Appendix B. Georgia White Shrimp, Water Temperature and Salinity data

Table B-1. White shrimp catch data (CPUE in grams/15-minute trawl) from December 2010 to February 2011, compared to monthly average from 1976-2010

December 2010 - White Shrimp - R/V Anna

Dec 2010 All Sectors		*76-10 All Sectors*		% Differ
Mean	5324.413	Mean	4808.548	10.73%
Standard Error	1302.854	Standard Error	316.3883	NOT SIGNIF
Median	2008.527	Median	1164.139	
Mode	#N/A	Mode	0	
Standard Deviation	7707.786	Standard Deviation	10868.29	
Count	35	Count	1180	
Confidence Level(95.0%)	2647.717	Confidence Level(95.0%)	620.7469	

Dec 2010 Creek		*76-10 Creek*		
Mean	5110.125	Mean	6736.911	-24.15%
Standard Error	2073.269	Standard Error	681.3882	NOT SIGNIF
Median	3029.291	Median	2466.622	
Mode	#N/A	Mode	113.3975	
Standard Deviation	7182.015	Standard Deviation	13746.49	
Count	12	Count	407	
Confidence Level(95.0%)	4563.234	Confidence Level(95.0%)	1339.489	

Dec 2010 Sound		*76-10 Sound*		
Mean	8630.351	Mean	6727.988	28.28%
Standard Error	2894.24	Standard Error	569.9818	NOT SIGNIF
Median	5844.521	Median	2763.515	
Mode	#N/A	Mode	2381.348	
Standard Deviation	10025.94	Standard Deviation	11442.3	
Count	12	Count	403	
Confidence Level(95.0%)	6370.179	Confidence Level(95.0%)	1120.517	

Table B-1, continued

Dec 2010 Offshore		*76-10 Offshore*		
Mean	1951.703	Mean	596.7135	227.08%
Standard Error	904.5383	Standard Error	50.54935	NOT SIGNIF
Median	788.5298	Median	276.1881	
Mode	#N/A	Mode	0	
Standard Deviation	3000.014	Standard Deviation	972.3362	
Count	11	Count	370	
Confidence Level(95.0%)	2015.437	Confidence Level(95.0%)	99.40094	

January 2011 - White Shrimp - R/V Anna

Jan 2011 All Sectors		*76-11 All Sectors*		% Differ
Mean	347.9432	Mean	3057.757	-88.62%
Standard Error	114.9235	Standard Error	278.4932	SIGNIF
Median	33.274	Median	453.59	
Mode	0	Mode	0	
Standard Deviation	689.541	Standard Deviation	9444.164	
Count	36	Count	1150	
Confidence Level(95.0%)	233.3071	Confidence Level(95.0%)	546.4122	

Jan 2011 Creek		*76-11 Creek*		
Mean	237.9526	Mean	4323.324	-94.50%
Standard Error	165.4358	Standard Error	687.1303	SIGNIF
Median	33.274	Median	480.8054	
Mode	0	Mode	0	
Standard Deviation	573.0863	Standard Deviation	13412.25	
Count	12	Count	381	
Confidence Level(95.0%)	364.1217	Confidence Level(95.0%)	1351.054	

Table B-1 continued

Jan 2011 Sound		*76-11 Sound*		
Mean	404.5265	Mean	4044.234	-90.00%
Standard Error	263.9595	Standard Error	448.801	SIGNIF
Median	51.50677	Median	907.18	
Mode	0	Mode	0	
Standard Deviation	914.3827	Standard Deviation	8851.74	
Count	12	Count	389	
Confidence Level(95.0%)	580.971	Confidence Level(95.0%)	882.3863	

Jan 2011 Offshore		*76-11 Offshore*		
Mean	401.3506	Mean	779.0191	-48.48%
Standard Error	165.4597	Standard Error	72.70146	NOT SIGNIF
Median	96.92261	Median	312.9771	
Mode	0	Mode	0	
Standard Deviation	573.1693	Standard Deviation	1417.212	
Count	12	Count	380	
Confidence Level(95.0%)	364.1744	Confidence Level(95.0%)	142.9487	

February 2011 - R/V
Anna
White Shrimp

Feb 2011 - All Sectors		*1976-2011 - All Sectors*		
		All		% Difference
Mean	144.6841	Mean	2877.431	-94.97%
Standard Error	49.53565	Standard Error	289.8933	SIGNIF
Median	26.40475	Median	226.795	
Mode	0	Mode	0	
Standard Deviation	297.2139	Standard Deviation	9953.941	
Count	36	Count	1179	
Confidence Level(95.0%)	100.5627	Confidence Level(95.0%)	568.7648	

