%	2.009158
95%	1.438366
90%	1.108735
75% Q3	0.509672
50% Median	-0.103929
25% Q1	-0.552071
10%	-0.879399
5%	-1.126232
1%	-1.690086
0% Min	-2.355285

Extreme Observations			
Lowest	*Highest*		
Value	*Obs*	*Value*	*Obs*
-2.35528	524	2.02071	6
-2.15970	39	2.21041	359
-1.93492	88	2.21302	510
-1.87586	609	2.22600	549
-1.86125	87	2.75828	63

Parameters for Normal Distribution		
Parameter	*Symbol*	*Estimate*
Mean	Mu	0
Std Dev	Sigma	0.781233

Goodness-of-Fit Tests for Normal Distribution				
Test	*Statistic*	*p Value*		
Kolmogorov-Smirnov	*D*	0.05759444	*Pr > D*	<0.010
Cramer-von Mises	*W-Sq*	0.51422685	*Pr > W-Sq*	<0.005
Anderson-Darling	*A-Sq*	2.91830512	*Pr > A-Sq*	<0.005

Quantiles for Normal Distribution			
	Quantile		
Percent	*Observed*	*Estimated*	
1.0	-1.69009	-1.817420	
5.0	-1.12623	-1.285014	
10.0	-0.87940	-1.001191	
25.0	-0.55207	-0.526934	
50.0	-0.10393	-0.000000	
75.0	0.50967	0.526934	
90.0	1.10874	1.001191	
95.0	1.43837	1.285014	

99.0	2.00916	1.817420	

Moments			
N	631	*Sum Weights*	631
Mean	0	*Sum Observations*	0
Std Deviation	0.78123325	*Variance*	0.6103254
Skewness	0.3499187	*Kurtosis*	0.11420812
Uncorrected SS	384.505	*Corrected SS*	384.505
Coeff Variation	.	*Std Error Mean*	0.0311004

Basic Statistical Measures			
Location	*Variability*		
Mean	0.00000	*Std Deviation*	0.78123
Median	-0.10393	*Variance*	0.61033
Mode	-0.31679	*Range*	5.11356
		Interquartile Range	1.06174

Tests for Location: Mu0=0				
Test	*Statistic*	*p Value*		
Student's t	*t*	0	*Pr* > |*t*|	1.0000
Sign	*M*	-32.5	*Pr* >= |*M*|	0.0108
Signed Rank	*S*	-4517	*Pr* >= |*S*|	0.3245

Quantiles (Definition 5)	
Quantile	*Estimate*
100% Max	2.758278
99%	2.009158
95%	1.438366
90%	1.108735
75% Q3	0.509672
50% Median	-0.103929
25% Q1	-0.552071
10%	-0.879399
5%	-1.126232

1%	-1.690086
0% Min	-2.355285

Extreme Observations			
Lowest	*Highest*		
Value	*Obs*	*Value*	*Obs*
-2.35528	524	2.02071	6
-2.15970	39	2.21041	359
-1.93492	88	2.21302	510
-1.87586	609	2.22600	549
-1.86125	87	2.75828	63

Obs	year	StdErr	obcpue	obppos	nobs	index	cv_i	MeanINDEX	STDcpue	LCI	UCI	estcpue	obscpue
1	1995	0.05197	0.15599	0.14000	250	0.19186	0.27088	0.26015	0.73749	0.43314	1.25570	0.19186	0.34603
2	1996	0.04246	0.24456	0.17742	186	0.15015	0.28280	0.26015	0.57720	0.33143	1.00519	0.15015	0.54250
3	1997	0.05115	0.24454	0.17778	135	0.16588	0.30836	0.26015	0.63763	0.34897	1.16507	0.16588	0.54244
4	1998	0.08257	0.26169	0.20482	83	0.23422	0.35254	0.26015	0.90033	0.45405	1.78523	0.23422	0.58050
5	1999	0.07058	0.42292	0.27350	117	0.27258	0.25895	0.26015	1.04781	0.62951	1.74406	0.27258	0.93815
6	2000	0.09027	0.46271	0.31250	128	0.38657	0.23351	0.26015	1.48598	0.93729	2.35586	0.38657	1.02641
7	2001	0.06667	0.54068	0.26705	176	0.29681	0.22462	0.26015	1.14095	0.73208	1.77816	0.29681	1.19937
8	2002	0.05748	0.48003	0.24348	230	0.26068	0.22050	0.26015	1.00207	0.64810	1.54937	0.26068	1.06484
9	2003	0.05292	0.34698	0.22785	237	0.24514	0.21587	0.26015	0.94233	0.61494	1.44402	0.24514	0.76968
10	2004	0.08967	0.70937	0.33014	209	0.47792	0.18762	0.26015	1.83711	1.26643	2.66496	0.47792	1.57356
11	2005	0.06726	0.55132	0.23457	162	0.26317	0.25559	0.26015	1.01162	0.61168	1.67307	0.26317	1.22298
12	2006	0.06095	0.42762	0.26190	168	0.25692	0.23724	0.26015	0.98759	0.61848	1.57700	0.25692	0.94857
13	2007	0.08638	0.87769	0.29012	162	0.37181	0.23231	0.26015	1.42922	0.90357	2.26069	0.37181	1.94695
14	2008	0.06411	0.76151	0.28000	150	0.25675	0.24969	0.26015	0.98695	0.60352	1.61399	0.25675	1.68921
15	2009	0.04699	0.31196	0.24510	102	0.15119	0.31081	0.26015	0.58119	0.31663	1.06681	0.15119	0.69201
16	2010	0.05480	0.41330	0.25688	109	0.18068	0.30328	0.26015	0.69452	0.38373	1.25701	0.18068	0.91680

Table 2. Model output for the time series weighed by area surveyed.

