Table 8. Results of trend tests on concentrations of selected constituents in bottom-sediment cores collected from Kirwin Reservoir, Webster Reservoir, and Waconda Lake, May 1998

[--, not calculated]

Core-sample identification	Constituent	Total number of samples	Number of samples with detections	Spearman's rho (r)	Trend test at a 0.05 level of significance	Kendall's tau (τ)	Trend test at a 0.05 level of significance
Kirwin Reservoir bottom-sediment cores (fig. 2*A*)							
KIR 1.3	Aluminum	12	12	0.615	increasing trend	0.364	no trend
	Arsenic	12	12	.280	no trend	.182	no trend
	Barium	12	12	-.294	no trend	.212	no trend
	Beryllium	12	1	--	--	--	--
	Boron	12	8	.638	increasing trend	.333	no trend
	Cadmium	12	0	--	--	--	--
	Chromium	12	12	.323	no trend	.167	no trend
	Copper	12	12	-.396	no trend	.348	no trend
	Iron	12	12	-.399	no trend	-.394	decreasing trend
	Lead	12	12	-.088	no trend	-.061	no trend
	Magnesium	12	12	-.378	no trend	-.364	no trend
	Manganese	12	12	.137	no trend	.015	no trend
	Mercury	12	0	--	--	--	--
	Nickel	12	9	-.539	no trend	-.379	decreasing trend
	Selenium	12	11	.749	increasing trend	.561	increasing trend
	Strontium	12	12	.958	increasing trend	.909	increasing trend
	Vanadium	12	12	.739	increasing trend	.500	increasing trend
	Zinc	12	12	-.415	no trend	-.439	decreasing trend
	Nitrogen	12	12	-.350	no trend	-.242	no trend
	Phosphorus	12	12	.846	increasing trend	.667	increasing trend
	Total organic carbon	12	12	-.259	no trend	-.212	no trend
KIR 2.2	Aluminum	12	12	-.322	no trend	-.273	no trend
	Arsenic	12	12	-.414	no trend	-.333	no trend
	Barium	12	12	-.392	no trend	-.333	no trend
	Beryllium	12	4	--	--	--	--
	Boron	12	11	-.525	no trend	-.379	decreasing trend
	Cadmium	12	3	--	--	--	--
	Chromium	12	12	-.334	no trend	-.258	no trend
	Copper	12	12	-.551	no trend	-.439	decreasing trend
	Iron	12	12	-.797	decreasing trend	-.667	decreasing trend
	Lead	12	12	-.514	no trend	-.394	decreasing trend
	Magnesium	12	12	-.818	decreasing trend	-.697	decreasing trend
	Manganese	12	12	.496	no trend	.424	increasing trend
	Mercury	12	0	--	--	--	--
	Nickel	12	10	-.234	no trend	-.182	no trend

Table 8. Results of trend tests on concentrations of selected constituents in bottom-sediment cores collected from Kirwin Reservoir, Webster Reservoir, and Waconda Lake, May 1998—Continued

