

Ft. Patrick Henry Reservoir
Annual Report 2005

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Ft. Patrick Henry Reservoir - 2005

Largemouth Bass

Population Parameter	Annual Rating	Measure	Gear	Value
Recruitment	Good	Sub-stock CPUE	Electrofishing	7.9 fish/hr.
Growth	N/A	Mean TL at Age-3	Electrofishing	no data
	Good	RSD-P (381 mm)	Electrofishing	68 %
Density	Good	CPUE \geq Stock Size (203 mm)	Electrofishing	31.7 fish/hr.
	N/A	CPUE \geq Minimum Size Limit	Electrofishing	N/A
Mortality	N/A	Total Mortality (Z)	Electrofishing	no data
Angling Pressure	N/A	Fishing Effort (hours)	Creel Survey	N/A
Fishing Success	N/A	Angler Catch Rate	Creel Survey	N/A
Value of Fishery	N/A	Trip Expenditures	Creel Survey	N/A

Fishery Forecast:

Recruitment was again good for the 2005 season which should help the fishery to remain stable. Most of the largemouth collected were in the preferred category, which should make fishing good for the 2006 season.

Management Recommendations:

Maintain the current regulations. Attempt to collect age structure data in the future.

Smallmouth Bass

Population Parameter	Annual Rating	Measure	Gear	Value
Recruitment	Fair	Sub-stock CPUE	Electrofishing	2.4 fish/hr.
Growth	N/A	Mean TL at Age-3	Electrofishing	no data
	Fair	RSD-P (356 mm)	Electrofishing	36 %
Density	Fair	CPUE \geq Stock Size (178)	Electrofishing	17.4 fish/hr.
	N/A	CPUE \geq Minimum Size Limit	Electrofishing	N/A
Mortality	N/A	Total Mortality (Z)	Electrofishing	no data
Angling Pressure	N/A	Fishing Effort (hours)	Creel Survey	N/A
Fishing Success	N/A	Angler Catch Rate	Creel Survey	N/A
Value of Fishery	N/A	Trip Expenditures	Creel Survey	N/A

Fishery Forecast:

Densities of smallmouth bass were lower than normal during 2005. Also, the percentage of larger size fish in the population was low during 2005. However, the smaller fish should grow into preferred size fish in the next 2 years to produce a quality smallmouth bass fishery.

Management Recommendations:

Maintain the current regulations. Attempt to collect age structure data in the future.

Stocking and Stocking Evaluations

Species	Number Stocked	Mark	Evaluation	# Fish / Net Night
Rainbow Trout	2,982	None	No Effort	N/A

Tables

Table 1. The morphometric, physical, and chemical characteristics of Ft. Patrick Henry Reservoir.

Parameter	Measurement	
	English	Metric
Surface Area	872 ac	353 ha
Drainage Area	1,903 sq. mi	4,933 sq. km
Full Pool Elevation	1,263 ft msl	385 m msl
Mean Annual Fluctuation	5 feet	1.5 m
Shoreline Distance	31 mi	50 km
Maximum Depth	76 ft	23.2 m
Thermocline Depth	9 ft	2.7m
Mean Chlorophyll (Forebay)	11.1 ppm	11.1 mg/l
Shoreline Development		34%
Trophic Status (Forebay)		mesotrophic
Trophic Index, Carlson (1977)		54.2
Hydraulic Retention Time		38 days
Reservoir Age		51 years

Table 2. Fish stocked in Ft. Patrick Henry Reservoir 1992-2005.

Species	Date	Rate (per acre)	Mean Length	Number
Rainbow Trout	1992	19.0	Adult	16,961
	1993	20.0	Adult	17,859
	1994	5.6	Adult	4,958
	1995	3.8	Adult	3,400
	1996	7.9	Adult	7,049
	1997	7.6	Adult	6,793
	1998	15.2	Adult	13,547
	1999	8.1	Adult	7,259
	2000	9.0	Adult	7,999
	2001	15.8	Adult	14,137
	2002	3.3	9 -11 inches	2,887
	2003	14.9	9 inches	13,025
	2004	9.2	9 inches	8,034
	2005	3.4	9 inches	2,982

Table 3. Number of species collected by electrofishing in Ft. Patrick Henry Reservoir, 2005. Effort is in hours for electrofishing.