Parameters for Normal Distribution		
Parameter	*Symbol*	*Estimate*
Mean	Mu	0.189927
Std Dev	Sigma	0.894088

Goodness-of-Fit Tests for Normal Distribution				
Test	*Statistic*	*p Value*		
Kolmogorov-Smirnov	*D*	0.08168255	*Pr > D*	<0.010
Cramer-von Mises	*W-Sq*	0.94084534	*Pr > W-Sq*	<0.005
Anderson-Darling	*A-Sq*	4.93839447	*Pr > A-Sq*	<0.005

Quantiles for Normal Distribution		
	Quantile	
Percent	*Estimated*	
1.0	-2.07944	-1.89003
5.0	-1.09861	-1.28072
10.0	-0.78085	-0.95589
25.0	-0.39429	-0.41313
50.0	0.04604	0.18993
75.0	0.82668	0.79298
90.0	1.45243	1.33575
95.0	1.78976	1.66057
99.0	2.48070	2.26989

Analysis Variable : percpos

YEAR	N Obs	N	Mean	Std Dev	Minimum	Maximum
1995	71	71	0.1264532	0.2336530	0	1.0000000
1996	56	56	0.2346939	0.3434311	0	1.0000000
1997	40	40	0.2574811	0.3665531	0	1.0000000
1998	46	46	0.3152174	0.4516475	0	1.0000000
1999	54	54	0.3224427	0.4430372	0	1.0000000
2000	49	49	0.3891156	0.4240123	0	1.0000000
2001	68	68	0.2685574	0.3739851	0	1.0000000
2002	70	70	0.2037472	0.3326163	0	1.0000000
2003	82	82	0.1831349	0.2984830	0	1.0000000
2004	79	79	0.3018385	0.3934472	0	1.0000000
2005	69	69	0.2340486	0.3744055	0	1.0000000
2006	84	84	0.2839286	0.3862032	0	1.0000000
2007	78	78	0.3264042	0.4349065	0	1.0000000
2008	82	82	0.2760163	0.3997607	0	1.0000000
2009	62	62	0.2559140	0.3988040	0	1.0000000
2010	62	62	0.2795699	0.4088326	0	1.0000000

Analysis Variable : percpos

YEAR	N Obs	N	Mean	Std Dev	Minimum	Maximum
1995	71	71	0.1264532	0.2336530	0	1.0000000
1996	56	56	0.2346939	0.3434311	0	1.0000000
1997	40	40	0.2574811	0.3665531	0	1.0000000
1998	46	46	0.3152174	0.4516475	0	1.0000000
1999	54	54	0.3224427	0.4430372	0	1.0000000
2000	49	49	0.3891156	0.4240123	0	1.0000000
2001	68	68	0.2685574	0.3739851	0	1.0000000
2002	70	70	0.2037472	0.3326163	0	1.0000000
2003	82	82	0.1831349	0.2984830	0	1.0000000
2004	79	79	0.3018385	0.3934472	0	1.0000000
2005	69	69	0.2340486	0.3744055	0	1.0000000

2006	84	84	0.2839286	0.3862032	0	1.0000000
2007	78	78	0.3264042	0.4349065	0	1.0000000
2008	82	82	0.2760163	0.3997607	0	1.0000000
2009	62	62	0.2559140	0.3988040	0	1.0000000
2010	62	62	0.2795699	0.4088326	0	1.0000000

Model Information	
Data Set	WORK._DS
Dependent Variable	_z
Weight Variable	_w
Covariance Structure	Diagonal
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Residual

Class Level Information		
Class	*Levels*	*Values*
YEAR	16	1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010
AREA	9	APDELTA C CIS E SAB SJB T W YT
MONTH	9	3 4 5 6 7 8 9 10 11
depthcat	7	0 3 6 9 12 15 21

Dimensions

Covariance Parameters	1
Columns in X	39
Columns in Z	0
Subjects	1
Max Obs Per Subject	2604

Number of Observations	
Number of Observations Read	2604
Number of Observations Used	2575
Number of Observations Not Used	29

Parameter Search			
CovP1	*Variance*	*Res Log Like*	*-2 Res Log Like*
0.4826	0.4826	-6862.3179	13724.6358

Covariance Parameter Estimates	
Cov Parm	*Estimate*
Residual	0.4826

Fit Statistics	
-2 Res Log Likelihood	13724.6
AIC (smaller is better)	13726.6
AICC (smaller is better)	13726.6
BIC (smaller is better)	13732.5

Information Criteria						
Neg2LogLike	*Parms*	*AIC*	*AICC*	*HQIC*	*BIC*	*CAIC*
13724.6	1	13726.6	13726.6	13728.8	13732.5	13733.5

Solution for

Fixed Effects

Effect	*AREA*	*YEAR*	*MONTH*	*depthcat*	*Estimate*	*Standard Error*	*DF*	*t Value*	*Pr > |t|*	*Alpha*	*Lower*	*Upper*
Intercept					-3.9357	0.7857	2540	-5.01	<.0001	0.05	-5.4763	-2.3950
YEAR		1995			0.3444	0.5592	2540	0.62	0.5380	0.05	-0.7521	1.4409
YEAR		1996			0.5796	0.4138	2540	1.40	0.1615	0.05	-0.2319	1.3910
YEAR		1997			0.8221	0.4098	2540	2.01	0.0450	0.05	0.01850	1.6257
YEAR		1998			0.3300	0.3977	2540	0.83	0.4067	0.05	-0.4498	1.1097
YEAR		1999			0.8406	0.3731	2540	2.25	0.0243	0.05	0.1090	1.5722
YEAR		2000			0.3922	0.3662	2540	1.07	0.2843	0.05	-0.3258	1.1102
YEAR		2001			0.2458	0.3406	2540	0.72	0.4704	0.05	-0.4220	0.9137
YEAR		2002			-0.00616	0.3278	2540	-0.02	0.9850	0.05	-0.6489	0.6366
YEAR		2003			0.1999	0.3179	2540	0.63	0.5296	0.05	-0.4235	0.8233
YEAR		2004			0.5272	0.3217	2540	1.64	0.1014	0.05	-0.1037	1.1581
YEAR		2005			-0.1342	0.3209	2540	-0.42	0.6758	0.05	-0.7635	0.4951
YEAR		2006			0.2012	0.3151	2540	0.64	0.5231	0.05	-0.4167	0.8191
YEAR		2007			-0.01579	0.3166	2540	-0.05	0.9602	0.05	-0.6367	0.6051
YEAR		2008			0.2235	0.3204	2540	0.70	0.4857	0.05	-0.4049	0.8518
YEAR		2009			-0.06369	0.3513	2540	-0.18	0.8562	0.05	-0.7526	0.6252
YEAR		2010			0	.	.	.	.	.	.	.
AREA	APDELTA				1.7155	0.3989	2540	4.30	<.0001	0.05	0.9333	2.4977
AREA	C				-0.7040	0.4623	2540	-1.52	0.1279	0.05	-1.6106	0.2026
AREA	CIS				0.5417	0.4080	2540	1.33	0.1844	0.05	-0.2584	1.3418
AREA	E				1.3483	0.5081	2540	2.65	0.0080	0.05	0.3520	2.3445
AREA	SAB				-0.9100	0.4496	2540	-2.02	0.0431	0.05	-1.7917	-0.02834
AREA	SJB				0.03283	0.4064	2540	0.08	0.9356	0.05	-0.7640	0.8297
AREA	T				-0.6110	0.6407	2540	-0.95	0.3404	0.05	-1.8674	0.6454
AREA	W				0.8678	0.5866	2540	1.48	0.1392	0.05	-0.2825	2.0181
AREA	YT				0	.	.	.	.	.	.	.