Core-sample identification	Constituent	Total number of samples	Number of samples with detections	Spearman's rho (r)	Trend test at a 0.05 level of significance	Kendall's tau (τ)	Trend test at a 0.05 level of significance
			Kirwin Reservoir bottom-sediment cores (fig. 2*A*)—Continued				
KIR 2.2	Selenium	12	11	0.313	no trend	0.227	no trend
	Strontium	12	12	.657	increasing trend	.485	increasing trend
	Vanadium	12	12	.119	no trend	.091	no trend
	Zinc	12	12	-.343	no trend	-.273	no trend
	Nitrogen	12	12	.427	no trend	.303	no trend
	Phosphorus	12	12	.893	increasing trend	.692	increasing trend
	Total organic carbon	12	12	-.308	no trend	-.242	no trend
			Webster Reservoir bottom-sediment cores (fig. 2*B*)				
WEB 1.2	Aluminum	12	12	-.573	no trend	-.485	decreasing trend
	Arsenic	12	12	.641	increasing trend	.530	increasing trend
	Barium	12	12	-.420	no trend	-.333	no trend
	Beryllium	12	10	-.242	no trend	-.121	no trend
	Boron	12	10	-.222	no trend	-.197	no trend
	Cadmium	12	1	--	--	--	--
	Chromium	12	11	-.565	no trend	-.424	decreasing trend
	Copper	12	12	-.364	no trend	-.333	no trend
	Iron	12	12	-.517	no trend	-.485	decreasing trend
	Lead	12	12	.134	no trend	.015	no trend
	Magnesium	12	12	-.510	no trend	-.455	decreasing trend
	Manganese	12	12	.888	increasing trend	.788	increasing trend
	Mercury	12	0	--	--	--	--
	Nickel	12	9	-.531	no trend	-.364	no trend
	Selenium	12	12	.569	no trend	.409	increasing trend
	Strontium	12	12	.888	increasing trend	.758	increasing trend
	Vanadium	12	12	-.354	no trend	-.258	no trend
	Zinc	12	12	-.457	no trend	.348	no trend
	Nitrogen	12	12	-.112	no trend	-.364	no trend
	Phosphorus	12	12	.496	no trend	-.167	no trend
	Total organic carbon	12	12	-.196	no trend	.091	no trend
WEB 2.4	Aluminum	12	12	-.727	decreasing trend	-.576	decreasing trend
	Arsenic	12	12	.669	increasing trend	.530	increasing trend
	Barium	12	12	-.900	decreasing trend	-.773	decreasing trend
	Beryllium	12	0	--	--	--	--
	Boron	12	4	--	--	--	--

Table 8. Results of trend tests on concentrations of selected constituents in bottom-sediment cores collected from Kirwin Reservoir, Webster Reservoir, and Waconda Lake, May 1998—Continued

Core-sample identification	Constituent	Total number of samples	Number of samples with detections	Spearman's rho (r)	Trend test at a 0.05 level of significance	Kendall's tau (τ)	Trend test at a 0.05 level of significance
Webster Reservoir bottom-sediment cores (fig. 2*B*)—Continued							
WEB 2.4	Cadmium	12	0	--	--	--	--
	Chromium	12	10	-0.711	decreasing trend	-0.515	decreasing trend
	Copper	12	12	-.664	decreasing trend	-.455	decreasing trend
	Iron	12	12	-.769	decreasing trend	-.606	decreasing trend
	Lead	12	12	-.462	no trend	-.333	no trend
	Magnesium	12	12	-.692	decreasing trend	.-.318	no trend
	Manganese	12	12	.956	increasing trend	.864	increasing trend
	Mercury	12	0	--	--	--	--
	Nickel	12	7	-.687	decreasing trend	-.485	decreasing trend
	Selenium	12	12	.874	increasing trend	.697	increasing trend
	Strontium	12	12	.937	increasing trend	.848	increasing trend
	Vanadium	12	12	.042	no trend	0	no trend
	Zinc	12	12	-.585	decreasing trend	-.424	decreasing trend
	Nitrogen	12	12	-.186	no trend	-.106	no trend
	Phosphorus	12	12	.052	no trend	.136	no trend
	Total organic carbon	12	12	.021	no trend	0	no trend
Waconda Lake bottom-sediment cores (fig. 2*C*)							
WAC 1.3	Aluminum	12	12	.594	increasing trend	.455	increasing trend
	Arsenic	12	12	.734	increasing trend	.515	increasing trend
	Barium	12	12	.400	no trend	.303	no trend
	Beryllium	12	0	--	--	--	--
	Boron	12	2	--	--	--	--
	Cadmium	12	0	--	--	--	--
	Chromium	12	10	-.407	no trend	-.273	no trend
	Copper	12	12	-.218	no trend	-.091	no trend
	Iron	12	12	.531	no trend	.394	increasing trend
	Lead	12	11	-.050	no trend	-.061	no trend
	Magnesium	12	12	.601	increasing trend	.485	increasing trend
	Manganese	12	12	.189	no trend	.136	no trend
	Mercury	12	0	--	--	--	--
	Nickel	12	5	--	--	--	--
	Selenium	12	10	.550	no trend	.364	no trend
	Strontium	12	12	.818	increasing trend	.576	increasing trend
	Vanadium	12	12	.451	no trend	.348	no trend
	Zinc	12	12	.287	no trend	.152	no trend
	Nitrogen	12	12	.063	no trend	.030	no trend