Species	Spring Electrofishing		
	No.	CPUE (# fish / hour)	Total Effort
Largemouth Bass	50	39.6	1.3
Smallmouth Bass	25	19.8	1.3
Spotted Bass	0	0	1.3
Black Crappie	0	0	1.3
Black-Nose Crappie	0	0	1.3
White Crappie	0	0	1.3

Table 4. Black bass catch; mean catch per unit effort and relative stock density by RSD category for Ft. Patrick Henry Reservoir 1998 – 2005.

Species	Year	Gear	Number of Samples	RSD Substock			RSD Stock - Quality			RSD Quality - Preferred			RSD Preferred-Memorable			RSD Memorable-Trophy			RSD Trophy			PSD	Total	
				#	CPUE	RSD	#	CPUE	RSD	#	CPUE	RSD	#	CPUE	RSD	#	CPUE	RSD	#	CPUE	RSD	%	#	CPUE
				Largemouth Bass	2004	EL	5	8	6.4	11	5	4	7	26	21	39	36	29	54	0	0	0	0	0
	2005	EL	5	10	7.9	20	6	4.8	15	7	5.6	18	26	21	65	1	0.8	3	0	0	0	85	50	39.6
Smallmouth Bass	2004	EL	5	6	4.8	21	9	7.2	41	5	4	23	5	4	23	2	1.6	9	1	0.8	5	60	28	22.3
	2005	EL	5	3	2.4	12	11	8.7	50	3	2.4	14	5	3.9	23	2	1.6	9	0	0	0	50	25	19.8

Largemouth Bass

Table 5. Largemouth bass mean relative weights (Wr) in Ft. Patrick Henry Reservoir, spring 2005.

Length Group	Mean Wr	Std. Error	N
150	81.456	6.250	6
175	105.461	15.169	2
200	129.301	54.605	2
225	81.219		1
250	82.015	4.031	2
275	95.334		1
300	62.736		1
325	89.169		1
350	92.498	10.909	4
375	91.722	2.539	9
400	97.560	2.298	9
425	102.041	4.781	5
450	92.050	7.670	3
475			
500	104.801	1.710	2
Total =			48