MONTH			3		0.1293	0.7770	2540	0.17	0.8679	0.05	-1.3944	1.6529
MONTH			4		0.7726	0.2837	2540	2.72	0.0065	0.05	0.2164	1.3289
MONTH			5		2.0963	0.2539	2540	8.26	<.0001	0.05	1.5985	2.5941
MONTH			6		1.9537	0.2501	2540	7.81	<.0001	0.05	1.4633	2.4441
MONTH			7		1.5353	0.2541	2540	6.04	<.0001	0.05	1.0370	2.0335
MONTH			8		1.3118	0.2604	2540	5.04	<.0001	0.05	0.8012	1.8224
MONTH			9		1.4743	0.2651	2540	5.56	<.0001	0.05	0.9546	1.9941
MONTH			10		0	.	.	.	.	.	.	.
depthcat				0	-0.1089	0.7503	2540	-0.15	0.8846	0.05	-1.5801	1.3623
depthcat				3	0.9126	0.7436	2540	1.23	0.2198	0.05	-0.5455	2.3707
depthcat				6	0.9158	0.7334	2540	1.25	0.2119	0.05	-0.5223	2.3538
depthcat				9	0.8506	0.7377	2540	1.15	0.2490	0.05	-0.5960	2.2972
depthcat				12	0	.	.	.	.	.	.	.

Type 3 Tests of Fixed Effects

Effect	*Num DF*	*Den DF*	*Chi-Square*	*F Value*	*Pr > ChiSq*	*Pr > F*
YEAR	15	2540	22.94	1.53	0.0854	0.0864
AREA	8	2540	223.25	27.91	<.0001	<.0001
MONTH	7	2540	104.82	14.97	<.0001	<.0001
depthcat	4	2540	52.43	13.11	<.0001	<.0001

Least

Squares Means									
Effect	*YEAR*	*Estimate*	*Standard Error*	*DF*	*t Value*	*Pr > |t|*	*Alpha*	*Lower*	*Upper*
YEAR	1995	-1.6646	0.4782	2540	-3.48	0.0005	0.05	-2.6024	-0.7268
YEAR	1996	-1.4295	0.3421	2540	-4.18	<.0001	0.05	-2.1002	-0.7587
YEAR	1997	-1.1869	0.3577	2540	-3.32	0.0009	0.05	-1.8884	-0.4855
YEAR	1998	-1.6790	0.3516	2540	-4.78	<.0001	0.05	-2.3685	-0.9896
YEAR	1999	-1.1684	0.3218	2540	-3.63	0.0003	0.05	-1.7994	-0.5373
YEAR	2000	-1.6168	0.3147	2540	-5.14	<.0001	0.05	-2.2340	-0.9997
YEAR	2001	-1.7632	0.2842	2540	-6.20	<.0001	0.05	-2.3204	-1.2059
YEAR	2002	-2.0152	0.2693	2540	-7.48	<.0001	0.05	-2.5433	-1.4870
YEAR	2003	-1.8091	0.2578	2540	-7.02	<.0001	0.05	-2.3146	-1.3037
YEAR	2004	-1.4818	0.2614	2540	-5.67	<.0001	0.05	-1.9944	-0.9693
YEAR	2005	-2.1432	0.2666	2540	-8.04	<.0001	0.05	-2.6660	-1.6204
YEAR	2006	-1.8078	0.2598	2540	-6.96	<.0001	0.05	-2.3172	-1.2984
YEAR	2007	-2.0248	0.2628	2540	-7.70	<.0001	0.05	-2.5402	-1.5095
YEAR	2008	-1.7856	0.2665	2540	-6.70	<.0001	0.05	-2.3082	-1.2629
YEAR	2009	-2.0727	0.3053	2540	-6.79	<.0001	0.05	-2.6713	-1.4741
YEAR	2010	-2.0090	0.3198	2540	-6.28	<.0001	0.05	-2.6362	-1.3819

Description	*Value*
Deviance	1078.1324
Scaled Deviance	2233.8195
Pearson Chi-Square	1225.9077
Scaled Pearson Chi-Square	2540.0000
Extra-Dispersion Scale	0.4826

Model Information	
Data Set	WORK.POSIT
Dependent Variable	lgcpue
Weight Variable	weightprop
Covariance Structure	Diagonal
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Residual

Class Level Information		
Class	*Levels*	*Values*
YEAR	16	1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010
AREA	9	APDELTA C CIS E SAB SJB T W YT
MONTH	8	3 4 5 6 7 8 9 10

Dimensions	
Covariance Parameters	1
Columns in X	34

Columns in Z	0
Subjects	1
Max Obs Per Subject	631

Number of Observations	
Number of Observations Read	631
Number of Observations Used	631
Number of Observations Not Used	0