Table B-1 continued

Feb 2011 - Creeks		*1976-2011 - Creeks*		
				% Difference
Mean	215.5545	Mean	4135.417	-94.79%
Standard Error	126.3749	Standard Error	715.4592	SIGNIF
Median	37.09514	Median	324.3476	
Mode	0	Mode	0	
Standard Deviation	437.7755	Standard Deviation	14273.37	
Count	12	Count	398	
Confidence Level(95.0%)	278.1493	Confidence Level(95.0%)	1406.562	

Feb 2011 - Sounds		*1976-2011 - Sounds*		
				% Difference
Mean	200.8526	Mean	3688.8	-94.56%
Standard Error	71.87511	Standard Error	417.9679	SIGNIF
Median	71.42193	Median	693.9945	
Mode	0	Mode	0	
Standard Deviation	248.9827	Standard Deviation	8338.434	
Count	12	Count	398	
Confidence Level(95.0%)	158.196	Confidence Level(95.0%)	821.7072	

Feb 2011 - Offshore		*1976-2011 - Offshore*		
				% Difference
Mean	17.64529	Mean	727.0308	-97.57%
Standard Error	8.672995	Standard Error	195.1316	SIGNIF
Median	0	Median	63.5026	
Mode	0	Mode	0	
Standard Deviation	30.04414	Standard Deviation	3818.801	
Count	12	Count	383	
Confidence Level(95.0%)	19.08913	Confidence Level(95.0%)	383.6665	

Table B-2. GA DNR Trawl Survey White Shrimp Count Size (heads-on)

SECTOR	MONTH	Overall Count Size (1986-2011)	Count Size (heads on)
Creeks	Dec-10	45.50	38.62
	Jan-11	46.71	47.25
	Feb-11	50.79	40.54
Sounds	Dec-10	31.29	33.71
	Jan-11	38.73	40.85
	Feb-11	39.28	34.56
Beaches	Dec-10	26.16	36.86
	Jan-11	34.63	33.70
	Feb-11	29.21	25.35
Overall	Dec-10	37.80	35.60
	Jan-11	42.18	39.52
	Feb-11	43.85	37.16

Table B-3. Surface water temperatures (°C) from December 2010 to February 2011, compared to long-term averages

	Winter 2010-2011			Long-term (1976-2011)		
MM-YY	mean	Lo95%CIs	Hi95%CI	mean	Lo95%CIs	Hi95%CI
Dec-10	13.04	11.90	14.18	14.92	14.76	15.08
Jan-11	8.91	8.56	9.26	11.12	10.95	11.29
Feb-11	11.10	10.83	11.38	11.62	11.46	11.78

Table B-4. Surface salinity (ppt) from Georgia surveys from December 2010 to February 2011

Sector	MM-YY	Winter 2010-11			Long-term (1976-2011)		
		mean	Lo95%CIs	Hi95%CI	mean	Lo95%CIs	Hi95%CI
Creeks	Dec-10	28.44	27.11	29.78	26.25	25.69	26.82
	Jan-11	27.26	26.05	28.48	24.61	23.98	25.24
	Feb-11	25.04	23.38	26.70	22.75	22.03	23.46
Sounds	Dec-10	29.25	28.44	30.07	28.20	27.76	28.64
	Jan-11	28.48	27.74	29.23	26.55	26.06	27.05
	Feb-11	26.97	26.05	27.89	25.00	24.39	25.61
Beaches	Dec-10	29.84	29.57	30.11	30.80	30.50	31.09
	Jan-11	29.21	28.78	29.64	30.15	29.85	30.46
	Feb-11	28.24	27.69	28.78	28.82	28.38	29.26
Overall	Dec-10	29.16	28.60	29.72	28.41	28.12	28.69
	Jan-11	28.32	27.77	28.87	27.09	26.78	27.41
	Feb-11	26.75	25.97	27.53	25.48	25.11	25.86

Table B-5. Monthly CPUE for all years (as kg/15-minute trawl). Red cells are significantly below the long-term average for that month, and green cells are significantly higher.