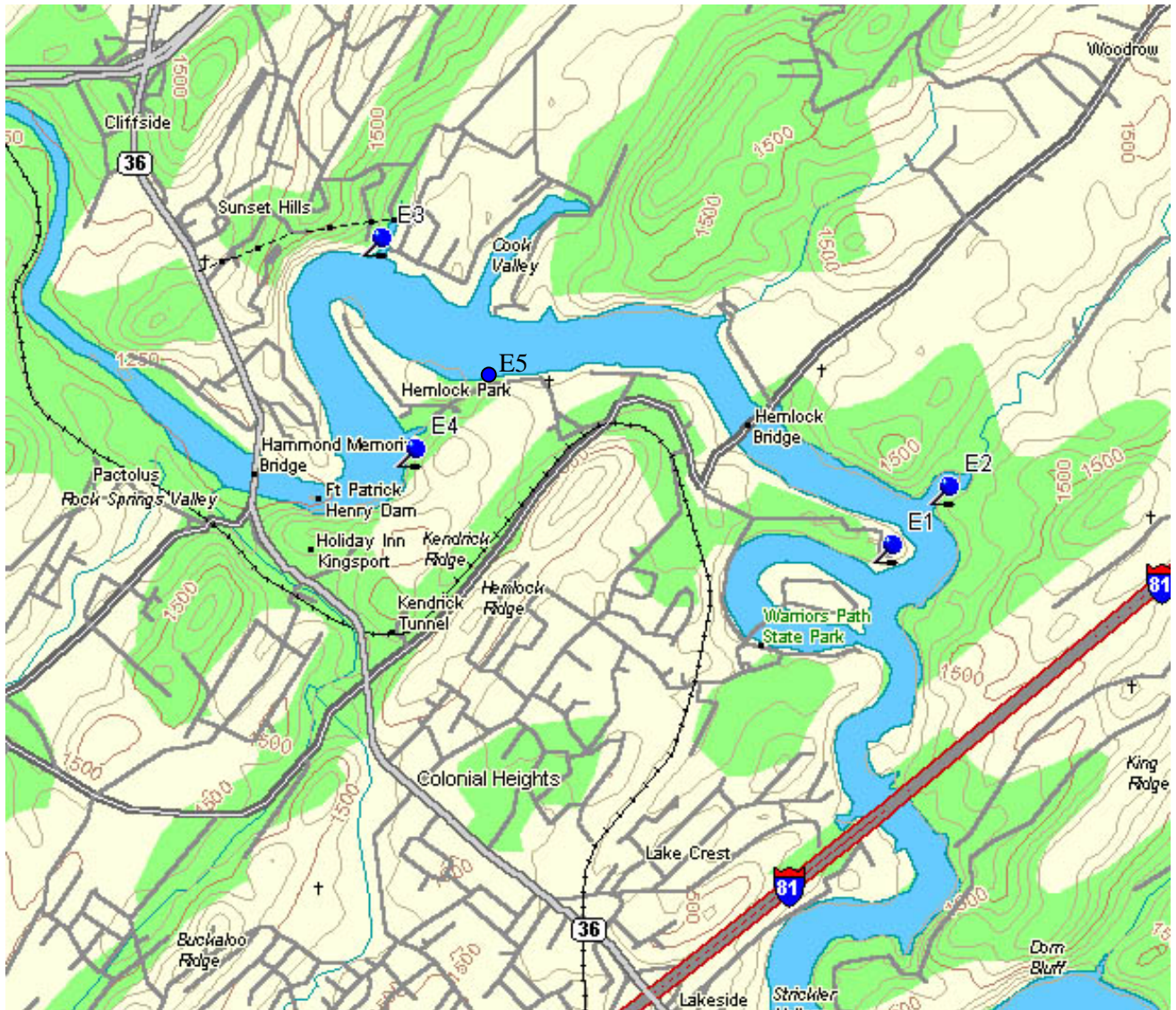
Smallmouth Bass

Table 6. Smallmouth bass mean relative weights (Wr) in Ft. Patrick Henry Reservoir, spring 2005.

Length Group	Mean Wr	Std. Error	N
150	91.530		1
175	86.245	2.338	5
200	91.669	1.700	5
225			
250	92.927	4.853	2
275	84.221	3.936	2
300	98.464		1
325			
350	88.130	0.257	2
375	83.991	1.188	3
400			
425			
450			
475	80.461		1
500	90.418	4.738	2
525			
Total =			24

Figures

Figure 1. Ft. Patrick Henry Reservoir with sites sampled in 2005.



Largemouth Bass

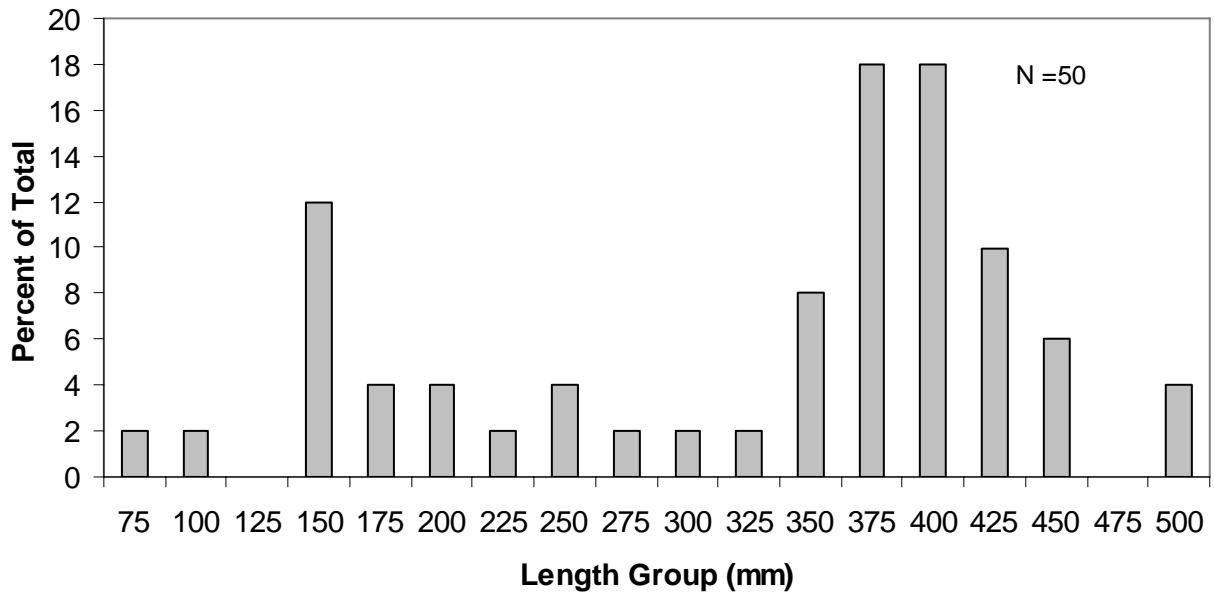


Figure 2. Largemouth bass length frequency in Patrick Henry Reservoir, spring 2005.