Covariance Parameter Estimates

Cov Parm	*Estimate*	*Standard Error*	*Z Value*	*Pr Z*	*Alpha*	*Lower*	*Upper*
Residual	0.3426	0.01978	17.32	<.0001	0.05	0.3069	0.3849

Fit Statistics	
-2 Res Log Likelihood	1784.2
AIC (smaller is better)	1786.2
AICC (smaller is better)	1786.2
BIC (smaller is better)	1790.6

Information Criteria

Neg2LogLike	*Parms*	*AIC*	*AICC*	*HQIC*	*BIC*	*CAIC*
1784.2	1	1786.2	1786.2	1787.9	1790.6	1791.6

Solution for Fixed Effects

Effect	*AREA*	*YEAR*	*MONTH*	*Estimate*	*Standard Error*	*DF*	*t Value*	*Pr > |t|*	*Alpha*	*Lower*	*Upper*
Intercep				-0.5358	0.3236	600	-1.66	0.0984	0.05	-1.1713	0.09984

t											
YEAR		1995		-0.4227	0.4079	600	-1.04	0.3005	0.05	-1.2238	0.3783
YEAR		1996		-0.9529	0.2538	600	-3.75	0.0002	0.05	-1.4515	-0.4544
YEAR		1997		-0.5283	0.2418	600	-2.18	0.0293	0.05	-1.0032	-0.05341
YEAR		1998		-0.3023	0.2619	600	-1.15	0.2487	0.05	-0.8166	0.2119
YEAR		1999		-0.2053	0.2294	600	-0.90	0.3710	0.05	-0.6557	0.2451
YEAR		2000		0.05103	0.2338	600	0.22	0.8273	0.05	-0.4082	0.5103
YEAR		2001		-0.01281	0.2206	600	-0.06	0.9537	0.05	-0.4461	0.4205
YEAR		2002		0.06318	0.2116	600	0.30	0.7654	0.05	-0.3524	0.4788
YEAR		2003		-0.00142	0.2050	600	-0.01	0.9945	0.05	-0.4041	0.4012
YEAR		2004		0.1789	0.2069	600	0.86	0.3874	0.05	-0.2274	0.5853
YEAR		2005		0.2421	0.2130	600	1.14	0.2562	0.05	-0.1762	0.6604
YEAR		2006		0.1415	0.2087	600	0.68	0.4978	0.05	-0.2682	0.5513
YEAR		2007		0.4850	0.2087	600	2.32	0.0205	0.05	0.07509	0.8950
YEAR		2008		0.1843	0.2079	600	0.89	0.3757	0.05	-0.2240	0.5926
YEAR		2009		-0.3102	0.2318	600	-1.34	0.1813	0.05	-0.7654	0.1450
YEAR		2010		0	.	.	.	.	.	.	.
AREA	APDELTA			0.5372	0.2099	600	2.56	0.0107	0.05	0.1249	0.9494
AREA	C			0.1170	0.3170	600	0.37	0.7124	0.05	-0.5057	0.7396
AREA	CIS			0.05524	0.2144	600	0.26	0.7967	0.05	-0.3658	0.4762
AREA	E			0.009249	0.2844	600	0.03	0.9741	0.05	-0.5492	0.5677
AREA	SAB			-0.3611	0.2690	600	-1.34	0.1800	0.05	-0.8895	0.1672
AREA	SJB			0.02839	0.2298	600	0.12	0.9017	0.05	-0.4229	0.4797
AREA	T			0.5813	0.4876	600	1.19	0.2337	0.05	-0.3763	1.5388
AREA	W			-0.4070	0.3523	600	-1.16	0.2484	0.05	-1.0988	0.2849
AREA	YT			0	.	.	.	.	.	.	.
MONTH			3	0.06128	0.6221	600	0.10	0.9216	0.05	-1.1606	1.2831
MONTH			4	0.1037	0.2128	600	0.49	0.6260	0.05	-0.3141	0.5216

MONTH			5	0.6921	0.1850	600	3.74	0.0002	0.05	0.3288	1.0555
MONTH			6	0.5971	0.1836	600	3.25	0.0012	0.05	0.2366	0.9576
MONTH			7	0.4588	0.1877	600	2.44	0.0148	0.05	0.09011	0.8275
MONTH			8	0.6901	0.1955	600	3.53	0.0004	0.05	0.3062	1.0740
MONTH			9	0.7402	0.1967	600	3.76	0.0002	0.05	0.3538	1.1265
MONTH			10	0	.	.	.	.	.	.	.

Type 3 Tests of Fixed Effects

Effect	*Num DF*	*Den DF*	*F Value*	*Pr > F*
YEAR	15	600	5.00	<.0001
AREA	8	600	8.17	<.0001
MONTH	7	600	4.89	<.0001

Least Squares Means

Effect	*YEAR*	*Margins*	*Estimate*	*Standard Error*	*DF*	*t Value*	*Pr > |t|*	*Alpha*	*Lower*	*Upper*
YEAR	1995	WORK. POSIT	-0.1474	0.3638	600	-0.41	0.6856	0.05	-0.8619	0.5672
YEAR	1996	WORK. POSIT	-0.6776	0.1801	600	-3.76	0.0002	0.05	-1.0314	-0.3238
YEAR	1997	WORK. POSIT	-0.2529	0.1646	600	-1.54	0.1248	0.05	-0.5761	0.07024
YEAR	1998	WORK. POSIT	-0.02699	0.1974	600	-0.14	0.8913	0.05	-0.4148	0.3608
YEAR	1999	WORK. POSIT	0.07004	0.1504	600	0.47	0.6417	0.05	-0.2254	0.3655
YEAR	2000	WORK. POSIT	0.3264	0.1559	600	2.09	0.0368	0.05	0.02013	0.6326
YEAR	2001	WORK. POSIT	0.2625	0.1324	600	1.98	0.0479	0.05	0.002483	0.5226
YEAR	2002	WORK. POSIT	0.3385	0.1161	600	2.92	0.0037	0.05	0.1106	0.5665
YEAR	2003	WORK.	0.2739	0.1079	600	2.54	0.0114	0.05	0.06206	0.4858