Georgia DNR Trawl Survey CPUE by Year and Month (CPUE = kg / 15 min trawl)

YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1976	1.32	4.69	3.18	3.04	0.78	0.22	1.16	8.03	12.36	2.35	3.33	3.56
1977	1.35	0.01	0.06	0.03	0.03	0.01	0.08	1.86	9.00	6.59	29.88	6.91
1978	3.30	0.15	0.01	0.01	0.02	0.01	0.20	3.33	10.11	8.48	2.94	10.40
1979	3.08	1.36	2.88	8.74	0.97	0.10	0.11	4.09	6.34	.	.	6.42
1980	.	.	1.48	.	2.05	.	.	.	5.45	.	3.21	4.13
1981	.	0.02	.	0.11	0.04	0.05	.	1.74	.	2.48	2.19	2.51
1982	.	2.35	.	1.89	2.70	.	0.16	.	6.15	.	4.85	3.68
1983	9.93	1.80	.	2.77	2.07	0.36	0.03	4.20	6.61	3.64	3.55	1.94
1984	0.08	.	0.04	0.25	0.39	0.29	0.03	0.35	1.73	2.21	2.47	2.52
1985	0.88	0.26	0.21	0.28	0.22	0.07	0.02	1.45	7.52	6.32	11.19	6.45
1986	9.93	6.86	1.33	1.90	1.29	0.32	0.05	1.52	6.86	7.66	3.78	6.23
1987	5.05	4.19	3.07	5.12	2.11	0.26	0.09	2.04	7.98	5.55	4.89	9.04
1988	3.75	5.08	0.97	1.04	1.15	0.54	0.01	0.64	3.66	3.39	3.72	4.99
1989	2.17	0.54	2.22	3.19	1.51	0.63	0.48	1.71	4.88	5.27	5.13	10.96
1990	0.10	0.57	0.51	1.15	0.39	0.13	0.45	2.82	4.48	1.77	1.73	6.39
1991	2.76	4.31	3.39	5.14	2.26	0.43	0.24	4.04	3.75	3.85	7.84	6.84
1992	2.36	3.27	3.62	4.52	2.38	1.09	0.07	0.98	3.99	3.28	3.80	9.27
1993	4.15	11.19	5.67	3.76	2.82	1.42	0.09	0.76	3.20	3.19	4.52	3.66
1994	9.38	8.86	2.19	2.55	1.04	0.28	0.18	2.46	3.38	2.66	2.66	2.89
1995	2.62	5.48	2.84	1.59	2.73	0.24	0.32	2.69	2.14	2.37	4.49	3.90
1996	3.79	2.05	1.65	1.45	1.01	0.25	0.04	0.87	4.19	4.95	3.92	3.16
1997	0.77	1.35	0.93	0.58	0.95	0.17	0.10	2.84	7.78	5.10	5.12	3.96
1998	2.78	4.88	2.62	6.40	1.88	0.64	0.16	1.21	2.77	3.51	3.86	1.70
1999	3.02	1.23	1.75	1.55	0.88	0.19	0.02	4.08	4.38	3.48	3.95	4.12
2000	1.66	2.31	1.53	1.16	1.18	0.09	0.19	0.87	2.92	3.11	1.81	0.78
2001	0.46	0.09	0.08	0.21	0.29	0.11	0.01	1.59	4.13	5.02	3.78	2.22
2002	2.50	1.10	2.21	2.78	0.95	0.20	0.10	6.56	7.52	2.45	1.99	1.43

Table B-5 continued

2003	2.49	1.22	1.01	1.33	1.43	0.18	0.11	2.30	2.48	4.71	2.75	4.81
2004	3.02	2.46	1.97	1.45	0.74	0.17	0.14	1.27	3.11	3.66	2.22	4.23
2005	7.19	5.09	5.86	3.01	1.26	0.39	0.21	1.68	3.67	5.19	3.62	3.42
2006	4.14	3.80	4.69	4.00	3.83	1.27	0.23	4.32	6.20	4.31	4.49	2.15
2007	1.48	1.17	3.29	2.96	1.17	0.59	0.20	1.50	2.99	2.62	3.06	2.77
2008	1.79	1.97	2.10	1.54	1.19	0.38	0.22	1.91	6.36	5.24	5.37	10.05
2009	3.04	3.19	1.90	3.45	2.00	0.39	0.64	3.39	4.65	4.42	1.32	2.31
2010	1.73	2.34	1.61	0.46	0.76	0.32	0.06	3.04	5.07	3.78	2.80	5.32
2011	0.35	0.14	.	.	.	.	.	.	.	.	.	.
Grand Mean	**3.07**	**2.88**	**2.12**	**2.38**	**1.32**	**0.36**	**0.19**	**2.50**	**5.22**	**4.16**	**4.60**	**4.74**
Low 95% CIs	**2.52**	**2.31**	**1.73**	**2.02**	**1.18**	**0.31**	**0.15**	**2.18**	**4.66**	**3.73**	**3.38**	**4.13**
Hi 95% CIs	**3.61**	**3.45**	**2.51**	**2.74**	**1.46**	**0.41**	**0.24**	**2.82**	**5.78**	**4.58**	**5.82**	**5.35**

Significantly above the long-term average for the month

Significantly below the long-term average for the month