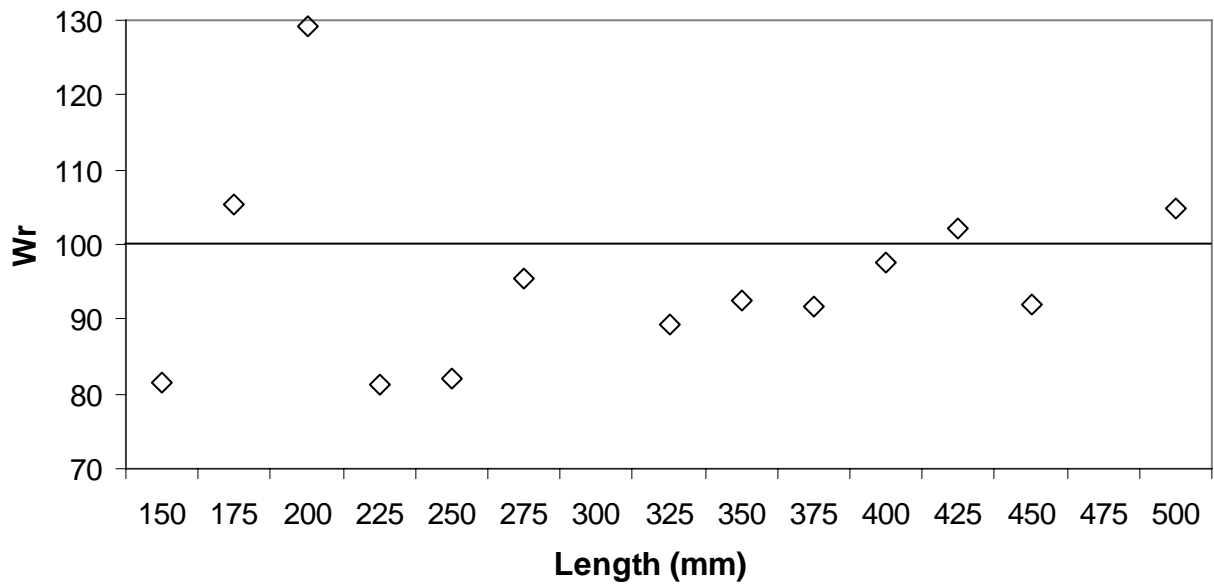


Figure 3. Largemouth bass mean relative weights (Wr) in Patrick Henry Reservoir, spring 2005.