		POSIT								
YEAR	2004	WORK. POSIT	0.4543	0.1080	600	4.21	<.0001	0.05	0.2422	0.6664
YEAR	2005	WORK. POSIT	0.5174	0.1215	600	4.26	<.0001	0.05	0.2788	0.7560
YEAR	2006	WORK. POSIT	0.4169	0.1150	600	3.63	0.0003	0.05	0.1911	0.6427
YEAR	2007	WORK. POSIT	0.7604	0.1147	600	6.63	<.0001	0.05	0.5351	0.9857
YEAR	2008	WORK. POSIT	0.4597	0.1116	600	4.12	<.0001	0.05	0.2405	0.6788
YEAR	2009	WORK. POSIT	-0.03487	0.1540	600	-0.23	0.8209	0.05	-0.3373	0.2676
YEAR	2010	WORK. POSIT	0.2754	0.1748	600	1.58	0.1158	0.05	-0.06798	0.6187

2 Variables:	ppos cpue

Simple Statistics

Variable	*N*	*Mean*	*Std Dev*	*Median*	*Minimum*	*Maximum*
ppos	16	0.15451	0.04054	0.14501	0.10496	0.23715
cpue	16	1.28845	0.39894	1.33004	0.51615	2.15324

Kendall Tau b Correlation Coefficients, N = 16 Prob > |r| under H0: Rho=0

	ppos	*cpue*
ppos	1.00000	-0.38333

		0.0384
cpue	-0.38333	1.00000
	0.0384	

Obs	*_TYPE_*	*_NAME_*	*ppos*	*cpue*
1	MEAN		0.1545	1.2884
2	STD		0.0405	0.3989
3	N		16.0000	16.0000
4	CORR	ppos	1.0000	-0.3833
5	CORR	cpue	-0.3833	1.0000

Obs	*cpue*	*lcpu*	*selcpu*	*mc*	*margPos*	*year*	*Effect*	*Estimate*	*StdErr*	*DF*	*tValue*	*Probt*	*Alpha*
1	0.92203	-0.14736	0.36383	600	WORK.POSIT	1995	YEAR	-1.6646	0.4782	2540	-3.48	0.0005	0.05
2	0.51615	-0.67759	0.18015	600	WORK.POSIT	1996	YEAR	-1.4295	0.3421	2540	-4.18	<.0001	0.05
3	0.78710	-0.25294	0.16456	600	WORK.POSIT	1997	YEAR	-1.1869	0.3577	2540	-3.32	0.0009	0.05
4	0.99253	-0.02699	0.19744	600	WORK.POSIT	1998	YEAR	-1.6790	0.3516	2540	-4.78	<.0001	0.05
5	1.08475	0.07004	0.15042	600	WORK.POSIT	1999	YEAR	-1.1684	0.3218	2540	-3.63	0.0003	0.05
6	1.40289	0.32638	0.15594	600	WORK.POSIT	2000	YEAR	-1.6168	0.3147	2540	-5.14	<.0001	0.05
7	1.31168	0.26254	0.13242	600	WORK.POSIT	2001	YEAR	-1.7632	0.2842	2540	-6.20	<.0001	0.05
8	1.41237	0.33853	0.11607	600	WORK.POSIT	2002	YEAR	-2.0152	0.2693	2540	-7.48	<.0001	0.05

9	1.32280	0.27393	0.10788	600	WORK.POSIT	2003	YEAR	-1.8091	0.2578	2540	-7.02	<.0001	0.05
10	1.58428	0.45430	0.10801	600	WORK.POSIT	2004	YEAR	-1.4818	0.2614	2540	-5.67	<.0001	0.05
11	1.69012	0.51742	0.12149	600	WORK.POSIT	2005	YEAR	-2.1432	0.2666	2540	-8.04	<.0001	0.05
12	1.52730	0.41690	0.11496	600	WORK.POSIT	2006	YEAR	-1.8078	0.2598	2540	-6.96	<.0001	0.05
13	2.15324	0.76039	0.11473	600	WORK.POSIT	2007	YEAR	-2.0248	0.2628	2540	-7.70	<.0001	0.05
14	1.59342	0.45965	0.11159	600	WORK.POSIT	2008	YEAR	-1.7856	0.2665	2540	-6.70	<.0001	0.05
15	0.97725	-0.03487	0.15400	600	WORK.POSIT	2009	YEAR	-2.0727	0.3053	2540	-6.79	<.0001	0.05
16	1.33727	0.27535	0.17482	600	WORK.POSIT	2010	YEAR	-2.0090	0.3198	2540	-6.28	<.0001	0.05

Obs	*Lower*	*Upper*	*stderreta*	*mu*	*dmu*	*stderrmu*	*lowermu*	*uppermu*	*lpos*	*selpos*	*ppos*	*mp*
1	-2.6024	-0.7268	0.47823	0.15914	0.13382	0.063996	0.06899	0.32589	-1.66461	0.47823	0.15914	2540
2	-2.1002	-0.7587	0.34208	0.19318	0.15586	0.053318	0.10907	0.31894	-1.42945	0.34208	0.19318	2540
3	-1.8884	-0.4855	0.35772	0.23381	0.17914	0.064082	0.13143	0.38096	-1.18693	0.35772	0.23381	2540
4	-2.3685	-0.9896	0.35161	0.15722	0.13250	0.046589	0.08561	0.27100	-1.67904	0.35161	0.15722	2540
5	-1.7994	-0.5373	0.32181	0.23715	0.18091	0.058219	0.14192	0.36881	-1.16838	0.32181	0.23715	2540