Table 8. Results of trend tests on concentrations of selected constituents in bottom-sediment cores collected from Kirwin Reservoir, Webster Reservoir, and Waconda Lake, May 1998—Continued

Core-sample identification	Constituent	Total number of samples	Number of samples with detections	Spearman's rho (r)	Trend test at a 0.05 level of significance	Kendall's tau (τ)	Trend test at a 0.05 level of significance
Waconda Lake bottom-sediment cores (fig. 2*C*)—Continued							
WAC 1.3	Phosphorus	12	12	0.161	no trend	0.121	no trend
	Total organic carbon	12	12	-.322	no trend	-.182	no trend
WAC 2.1	Aluminum	12	12	-.441	no trend	-.394	decreasing trend
	Arsenic	12	12	.154	no trend	.121	no trend
	Barium	12	12	-.472	no trend	-.288	no trend
	Beryllium	12	0	--	--	--	--
	Boron	12	4	--	--	--	--
	Cadmium	12	0	--	--	--	--
	Chromium	12	11	-.733	decreasing trend	-.606	decreasing trend
	Copper	12	12	-.604	decreasing trend	-.439	decreasing trend
	Iron	12	12	-.510	no trend	-.455	decreasing trend
	Lead	12	11	-.477	no trend	-.333	no trend
	Magnesium	12	12	-.203	no trend	-.273	no trend
	Manganese	12	12	-.112	no trend	-.030	no trend
	Mercury	12	0	--	--	--	--
	Nickel	12	8	-.714	decreasing trend	-.515	decreasing trend
	Selenium	12	12	.519	no trend	.424	increasing trend
	Strontium	12	12	.854	increasing trend	.742	increasing trend
	Vanadium	12	12	-.431	no trend	-.348	no trend
	Zinc	12	12	-.685	decreasing trend	-.515	decreasing trend
	Nitrogen	12	12	.510	no trend	.303	no trend
	Phosphorus	12	12	-.196	no trend	-.106	no trend
	Total organic carbon	12	12	-.818	decreasing trend	-.576	decreasing trend
WAC 3.1	Aluminum	12	12	.412	no trend	.333	no trend
	Arsenic	12	12	.768	increasing trend	.636	increasing trend
	Barium	12	12	.448	no trend	.273	no trend
	Beryllium	12	0	--	--	--	--
	Boron	12	8	.564	increasing trend	.409	increasing trend
	Cadmium	12	0	--	--	--	--
	Chromium	12	11	.039	no trend	-.015	no trend
	Copper	12	12	.046	no trend	-.015	no trend
	Iron	12	12	.350	no trend	.303	no trend
	Lead	12	12	.042	no trend	-.015	no trend
	Magnesium	12	12	.434	no trend	.333	no trend

Table 8. Results of trend tests on concentrations of selected constituents in bottom-sediment cores collected from Kirwin Reservoir, Webster Reservoir, and Waconda Lake, May 1998—Continued

Core-sample identification	Constituent	Total number of samples	Number of samples with detections	Spearman's rho (r)	Trend test at a 0.05 level of significance	Kendall's tau (τ)	Trend test at a 0.05 level of significance
Waconda Lake bottom-sediment cores (fig. 2*C*)—Continued							
WAC 3.1	Manganese	12	12	.718	increasing trend	.591	increasing trend
	Mercury	12	0	--	--	--	--
	Nickel	12	2	--	--	--	--
	Selenium	12	11	.874	increasing trend	.727	increasing trend
	Strontium	12	12	.238	no trend	.197	no trend
	Vanadium	12	12	.656	increasing trend	.545	increasing trend
	Zinc	12	12	.196	no trend	.061	no trend
	Nitrogen	12	12	.895	increasing trend	.758	increasing trend
	Phosphorus	12	12	.860	increasing trend	.727	increasing trend
	Total organic carbon	12	12	.049	no trend	0	no trend