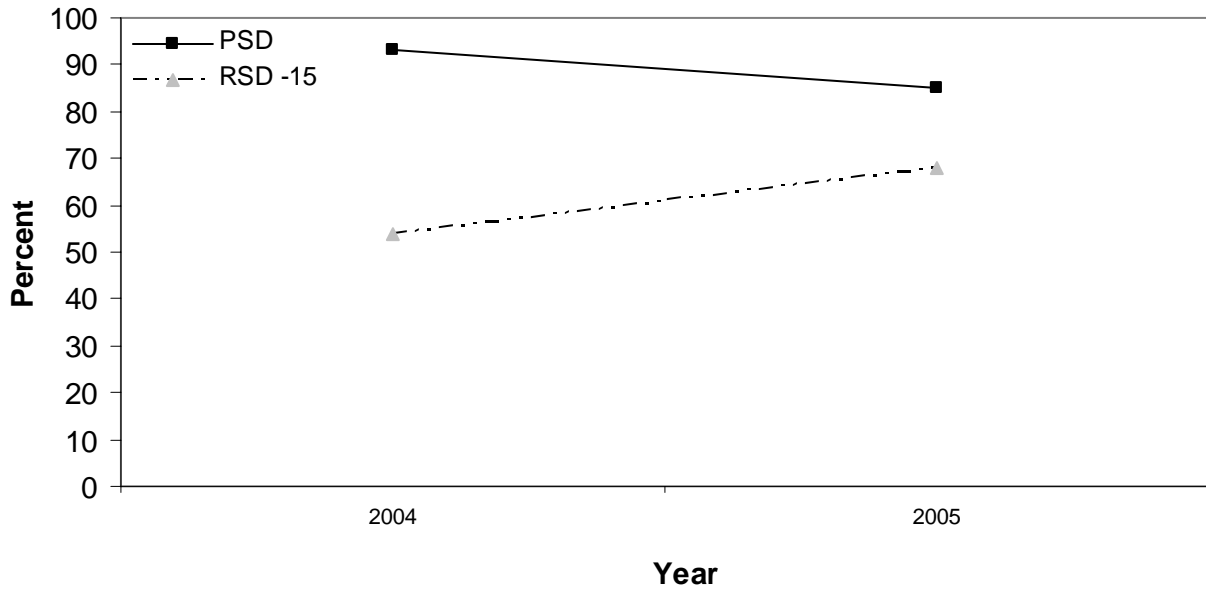


Figure 4. Largemouth bass traditional PSD and RSD -15 values in Ft. Patrick Henry Reservoir 2004–2005.

Smallmouth Bass

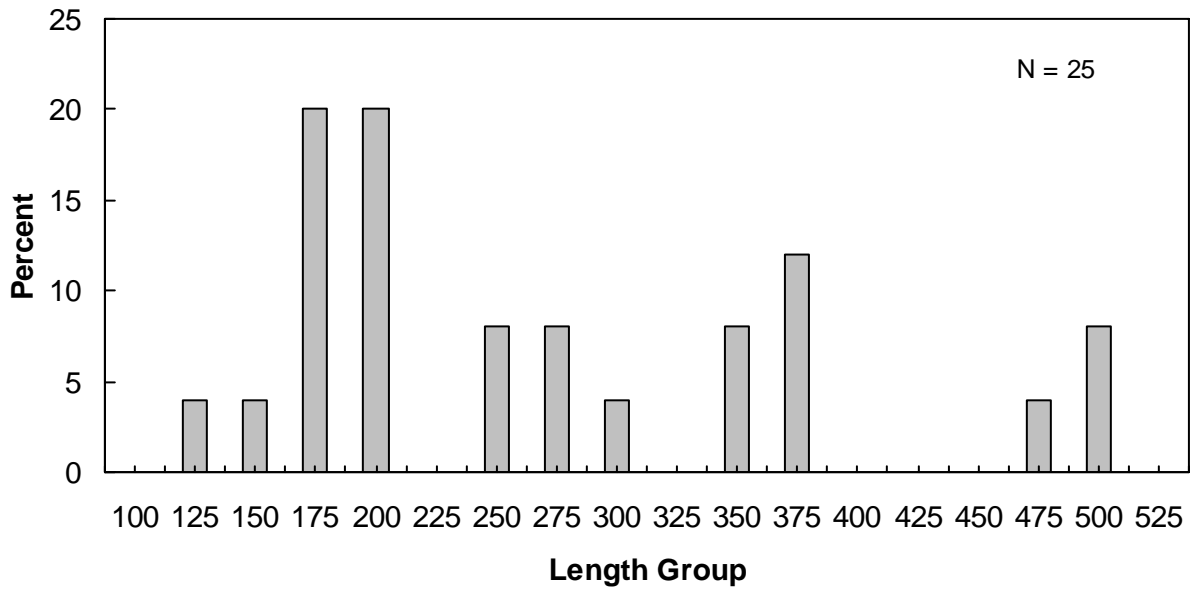


Figure 5. Smallmouth bass length frequency by percent in Patrick Henry Reservoir, spring 2005.