6	-2.2340	-0.9997	0.31474	0.16564	0.13820	0.043499	0.09674	0.26901	-1.61685	0.31474	0.16564	2540
7	-2.3204	-1.2059	0.28419	0.14639	0.12496	0.035513	0.08944	0.23043	-1.76317	0.28419	0.14639	2540
8	-2.5433	-1.4870	0.26934	0.11762	0.10378	0.027953	0.07288	0.18437	-2.01518	0.26934	0.11762	2540
9	-2.3146	-1.3037	0.25776	0.14074	0.12093	0.031173	0.08992	0.21355	-1.80913	0.25776	0.14074	2540
10	-1.9944	-0.9693	0.26141	0.18515	0.15087	0.039438	0.11979	0.27503	-1.48184	0.26141	0.18515	2540
11	-2.6660	-1.6204	0.26661	0.10496	0.09395	0.025047	0.06501	0.16514	-2.14324	0.26661	0.10496	2540
12	-2.3172	-1.2984	0.25977	0.14090	0.12105	0.031445	0.08971	0.21443	-1.80779	0.25977	0.14090	2540
13	-2.5402	-1.5095	0.26281	0.11662	0.10302	0.027075	0.07309	0.18102	-2.02481	0.26281	0.11662	2540
14	-2.3082	-1.2629	0.26654	0.14362	0.12299	0.032782	0.09044	0.22047	-1.78556	0.26654	0.14362	2540
15	-2.6713	-1.4741	0.30528	0.11178	0.09928	0.030309	0.06469	0.18632	-2.07270	0.30528	0.11178	2540
16	-2.6362	-1.3819	0.31983	0.11826	0.10427	0.033350	0.06685	0.20071	-2.00901	0.31983	0.11826	2540

Obs	*cor*	*cpu_var*	*pos_var*	*obcpue*	*obppos*	*nobs*	*obcppos*	*ncppos*	*JOIN*	*c_var*	*tc*	*td*	*gc*
1	0.38333	0.34260	0.48264	0.15599	0.14000	250	1.11424	35	1	0.13237	0.10529	0.07799	1.11082
2	0.38333	0.34260	0.48264	0.24456	0.17742	186	1.37843	33	1	0.03245	0.15533	0.27816	1.16770
3	0.3833	0.3426	0.4826	0.2445	0.1777	135	1.3755	24	1	0.0270	0.1580	0.2889	1.1708

	3	0	4	4	8		1			8	2	2	4
4	0.38333	0.34260	0.48264	0.26169	0.20482	83	1.27767	17	1	0.03898	0.15206	0.26507	1.16389
5	0.38333	0.34260	0.48264	0.42292	0.27350	117	1.54630	32	1	0.02263	0.16025	0.29785	1.17345
6	0.38333	0.34260	0.48264	0.46271	0.31250	128	1.48067	40	1	0.02432	0.15941	0.29446	1.17246
7	0.38333	0.34260	0.48264	0.54068	0.26705	176	2.02469	47	1	0.01753	0.16280	0.30805	1.17644
8	0.38333	0.34260	0.48264	0.48003	0.24348	230	1.97157	56	1	0.01347	0.16484	0.31619	1.17883
9	0.38333	0.34260	0.48264	0.34698	0.22785	237	1.52284	54	1	0.01164	0.16576	0.31986	1.17991
10	0.38333	0.34260	0.48264	0.70937	0.33014	209	2.14867	69	1	0.01167	0.16574	0.31980	1.17989
11	0.38333	0.34260	0.48264	0.55132	0.23457	162	2.35038	38	1	0.01476	0.16419	0.31361	1.17807
12	0.38333	0.34260	0.48264	0.42762	0.26190	168	1.63274	44	1	0.01322	0.16497	0.31670	1.17898
13	0.38333	0.34260	0.48264	0.87769	0.29012	162	3.02524	47	1	0.01316	0.16499	0.31681	1.17901
14	0.38333	0.34260	0.48264	0.76151	0.28000	150	2.71966	42	1	0.01245	0.16535	0.31823	1.17943
15	0.38333	0.34260	0.48264	0.31196	0.24510	102	1.27280	25	1	0.02372	0.15971	0.29566	1.17281
16	0.38333	0.34260	0.48264	0.41330	0.25688	109	1.60891	28	1	0.03056	0.15628	0.28195	1.16880

Obs	*gd*	*d*	*pi*	*p*	*a*	*b*	*c*	*cc*	*cd*	*prgc*	*prgd*	*cverge*
1	1.08096	3.0008E19	6	6	2.8553E19	0.99006	720	1.8924 8E-9	3.1262E-10	1.11082	1.08096	6
2	1.31992	1.8425E22	7	7	1.7188E22	0.98841	5040	4.3293E-10	2.55631E-8	1.16770	1.31992	7
3	1.33416	1.8425E22	7	7	1.7188E22	0.98841	5040	4.8825E-10	3.33471E-8	1.17084	1.33416	7
4	1.30280	1.8425E22	7	7	1.7188E22	0.98841	5040	3.73E-10	1.82451E-8	1.16389	1.30280	7
5	1.3460	1.8425	7	7	1.7188	0.9884	5040	5.3857	4.1258	1.1734	1.3460	7

	9	E22			E22	1		E-10	E-8	5	9	
6	1.34155	1.8425E22	7	7	1.7188E22	0.98841	5040	5.1897E-10	3.80846E-8	1.17246	1.34155	7
7	1.35985	1.8425E22	7	7	1.7188E22	0.98841	5040	6.015E-10	5.22247E-8	1.17644	1.35985	7
8	1.37094	1.8425E22	7	7	1.7188E22	0.98841	5040	6.5615E-10	6.26847E-8	1.17883	1.37094	7
9	1.37597	1.8425E22	7	7	1.7188E22	0.98841	5040	6.8216E-10	6.79614E-8	1.17991	1.37597	7
10	1.37589	1.8425E22	7	7	1.7188E22	0.98841	5040	6.8177E-10	6.78811E-8	1.17989	1.37589	7
11	1.36741	1.8425E22	7	7	1.7188E22	0.98841	5040	6.3839E-10	5.91917E-8	1.17807	1.36741	7
12	1.37164	1.8425E22	7	7	1.7188E22	0.98841	5040	6.5973E-10	6.34004E-8	1.17898	1.37164	7
13	1.37178	1.8425E22	7	7	1.7188E22	0.98841	5040	6.6048E-10	6.35505E-8	1.17901	1.37178	7
14	1.37373	1.8425E22	7	7	1.7188E22	0.98841	5040	6.705E-10	6.5573E-8	1.17943	1.37373	7
15	1.34316	1.8425E22	7	7	1.7188E22	0.98841	5040	5.2586E-10	3.91858E-8	1.17281	1.34316	7
16	1.32491	1.8425E22	7	7	1.7188E22	0.98841	5040	4.5174E-10	2.81017E-8	1.16880	1.32491	7