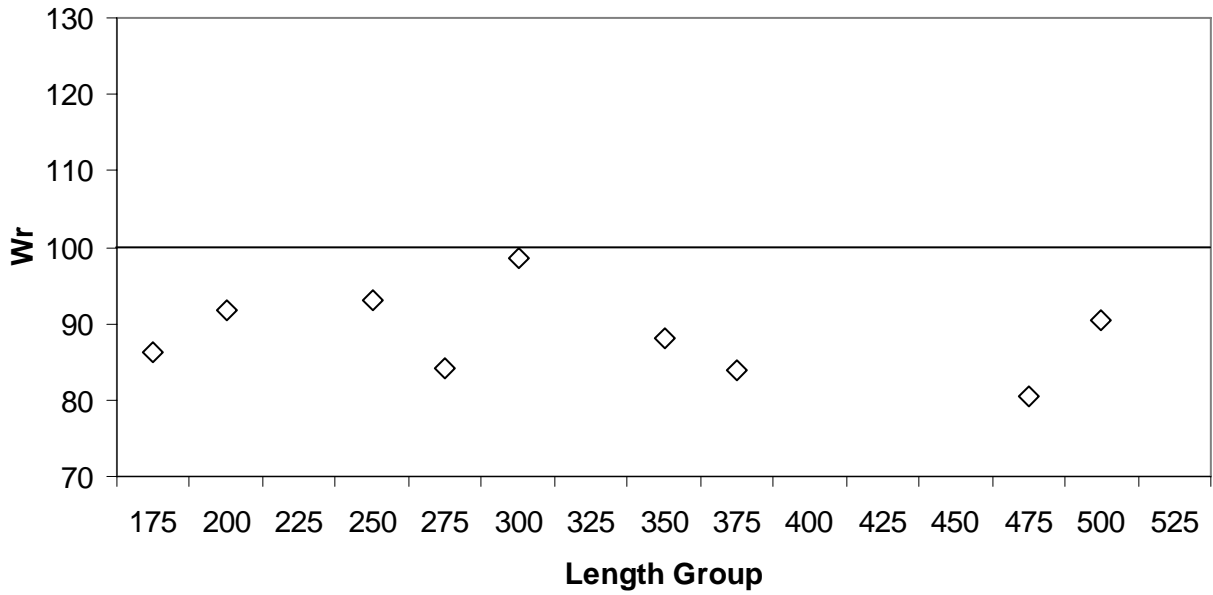


Figure 6. Smallmouth bass mean relative weights (Wr) in Patrick Henry Reservoir, spring 2005.

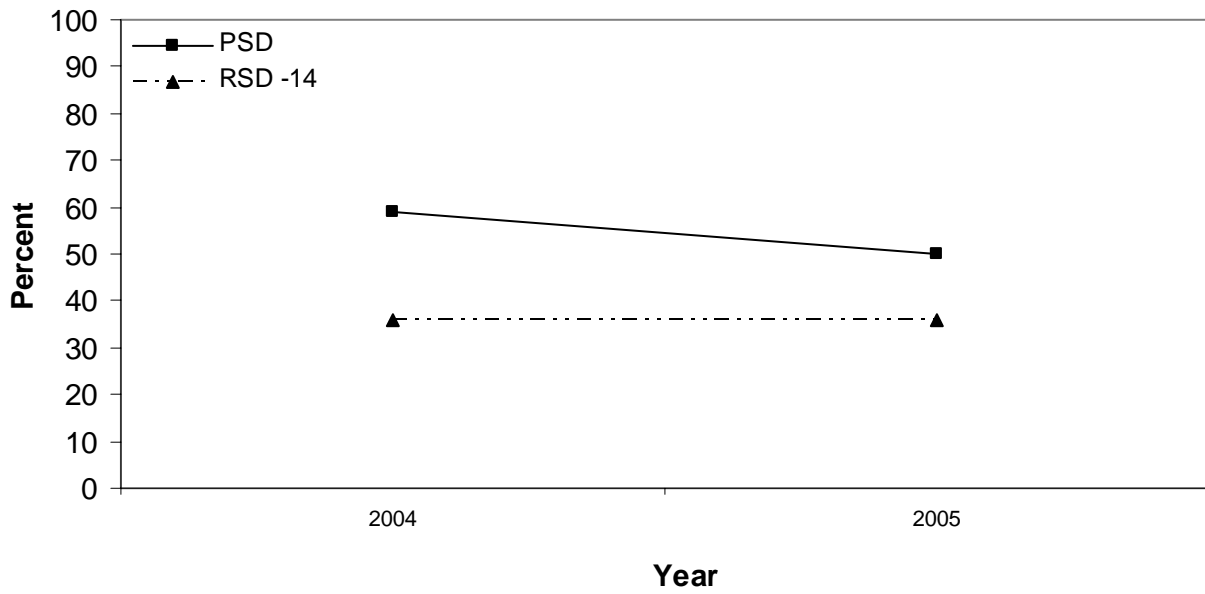


Figure 7. Smallmouth bass traditional PSD and RSD -14 values in Ft. Patrick Henry Reservoir 2004-2005.

Appendix A
Reservoir Elevations

Table B1. Ft. Patrick Henry Reservoir elevation data for 2005. TVA Data

Elevation	Month	Day	Elevation	Month	Day	Elevation	Month	Day
1261.16	January	1	1260.32	February	24	1260.96	April	19
1260.02	January	2	1260.87	February	25	1260.77	April	20
1260.54	January	3	1260.81	February	26	1260.64	April	21
1261.11	January	4	1260.98	February	27	1260.10	April	22
1261.67	January	5	1260.77	February	28	1260.93	April	23
1260.46	January	6	1261.84	March	1	1261.23	April	24
1260.54	January	7	1260.90	March	2	1261.07	April	25
1261.29	January	8	1260.58	March	3	1261.74	April	26
1261.23	January	9	1260.90	March	4	1261.81	April	27
1260.85	January	10	1261.31	March	5	1260.41	April	28
1260.58	January	11	1261.78	March	6	1261.59	April	29
1259.96	January	12	1260.72	March	7	1261.64	April	30
1260.02	January	13	1261.26	March	8	1261.68	May	1
1259.13	January	14	1262.13	March	9	1260.64	May	2
1260.74	January	15	1260.77	March	10	1260.52	May	3
1259.60	January	16	1260.76	March	11	1261.86	May	4
1261.99	January	17	1261.40	March	12	1261.41	May	5
1261.29	January	18	1260.46	March	13	1261.38	May	6
1261.07	January	19	1261.19	March	14	1261.63	May	7
1261.06	January	20	1260.88	March	15	1262.06	May	8
1261.33	January	21	1259.80	March	16	1261.64	May	9
1261.19	January	22	1259.41	March	17	1260.81	May	10
1260.27	January	23	1260.03	March	18	1260.85	May	11
1261.60	January	24	1260.74	March	19	1260.82	May	12
1261.70	January	25	1260.65	March	20	1260.85	May	13
1261.50	January	26	1262.31	March	21	1260.90	May	14
1262.27	January	27	1259.52	March	22	1260.60	May	15
1261.80	January	28	1259.40	March	23	1260.49	May	16
1261.45	January	29	1259.27	March	24	1261.69	May	17
1261.51	January	30	1261.44	March	25	1260.06	May	18
1260.87	January	31	1260.78	March	26	1260.83	May	19
1261.02	February	1	1260.06	March	27	1261.52	May	20
1261.43	February	2	1259.46	March	28	1261.82	May	21
1261.31	February	3	1260.46	March	29	1261.92	May	22
1261.74	February	4	1260.40	March	30	1261.22	May	23
1260.92	February	5	1261.36	March	31	1260.85	May	24
1261.27	February	6	1261.55	April	1	1261.39	May	25
1261.72	February	7	1261.07	April	2	1260.64	May	26
1259.73	February	8	1260.27	April	3	1261.13	May	27
1261.91	February	9	1261.84	April	4	1261.01	May	28
1261.30	February	10	1259.62	April	5	1259.24	May	29
1259.72	February	11	1261.48	April	6	1260.26	May	30
1259.47	February	12	1261.72	April	7	1260.99	May	31
1260.66	February	13	1261.38	April	8	1261.18	June	1
1260.98	February	14	1261.67	April	9	1260.32	June	2
1259.74	February	15	1260.64	April	10	1261.09	June	3
1260.76	February	16	1261.40	April	11	1260.44	June	4
1261.61	February	17	1260.59	April	12	1261.19	June	5
1261.01	February	18	1260.34	April	13	1261.07	June	6
1260.38	February	19	1260.82	April	14	1261.19	June	7
1260.91	February	20	1260.99	April	15	1260.55	June	8
1260.77	February	21	1260.99	April	16	1260.69	June	9
1261.66	February	22	1260.21	April	17	1260.74	June	10
1260.64	February	23	1261.09	April	18	1261.33	June	11

Table B1. Continued.