Obs	*tol*	*tol2*	*var_c*	*var_p*	*index*	*bc_pos*	*bc_cpu*	*var_i*	*se_i*	*cv_i*
1	1.78283E-9	2.9451E-10	0.11391	.004095438	0.15256	0.15914	0.95862	0.014928	0.12218	0.80088
2	3.9918E-10	2.35705E-8	0.01125	.002842827	0.11456	0.19318	0.59300	0.003587	0.05989	0.52279
3	4.5019E-10	3.07476E-8	0.02213	.004106523	0.21257	0.23381	0.90917	0.008258	0.09087	0.42750
4	3.4393E-10	1.68228E-8	0.04912	.002170544	0.17812	0.15722	1.13290	0.007958	0.08921	0.50084
5	4.9659E-10	3.80419E-8	0.03553	.003389462	0.29847	0.23715	1.25858	0.011574	0.10758	0.36045
6	4.7852E-10	3.51159E-8	0.06359	.001892127	0.26916	0.16564	1.62496	0.010945	0.10462	0.38869
7	5.5462E	4.81538	0.04083	.001261	0.22393	0.14639	1.52964	0.00657	0.08110	0.36215

	-10	E-8		187				7		
8	6.05E-10	5.77984E-8	0.03680	.000781387	0.19451	0.11762	1.65376	0.004702	0.06857	0.35252
9	6.2898E-10	6.26637E-8	0.02805	.000971738	0.21840	0.14074	1.55173	0.004897	0.06998	0.32041
10	6.2862E-10	6.25897E-8	0.04032	.001555353	0.34408	0.18515	1.85841	0.009790	0.09894	0.28756
11	5.8863E-10	5.45777E-8	0.05751	.000627367	0.20746	0.10496	1.97644	0.005387	0.07340	0.35379
12	6.083E-10	5.84583E-8	0.04225	.000988786	0.25205	0.14090	1.78880	0.006480	0.08050	0.31938
13	6.0899E-10	5.85967E-8	0.08365	.000733080	0.29413	0.11662	2.52204	0.008802	0.09382	0.31898
14	6.1823E-10	6.04615E-8	0.04343	.001074673	0.26823	0.14362	1.86766	0.007263	0.08523	0.31773
15	4.8487E-10	3.61313E-8	0.03014	.000918656	0.12660	0.11178	1.13261	0.003572	0.05977	0.47209
16	4.1653E-10	2.59111E-8	0.07144	.001112195	0.18204	0.11826	1.53931	0.007051	0.08397	0.46129

Moments			
N	631	*Sum Weights*	631
Mean	0	*Sum Observations*	0
Std Deviation	0.80159333	*Variance*	0.64255186
Skewness	0.43511096	*Kurtosis*	0.22080152
Uncorrected SS	404.807672	*Corrected SS*	404.807672
Coeff Variation	.	*Std Error Mean*	0.03191093

Basic Statistical Measures			
Location	*Variability*		
Mean	0.00000	*Std Deviation*	0.80159
Median	-0.07643	*Variance*	0.64255
Mode	-0.41422	*Range*	5.59267
		Interquartile Range	1.06867

Tests for Location: Mu0=0				
Test	Statistic	p Value		
Student's t	t	0	Pr > |t|	1.0000
Sign	M	-28.5	Pr >= |M|	0.0257
Signed Rank	S	-4937	Pr >= |S|	0.2815

Quantiles (Definition 5)	
Quantile	Estimate
100% Max	3.2837990
99%	2.0174094
95%	1.4677432
90%	1.1527096
75% Q3	0.4865764
50% Median	-0.0764283
25% Q1	-0.5820915
10%	-0.9197757
5%	-1.1180408
1%	-1.7768307
0% Min	-2.3088682

Extreme Observations			
Lowest		Highest	
Value	Obs	Value	Obs
-2.30887	524	2.09155	549
-1.90950	88	2.13152	6
-1.90340	525	2.13600	52
-1.87866	39	2.23430	359
-1.85367	493	3.28380	63

Parameters for Normal Distribution

Parameter	Symbol	Estimate
Mean	Mu	0
Std Dev	Sigma	0.801593

Goodness-of-Fit Tests for Normal Distribution				
Test	Statistic	p Value		
Kolmogorov-Smirnov	D	0.04915311	Pr > D	<0.010
Cramer-von Mises	W-Sq	0.43927829	Pr > W-Sq	<0.005
Anderson-Darling	A-Sq	2.75105494	Pr > A-Sq	<0.005

Quantiles for Normal Distribution		
	Quantile	
Percent	Estimated	
1.0	-1.77683	-1.864785
5.0	-1.11804	-1.318504
10.0	-0.91978	-1.027283
25.0	-0.58209	-0.540666
50.0	-0.07643	-0.000000
75.0	0.48658	0.540666
90.0	1.15271	1.027283
95.0	1.46774	1.318504
99.0	2.01741	1.864785

Moments			
N	631	Sum Weights	631
Mean	0	Sum Observations	0
Std Deviation	0.80159333	Variance	0.64255186
Skewness	0.43511096	Kurtosis	0.22080152
Uncorrected SS	404.807672	Corrected SS	404.807672
Coeff Variation	.	Std Error Mean	0.03191093

Basic Statistical Measures			
Location	Variability		
Mean	0.00000	Std Deviation	0.80159
Median	-0.07643	Variance	0.64255
Mode	-0.41422	Range	5.59267
		Interquartile Range	1.06867

Tests for Location: Mu0=0				
Test	Statistic	p Value		
Student's t	t	0	Pr > |t|	1.0000
Sign	M	-28.5	Pr >= |M|	0.0257
Signed Rank	S	-4937	Pr >= |S|	0.2815