Elevation	Month	Day	Elevation	Month	Day	Elevation	Month	Day
1262.07	June	12	1260.86	August	5	1260.99	September	28
1261.23	June	13	1260.34	August	6	1261.25	September	29
1260.39	June	14	1260.63	August	7	1260.42	September	30
1261.47	June	15	1260.50	August	8	1260.97	October	1
1260.49	June	16	1260.51	August	9	1261.21	October	2
1261.05	June	17	1260.67	August	10	1260.04	October	3
1260.76	June	18	1260.60	August	11	1261.12	October	4
1260.86	June	19	1260.89	August	12	1261.79	October	5
1260.94	June	20	1260.78	August	13	1262.27	October	6
1260.77	June	21	1260.79	August	14	1261.60	October	7
1261.06	June	22	1261.06	August	15	1260.56	October	8
1261.44	June	23	1260.99	August	16	1260.69	October	9
1260.75	June	24	1261.79	August	17	1260.83	October	10
1260.54	June	25	1261.42	August	18	1260.12	October	11
1261.32	June	26	1260.98	August	19	1260.98	October	12
1261.15	June	27	1261.80	August	20	1259.88	October	13
1261.49	June	28	1261.51	August	21	1260.35	October	14
1260.78	June	29	1260.94	August	22	1260.67	October	15
1259.60	June	30	1261.78	August	23	1260.96	October	16
1261.61	July	1	1260.95	August	24	1260.88	October	17
1261.52	July	2	1260.50	August	25	1261.25	October	18
1261.35	July	3	1260.28	August	26	1260.52	October	19
1260.92	July	4	1261.72	August	27	1260.36	October	20
1261.02	July	5	1261.24	August	28	1261.64	October	21
1260.22	July	6	1260.34	August	29	1261.00	October	22
1261.22	July	7	1259.17	August	30	1261.05	October	23
1261.65	July	8	1261.47	August	31	1261.19	October	24
1260.50	July	9	1260.86	September	1	1262.15	October	25
1261.14	July	10	1261.15	September	2	1261.89	October	26
1261.29	July	11	1260.90	September	3	1261.35	October	27
1261.62	July	12	1260.29	September	4	1261.90	October	28
1260.97	July	13	1260.74	September	5	1261.79	October	29
1260.93	July	14	1261.08	September	6	1260.75	October	30
1261.11	July	15	1260.16	September	7	1260.89	October	31
1260.76	July	16	1259.50	September	8	1261.16	November	1
1260.75	July	17	1261.67	September	9	1261.43	November	2
1261.43	July	18	1261.44	September	10	1261.33	November	3
1261.86	July	19	1260.15	September	11	1260.82	November	4
1261.35	July	20	1261.82	September	12	1261.37	November	5
1261.29	July	21	1260.90	September	13	1260.88	November	6
1262.02	July	22	1261.09	September	14	1260.97	November	7
1261.23	July	23	1261.11	September	15	1261.11	November	8
1261.49	July	24	1260.86	September	16	1260.99	November	9
1261.06	July	25	1260.89	September	17	1261.47	November	10
1260.76	July	26	1260.68	September	18	1260.46	November	11
1260.63	July	27	1260.36	September	19	1259.90	November	12
1261.02	July	28	1261.54	September	20	1261.02	November	13
1260.83	July	29	1260.64	September	21	1259.99	November	14
1261.01	July	30	1261.24	September	22	1259.62	November	15
1260.49	July	31	1261.03	September	23	1260.70	November	16
1260.74	August	1	1261.49	September	24	1261.58	November	17
1259.16	August	2	1260.87	September	25	1260.83	November	18
1260.13	August	3	1260.08	September	26	1261.10	November	19
1261.84	August	4	1260.33	September	27	1260.82	November	20

Table B1. Continued.

Elevation	Month	Day
1260.88	November	21
1260.75	November	22
1261.06	November	23
1261.08	November	24
1260.82	November	25
1261.30	November	26
1261.44	November	27
1261.64	November	28
1261.57	November	29
1261.17	November	30
1260.50	December	1
1260.28	December	2
1260.26	December	3
1260.98	December	4
1260.94	December	5
1259.80	December	6
1259.39	December	7
1260.31	December	8
1260.00	December	9
1260.45	December	10
1260.93	December	11
1260.69	December	12
1260.61	December	13
1260.97	December	14
1261.10	December	15
1261.08	December	16
1260.82	December	17
1260.41	December	18
1260.74	December	19
1258.81	December	20
1259.37	December	21
1260.57	December	22
1260.46	December	23
1260.51	December	24
1260.43	December	25
1260.82	December	26
1261.44	December	27
1262.79	December	28
1261.24	December	29
1260.64	December	30
1260.84	December	31

Figure B1. Ft. Patrick Henry Reservoir daily reservoir elevations for 2005 (TVA data).