Quantiles (Definition 5)	
Quantile	Estimate
100% Max	3.2837990
99%	2.0174094
95%	1.4677432
90%	1.1527096
75% Q3	0.4865764
50% Median	-0.0764283
25% Q1	-0.5820915
10%	-0.9197757
5%	-1.1180408
1%	-1.7768307
0% Min	-2.3088682

Extreme Observations	
Lowest	Highest

Value	Obs	Value	Obs
-2.30887	524	2.09155	549
-1.90950	88	2.13152	6
-1.90340	525	2.13600	52
-1.87866	39	2.23430	359
-1.85367	493	3.28380	63

Obs	year	StdErr	obcpue	obppos	nobs	index	cv_i	Mean INDEX	STDcpue	LCI	UCI	estcpue	obscpue
1	1995	0.1222	0.15599	0.14000	250	0.15256	0.80088	0.22105	0.69014	0.16885	2.82090	0.15256	0.34603
2	1996	0.05989	0.24456	0.17742	186	0.11456	0.52279	0.22105	0.51824	0.19390	1.38510	0.11456	0.54250
3	1997	0.09087	0.24454	0.17778	135	0.21257	0.42750	0.22105	0.96163	0.42379	2.18203	0.21257	0.54244
4	1998	0.08921	0.26169	0.20482	83	0.17812	0.50084	0.22105	0.80577	0.31281	2.07555	0.17812	0.58050
5	1999	0.1076	0.42292	0.27350	117	0.29847	0.36045	0.22105	1.35021	0.67116	2.71628	0.29847	0.93815
6	2000	0.1046	0.46271	0.31250	128	0.26916	0.38869	0.22105	1.21761	0.57504	2.57823	0.26916	1.02641
7	2001	0.08110	0.54068	0.26705	176	0.22393	0.36215	0.22105	1.01301	0.50199	2.04426	0.22393	1.19937
8	2002	0.06857	0.48003	0.24348	230	0.19451	0.35252	0.22105	0.87994	0.44379	1.74470	0.19451	1.06484
9	2003	0.06998	0.34698	0.22785	237	0.21840	0.32041	0.22105	0.98798	0.52870	1.84620	0.21840	0.76968
10	2004	0.09894	0.70937	0.33014	209	0.34408	0.28756	0.22105	1.55656	0.88581	2.73520	0.34408	1.57356
11	2005	0.07340	0.55132	0.23457	162	0.20746	0.35379	0.22105	0.93849	0.47222	1.86514	0.20746	1.22298
12	2006	0.08050	0.42762	0.26190	168	0.25205	0.31938	0.22105	1.14022	0.61135	2.12664	0.25205	0.94857
13	2007	0.09382	0.87769	0.29012	162	0.29413	0.31898	0.22105	1.33057	0.71394	2.47980	0.29413	1.94695
14	2008	0.08523	0.76151	0.28000	150	0.26823	0.31773	0.22105	1.21341	0.65259	2.25621	0.26823	1.68921

15	2009	0.05977	0.31196	0.24510	102	0.12660	0.47209	0.22105	0.57272	0.23352	1.40460	0.12660	0.69201
16	2010	0.08397	0.41330	0.25688	109	0.18204	0.46129	0.22105	0.82350	0.34210	1.98232	0.18204	0.91680

Table 3. Absolute abundance indices from the combined data series. Series weighed by sample size and areas are presented.

Weighed by area

SurveyYear	*Frequency*	*N*	*LoIndex*	*CV*	*LCL*	*UCL*
1995	0.14	250	0.15256	0.80088	0.16885	2.8209
1996	0.17742	186	0.11456	0.52279	0.1939	1.3851
1997	0.17778	135	0.21257	0.4275	0.42379	2.18203
1998	0.20482	83	0.17812	0.50084	0.31281	2.07555
1999	0.2735	117	0.29847	0.36045	0.67116	2.71628
2000	0.3125	128	0.26916	0.38869	0.57504	2.57823
2001	0.26705	176	0.22393	0.36215	0.50199	2.04426
2002	0.24348	230	0.19451	0.35252	0.44379	1.7447
2003	0.22785	237	0.2184	0.32041	0.5287	1.8462
2004	0.33014	209	0.34408	0.28756	0.88581	2.7352
2005	0.23457	162	0.20746	0.35379	0.47222	1.86514
2006	0.2619	168	0.25205	0.31938	0.61135	2.12664
2007	0.29012	162	0.29413	0.31898	0.71394	2.4798
2008	0.28	150	0.26823	0.31773	0.65259	2.25621
2009	0.2451	102	0.1266	0.47209	0.23352	1.4046
2010	0.25688	109	0.18204	0.46129	0.3421	1.98232

Weighed by sample size

SurveyYear	*Frequency*	*N*	*LoIndex*	*CV*	*LCL*	*UCL*
1995	0.14	250	0.19186	0.27088	0.43314	1.2557
1996	0.17742	186	0.15015	0.2828	0.33143	1.00519
1997	0.17778	135	0.16588	0.30836	0.34897	1.16507
1998	0.20482	83	0.23422	0.35254	0.45405	1.78523
1999	0.2735	117	0.27258	0.25895	0.62951	1.74406
2000	0.3125	128	0.38657	0.23351	0.93729	2.35586
2001	0.26705	176	0.29681	0.22462	0.73208	1.77816
2002	0.24348	230	0.26068	0.2205	0.6481	1.54937
2003	0.22785	237	0.24514	0.21587	0.61494	1.44402
2004	0.33014	209	0.47792	0.18762	1.26643	2.66496
2005	0.23457	162	0.26317	0.25559	0.61168	1.67307
2006	0.2619	168	0.25692	0.23724	0.61848	1.577
2007	0.29012	162	0.37181	0.23231	0.90357	2.26069
2008	0.28	150	0.25675	0.24969	0.60352	1.61399
2009	0.2451	102	0.15119	0.31081	0.31663	1.06681
2010	0.25688	109	0.18068	0.30328	0.38373	1.25701

Figure 1. Indices of abundance for blacktip sharks from times series weighed by sample size or area. The dashed lines are the 95% confidence limits (LCL, UCL) for the standardized index.